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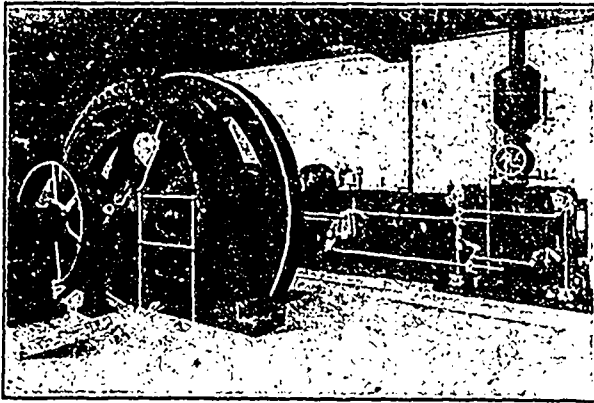
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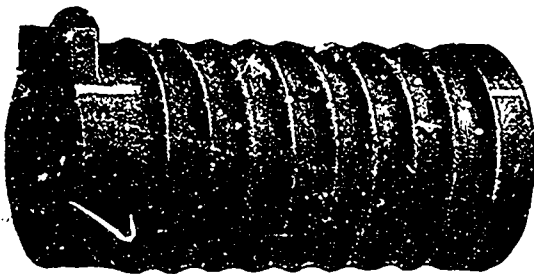
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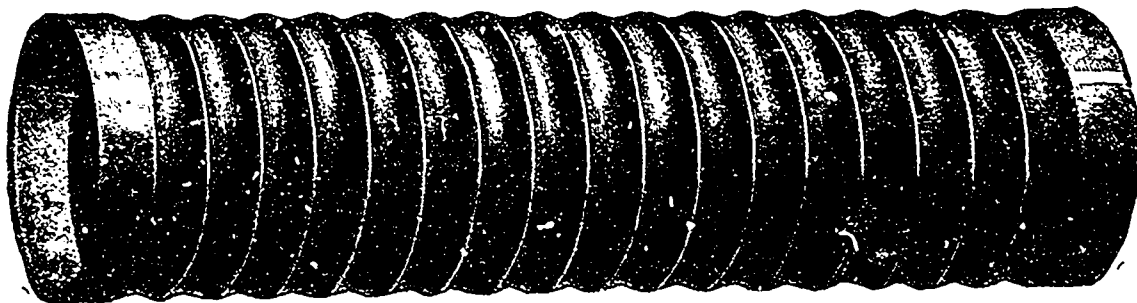


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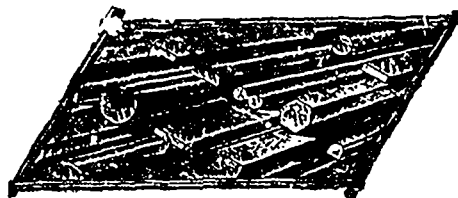
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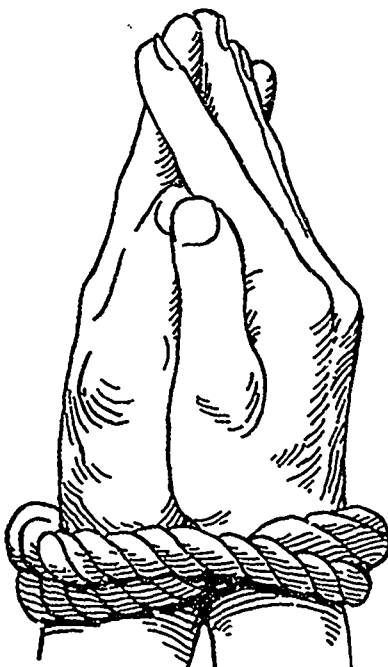
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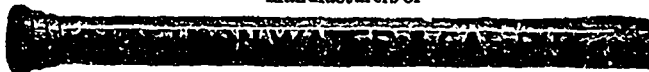
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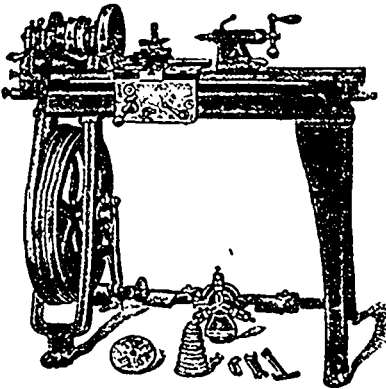
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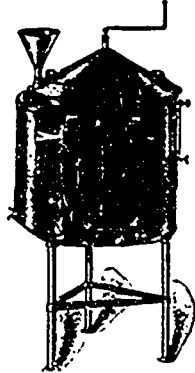
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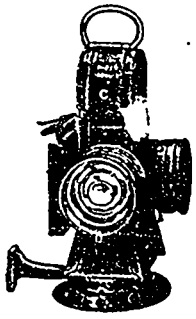
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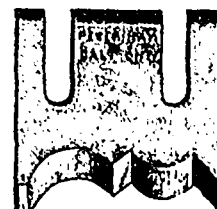
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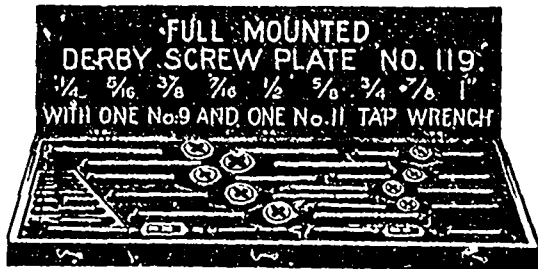
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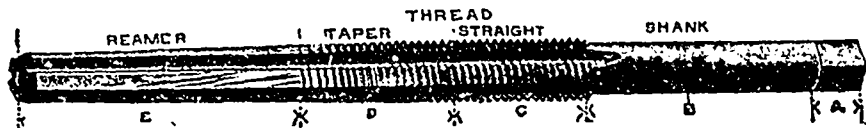
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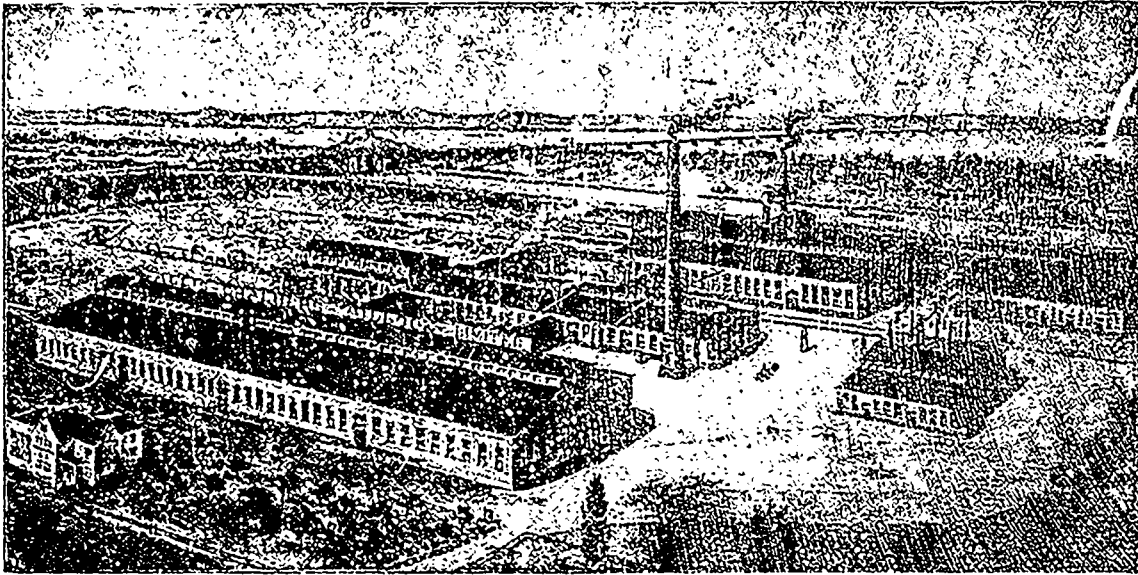
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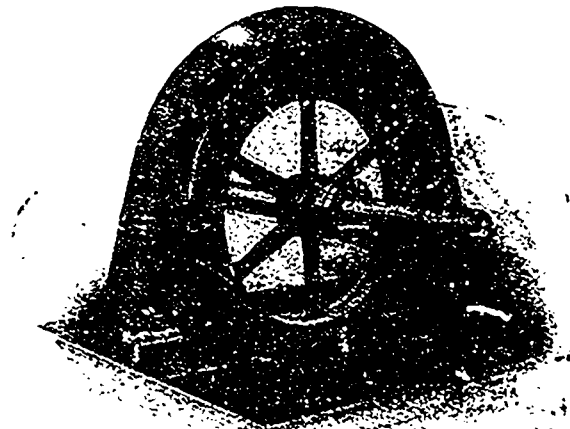
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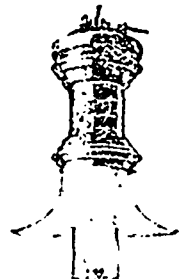
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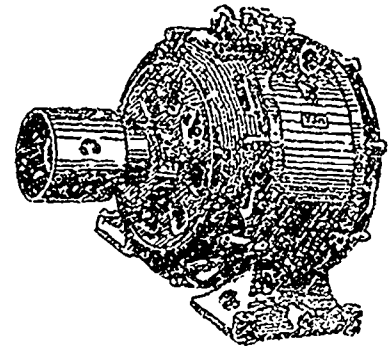
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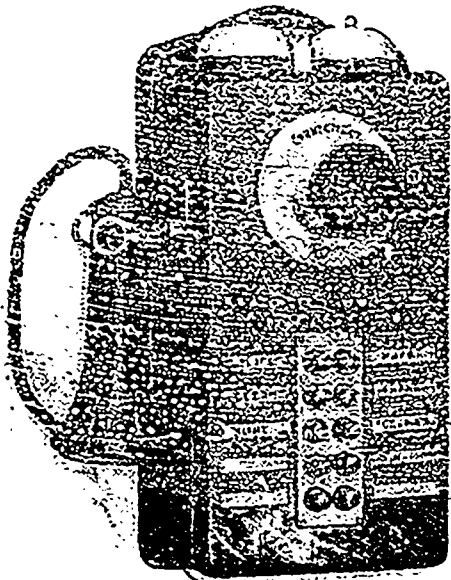
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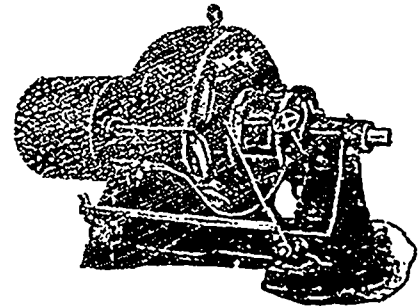
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Manufacturing Plant Number.	Total Horse-Power.	Horse-Power to drive Shafting.	Per Cent. to Drive Shafting.	Manufacturing Plant Number.	Total Horse Power.	Horse-Power to Drive Shafting.	Per Cent. to Drive Shafting.
1.....	400	157	39.2	7.....	40.4	20.7	51.2
2.....	74	57	77	8.....	74.3	40	53.8
3.....	33.6	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
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J. J. CASSIDY, Editor and Manager

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## AS TO TIN PLATE.

At a session of the Government Tariff Commission held in Toronto in November, a deputation representing manufacturers who are users of tin plate was introduced by Mr. A. E. Kemp, M.P. of the Kemp Mfg. Co., who made a strong appeal that no duty be put upon that commodity, as had been requested by a certain company now being promoted. Mr. Kemp submitted many figures to show that the time had not arrived when tin plates could be manufactured to advantage in Canada, without seriously injuring a very considerable number of existing industries that use them as a raw material. The importations of tin plates last year, he showed, were 30,000 gross tons, valued at \$1,751,507. Our population is now only 6,000,000, while at the time of the imposition of a high duty on tin plates entering the United States their population was 62,000,000, and the importations valued at \$25,000,000, and no one attempt was made to make them there until the duty was increased to 75 or 80 per cent. ad valorem.

"There is not sufficient market in the country to warrant the industry being established here," said Mr. Kemp. "The home of the tin plate industry is in Wales. It is the only country that exports tin plate to any extent. The production there was 400,000 tons last year. The industry of manufacturing steel in Canada has not developed to anything like the extent that it had developed when the Americans established the tin plate industry."

Mr. J. O. Thorn, representing the Metallic Roofing Co., speaking in behalf of other manufacturers who are consumers of large quantities of sheet iron and steel, both galvanized and black; Canada plates, tin and terne plates, etc., protested against any duty being placed upon those articles. Mr. Thorn pointed out that he understood that a request was to be made to place a duty upon tin plates, with a view to their being manufactured at Morrisburg, Ont. He held that the time had not arrived when tin plates could be manufactured to advantage in this country without at least seriously

## Another Tariff Edition.

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

injuring a very considerable number of existing industries that use this as a raw material, and particularly without the imposition of a very high duty. He said: "The importations of tin plates into Canada for the year ending June 30, 1905, amounted to 30,000 gross tons valued at \$1,751,507, while at the time the McKinley tariff came into effect in the United States, making the duty 2 1-5 cents per pound, or equal to an ad valorem duty of about 80 per cent. on the present foreign valuation, there were no tin plates made in the United States, with a population of 60,000,000, while the importations of tin plates were valued at upwards of \$25,000,000. In 1883, with a duty on tin plates entering the United States of 30 per cent. ad valorem, no one ventured to manufacture plates until the duty was increased to 80 per cent." He contended that to enable these goods to be made in Canada it would necessitate a tariff that would unduly enhance the cost of innumerable articles to the consumer.

It is a perfectly safe assertion to make that every man, woman and child living in Canada is a consumer or user of tin plates in some form or other. Both Mr. Kemp and Mr. Thorn pointed out that no adequate protection was placed on tin plates imported into the United States until the population of that country amounted to 60,000,000 people. The facts attending the establishment of the tin plate industry in the United States are interesting.

What are tin plates? Tin plates are thin sheets of iron or steel which have been coated with tin by dipping them in a bath of that metal. Tern plates are sheets of iron or steel which have been coated in similar manner with an alloy of tin and lead. From 95 to 98 per cent. of the total weight of tin plates is iron or steel. Tern plates average over 90 per cent. of iron or steel.

Until the establishment of the tin plate industry in the United States nearly all the tin plates of commerce were manufactured in Great Britain; and the greater part of the tin plates of that country were and are produced in Wales. The quantity annually manufactured



in other countries than Great Britain and the United States is so small that it exerts but very little influence on the market price of the commodity. In 1865 there were 47 tin plate works in Great Britain, and in 1888 there were 87.

