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