The total quantity of tin plates imported into the United States in the 17 years from 1871 to 1887 inclusive was 2,663,855 gross tons of 2,240 pounds, the value of which, at place of export was \$242,181,578.

Where is tin obtained? Tin itself, with which iron and steel sheets are coated, is obtained chiefly from Cornwall, England, the Malayan peninsula and neighboring islands in the Straits of Malacca, and from Australia. The supply of tin which Great Britain obtains from Cornwall is far from sufficient to meet the requirements of the home trade. Indeed a large part of the Cornwall supply is exported to other countries in the form of block tin, Straits and Australia tin being regarded as superior to that of Cornwall for coating iron or steel sheets. The production of tin in the East Indies is largely in the hands of the Dutch Government. According to an official statement the production of tin in Cornwall for the year 1887 was 14,189 tons of dressed ore and 9,282 tons of metallic tin. In 1885 the shipments of metallic tin from the Straits to London were 13,982 tons and from Australia to London, 8,204 tons; from the Straits to the United States 3,010 tons, and from Australia to the United States, 800 tons; and from the Straits to Holland, 6,160 tons. It will be seen that in the nine years 1879 to 1887 the supply of tin from Cornwall was virtually stationary, being about 9,000 tons annually. From 1881 to 1885 the production of the East Indies increased more than 21 per cent. The East Indies shipments to London increased three-fold in five years, and in each of the years 1884 and 1885, these shipments were larger than the total supply obtained from Cornwall. In 1885 the combined shipments of tin from the East Indies and Australia to all countries aggregated more than three times the quantity obtained from Cornwall. There is no probability of an increase in the production of Cornwall tin. Tin has been found in small but not commercial quantities in both Canada and the United States. Neither the Canadian nor the United States governments have ever imposed a duty on imports of tin.

During the year 1888 when strong efforts were being made in the United States for an increase of duty which would bring about the establishment of the tin plate industry, there, Mr. James M. Swank, in behalf of the American Iron and Steel Association, of which he was manager, addressed an open letter to Hon. Wm. B. Allison, chairman of the sub-committee on Tariff Revision of the Committee on Finance of the United States Senate, setting forth facts concerning the causes which had up to that time prevented the establishment of a tin plate industry in that country. At that time the American duty on tin plates was one cent per pound. It had been argued by those who did not desire to have the necessary increase of duty that it would have the effect of enhancing the cost to consumer, to which Mr. Swank

made answer that, even granting the assumption that the duty would be added to the price, the increased cost of tin plates in consequence of the imposition of the duty, could not add one-half of a cent to the cost of a tin can, nor more than one or two cents to the cost of a milk pan, pail or bucket. On tin goods exported, made of imported tin plates, the law allowed a rebate of 90 per cent. of the duty paid, so that, granting the assumption referred to, exporters of canned fruits, vegetables, meats, fish, etc., could not be injured by a protective duty on the materials from which such articles are manufactured.

[NOTE:—Since that time the United States tariff allows a rebate of 99 per cent. on export of such articles, the same as in the Canadian tariff.]

Mr. Swank held that the effect of a protective duty on tin plates would not even slightly enhance the cost of the article to consumers for any considerable length of time; a prediction which has since then been abundantly justified. The industry having been established, he said, the effect of competition between home producers would, from the start, keep the price within reasonable bounds. With a tin plate industry once established, prices would not only be kept within reasonable bounds, but consumers would be guaranteed tin plates of a better quality than those frequently imported. The London Statist for August 18, 1888, in reviewing the tin plate exports from Great Britain in that year admitted that "a very large proportion of the tin plates and sheets exported consisted of a class of goods in the manufacture of which very little or no tin is used, thin iron sheets, being mostly used for roofing purposes in cold climates."

In framing the McKinley tariff, which became law on October 1, 1890, the United States Congress provided for increased duties on tin plates and on articles made from them, to go into effect July 1, 1891; and public attention in that country was at once attracted by the prospect of soon being able to furnish a large part of its supplies of tin plates, of which it now consumes annually a larger quantity than all the rest of the world. That tariff provided as follows:

On and after July 1, 1891, all iron or steel sheets, or plates, or taggers iron coated with tin or lead, or with a mixture of which these metals or either of them is a component part, by the dipping or any other process, and commercially known as tin plates, tern plates and taggers tin, shall pay two and two-tenths cents per pound.

This duty took the place of a duty of one cent per pound which had been provided in the tariff of 1883, which was purely a revenue duty. When that duty was repealed in 1890 there was not one establishment in the United States that was engaged in the manufacture of either tin plates or tern plates. Immediately after the McKinley tariff became law, several enterprising manufacturers of iron and steel, and others, commenced the manufacture of tin plates and tern plates for the general market, and ever since the number of such establishments in the United States has steadily increased.

According to Mr. S. N. D. North, chief statistician for manufactures for the 1900 census of the United States, statistics of the tin and tern plate industry in that country



were not separately collected in 1890, the production being very small at that time. During the following decade, however, the development was very remarkable, and in 1900 the United States had assumed a leading position in the production of tin and tern plates, consuming over three-eighths of the world's estimated production of pig tin in 1900. Mr. North's report shows that in the census year 1900 there was a capital of \$6,790,047 invested in the tin and tern industry in 57 active establishments in the United States. The value of the products of these 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. It is remarkable that such great development should have been made in less than nine years. The London Iron and Coal Trades Review, of recent date, commenting upon the tin plate situation in Great Britain, congratulates itself that the British tin plate trade, apart from the loss of so much of the American demand as had been effected by a prohibitory tariff, remains practically as invulnerable as it ever was—that the total tin plate exports of Great Britain are still close on to 400,000 tons a year. The total exports of all the other countries of the world, the United States included, is less than 20,000 tons.

Our London contemporary alludes to the loss of the British export trade caused by the prohibitory tariff of the United States. The following gives the imports of tin plates and tern plates into the United States from Great Britain and their foreign values:

Years.	Gross Tons.	Values.
1871.....	82,969	\$9,946,373
1875.....	91,054	12,098,885
1880.....	158,049	16,478,110
1885.....	228,596	15,991,152
1890.....	329,435	23,670,158
1895.....	219,545	11,482,380
1900.....	60,386	4,617,813

If it is true that the total tin plate exports of Great Britain averaged 400,000 tons a year, it is also true that nearly 340,000 tons went to the United States in 1890, the year before the going into effect of the McKinley tariff, and that ten years later, the exports to the United States had, as a result of high protection, fallen to only 60,386 tons.

As remarkable as was this declension of imports of British tin and tern plates into the United States, the growth of production after the coming into force of the McKinley duty on July 1, 1891, was also remarkable. The production of tin and tern plates in the United States including the production of tin-dipping plants, was as follows:

Years.	Gross tons.
1891 (six months).....	999
1893.....	55,182
1895.....	113,566
1897.....	256,598
1899.....	360,875
1901.....	399,291
1903.....	480,000

By which it will be seen that the maximum imports from Great Britain, in 1900, was much more than overcome by the home production in 1899—only nine years; and the imports in 1885—228,596 gross tons, was more than doubled by the home production in 1903.

So too the production in the United States of black plates, or sheets, for tinning, was also remarkable. In 1894 the production of black sheets amounted to only 52,359 gross tons. Prior to that year black sheets were not separately classified as such in the statistics of production; and the difference in quantity of American made tin and tern plates and the quantity of black sheets produced there was made up by imports from abroad. The production of black sheets in the United States was as follows:

Years.	Gross tons.
1894.....	52,359
1896.....	185,387
1898.....	345,254
1900.....	315,000
1902.....	365,743
1904.....	472,569

There was no domestic tin plate industry in the United States until after the enactment of the McKinley tariff, which went into effect in 1891. How about prices of the article before and after that date? Was the duty added to the cost? The following table gives the prices actually paid at New York per box of 108 pounds for an average grade of Melyn charcoal tin plates, and an average grade of Grafton or J.B. coke tin plates, all foreign make:

Years.	Charcoal.	Coke.
1879.....	\$7 25	\$6 25
1881.....	6 40	5 45
1883.....	6 00	5 10
1885.....	5 35	4 40
1887.....	5 50	4 60
1889.....	5 45	4 55
1891.....	6 20	5 30
1893.....	5 87	5 15
1895.....	4 39	3 66

The following gives the average wholesale monthly prices paid per box of full weight (108 pounds) imported coke Bessemer tin plate i.e., 14x20 inches, at New York, freight and duty paid; also the average wholesale monthly prices paid for domestic tin plates at New York for the same years:

Years.	Foreign.	Domestic.
1896.....	\$3 80	\$3 63
1897.....	3 90	3 26
1898.....	4 00	2 99

Since 1898 foreign tin plates have not been regularly quoted at New York.

From 1879 to 1891 the price of British tin plate in New York averaged from \$7.25 to \$5.50 per box; and from 1891, the year in which high protection came into operation, the price of British tin plate in New York receded from \$6.20 to \$4.00 in 1898.

All of which concerns Canada. The price of British

tin plates at all times is substantially the same to Canadian as to American buyers; and if American competition in the manufacture of the article has reduced prices, as it has done as here shown, the Canadian consumer has gained the benefit growing out of the competition. Meantime the United States has become an exporter of tin plates, not to such a large extent at present as Great Britain, but still an exporter, and Canada is a liberal consumer of American tin plate. As the Iron and Coal Trade Review points out, the total British exports of tin plate to Canada in 1904 were more than 6,000 tons under the exports of the previous year. Why? The total value of all tin plates and sheets imported into Canada in 1904 was \$1,461,811, and in 1905, \$1,751,507, an increase of \$289,696. Canada's imports from Great Britain in 1904 were valued at \$1,215,700 against \$1,206,906 in 1905, a decrease of \$8,794, while the imports from the United States in 1904 were valued at \$246,111, increased in 1905 to \$544,601, an increase of \$298,490, or considerably more than 100 per cent. Why? As the production of tin plates in the United States increases the purchasers of Canada of that article from that country increases, and the trade with Great Britain declines at a remarkable rate. Why?

#### CANADIAN RAILS.

According to a conservative estimate, it would take 500,000 tons of steel rails to lay the Grand Trunk Pacific Railway from Moncton to the Pacific coast. The *Globe* estimates that it takes 125 tons of 80-pound rails to lay one mile of track, and, as the total mileage of the road will be, as near as can be at present foreseen, about 4,000 miles, the total amount required is apparent. In view of this, it is interesting to calculate whether or not the two steel rail mills in Canada can furnish this supply. Since the Dominion Iron & Steel Co. began to make rails last summer, their total output has been taken by the Grand Trunk Railway, and has amounted so far to a little more than 20,000 tons. Just now the mill is working satisfactorily, according to report, and is turning out from 300 to 350 tons a day. Their contract with the Grand Trunk Railway for this year was to supply 25,000 tons. They have yet 4,000 tons to deliver. A large amount of these rails has been used in connection with the double track of the main line west of London, and the Grand Trunk officials have been so well pleased with them that they have placed another order for 25,000 tons to be delivered in March, April, May, June and July of next year. These rails are of the heavy type, and the ones that have been supplied so far have had before leaving the mill to undergo a more severe test, according to the statement of a Grand Trunk Railway official, than any other rails that have ever been used anywhere over the entire system.

Reports from the Soo indicate that the rail business there is likewise gratifying. Deliveries to the Intercolonial Railway have met with approval. As the capacity of the mill there is said to be about the same as that of the mill at Sydney, about 300 tons a day, an estimate might be formed of how long it would take the two

mills to supply all the rails needed for the new national transcontinental railway. A conservative estimate would be 500 tons a day, and at that rate it would take them three years and four months of steady going, counting 300 days to the year. That means that it would take them a thousand days to make enough rails to lay the road from Moncton to the Pacific coast, even were they to make no rails for any other purpose. But allowance must be made for renewals, that are being made every day. The Canadian Pacific Railway use on an average about 40,000 tons of rails for renewals every year, and the Grand Trunk Railway about 25,000 tons. One hundred thousand tons for renewals every year on all the railroads of Canada would be a fair estimate. If the mills can turn out only 150,000 tons a year that would leave them only 50,000 tons for new road, and at that rate it would take ten years to supply enough extra rails to complete the Grand Trunk Pacific. Of course, the mills claim a larger total capacity than 500 tons a day but that is without allowance for mishap and delay of various kinds.

The price that the Canadian companies are paying for Canadian made rails is said to be as high as the duty and the bonus will allow; that is, slightly under the price of foreign rails of a similar standard, plus the duty and the bonus and the freight. It is to their credit, however, that no fault so far has been found with the quality.

#### THE BOOMERANG.

The Anthropological Institute of London is engaged in an attempt to popularize the boomerang, and an exhibition of the throwing of this Australian weapon took place a few days ago. One feature of the exhibition was that none of the spectators could gauge the alighting place of the boomerangs. The thrower-in-chief was Prof. F. H. S. Knowles, of Oxford University, who has devoted three years to studying the erratic flights of the boomerang, and he hopes that in another three years of constant practice to equal in skill the Australian aborigines. The boomerangs used were lent by the authorities of the British Museum, and Prof. Knowles made them do some extraordinary things. They sprang from his hand with a hiss of fury, leaped high into the air, and then gracefully described circle after circle until they sank, after an absence of half a minute, at the thrower's feet.

Prof. Knowles, of Oxford University, could learn a great deal about boomerangs as they exist in Canada if he were in this country at this time. He would have seen one the construction of which was commenced at Halifax some three years ago after a long time of previous study. So perfect was it in all its details, as the inventors of it believed, that after a year of additional observation there was no necessity for changing it in any respect when it was brought out for the admiration of its inventors and their friends at a reunion held in Toronto the next year. After the Toronto exhibition it was carefully consigned to the archives of its keeper packed in lavender, and again produced on a festive occasion in Montreal the following year to be again inspected and admired, but its immaculateness was such that, the

time for launching it not yet having arrived, it was again laid away to await the time when its demands would receive the attention of those at whom it was to be hurled. The boomerang lay dormant another year and then, on another convivial occasion, this time in the City of Quebec, it was resuscitated by the use of air pumps, preparations made for its launching, and everything looked lovely for its advent. The Government, that had ignored it for three long years got a move on and appointed a commission to examine into the matter. The boomerang makers had been agitating for this investigating commission for the previous three years, and while the commission was not just what the boomerang makers could have desired, still it was a great concession to the views and wishes of the inventors and an important event for the whole Dominion. The hour had come. The commission was ready to do as requested, and the boomerang was launched with the usual results. The unexpected happened. Like as at the throwing of the instrument from the hand of Prof. Knowles, of Oxford University, none of the spectators could gauge the alighting place of the Canadian boomerang, the makers of which, like Prof. Knowles, had devoted three years to studying the principles upon which it had been constructed. Prof. Knowles made his boomerang to do some most extraordinary things, and the Canadian instrument, imitating that from Australia, experimented with in the Mother Country, sprang from the hand of the operator with a hiss of fury, leaped high in the air, circuated like a go-devil pyrotechnic above the heads of beholders, and, like the rocket when the propulsive fury had burned itself out, came down like a stick. But not as harmlessly. It returned promptly, it is true, to those who had promulgated it but to vex their very souls. They did not know it was loaded with that sort of ammunition. In their opinion the conditions which prevail in Canada demanded an immediate and thorough revision by boomerang, and the indications are that it will come. But the results seem to be working not in the desired way. It is probable that the immediate and thorough revision asked for will be granted, but there is no telling where the boomerang will eventually fall, nor who will be hit by it. Boomerangs should be handled by experts only, not by amateurs.

#### CHEAP ALCOHOL.

While the process of tariff revision is going on, in the interest of many of the manufacturing industries of Canada it is to be hoped that the Commissioners will give proper consideration to the question of tariff changes on alcohol for manufacturing purposes.

In many of our manufacturing establishments alcohol is an important raw material. The use of alcohol for manufacturing purposes is much more extensive than is generally supposed. As an almost universal solvent, alcohol is largely used in extracting the active properties of various medicinal and similar materials, and is therefore an ingredient of many drugs and pharmaceutical preparations; in the manufacture of varnishes, lacquers and similar products, and in the mechanical arts, such

as the manufacture of hats, lacquered ware, porcelain bath tubs, etc.

In the form of a solvent for shellac and other gums, alcohol is used by the manufacturers of furniture, pianos, organs, mouldings, reed and rattan goods, carriages, automobiles and other vehicles and various articles of a similar character.

As a vehicle for carrying odors and flavors, alcohol is the principle material used in the manufacture of perfumery and flavoring extracts of all kinds.

The great chemical industries are large consumers of alcohol which enters into or is used in manufacturing ethers, acids, fulminates and many other staple chemicals.

The manufacturer of photographic films and papers involves the extensive consumption of alcohol and chemicals produced by alcohol.

Alcohol is also extensively used in the finishing of silks, the manufacture of smokeless powder, soaps, dyes, polishes, electrical apparatus, etc.

In addition, alcohol is used in large, but at present comparatively limited quantities by manufacturers for cleaning, burning and other subsidiary purposes.

The total consumption of alcohol in these varied industries amounts to millions of gallons annually, but this is very much less than was used before the tax on distilled spirits was increased to the present high rate. Since then various substitutes have been in use, such as wood alcohol, benzine, turpentine, boracic acid, gasoline, etc., none of which, however, works as satisfactorily as grain alcohol; wood alcohol, for instance, being poisonous, and the other substitutes being more or less unfit. On the industries requiring the grain alcohol, the enormous tax—which, by the way, is equal to more than 1,000 per cent. on the original cost of the alcohol—has therefore been a very heavy burden, and has materially hampered and limited the manufacture and consumption of their products.

The export trade has been specially hard hit by this tax. Manufacturers of export goods are placed at a decided disadvantage, as compared with the manufacturers of the other great commercial nations, Germany, Great Britain and France, whose revenue laws provide for tax-free alcohol for use in the manufactures, and this handicap has resulted in preventing our manufacturers from getting their fair share of the world's trade in articles in the production of which alcohol is required.

It is an unquestioned principle of taxation that internal revenue taxes should not be laid heavily if at all upon articles of domestic production necessarily used in the manufacture of other articles. To tax an article of our own growth or manufacture is to impose upon the consumer of other articles, in the production of which the taxed material must be employed, a burden to which he ought not to be subjected. The statement of this proposition seems too plain for argument. Public sentiment should not permit a tax of 1,300 per cent., more or less to be imposed upon any other article of domestic production entering into the processes of manufacture or necessarily consumed by our people.

It has been claimed that a law permitting the use of

alcohol otherwise than as a beverage without payment of tax could not be effectively administered, and that the result of such legislation would necessarily be that an extensive use of untaxed alcohol as a beverage would follow; that no sufficient safeguards and regulations could be thrown about the administration of such a law to prevent its evasion by dishonest people, and that the government would be unable, to a considerable extent, to collect the tax upon alcohol used as a beverage. It is folly to say that the mere apprehension that a law designed to promote the public welfare may be violated or evaded constitutes any argument against the passage of such a law. If the evasion and violation of laws were to be allowed as valid objections to their enactment, we should have no customs laws, tax laws, or laws for the punishment of crimes or frauds of any sort. All laws are broken or evaded. All laws relating to taxation and revenue are framed and passed with provisions looking specially to their enforcement and giving government officials authority to make regulations for the purpose of carrying out the objects of such laws. Any one who will read the existing statutes governing internal revenue taxation and the administration of our customs laws will see with what care minute provisions have been inserted to meet every possible attempt at evasion or violation. It will be no more difficult to provide proper safeguards for the complete and honest administration of a law freeing alcohol from tax when used for beneficial and legitimate purposes, than in case of laws which impose such taxation, and consequently the supposed danger to arise from the inability of the government officials to see that only an honest use is made of alcohol so relieved from taxation is little more than imaginary.

This tax upon alcohol is contrary to public policy, injurious to commercial and industrial development, and against the general welfare, and there is no reason why legislation should not be enacted providing for the use of denaturalized alcohol, free of tax, for manufacturing purposes. The immediate effects of the adoption of such a system would be:

First.—Many important industries would be enabled to secure a necessary raw material at a price which would greatly cheapen the cost of their products, and thus largely increase their sale.

Second.—The improvement of the quality of many kinds of goods, through the replacement of inferior substitutes by grain alcohol.

Third.—The extension of our export trade, through the lowering of the cost of production, thus placing our manufacturers on equal terms with their commercial rivals in foreign countries for the trade of the world.

Fourth.—The opportunity for the general use of alcohol as a motive power for motor vehicles and machinery.

Fifth.—A greatly increased consumption of alcohol for various purposes, and a corresponding benefit to the farmers of the country from the increased market for their products from which alcohol can be distilled.

#### THE NEWFOUNDLAND WHALE DAIRY. INDUSTRY.

Not the least of the triumphs of modern scientific methods is man's utilization of the natural resources

is forecast in the brief announcement just received from the Balena whale fisheries, Newfoundland, to the effect that Prof. Muller has succeeded in domesticating a herd of 50 sulphur-bottom cow whales, and has perfected an apparatus for milking the mammoth cetaceans.

The yield of milk from a full-grown whale is from five to seven barrels a day, says the Professor. The milk is fresh and sweet and peculiarly rich in nutritive and medicinal qualities. It is much thicker and richer than the best Jersey milk and possesses a peculiarly pleasant and distinctive flavor which those who have tasted it pronounce superior to any known product of the lacteal variety. Chemical analysis has shown that the milk of the sulphur-bottom whale is rich in those same fats, and proteids which give to cod liver oil its value as a remedial food.

Prof. Muller's experiments with whales, which have been carried on in comparative secrecy for several years, have resulted in many remarkable discoveries in the line of utilizing the different parts of the huge carcasses which have hitherto gone to waste.

He has devised a process for curing and preserving the tons of meat which has always been considered worse than valueless. This meat, which compares favorably in texture with the average beef, will soon be put on the market. The company have assurances that it will find ready sale in the West Indian Islands, and other tropical countries which now depend for their meat supply on the South American jerked beef.

Prof. Muller has invented a process for making leather from the intestines, pleural sacks, heart coverings and other internal membranes of the whale, which, when tanned and finished is of greater durability and finer texture than leather. Besides its superior quality, the whole leather furnishes single pieces of much greater dimensions than it is possible to procure from any other animal. It is possible, according to the inventor, to obtain from the intestines of a full-grown sulphur-bottom a strip of leather nearly 390 feet in length and  $3\frac{1}{2}$  feet in breadth. From the pleural lining a piece of leather 25 feet in diameter can be obtained.

Processes for grinding the mammoth skeletons into bone meal for fertilizer and of converting the gristle and cartilage into glue and like products are among the minor inventions of Prof. Muller, who has secluded himself for the past five years at the little Newfoundland fishing village and turned his attention to the study of whales.

But by far the greatest triumph yet attained by the professor lies in the domestication of the cow whales. Like all scientific men, Prof. Muller would rather conserve than destroy. The whales are still abundant in Newfoundland waters, but under the old system of killing them for their oil and casting the carcasses adrift, it was a question of only a few years at most when they would become so rare as to make their pursuit unprofitable. It will now be for the financial interest of whalers to capture the young whales and keep them alive, because of the promise of richer reward from the dairy products than can be realized in their destruction.

The professor looked about until he found a suitable

inlet, a salt water lake about an eighth of a mile across, approached on the sea by a narrow strait about 50 feet across. He arranged a gateway of iron bars by which the inlet could be completely closed. Late in the fall about two years ago a herd of whales was sporting in the offing and was noticed that there were a number of young heifers in the herd. By careful work ten of these heifers were separated from the main herd and coaxed and driven through the straight into the lake.

Then began the work of taming them, they were watched and studied until their favorite kind of food was learned. This was a peculiar kind of kelp or rock weed, which grows in abundance along the coast. Large quantities of this weed were gathered and stored near the professor's headquarters at the upper end of the inlet.

Twice a day this food was put where the young whales could get it. Within a month they had learned to come to the feeding place for their meals. Within another month the creatures were quite tame and a name was given to each one. Gradually the cetaceans learned to respond to their names, and after six months' of training could be summoned from any part of the inclosure.

The problem of teaching them to permit the operatives to milk them was a more difficult one. An apparatus was devised to do the work, but when an effort was made to try it, it was found necessary to drive the whale up on the flats at low water to do the milking, and it has been this part of the work which has absorbed the attention of the professor for more than a year.

Patience in the face of all discouragements with a determination to succeed finally conquered. The first captives learned gradually to go of their own accord to the milking ground. The herd has been increased a few whales at a time until it now numbers 50 and it requires the services of a staff of 60 men to carry on the daily milking.

Just what the plans of Prof. Muller's company are is not generally known, and none of the officials will say. It was learned, however, that as soon as the dairy experimenting in the way of butter and cheese making are complete and the canning plant is ready, the herd will be driven down to an inlet on the Maine coast, which has been already fitted for a pasture where a dairy will be established.

Experiments have been made recently in permitting several of the tamer cows to go outside the inlet. These experiments have been peculiarly gratifying. In every instance the cow has returned, indicating clearly her preference for domestic life, and on two separate occasions cows of the herd have brought back with them strange companions. The strangers are now thoroughly domesticated and have become valuable members of the herd.

If, as is now believed, the whale milk is of rare medicinal value and proves to be a palatable substitute for the nauseous cod liver oil, it is easy to see the possibilities which lie in the new industry of whale culture. The butter and cheese products are said to be of exceptional delicacy.

EDITORIAL NOTES.

A deputation representing the provincial executive of the Trades and Labor Congress of Canada waited upon the Ontario Government last week asking for legislation along certain lines including compulsory certification of engineers in charge of all stationary steam engines of 25 h.p. or over. Premier Whitney said that a law to that effect should have been passed at the last session of the Legislature, but some technicality had resulted in a delay; but a bill would be introduced and passed at the next session embodying that requirement. This journal has for years advocated the enactment of such a law.

The Ontario Lumbermen's Association in session in Toronto last week decided to ask the Dominion Government to impose a duty of \$2 per thousand upon rough and dressed lumber coming into Canada. If a duty is imposed the Government will be asked to put the anti-dumping clause of the Customs law into operation. A committee was appointed to present the views of the Association to the Tariff Commission.

For the five months ending with November 30, 1905, there was an increase in Canada's customs revenue of \$1,262,267 over the same period of the previous year, while for the month of November the gain was \$432,204. Here are comparative figures for the two months:

November, 1905-06.....	\$3,790,471
“ 1904-05.....	3,358,267
Increase.....	\$432,204
Five months, 1905-06.....	\$19,106,300
“ 1904-05.....	17,844,033
Increase.....	\$1,262,267

A surplus of nearly \$6,000,000 over all expenditures combined is the result of Canada's financial operations for the five months ending November 30. Taking the ordinary receipts and ordinary expenditures, the surplus amounts to over \$10,000,000. In the five months since July 1 the revenue shows a gain when compared with the same period of last year of \$2,253,869. The increase of expenditure during the five months was \$2,544,252, so that the expenditure has been growing at a greater ratio than the revenue. Following are the details of the financial statement for the five months:

Revenue.	1904.	1905.
Customs.....	\$17,649,843	\$18,903,055
Excise.....	5,184,036	5,687,180
Post Office.....	1,840,000	2,135,000
Public Works.....	3,425,667	3,595,757
Miscellaneous.....	1,209,116	1,241,540
Totals.....	\$29,308,664	\$31,562,532
Expenditures....	\$18,227,377	\$21,371,629

The expenditure on capital account amounted to \$4,171,195, as against \$3,620,171 for the five months ending November 30, 1904.

## 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.

Bowie & Co.'s Brewery, Limited, Brockville, Ont., have been incorporated with a capital of \$125,000, to carry on a business of brewers and malsters. The provisional directors include A. G. Bowie, J. G. Gardner, Brockville, and W. B. Scott, St. John's, Que.

The Cumming Mfg. Co., Renfrew, Ont., have been incorporated with a capital of \$20,000, to manufacture lumber, timber, etc. The provisional directors include J. E. H. Barnett, J. A. Jackes and P. R. Cumming, Renfrew.

The Twin City Brick & Supply Co., Port Arthur, Ont., have been incorporated with a capital of \$40,000, to manufacture bricks, etc. The provisional directors include J. A. Stewart, T. H. McCauley and S. J. McCutcheon, Port Arthur.

The Provincial Construction Co., Toronto, have been incorporated with a capital of \$50,000, to carry on the business of a construction company. The provisional directors include C. L. Weisner, Toronto; T. J. Lannen, Buffalo, N.Y., and C. A. Norris, Galt, Ont.

The Northumberland-Durham Power Co., Cobourg, Ont., have been incorporated with a capital of \$750,000, to construct works for the production of electricity for the purposes of light, heat and power. The provisional directors include W. J. Crossen, Cobourg, Ont.; J. A. Culverwell, Port Hope, Ont., and Charles Donnelly, Pittsburg, Pa.

The lumber cut of the mills in Ottawa and district for the season ending was somewhere in the neighborhood of 350,000,000 feet. Only approximate figures are obtainable, but they will be found to be near the mark. The cut runs as follows:

J. R. Booth	110,000,000
W. C. Edwards, Ottawa and Rockland	70,000,000
Hawkesbury Lumber Co.	80,000,000
Gilmour & Hughson, Hull	28,000,000
McLaurins, East Templeton	25,000,000
Ritchie Bros., Aylmer	15,000,000
Perey & Co., Calumet	20,000,000
McLarens, Buckingham	25,000,000
Total	373,000,000

It is stated that the Grand Trunk Railway Co. have let the contract for the equipment of the Port Huron-Sarnia tunnel with electric power for the operation of trains. The contract involves the building of large power houses in Port Huron and Sarnia, and the total cost is said to be nearly \$700,000. The third rail system and powerful electric locomotives will be used. The adoption of electricity will remove all danger from gas in the tunnel.

The storehouse of the Smith Mfg. Co., Toronto, was destroyed by fire December 7. Loss about \$1,500.

A. C. Chapman, Limited, have been incorporated with a capital of \$40,000, to acquire the business of the Toronto Glove & Tanning Co., and the A. C. Chapman Co.,

and to manufacture gloves, mitts, etc. The provisional directors include A. C. Chapman, J. S. Denison and J. C. MacMurchy, Toronto.

The earnings of the Toronto Street Railway Co. continue to increase rapidly. The total receipts for November reached \$220,803, as against \$198,150 for November, 1904, an increase of \$22,653. The city's percentage for last month will be almost \$30,000.

The Junetown cheese factory, Brockville, Ont., was destroyed by fire December 4. Loss about \$2,000.

The Corby Distillery Co., Belleville, Ont., will build additions and make improvements to their plant at a cost of about \$1,000,000.

The Berry Lubricator & Machine Co., Ottawa, have been incorporated with a capital of \$250,000, to manufacture metal goods of all kinds, tools, implements, boilers, etc. The charter members include James Walker, Montreal; Wm. Gamble and F. A. Heney, Ottawa.

The Canadian Cordage Flax Co., will establish a binder twine factory and fibre mills at Glencoe, Ont. The company will expend \$75,000 on buildings and machinery.

The plant of the Evening Herald, Fort William, Ont., was destroyed by fire recently. Loss about \$3,000.

The works of the John Goodison Thresher Co., Sarnia, Ont., were damaged by fire December 1 to the extent of about \$10,000.

Civic Architect McCallum, Toronto, reported that the number of new buildings erected since the first of the year was 2,933, as against 1,620 in the eleven months of last year. Last month 238 permits were issued by the City Architect's department, and in the eleven months 2,569 permits were given out, some individual permits being for blocks of six, eight and ten houses.

The International Gas Appliance Co., Toronto, have taken out a permit for a two-story brick warehouse, to cost about \$6,500.

The Empire Elevator Co., will erect an elevator midway between Port Arthur and Fort William, Ont.

The Wolverine Cedar & Lumber Co., a concern incorporated in the United States, have secured a license to do business in Ontario. C. S. MacInnes, Toronto, is the attorney.

The Department of Trade and Commerce, Ottawa, are informed that the price of lead in London has risen to £16 sterling. The payment of bounty is, therefore, discontinued. This is in accordance with the provision of the act which declares that when the standard price of pig lead in London exceeds £12 10s per ton of 2,240 pounds the bounty of 75 cents per hundred pounds shall be reduced by the amount of such excess. The price of lead has steadily risen, and the reduction of the bounty has kept pace with it until now no bounty is left. The bounties are not to cease until June 30, 1908, so that a drop in price of lead would cause the payments to start again.

Peterborough, Ont., will spend \$15,000 on waterworks, \$3,385 on sewers and \$13,921 on granolithic sidewalks.

James Bros. Foundry Co., Perth, Ont., will build an extension to their factory in the spring.

Shea's Theatre, Toronto, was damaged by fire November 30, to the extent of about \$15,000.

Clifford Sifton, Esq., late Minister of the Interior, at Ottawa, has given the contract for the erection of a summer cottage, near Brockville, Ont., to cost about \$65,000.

The Canadian Northern Railway Co. are said to be contemplating the establishment of a winter ferry for railway cars from Port Arthur, Ont., to Batchawanning, the latter place being connected with Sudbury by means of the Manitoulin and North Shore Railway extended to Lake Superior. The cars loaded in the North-West would thus be taken on to Montreal without making the detour of the much-curved northern shore of the lake.

It is stated that the Midland Navigation Co. have closed a contract with the Collingwood Shipbuilding Co. for the construction of the largest Canadian steamer on the Great Lakes. The vessel will be 450 feet long, 55 feet beam and will have a capacity of 300,000 bushels.

The lighthouse on the False Duck Island, near Kingston, Ont., recently destroyed by fire, was the oldest lighthouse in the country. On March 25, 1828, when Sir John Colborne was governor of Upper Canada, the legislature of the province passed an act granting £10,000 for erecting "a good and sufficient lighthouse" for the safety and convenience of navigation on Lake Ontario.

Canada's railroad building now under way or to be completed within the next five years includes almost 7,500 miles, with an estimated cost of \$182,000,000.

During the fiscal year ending June 30, Canada imported 250,000 boxes of tin plate valued at \$2,878,000. About one-fourth came from the United States. Great Britain furnished less than in former years although her total exports in that line were near 400,000 tons.

On the Canadian side of Niagara Falls the Park Commissioners have found the power development enterprise to be a gold mine. For up to 1904 five franchises had paid them \$620,777. This means that nearly one-half of the total expenditures incurred in connection with Victoria Park since its establishment has been derived from the five franchises, namely, Electric Railway Co., \$132,500; photograph and other privileges, \$103,700; Canadian Niagara Power Co., \$224,577.78; Ontario Power Co., \$110,000; Electrical Development Co., \$30,000; total, \$620,777.78.

The Toronto-Cobalt Mining Co., Toronto, have been incorporated with a capital of \$300,000, to carry on a mining, milling and reduction business. The provisional directors include H. B. Wills, Toronto, and Whitford Vandusen, Toronto Junction, Ont.

Majestic Polishes, Limited, Toronto, have been incorporated with a capital of \$40,000, to manufacture oils, varnishes, paints, enamels, polishes, etc. The provisional directors include C. G. Armstrong, T. H. Wilson, and D. R. Roy, Toronto.



The Stephenson Belting Co., Toronto, have been incorporated with a capital of \$40,000, to manufacture belting, etc. The provisional directors include J. W. Stephenson, B. G. Stephenson and William Gillespie, Toronto.

Messrs. Lawson & Wilson, Limited, Toronto, have been incorporated with a capital of \$40,000, to manufacture paper, books, office fittings, and to carry on a business of printers, lithographers, engravers, etc. The provisional directors include J. A. Wilson, J. M. Lawson and J. M. Ferguson, Toronto.

The Imperial Electric Motor Co., Toronto, have been incorporated with a capital of \$200,000, to manufacture power machinery, automobiles, etc. The provisional directors include Andrew Dods, Robert McKay and Gideon Grant, Toronto.

Debenhams (Canada) Limited, a company incorporated in Great Britain, have secured a license to do business in Canada as textile manufacturers, manufacturers' agents, etc. George Kerr, Toronto, is the attorney.

The Petrolia Gas Co., Petrolia, Ont., have been incorporated with a capital of \$40,000, to manufacture gas and electricity for light, heat and power purposes. The provisional directors include W. C. Noxon, Charles Swabey, Toronto, and J. W. McCutcheon, Petrolia.

Lyon & James, Limited, Toronto, have been incorporated with a capital of \$40,000, to carry on a business of embossers, lithographers, engravers, etc. The provisional directors include W. R. P. Parker, G. M. Clark and J. A. McEvoy, Toronto.

The Chapman Double Ball Bearing Co., Toronto, report a steady increase in the demand for their goods, and state that a very large part of their bearings go to replace the old style self-oiling journal bearings, which have been discarded, owing to the heavy loss of power which is caused by these journal bearings.

The Uxbridge Piano & Organ Co., Uxbridge, Ont., have been incorporated with a capital of \$30,000, to manufacture pianos and organs. The provisional directors include C. W. Small, F. W. McGuire and C. M. McGuire, Uxbridge.

The Western Machine Co., Toronto, have been incorporated with a capital of \$40,000, to manufacture gas, gasoline, electric and steam engines, boilers, etc. The provisional directors include George McLachlan, Bertram Thompson and W. T. Follitt, Toronto.

The Imperial Rattan Co., Walkerville, Ont., have been incorporated with a capital of \$40,000, to manufacture reeds, rattans, etc. The provisional directors include H. W. Strudley, Walkerville, J. S. Rogers, Detroit, Mich., and G. H. Bancroft, Ann Arbor, Mich.

Messrs. J. E. Brown & Co., Toronto, have been incorporated with a capital of \$40,000, to carry on a business of manufacturing jewellers, etc. The provisional directors include J. E. Brown, J. H. Whitehead, and Gustav Grau, Toronto.

Williams Pharmacy, Limited, Toronto, have been incorporated with a capital of \$40,000, to carry on a business of manufacturing chemists, etc. The provisional directors include L. B. Williams, T. A. Rowan and Norman Somerville, Toronto.

The Sovereign Cobalt Mining Co., Toronto,

have been incorporated with a capital of \$200,000, to carry on a mining, milling and reduction business. The provisional directors include P. J. M. Horrocks, W. A. Smiley and F. J. Stanley, Toronto.

The Barrie Chemical & Specialty Co., Barrie, Ont., have been incorporated with a capital of \$20,000, to manufacture perfumes, druggists' supplies, etc. The provisional directors include H. S. Shannon, Donald Ross, and R. L. Barwick, Barrie.

The Rhodes Metallic Packing Co., Toronto, have been incorporated with a capital of \$40,000, to manufacture metallic packing, etc. The provisional directors include J. M. Rhodes, J. S. Dawson and R. L. McAfee, Toronto.

The Canadian Forty Mile Gold Dredging Co., Toronto, have been incorporated with a capital of \$600,000, to carry on a mining, milling and reduction business. The provisional directors include J. S. Lowell, William Bain and E. W. McNeill, Toronto.

The Hastings county council have purchased property in the eastern limits of Belleville, Ont., where a House of Refuge will be located. Tenders will be asked for immediately and work commenced in the spring.

Stauntons, Limited, Toronto, have taken out a permit to erect a paper factory, to cost about \$30,000.

The Consumers' Gas Co., Toronto, will erect a brick and steel valve governor house, at a cost of about \$50,000.

The members of the Avenue Road Presbyterian Church, Toronto, will erect a church building, 150x100 feet, with seating capacity of 1,000. The building will be of white stone and of Gothic design.

The Cossitt Co., Brockville, Ont., are changing their equipment of self-oiling journal bearings to Chapman double ball bearings.

The plans for the new military buildings in Toronto, for the use of the permanent corps, are about completed. Over twenty buildings of brick and stone are to be erected. The expenditures upon the structures will amount to about \$500,000. The barracks are to be built in the most modern style, and to furnish fullest accommodation for the training of officers and men. Two of the buildings will each be 200x80 feet.

It is stated that the Grand Trunk Railway Co. have entered into an agreement with the Ontario government, whereby the company will erect a hotel in the Algonquin National Park, Ottawa. Work will be commenced shortly so that the hotel will be ready for the tourist business next summer.

The Chapman Double Ball Bearing Co., Toronto, have recently put on the market a new bearing for ore and slag cars, which is being largely adopted. The Gurney-Tilden Co., Hamilton, Ont., who have equipped their cars with this bearing claim that one man can easily handle them now, where it formerly required three.

The Toronto Board of Control have passed the plans for the new Implement and Process building at the Exhibition. The estimated cost is \$84,000.

The Merchants Bank of Canada will erect a bank building in Ingersoll, Ont. Work will be commenced in the spring.

The Polson Iron Works, Toronto, have built a new dredge for the city, which has one and one-half times the capacity of the present dredge and will pump about 1,500 square yards of sand per day. The dredge cost about \$54,000.

The name of the Cobban Mfg. Co., Toronto, has been changed to the Phillips Mfg. Co.

The Western Canada Flour Mills Co., Goderich, Ont., will increase their elevator capacity by half a million bushels.

It is stated that the Canadian Pacific Railway Co. will erect elevators at Goderich, Ont., when their branch from Guelph, Ont., is completed.

The Chapman Double Ball Bearing Co., Toronto, have received the contract for the equipment of the new plant of the Meaford Wheelbarrow Co. at Meaford, Ont., with their double ball bearings.

City Treasurer Condy has reported the returns from the Toronto Street Railway Co., showing their gross receipts for the month of November, with the city's percentage. The report shows a steady growth in the city's revenue from this source, and is very gratifying to the City Treasurer. The returns are as follows:

November.	Receipts.	Percentage.
1905 . . . . .	\$223,347 00	\$17,867 76
1904 . . . . .	198,485 00	15,878 00
1903 . . . . .	172,369 55	13,789 56
1902 . . . . .	152,271 75	12,181 74
1901 . . . . .	131,486 75	10,518 94
1900 . . . . .	128,132 13	10,250 57

A new industry has been started recently at Port Arthur, Ont. A company with a capital of \$50,000 has been organized to fatten sheep for both the Canadian and British markets. P. L. F. Stratton and R. G. Spofford, Port Arthur, are interested.

The ratepayers of Goderich, Ont., will vote on a by-law providing for the guarantee of bonds of the Goderich Elevator Co., to the amount of \$35,000, in consideration of the erection of an additional building of 500,000 bushels capacity.

The Brantford Street Railway, the Grand Valley Railway and the Thames Valley Railway have been purchased by Toronto capitalists, among whom are A. J. Pattison, W. S. Dinnick and John Firstbrook. The roads will be greatly improved and extended.

The Brown Milling Co., Toronto, will erect a grain elevator to cost about \$15,000, a five-story flour mill to cost about \$17,000, and a two-story brick storage warehouse, to cost about \$8,000.

The wet machine room, grinding room and tempering building of the Spanish Pulp & Paper Co., Espanola, Ont., are to be equipped by the B. F. Sturtevant Co., Boston, Mass., with a complete blower, heating and ventilating system.

The Home Bank, Toronto, will erect a branch bank building at the corner of Queen and Bathurst Streets, at a cost of about \$20,000.

The Bank of Hamilton will erect a branch building at College Street and Ossington Avenue, Toronto, to cost about \$25,000.

Messrs. C. Lloyd & Co., Wingham, Ont., door manufacturers, are considering the advisability of increasing their plant.

The Hamilton Cotton Co., Hamilton, Ont., will enlarge their mills.

A nugget of almost pure silver weighing 250 pounds has been found at Cobalt, Ont. Along with it were also found two smaller nuggets of thirty pounds each.

Messrs. Whalen & Bowman have reached an agreement with the Fort William, Ont., town council with regard to the construction of a dry dock, and the establishment of a marine repair shop there.

The Ontario Government has announced that the new Colonial Cordage Co., Toronto, have contracted to pay the Government 50 cents per day per man for the labor of prisoners at the Central Prison. The Colonial Co. have taken over the machinery formerly operated by the Independent Cordage Co.

The ratepayers of Owen Sound, Ont., have voted favorably on a by-law to expend \$12,000 to erect a bridge on Poulett Street.

A. O. Norton has equipped his new plant at Coaticook, Que., with Chapman double ball bearings.

The Sutton Gasoline Engine Co., Sutton, Que., have been incorporated with a capital of \$20,000, to manufacture gas and gasoline engines, etc. The charter members include Gardener Stevens, Waterloo, Que.; W. C. Tatre, Sutton, Que., and W. B. Locklin, Richford, Que.

The Colonial Fluid Beef & Specialty Co., Montreal, have been incorporated with a capital of \$49,500, to manufacture extracts of beef, varnishes, etc. The charter members include T. G. Bertrand, Joseph Lareau, and L. O. Grothe, Montreal.

The Sincennes-McNaughton Co. have completed plans for a new tug to be built at Sorel, Que., and to be ready by June, 1906. The hull will be 100 feet long, and will be fitted with engines of 900 h.p. The engine and boilers will be constructed in Scotland and will be brought over in sections and put together at Sorel.

The Shawinigan Water & Power Co., Shawinigan Falls, Que., have closed with the Westinghouse Electric & Mfg. Co. for a second 12,000 h.p. generator, to be added to their present plant. An order for the first was placed with the same firm some ten months ago, and the Shawinigan Co. will shortly have the two largest generators in use in Canada. Each will have a diameter of 28 feet. The new generator will be used largely in developing the mining districts of the province, particularly those relating to the production of asbestos. A considerable portion of the power, however, will be taken to Montreal for industrial purposes.

One of the oldest churches in Montreal, Notre Dame des Anges, was destroyed by fire, December 11. Loss about \$25,000.

Owing to the increase of business and growing importance of Montreal as a center for distribution of their products, the Robb Engineering Co., Amherst, N.S., have decided to change their agency at Montreal, into a branch office. Mr. Watson Jack has been appointed manager, and Mr. Allister Maclean will continue in the capacity of engineer for the Montreal district. The Robb Engineering Co. will have their quarters in the handsome suit of offices occupied by Messrs. Watson Jack & Co., in the Bell Telephone Building, corner of Notre Dame and St. John Street.

The St. Denis Boulevard car barns of the Montreal Street Railroad Co., are being

equipped by the B. F. Sturtevant Co., Boston, Mass., with two complete heating apparatus and an induced draft apparatus for the boiler plant.

The Diamond Flint Glass Co., Montreal, have recently equipped all of their fans with Chapman double ball bearings. The speed of these fans varies from 1,050 r.p.m. to 2,300 r.p.m., and the Chapman bearings even under these conditions run perfectly cold with practically no lubrication or attention.

The George Tucker Co. of Canada, Montreal, have been incorporated with a capital of \$40,000, to manufacture paper fasteners, binders, etc. The charter members include J. H. Hough, W. H. Butters and Howard Pillow, Montreal.

Messrs. Verrett, Stewart & Co., Montreal, have been incorporated with a capital of \$75,000, to carry on a business of warehousemen, etc. The charter members include James Sutherland, G. A. Hartley and J. A. Taylor, Montreal.

Messrs. C. Dignard & Cie, Montreal, have been incorporated with a capital of \$100,000, to manufacture biscuits, cakes, confectionery, etc. The charter members include Louis Savaria, J. H. Caille and J. B. Jodoin, Montreal.

The cigar factory of S. Davis & Sons, Montreal, was destroyed by fire December 5. Loss about \$100,000.

Messrs. Holmes & Arpin's sawmill, Montreal, was destroyed by fire December 2. Loss about \$10,000.

The woodworking factory of Thomas Lidstone, Montreal, was damaged by fire December 2, to the extent of about \$8,000.

The Canadian Pacific Railway Co. are negotiating for the purchase of a large tract of land in Quebec City, for the erection of offices, etc.

The Montreal Light, Heat & Power Co., Montreal, will erect a building for their head office. The price paid for the land is said to be \$50,000.

According to announcements of new steamers under order for the St. Lawrence route there is a boom in shipbuilding for Canadian waters almost equal to the boom in railway construction. The latest report comes from Messrs. R. Reford & Co., Montreal, who announce that the Donaldson Line have concluded a contract for construction on the Clyde of a 10,000-ton passenger steamship, fitted with twin screws, quadruple expansion engines, and equipped with all the latest comforts and conveniences for passengers. Cold-storage accommodation has also received special attention in the plans. This step has been taken in consequence of the gratifying success that attended the steamer Athenia, which was specially fitted this year for the conveyance of one class of cabin and another of third-class or steerage passengers. The Athenia had full cabins upon her regular voyages between Glasgow and Montreal. This new steamship is also intended to run direct between this port and Glasgow.

The Canada De-Tinning & Chemical Co., Montreal, have been incorporated with a capital of \$100,000, to manufacture chemicals and chemical products. The charter members include H. H. Wolff, Alfred Pellack and H. J. Hague, Montreal.

The Parker Foundry Co., Montreal, have been incorporated with a capital of \$25,000, to manufacture castings, fittings, plumbers' supplies, etc. The charter members include James Ballantyne, H. W. Glassford, Montreal, and M. C. Rosenfeld, Cleveland, Ohio.

The Ontario Car Ferry Co., Montreal, have been incorporated with a capital of \$500,000, to build steamships, tugs, ferry boats, etc. The charter members include C. M. Hays, J. W. Loud, Montreal, and W. T. Noonan, Rochester, N.Y.

The Stinson-Reeb Builders' Supply Co., Montreal, have been incorporated with a capital of \$20,000, to manufacture cement, lime, bricks, etc. The charter members include J. K. Stinson, Montreal, J. A. Reeb, Port Colborne, Ont., and H. W. Maccoomb, Welland, Ont.

Messrs. Henry Birks & Sons, Limited, Montreal, have been incorporated with a capital of \$2,000,000, to carry on a business of goldsmiths, silversmiths, manufacturing jewellers, etc., and to acquire the business now carried on by the firm of Henry Birks & Sons. The charter members include Henry Birks, W. M. Birks, and G. W. Birks, Montreal.

The large roundhouse of the Grand Trunk Railway Co., at Turcot, Que., is about completed. It has a capacity of sixty engines, the diameter of the building being 445 feet. The turn-table has a length of 100 feet. The machine shop in connection with the round house is 250x50 feet.

The Montreal Street Railway Co., Montreal, have awarded the contract for their new car barns to the Canadian White Co., Montreal. Each of the sheds will be 202 feet long, 140 feet wide, and 17 feet 4 inches high, from top of floor to underside of beam, each having a capacity of 48 cars, 50 feet long over all. The foundations will be of concrete. The walls and piers are also to be of concrete, with foundation bolts built in them. The walls of the buildings are to be of sound, plastic, hard-burned brick. The floors will be nine inches concrete laid on the levelled surface of the ground pitched to gutters, with a finishing layer one inch thick trowelled to a smooth and level surface. The construction of the iron work will be all riveted; load assumed for roof being 75 pounds. The doors will be adapted to the requirements of a street railway, and operated by hand. The heating will be by the fan system of hot air, and of a capacity to change the air four times an hour and to heat the building to 70 degrees F. in zero weather. Steam will be furnished by two horizontal tubular boilers and furnished with induced draft fans. A feature in connection with these new sheds will be that the flooring between the tracks in the front part of the sheds will be lowered 18 inches below level of rail, to facilitate the examination of trucks, etc., without jacking up of cars.

The Canada Saw Co. are equipping their new plant at Montreal with Chapman double ball bearings.

The workshops of the Prince Edward Island Railway Co. were destroyed by fire November 30. Loss about \$60,000. The burned structures will be rebuilt as soon as possible.

The New Brunswick Coal Co., Minto, N.B., have been incorporated with a capital of



\$25,000, to carry on a coal mining business. The provisional directors include G. McAvity, C. N. Skinner and A. I. Trueman, St. John, N.B.

Consul-General Holloway, Halifax, N.S., writes that the Miramichi Lumber Co. have been organized for the purpose of cutting and handling sawed lumber and pulp wood in New Brunswick. The company have completed negotiations for the purchase of a property in the valley of the Miramichi River, consisting of between 300,000 and 400,000 acres of timber land. Two sawmills at Chatham, N.B., and a site on which a cutting-up mill for the manufacture of pulp wood will be erected. The company plan to cut about 20,000,000 feet of timber the coming winter for use next season, and about 400 men will probably be employed. The mills are operated by steam power and saw six months in the year. The annual output of the mills is about 20,000,000 feet of English deals. Practically all of this lumber is shipped to England from St. John or other Canadian ports. The mills employ about 65 men and have unexcelled facilities for shipping the output. The cutting-up mill for the manufacture of pulp wood will have an annual output of 15,000,000 feet.

The 30 stall roundhouse of the Intercolonial Railway, Truro, N.S., is being equipped by the B. F. Sturtevant Co., Boston, Mass., with a complete heating and ventilating system especially designed for the rapid thawing out of engines. An induced draft apparatus is also being furnished for the boiler plant.

The Western Canada Flour Mills Co., who are erecting a large mill and elevator at St. Boniface, Man., have placed an order with the Chapman Double Ball Bearing Co., Toronto, for the complete equipment of their elevator with ball bearings. This bearing was given the preference after an exhaustive examination on account of its power saving qualities, and the fact that the fire risk is largely reduced, as practically no oil is used, no dripping takes place, and a hot box is an impossibility.

The school board of Selkirk, Man., have decided to erect a school building to cost about \$9,000.

The London Fence & Machine Co. are considering the establishment of a branch factory at Brandon, Man.

The Central Congregational church, Winnipeg, Man., was damaged by fire, December 13, to the extent of about \$30,000.

Messrs. Ramsey & Phillips, Dauphin, Man., will erect a brick block, four stories high, 100x40 feet.

The Canada Paving & Construction Co., Winnipeg, Man., have been incorporated with a capital of \$100,000. The provisional directors include H. P. Pennock, W. R. Allen and E. W. Roberts, Winnipeg.

The town of Strathcona, Alta., will call for tenders for a new engine for the electric power works.

Hutchinson's sawmill, Prince Albert, Sask., was recently destroyed by fire. Loss about \$8,000.

The American-Abell Engine & Thresher Co. will build a large addition to their warehouse at Regina, Sask.

The Great West Sewer Pipe & Tile Co., Medicine Hat, Sask., is being incorporated

with a capital of \$1,000,000, and will erect a pipe and tile factory there.

The town council of Saskatoon, Sask., will install a waterworks system at a cost of about \$125,000.

W. H. Clark, Edmonton, Alta., will erect a sawmill at Strathcona, Alta.

The Canadian Pacific Railway Co. will build terminals at Lethbridge, Alta., including a ten stall roundhouse, freight shed 500 feet long and the necessary repair shops.

The Lewis Furniture Co., Winnipeg, Man., have been incorporated with a capital of \$50,000, to manufacture furniture, etc. The incorporators include J. B. Lewis, F. G. Lewis, and W. B. Paine, Winnipeg.

The Brown block, Winnipeg, Man., was destroyed by fire December 1. Loss about \$150,000.

The officials of the Bank of Hochelaga are contemplating the erection of a branch bank building in Winnipeg, Man.

Contracts are being given out for the new Canadian Pacific Railway hotel in Winnipeg, Man., an extensive structure. The T. Eaton Co., it is understood, have secured the contract for all the brass beds and mattresses. The order for table cloths and other linen has been given to Archibald Wright, Winnipeg.

The Bemis Bros. Bag Co., St. Louis, Mo., will erect a factory building in Winnipeg, Man., in the spring, for the manufacture of bags for millers. G. C. Watson will be manager of the new Winnipeg plant.

The Western Canada Flour Mills Co., who have mills at Brandon, Man., and Goderich, Ont., are now erecting one at Winnipeg, Man., with a capacity of 4,000 barrels per day. The mill will be operated by electricity, and the company have awarded the contract to Allis-Chalmers-Bullock, Limited, Montreal, for two synchronous motors of 500 h.p. capacity each and a number of smaller motors, which, ranging from five h.p. to 200 h.p. aggregate 750 h.p. The contract also includes switchboards, transformers and accessories. The mill will be of the most modern type, and the electrical equipment necessary, makes one of the largest orders for this class of work ever given in America.

The Manitoba Iron Works, Winnipeg, Man., have been awarded the contract for the new well caisson for that city.

The ratepayers of Winnipeg, Man., have voted favorably on two by-laws, one authorizing the expenditure of \$650,000 in the construction of a municipal gas plant, and another granting \$150,000 to the hospital.

The Independent Lumber Co. will erect a planing mill and sash and door factory at Weyburn, Sask.

The Grenfell Milling Co., Grenfell, Sask., are erecting a large addition to their implement warehouse.

The cement elevator built by the Brackmen Milling Co., at Strathcona, Alta., is nearing completion. The elevator has a capacity of 1,000,000 bushels.

The warehouse of Whitelaw & Co., Edmonton, Alta., was destroyed by fire recently. Loss about \$2,000.

No. 1 crusher building of the Granby mines at Phoenix, B.C., was destroyed by fire December 2. Loss about \$30,000.

Messrs. Thomas Shafer and H. J. Mills, of Philadelphia, Pa., intend establishing a boot and shoe factory at New Westminster, B.C.

A. E. Short, Vancouver, B.C., is erecting a business block at that place to cost about \$12,000.

The Hall Elevator Co., Vancouver, B.C., are erecting a new grain elevator there.

Messrs. McLennan, McFeeley & Co., Vancouver, B.C., will erect a wholesale hardware warehouse there. The building is to be 170x170 feet, and will cost about \$80,000.

The city council of Vancouver, B.C., will present a by-law to the ratepayers to provide \$750,000, for a high level waterworks system from False Creek, B.C.

The A. M. Forbes Hardware Co., Vancouver, B.C., will erect a can factory there.

The Canadian Bank of Commerce will erect a three-story brick block, 120x63 feet, in Vancouver, B.C.

The British Columbia Electric Railroad, New Westminster, B.C., will build an extension to Millbrooke, B.C., at a cost of about \$30,000.

One hears no talk of dull times among the workers in Turtle Creek Valley, locally known as "Westinghouse Valley," owing to the territory being practically covered by the various Westinghouse factories, which extend from East Pittsburg to Wilmarding and Trafford City on the main line of the Pennsylvania railroad. The largest of these is the Westinghouse Electric & Mfg. Co., covering over 47 acres at East Pittsburg, Pa., where everything electrical is manufactured. Some idea of the magnitude of the business handled at this plant can be formed when it is stated that during the month of October the shipment of electrical apparatus from this factory, exclusive of a large number of local freight and express orders amounted to approximately 17,000,000 pounds, consisting of over 5,000 individual consignments. Among the more interesting recent shipments was one to the Hawaiian Electric Co., Honolulu, consisting of a 1,200 k.w. alternating current generator, and three 500 k.w. oil transformers, with the necessary auxiliary apparatus. This material is intended for their power station on Kauia Island, the most northern of the Hawaiian group. The shipment goes direct from New York on the S.S. "Arizonian," and is the second of a series of similar shipments, the first having gone forward some thirty days ago.

In the office building of the H. K. Porter Co., Pittsburg, Pa., an apparatus has been installed in connection with the heating and ventilating system whereby the air is washed and all dust and soot removed before it is put in circulation. This device, installed by the B. F. Sturtevant Co., Boston, Mass., consists of a metal supporting frame filled with coke over which water trickles. All air entering the building is drawn through this filter by means of a fan and delivered under pressure to the various rooms. It is stated that during the past summer the fan has been operated continuously with the windows closed, the air has been thoroughly cleansed, its temperature lowered, the health of the office force improved and their daily output increased.

## ELECTRICITY.

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

An interesting experiment will soon be tried of running and regulating all the public clocks of Vienna, Austria-Hungary, by wireless electricity. Experiments have already been made on a small scale, and no doubt is felt of the practicability of the scheme, which will be much appreciated, since the irregularity of their clocks is a standing grievance with the Viennese. The system will be worked by a large Rhumstorff engine at the central depot, which will communicate the electricity, without wires, to 70 or 80 mast receivers, through which it will be transmitted to the clocks. It is proposed, besides regulating the town clocks, to connect 700 or 800 private ones in the vicinity of the masts, for a small yearly subscription. Vienna will thus be the first city which has adapted wireless electricity to time-keeping for the public.

The Canadian Niagara Power Co. want to suspend a wire from Fort Erie, on the Ontario side, to Buffalo, N.Y., and have applied to the Dominion Minister of Public Works for permission to do so. They have also applied to the War Department at Washington, which has power on the other side over waterways similar to that of the Public Works Department in Canada. There are at present three power companies in Canada and two in the United States, which have erected dams, piers, and other works in the river.

A novel feature of the electrical show which opened in Madison Square Garden, New York, on the evening of December 12, was that each of the nights of the exhibition is dedicated to a different timely interest. On the opening night a direct, special line was connected with the White House, and President Roosevelt pressed the key which lighted the thousands of electric lamps and started the machinery. December 13 was New York City night, on which the city officials were the guests of honor; December 14 Columbia University; December 15 the Engineering Societies; December 16 Suburban. December 18 will be devoted to the members of the Electrical Workers' Union, and the 19th is for the telephone. December 20 Thomas A. Edison will be guest of honor; December 21 New York University, and December 22 Public Schools. Two free tickets were awarded to the prize scholars in every grammar grade in all the schools throughout Greater New York.

The new electric railway from Chatham to Wallaceburg, Ont., was formally opened for traffic November 22. The line has been constructed under a Dominion charter, the officers being.—President, G. W. Kipp, Towanda, Pa.; vice-president, N. H. Stevens, Chatham, Ont., general manager, W. N. Warburton.

Following is a description of a plant recently erected at Zurich, Switzerland, for disposing of the city's garbage by burning, the heat engendered being utilized to manufacture electricity. The plant is located in the outskirts and contains twelve furnaces, which are capable of burning 120 metric tons of garbage in 24 hours. The wagons loaded with garbage are lifted by means of

an electric derrick upon a platform above the furnace into which the garbage is dumped. As garbage, however, does not burn easily, an electric blower injects a strong current of air which has been heated by passing through flues in the furnace walls. The heat engendered by the burning of the garbage is sufficient to make steam in two large boilers of eight atmospheres superpressure. The steam is used in the usual way to operate the dynamo. The electric power produced is used first for the purpose of the plant and to supply part of the power for the electric railroads of the city. Complete combustion of the garbage does not take place. From 30 to 40 per cent. of its original weight remains in the form of slag. This slag, by mixing with lime, is used for making bricks and paving blocks. The plant is said to be paying well.

### CANADIAN-AMERICAN CO-OPERATION.

The Dominion Government have decided to invoke the aid of the Ontario Government in carrying out the objects of the International Waterways Commission. At the recent meeting of the Commission in Toronto two important resolutions were adopted. One suggested that the Governments of Canada and the United States should take whatever steps might be advisable to prevent any corporate rights or franchises being granted or renewed by either the Federal, State, or Provincial authorities for the use of the water of the Niagara River for power or other purposes until the Commission was able to collect the information necessary to enable it to report fully to the Governments interested upon the "conditions and uses" of those waters.

The other resolution expressed the opinion of the Commission that no further rights or franchises should be granted or conferred for the use or diversion of the water flowing out of Lake Superior by either the Governments of the United States or Canada until the commission had secured all data necessary to enable it to make suggestions for regulating the excess of these waters. In the event of such privileges being granted, then they should be subject to any regulations that might be adopted by both Governments.

Copies of these resolutions having been formally communicated to the Dominion Cabinet, an Order-in-Council has been passed inviting the co-operation of the Government of Ontario and suggesting to Premier Whitney that such means be adopted by his Government as may be thought proper to ensure the resolutions being carried out.

### ELECTRIC POWER IN COAL MINING.

The Dominion Coal Co. will not be alone in the development of electrical energy for the operation of coal mines in Canada. The Nova Scotia Steel & Coal Co. are making preparations for the opening of a new colliery at Sydney Mines to be known as "Sydney No. 4." This colliery will be opened about a mile north of the present Sydney No. 3. The new colliery will be one of the largest operated by the Nova Scotia Co., and it is the intention to operate it by electricity entirely. In every other respect, also, the very best and latest methods will be adopted.

H. F. Parshall, the English electrical en-

gineer, who has been employed by the Dominion Coal Co., has completed his preliminary investigation. He and Vice-President Wanklyn have gone into the question of electrical operations very carefully, and the result of their investigations left no doubt as to the wisdom of the policy of installing at some central spot an electrical plant capable of furnishing all the power necessary to operate all the collieries of the Dominion Coal Co.

Dominion No. 2 has been selected as the spot at which this central power station will be erected. The work will be undertaken at once, and, as a preliminary instalment, three electrical machines of 650 h.p. each, have been purchased. These the company expect to have in operation in the early spring.

From this central station power will be transmitted by wire to the various collieries, thus doing away with the maintenance of the individual boiler and engine plants at present operating the respective collieries. The maintenance of a boiler plant at the various pumping stations, such as at McAskill's Brook, Bridgeport reservoir, and "Borehole," at the International, will be done away with, and these will all be operated by electricity.

The longest distance at present over which power will be transmitted will be to Dominion No. 6, a distance of about eight miles.

### THE INTERNATIONAL WATERWAYS.

The American section of the International Waterways Commission in its annual report to the Secretary of War calls attention to a number of questions which have been brought before it, and expresses a desire for an expression of wishes of Congress for its future guidance. Among the questions referred to are the following:—

The uses of the waters in the Niagara River for power purposes, and the regulations necessary to insure an equitable division of the waters between Canada and the United States and the protection of Niagara Falls as a scenic spectacle.

The alleged differences in the marine regulations of the two countries with respect to signal lights, and the advisability of adopting uniform signals for both countries.

The advisability of building controlling works at the outlet of Lake Erie, including the effect upon the levels of the lakes and upon their shores, and upon the River St. Lawrence.

The diversion southward of certain waters in the State of Minnesota that now flow north into the Rainy River and the Lake of the Woods.

The effect of the Chicago drainage canal upon the levels of Lakes Michigan, Huron, Erie and Ontario, and upon the River St. Lawrence.

Delimiting the international boundary on the international waterways and delineating the same on modern charts.

The suppression or abatement of illegal fishing on the great lakes.

The location and construction of common channels.

According to the report some of these questions clearly come under the jurisdiction of the commission as constituted, while some do not, and there is room for doubt with respect to others.

"The Canadian members of the commis-

ion," the report states, "are ready and anxious to consider all these questions, and to extend the jurisdiction of the commission to all international waters between the Atlantic and Pacific Oceans. It is desirable that the wishes of Congress in this matter be more clearly defined."

Since it completed its organization in September last, the commission has made progress in the collection of data bearing upon some of these questions, particularly those relating to the use of water at Niagara Falls, and to the regulation of the level of Lake Erie by works near its outlet. The commission on October 28 adopted the following resolutions:—"Resolved, that this commission recommends to the governments of the United States and Canada that such steps as they may regard as necessary be taken to prevent any corporate rights or franchises being granted or renewed by either federal, state or provincial authority for the use of the waters of the Niagara River for power or other purposes until this commission is able to collect the information necessary to enable it to report fully upon the 'conditions and uses' of those waters to the respective governments of the United States and Canada."

The most pressing questions, according to the report, related to the use of water at Sault Ste. Marie, where the traffic through the canals constructed at the rapids is said to be larger this year than ever before, it being estimated at upwards of 40,000,000 tons for the year.

In this connection the commission has adopted a resolution that no further rights or privileges should be granted regarding the uses or diversions of the water flowing out of Lake Superior, by either the government of the United States or Canada until all data and information are in the hands of the commission that may be necessary to enable it to make suggestions for regulating the excesses of these waters, or that, if such rights or privileges be granted, they may be subject to any regulations that may be adopted by both governments. In conclusion, the report says:—

"It is not clear from the language of the law creating this commission that Congress intended to provide for a permanent international board. It is desirable that the status of the present commission as a permanent executive board be defined or a new board be created."

The new structural shop of the Jeffrey Mfg. Co., Columbus, Ohio, is now in full operation and many of the departments of the plant are working double time, the department for electrical locomotives breaking all records.

Some valuable deposits of graphite have been traced and partially opened in the Ingeli Mountains, Natal, South Africa. The graphite mined there is very pure, and the deposit is claimed to be one of the largest in the world. The seam is nearly 50 feet thick, and extends for miles. The claims owned by the Natal Graphite Co. cover an area of 1,000 acres. The mine is situated at the Impetyeni Forest, near Ingeli, about 20 miles from Harding, in Alfred County, and it is considered locally that its exploitation should expedite the construction of the Port Shepstone-Ingeli Railway.

## PUBLICATIONS.

The publishers of *The Canadian Manufacturer* collect 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 Canadian Casualty & Boiler Insurance Co., Toronto, have sent us a very neat folder having reference to their "Clinical Policy of Accident Insurance." These policies cover about every conceivable disability to which the insurer is liable, if injury occurs when in or upon a railway train, street car, elevator, steam or other vessel or burning building or any other mechanical motive power conveyance, or injured in any other way. The rates of insurance are very low—so low that every one who desires to provide against accidents of any sort can do so at a minimum cost. Further information may be had by application to Mr. A. G. C. Dinick, managing director of the company.

The Sydney Post Publishing Co., Sydney, N.S., publishers of both daily and weekly editions of *The Post*, have begun issuing evening editions of their valuable paper. Sydney is fast growing in commercial importance, and the publishers of *The Post* are to be congratulated upon the starting up of their journalistic enterprise. If one wishes to keep posted upon what is going on in Nova Scotia he should read *The Post*.

The Carter Publishing Co., 8 New Bridge Street, London, E.C., England, have purchased from Messrs. Dean & Sons, that city, the copyright and good will of the "Export Merchant Shippers of Great Britain and Ireland," now in its forty-second year of publication, and are desirous that advertisers and subscribers should be notified of the change. The object of the publication is to give a compact and reliable list of the principal exporters, merchant shippers and manufacturers in Great Britain. Adding greatly to its value, the forthcoming 1906 volume will contain an accurate list of names of consuls of foreign states in London and the provinces; English consuls abroad; Chambers of Commerce in the United Kingdom and in British Colonies; customs tariff of the United Kingdom; Lloyd's agents throughout the world; shipping and forwarding agents, export packers and steamship lines; export sections of London and provinces, giving names of exporters, places of shipment and classes of goods shipped; index to classes of goods shipped and names of shippers, trade mark section; manufacturers' trade directory, Buyers' Guide, etc.

The Methodist Magazine and Review for December contains two remarkable and well-illustrated missionary articles, one an account of the Editor's visit to the Moravian missions, maintained for 150 years in the northern part of Labrador—a wild and rugged region, which is now attracting much attention—a story of heroic endeavor. The other is an account of the no less heroic adventures of Archibald Forder among the Bedouins of Moab and Arabia. It is impossible to think of a greater contrast than that between these two mission fields. Other articles are:—"Social Life in Russia," of vital interest at the present time; "Womanhood and Service," by Isabelle Horton;

"An Immortal Biography," Boswell's Johnson, by J. S. Gilbert, Ph.D.; and one of Miss Taylor's striking stories of the Japanese war. A strong Christmas flavor is given this number by Christmas stories, pictures, and poems. History in cartoon is a striking feature.

With the Christmas issues of periodicals comes the "Farmers Advocate," of London, Ont., in its holiday dress, to brighten the homes of Canadian farmers and others over the whole Dominion. Exceedingly attractive and highly creditable to the publishers is this Christmas number for 1905. Good paper, splendid illustrations, interesting stories and poems, well-written and practical articles from the pens of special contributors combine to form a feast of good things. The "Farmers' Advocate" evidently believes in placing before Canadian readers the works of Canadian writers and artists, for the illustrations are most of them from photographs of Canadian scenery, or reproductions of some of the best works of Canadian artists; and the articles deal largely with Canadian resources and advantages, with special emphasis upon the agricultural side of our Canadian life.

Messrs. William Jessop & Sons, 91 John St., New York City, are circulating a new catalogue describing tool steel. This includes high grade tool and die steel, rock-drill steel, self-hardening steel, etc. The catalogue also contains a number of tables of stock sizes of best tool and die steel, cast steel, annealed tool steel, and other steels of various sizes and shapes. Their Canadian office is at 80 Bay Street, Toronto.

The Borden & Selleck Co., 48 Lake St., Chicago, Ill., have issued booklet No. 6, about conveyors, elevators, and freight handling machinery, for carrying and elevating boxes, barrels, bales, packages, etc. Among other things, it contains illustrated details of a reversible travelling platform freight conveyor installed in the Minneapolis, St. Paul and Sault Ste. Marie transfer warehouse at Gladstone, Mich.

The B. F. Sturtevant Co., Boston, Mass., will hereafter issue most of their publications periodically under the title, *Sturtevant Engineering Series*. Each individual bulletin will treat of some particular product or its application. The series will also include reprints of pertinent articles or technical papers. All publications will be issued in uniform style and size suitable for binding consecutively or in allied groups. By this means the *Sturtevant literature* will be kept up-to-date, and immediate presentation will be made of new designs or typical applications in a form which will be of the greatest service. Bulletin No. 125, the first of this series, has just been published. It describes in detail the line of automatic vertical engines manufactured by the *Sturtevant Co.* These range from 5x5 to 12x10 inches, are entirely enclosed and all bearings are provided with positive forced lubrication under 15 pounds pressure. This method has proved greatly superior to older splashing devices, and is not to be confounded with oil pumping systems in which the oil is only lifted into a reservoir from which it merely flows to the bearings. These engines, primarily designed to meet the exacting requirements of dynamo driving, are capable of continuous operation without skilled attention and represent the highest standard of material, workmanship and efficiency.

## PERSONALS.

The formation of the Canadian drug combine was completed in Montreal last week, which includes the following concerns: The Hattie & Mylius Co., and Simson Bros. Co., Halifax, N.S.; Canadian Drug Co., Barker & Sons, and D. McDiarmid Drug Co., St. John, N.B.; Evans & Sons, Kerry, Watson & Co., and Lyman, Knox Co., Montreal; Elliot & Co., and Lyman, Knox & Clarkson, Toronto; Henry Skinner & Co., Kingston, Ont.; Dominion Drug Co., and J. Winer & Co., Hamilton, Ont.; London Drug Co., London, Ont.; Bole Drug Co., Winnipeg, Man.; Henderson Bros., Vancouver and Victoria, B.C. The following officers were elected: President, D. W. Bole; first vice-president, J. W. Knox; second vice-president, A. B. Evans; treasurer, C. W. Tining; secretary, James Matheson.

Mr. Henry Holgate, C.E., of Ross & Holgate, Montreal, has been instructed by the Government to thoroughly inquire into the construction of the lift lock at Peterborough, Ont., and also the one being built at Kirkfield.

Messrs. Alford, Rockwood Co., Apartado 514, Bogota, Colombia, South America, write us that they would like to get in touch with Canadian manufacturers and exporters, who desire to sell goods in that country. They say that under the wise administration of President Reyes, of the republic of Colombia, there is commencing a new era of development and progress on the same lines, as in Mexico, and that duties and charges upon Canadian merchandise entering that

great interior country are the same as upon American goods.

The annual meeting of the Canadian Rand Drill Co. was held at Sherbrooke, Que., a few days ago. The financial statement as submitted to the shareholders showed a remarkably good record of expansion during the past year, and it was decided to proceed at once with the enlargement of the plant at Sherbrooke.

C. E. A. Carr, Esq., heretofore general manager and secretary-treasurer of the London, Ont., Electric Railway, and formerly manager of the Montreal Park & Island Railway, has been appointed general manager of the Helena Light & Traction Co., Helena, Montana.

### 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.

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, traveling on fast sched-

ules and in luxurious comfort. Rates, folders and full information can be obtained from B. H. Bennett, general agent, 2 East King St., Toronto, Ont.

### PATENTS.

Messrs. Marion & Marion, patent attorneys, Montreal and Washington, D.C., have obtained the following Canadian patents:

Wm. F. Earl, Athens, Ont., acetylene generator; Albert Collet, Paris, France, motor vehicles for running on road and rail, F. E. Holt, Vancouver, B.C., dust guard, Dr. W. Michaelis, Villingen-Baden, Germany, sound producing and recording apparatus; A. Tardieu, Brussels, Belgium, vehicle wheels; M. B. Jackson, Hamiota, Man., portable book rest; E. Fullner, Silesia, Germany, drum filters for purifying the waste water in paper manufactories; J. Walker, jr., Putney, England, files, temporary binders, loose leaf books and the like; L. M. Chorier, Paris, France, dressing of thread, plaits and ribbons of cotton, flax and the like; Messrs. Baker, Shevlin & Baker, Saratoga Springs, N.Y., stock distributors for centrifugal pulp screens; P. L. T. Heroult, Paris, France, manufacture of steel; P. L. T. Heroult, Paris, France, process of manufacture of iron.

Messrs. Fetherstonhaugh & Co., patent solicitors, Toronto, Ottawa and Washington, D.C., send us the following list of patents recently granted Canadian inventors:

H. P. Wheeler, Toronto, drawers; A. C. Scarr, Harnston, Ont., turn-tables; L. Harlow, Vancouver, B.C., temperature indicators and automatic fire extinguishers; A.

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#### RAILWAYS IN BRITISH COLUMBIA.

Preparatory to carrying out a great scheme of railway building in British Columbia, notice is given that at the next sitting

of the legislature bills will be introduced to cover a grand consolidation of a number of lines authorized to be built in that province. Incorporation will be sought for a company to have power to purchase and acquire the charters and rights of the following companies:

The Vancouver & Coast Kootenay, which has a charter covering the route from the Kootenay country to the city of Vancouver. The Cowichan, Alberni & Fort Rupert, which covers the route through the length of Vancouver Island.

The Kamloops & Atlin, to be built from Kamloops to the northern interior.

The Midway & Vernon, whose charter covers the way from Midway into the Okanagan country.

The carrying out of the scheme involved in the construction of these lines of railway will mean the expenditure of millions of dollars. The consolidated company will be known as the British Columbia Central. It is recognized here that back of it must be some large corporation interested in some of the great transportation companies. Various conjectures have been made as to the interests affected, but nothing reliable can be obtained.

Already the construction of the Midway & Vernon is in progress. Interested in the scheme are A. A. Arthur, New York, and Mr. Schmidt, Omaha. The same interests are said to have acquired the bonds of the Spokane & International, which would give connection with Spokane and possibly with one of the great United States transcontinental systems at that point. They are also interested in a project to build

a line from Port Angeles to Olympia, with a ferry line to Victoria to connect with the Vancouver Island for a more direct connection with Alaska.

#### ONTARIO'S MINES.

Returns received from the Ontario Bureau of Mines show that the output of the metalliferous mines and works of the Province of Ontario, during the nine months ending September 30, 1905, were as follows:—Gold, \$87,250; silver, \$1,300,000; nickel, \$2,531,000; copper, \$522,746; cobalt, \$75,000; iron ore, \$157,640; pig iron, \$2,207,864; steel, \$2,215,549; arsenic, \$2,400.

The shipments from the mines in the Coleman township area amounted to 1,802 tons, the contents of which, stated separately, were as follows:—Silver, \$1,300,000; cobalt, \$75,000; nickel, \$6,100; arsenic, \$2,400. Total, \$1,383,500.

Making allowance for the conversion of pig iron into steel, the total value of the metalliferous output for the nine months was about \$9,000,000. For the whole of 1904 it was \$5,061,677, so that the rate of production during the present year is more than double that of 1904.

The present year will be the record one for the production of nickel in Ontario. The output for the nine months is already in excess of the total yield for 1903, which up to the present time showed the largest output. The Sudbury deposits are now turning out much the larger part of the world's supply of nickel.

The development of the extraordinarily rich silver deposits at Cobalt, in Coleman

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township, bids fair to enable Ontario to challenge the position of British Columbia as the chief silver producing province of the Dominion. The mines of British Columbia produced about 3,500,000 ounces of silver in 1904, while the production of Ontario during the present year has been at the rate of about 3,200,000 ounces. The value of the ore shipped from Cobalt averaged \$768 per ton, and the silver contents were 1,332 ounces per ton.

#### RAILROAD EXTENSION IN CANADA.

Canada is entering upon a period of extensive railroad building. The extensions that have been undertaken, and to be completed in from three to five years, will cover a total of 7,444 miles and an estimated expenditure of \$182,000,000. Contracts have been already let covering 75 per cent. of this total and the remainder will be put under contract as soon as the surveys are completed. The total mileage and estimated cost of construction is distributed as follows:

Canadian Pacific, 1,844 miles, at a cost of \$41,650,000; Canadian Northern, 1,280 miles, at a cost of \$29,000,000; Grand Trunk Pacific, 3,720 miles, at a cost of \$101,600,000; Grand Trunk, 200 miles, at a cost of \$4,000,000; Northern Pacific, 300 miles, at a cost

of \$9,000,000; Toronto to Niagara (electric), 100 miles, at a cost of \$4,000,000.

In connection with this statement must be noted the beginning of electric railroad building in the peninsula of Ontario and the indications that it will be greatly extended during the next two or three years. The Chatham, Wallaceburg & Lake Erie Railroad has laid 20 miles of track from Chatham to Wallaceburg this year, and will build 20 miles more from Chatham to Erie Beach next year. Over this line it will operate some 20 cars. The Windsor & Essex is securing right of way for a line from Chatham to Windsor and expects to begin construction work next year. The Windsor, Essex & Lake Shore has a large force of men at work grading between Windsor and Kingsville, and with the exception of three miles of sandy road the work has been completed between Kingsville and Essex. A large gang of men has commenced grading north of Essex, and the contractor expects to have the entire line between Windsor and Kingsville ready for the steel by the latter part of this month. Ties are now being unloaded at Kingsville. Preliminary steps have been taken for the organization of a company to build an electric railway line between Sarnia and London, a distance of about 60 miles. The standard 80-pound rail will be

put down on these roads and it is estimated that a total approximating 1,200,000 tons will be needed for the work during the next four years, together with 400,000 tons of small sections for car and locomotive building, switches, trestles and bridges. The cost of equipping the lines when built is placed at \$75,000,000, which, with the cost of road construction, makes a grand total of over \$250,000,000. During the coming year Canadian railways will require over 100,000 tons of bridge material for renewing and strengthening bridges. The requirements of the Grand Trunk Railway alone for this purpose will amount to 30,000 tons.

Mr. T. E. Thomas, proprietor Niles Fire Brick Co., Niles, Ohio, says that they have a 24-inch leather belt on which nothing but Dixon's traction belt dressing has been used. This belt has run for 12 years and still retains its elasticity and "life," and it has never been necessary to take a piece out of it to make up for stretch. Mr. Thomas thinks that this speaks well for Dixon's traction belt dressing and leather preservative, which is manufactured by the Jos. Dixon Crucible Co., Jersey City, N.J.

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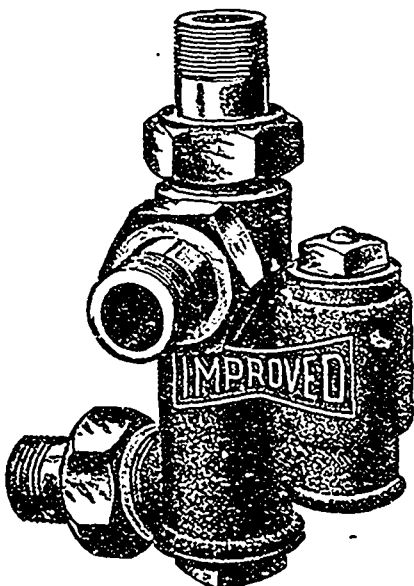
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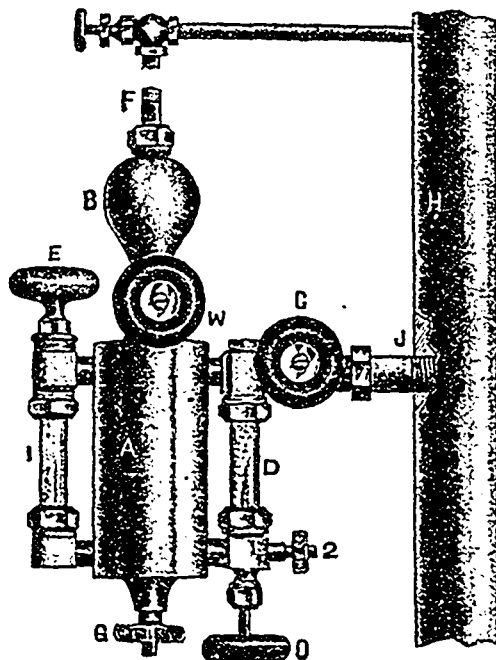
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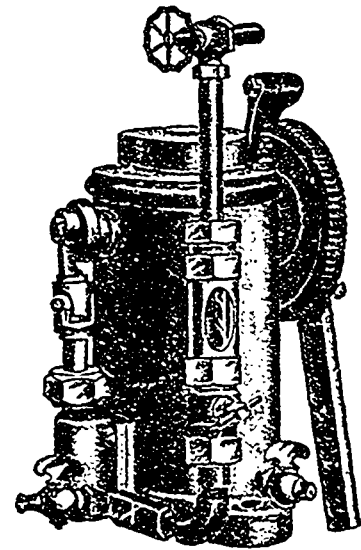
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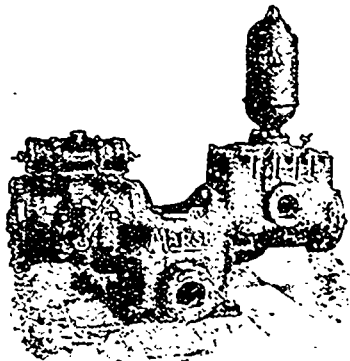
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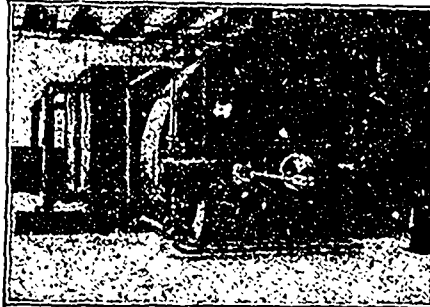
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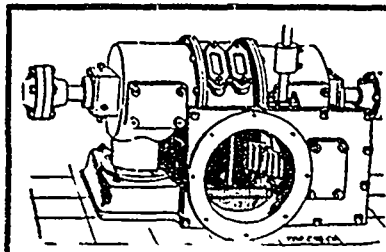
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Peterborough, Ont.

**CLASSIFIED INDEX.****Abrasive**

Williams, A. R. Machinery Co., Toronto

**Acids**Canada Chemical Co., London, Ont.  
Nichols Chemical Co. of Canada, Montreal**Air Compressors**Allie-Chalmers-Bullock, Limited, Montreal.  
Amorion Steam Pump Co., Battle Creek, Mich.  
Canada Foundry Co., Toronto.  
Canadian Ramf Drill Co., Sherbrooke, Que.  
Corbett, R. B., Brooklyn, N.Y.  
Darling Bros., Montreal.**Alum**

Nichols Chemical Co. of Canada, Montreal.

**Aluminum**Northern Aluminum Co., Pittsburg, Pa.  
Syracuse Smelting Works, Montreal.**Angles, Beams and Girders**Bourne-Fuller Co., Cleveland, Ohio.  
Canada Foundry Co., Toronto.  
Hopkins, F. H. & Co., Montreal.  
Nova Scotia Steel & Coal Co., New Glasgow, N.S.**Aniline Colors and Dyewood Extracts**Benson, W. T. & Co., Montreal.  
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Cassella Color Co., New York City.  
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McArthur, Cornelio & Co., Montreal.  
Nichols Chemical Co. of Canada, Montreal.  
Winn & Holland, Montreal.**Annealing Muffles and Furnaces (Wire)**Leslie, A. C. & Co., Montreal.  
Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio.**Antimony**

Syracuse Smelting Works, Montreal.

**Anvils and Vises**Hopkins, F. H. & Co., Montreal.  
Leslie, A. C. & Co., Montreal.**Architects**Parke, R. J., Toronto.  
Vogel, C. H., Ottawa.**Automatic Gear Cutting Machines**

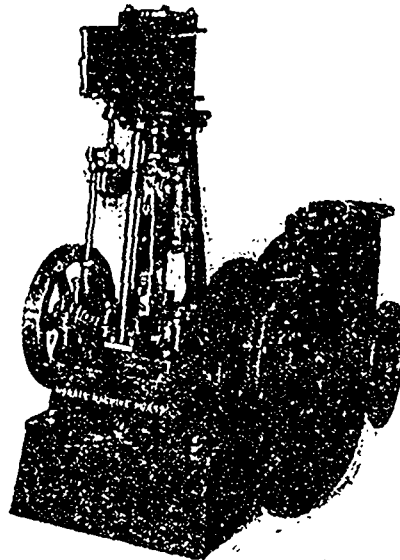
Becker-Brainard Milling Machine Co., Hyde Park, Mass.

**Axles**Hopkins, F. H. & Co., Montreal.  
Nova Scotia Steel & Coal Co., New Glasgow, N.S.**Babbitt Metal**Petrie, H. W., Toronto.  
Syracuse Smelting Works, Montreal.**Banks**

Bank of Hamilton, Hamilton, Ont.

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Leslie, A. C. & Co., Montreal.  
London Rolling Mills, London, Ont.  
Union Drawn Steel Co., Hamilton, Ont.**Belt Dressing**McLaren, J. C. Belting Co., Montreal and Toronto.  
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Reidaway, F. & Co., Montreal.  
Saddler & Haworth, Montreal and Toronto.  
Williams, A. R. Machinery Co., Toronto.**Belt Fasteners**Bristol Co., Waterbury, Conn.  
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McLaren, J. C. Belting Co., Montreal and Toronto.  
Petrie, H. W., Toronto.  
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Saddler & Haworth, Montreal and Toronto.  
Williams, A. R. Machinery Co., Toronto.**Belting (Camel Hair)**

Reidaway, F. &amp; Co., Montreal.

**Belting (Cotton)**Dominion Belting Co., Hamilton, Ont.  
McLaren, J. C., Montreal and Toronto.  
McLaren, J. C. Belting Co., Montreal and Toronto.  
Petrie, H. W., Toronto.  
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Saddler & Haworth, Montreal and Toronto.**Belting (Leather)**Montreal Belting Co., Montreal.  
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McLaren, J. C. Belting Co., Montreal and Toronto.  
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## CLASSIFIED INDEX.

(CONTINUED).

### Beltting (Rubber)

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

### Beltting and Supplies

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

### Blast Furnace Brick

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

### Blowers

Sheldon & Sheldon, Galt, Ont.  
Sturtovant, 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)

#### Boils and Nuts

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Morrow John Machine Screw Co., Ingersoll, Ont.

### Brass Founders

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

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

### Building Iron and Steel

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

### Builders' Materials

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

### Cables

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

### Canada Plates

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

### Canoes

Peterborough Canoe Co., Peterborough, Ont

### Caps

McCullough-Dalzell Crucible Co., Pittsburg, Pa.

### Card Clothing

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

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

### Castings (Grey Iron, Malleable Iron and Brass)

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

### Cement Machinery

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

**Centrifugal Pumping Machinery**  
Morris Machine Works, Baldwinsville, N.Y.

### Chain Making Machinery (Welded Coil Chain)

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

### Channels

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

### Charcoal Pig Iron

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

### Chemicals

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

### Chemists

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

### Clay Working Machinery

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

### Coal and Coke

Bourne-Fuller Co., Cleveland, Ohio.  
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 Rand Drill Co., Sherbrooke, Que.  
Jeffrey Mfg. Co., Columbus, Ohio.

### Coal Tipples

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

### Coil Chains

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

### Coke Oven Brick

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

### Collection Agency

Petrie, H. D., Hamilton, Ont.

### Concrete Mixers

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

### 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

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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.

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Allis-Chalmers-Bullock, Limited, Montreal.  
Babeock & 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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**CLASSIFIED INDEX.**

(CONTINUED).

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

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

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

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

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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.

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Dewar Detective Agency, St. Louis, Mo.

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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, Oh.

**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, Cornelle & Co., Montreal.  
Nichols Chemical Co. of Canada, Montreal.  
Winn & Holland, Montreal.

**DYNAMOS (See Motors and Dynamos)**  
**Electric Meters and Transformers**  
Allis-Chalmers-Bullock, Limited, Montreal.  
Packard Electric Co., St. Catharines, Ont.

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

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Keystone Engineering Co., Toronto.

**Electrical Supplies**  
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Canadian General Electric Co., Toronto.  
Canadian Westinghouse Co., Ltd., Hamilton, Ont.  
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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)**

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

**Engineers (Civil)**

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

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

**Engineers (Mill and Hydraulic)**

Benson, C. J., Toronto.  
Hawksworth, Alfred, & Sons Co., Montreal.  
Vogel, C. H., Ottawa.

**Engineers (Mining)**

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

**Engineers (Municipal)**

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

**Engineers and Contractors**

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

**Engines and Boilers**

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

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Goldie & McCulloch Co., Galt, Ont.  
Hamilton, Wm. Mfg. Co., Peterborough, Ont.  
Hopkins, F. H. & Co., Montreal.  
Jenckes Machine Co., Sherbrooke, Que.  
Morris Machine Works, Baldwinsville, N.Y.  
McDougall, John, Caledonian Iron Works Co., Mont-  
real.  
Petrie, H. W., Toronto.  
Robb Engineering Co., Amherst, N.S.  
Sheldon & Sheldon, Galt, Ont.  
Sturtevant, B. F. Co., Boston, Mass.  
Williams, A. R. Machinery Co., Toronto.

### Engravers

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

### Exhaust Fans

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

### Exhaust Heads

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

### Exhausters

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

### Explorer and Geologist

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

### Factory Sites

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

### Feed Water Heaters

Babcock & Wilcox, Limited, Montreal.  
Darling Bros., Montreal.  
McDougall, John, Caledonian Iron Works Co., Mont-  
real.  
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., Mont-  
real.  
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., Mont-  
real.

### 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-Chalmers-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., Mont-  
real.

Robb Engineering Co., Amherst, N.S.

### Foundry Facings and Supplies

Hamilton Facing Mill Co., Hamilton, Ont.

### Fuel Economizers

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

### Furniture (Lodge, Opera and School)

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

### Galvanizing

Ontario Wind Engine & Pump Co., Toronto.

### Galvanizing and Tinning Machinery and Furnaces (Wire)

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

### Gas and Gasoline Engines

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

### Grease Cups

Penberthy Injector Co., Windsor, Ont.

### Hardware

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

### Heating and Ventilating Apparatus

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

### Hoisting Engines

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

### Hoists (Chain and Pneumatic)

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

### Hose (Fire and Pneumatic)

Gutta Percha & Rubber Mfg. Co., Toronto.  
McLaren, J. C. Belting Co., Montreal and Toronto.  
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., Mont-  
real.

### Hydraulic Accumulators

Jenckes Machine Co., Sherbrooke, Que.  
McDougall, John, Caledonian Iron Works Co., Mont-  
real.

### 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., Mont-  
real.

Perrin, William R. & Co., Limited, Toronto.

Petrie, H. W., Toronto.

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

### Industrial Plants

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



# CLASSIFIED INDEX.

(CONTINUED).

## Insulated Wires and Cables

Phillips, Eugeno 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

Rabeock & 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.  
Hawthornth, 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-Dalzell 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., Petrolca, Ont.  
Queen City Oil Co., Toronto.

## Oil Cloth

Dominion Oil Cloth Co., Montreal.

## Oil Cups

Penberthy Injector Co., Windsor, Ont.

## Paints and Colors

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

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Barber, Wm. & Bros., Georgetown, Ont.  
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### 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-Dalsell 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 (Pivoted, 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-Dalsell Crucible Co., Pittsburg, Pa.  
Pittsburg Crucible Works, Pittsburg, Pa.

### Pneumatic Tools

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

### Pointer Rolls (For Rods and Wire)

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

### Power Plants—Equipments

Allis-Chalmers-Bullock, Limited, Montreal.  
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., Beltz 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.  
Jencks Machine Co., Sherbrooke, Que.  
Kerr Engine Co., Walkerville, Ont.  
Morris Machine Works, Baldwinville, N.Y.  
McDougall, John, Caledonian Iron Works Co., Montreal.  
Ontario Wind Engine & Pump Co., Toronto.  
Petrie, H. W., Toronto.

### Punches and Shears

Globe Machine & Stamping Co., Cleveland, Ohio.  
Petrie, H. W., Toronto.

### Purifiers

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

### Reamers

Butterfield & Co., Rock Island, Que.

### Rivets

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

### Rock and Ore Crushers

Allis-Chalmers-Bullock, Limited, Montreal.  
Bradley Pulverizer Co., Boston, Mass.

### Rolling Mill Engineers

Bourne-Fuller Co., Cleveland, Ohio.

### Roofing

Bourne-Fuller Co., Cleveland, Ohio.

### Rubber Goods

Gutta Percha & Rubber Mfg. Co., Toronto.

### Rubber Packing

Gutta Percha & Rubber Mfg. Co., Toronto.

### Rubber Washing Tubs

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

### Rural Mail Boxes

Globe Machine & Stamping Co., Cleveland, Ohio.

### Safes and Vaults

Goldie & McCulloch Co., Galt, Ont.

### Saw Mill Machinery

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### 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.  
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Jeffrey Mfg. Co., Columbus, Ohio.  
McDougall, John, Caledonian Iron Works Co., Montreal.  
Nova Scotia Steel & Coal Co., New Glasgow, N.S.  
Petrie, H. W., Toronto.

### Shapers and Carvers

Advance Machinery Co., Toledo, Ohio.

### Shear Knives

Hay, Peter Knife Co., Galt, Ont.

### Sheets (Iron and Steel)

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Lysaght, John, Limited, Bristol, England, and Montreal.

### Sheet Metal Goods

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## Smoke Stacks

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

Robb Engineering Co., Amherst, N.S.

## Solder

Globe Machine & Stamping Co., Cleveland, Ohio.  
Syracuse Smelting Co., Montreal.

## Special Machinery

Allis-Chalmers-Bullock, Limited, Montreal.  
Globe Machine & Stamping Co., Cleveland, Ohio.

## Speed Recorders

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## Sprinkler Insurance

Canadian Casualty & Boiler Insurance Co., Toronto

## Stamps and Stencils

Globe Machine & Stamping Co., Cleveland, Ohio.

## Steam Pumps

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Darling Bros., Montreal.  
Robb Engineering Co., Amherst, N.S.  
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## Steam Shovels

Allis-Chalmers-Bullock, Limited, Montreal.

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Emberthry Injector Co., Windsor, Ont.  
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## Steam Valves

American Steam Pump Co., Battle Creek, Mich.  
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## Structural Steel

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Canada Foundry Co., Toronto.  
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Essential Iron Works Co., New York City.

## Tanks (Oil and Water)

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Corbett, R. B., Brooklyn, N.Y.  
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## 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.  
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## Tool Grinders

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## Tool Steel

Bourne-Fuller Co., Cleveland, Ohio.  
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## Trucks

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

## Valves (Rubber)

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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)

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## Watchman's Clocks

Eco Magneto Clock Co., Boston, Mass.

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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.  
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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.  
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Sheldon & Sheldon, Galt, Ont.  
Williams, A. R. Machinery Co., Toronto.

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J. J. CASSIDY, Manager.

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NAMES.	Place.	Freq- uency	Their Price.	Com- bina- tion.	NAMES.	Place.	Freq- uency.	Their Price.	Com- bina- tion.
American Architect	New York	Weekly	\$6 00	\$6 25	Illustrated London News	London	Weekly	\$6 00	\$6 25
American Electrician	New York	Monthly	1 00	1 25	Inter-Ocean	Chicago	Weekly	1 00	1 25
American Federationist	Washington	Monthly	1 00	1 25	Iron Age	New York	Weekly	5 00	5 25
American Inventor	New York	Monthly	1 50	1 75	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
Canada First	Toronto	Monthly	1 00	1 25	Motoring, Illustrated	London	Weekly	2 25	2 50
Canadian Magazine	Toronto	Monthly	2 50	2 75	Municipal Journal	New York	Monthly	3 00	3 25
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
Compressed Air	New York	Monthly	1 00	1 25	North American Review	New York	Monthly	5 00	5 25
Cooking School Magazine	Boston	Monthly	1 00	1 25	Our Dumb Animals	Boston	Monthly	50	75
Cornhill Magazine	London	Monthly	2 50	2 75	Outing	New York	Monthly	3 00	3 25
Delineator	New York	Monthly	1 00	1 25	Ottawa Citizen	Ottawa	Daily	3 00	3 25
Electrical Engineer	London	Weekly	4 50	4 75	Ottawa Free Press	Ottawa	Daily	3 00	3 25
Electrical Magazine	London	Monthly	2 25	2 50	Pearson's Magazine	New York	Monthly	1 00	1 25
Electrical Review	London	Weekly	5 75	6 00	Photographic Journal	London	Monthly	2 00	2 25
Electrical World and Engineer	New York	Weekly	3 00	3 25	Photographic Times	New York	Weekly	1 00	1 25
Electrician	London	Weekly	7 30	7 50	Photography	London	Weekly	2 25	2 50
Electro-Chemical Industry	New York	Monthly	2 00	2 25	Popular Science Monthly	New York	Monthly	3 00	3 25
Engineering and Mining Journal	New York	Weekly	5 00	5 25	Power	New York	Monthly	1 00	1 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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Harpers' Weekly	New York	Weekly	4 00	4 25					

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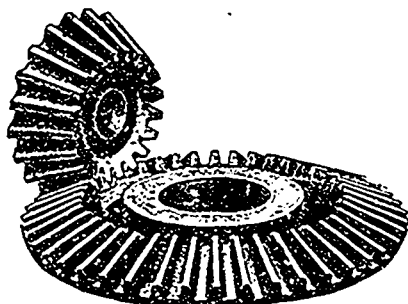
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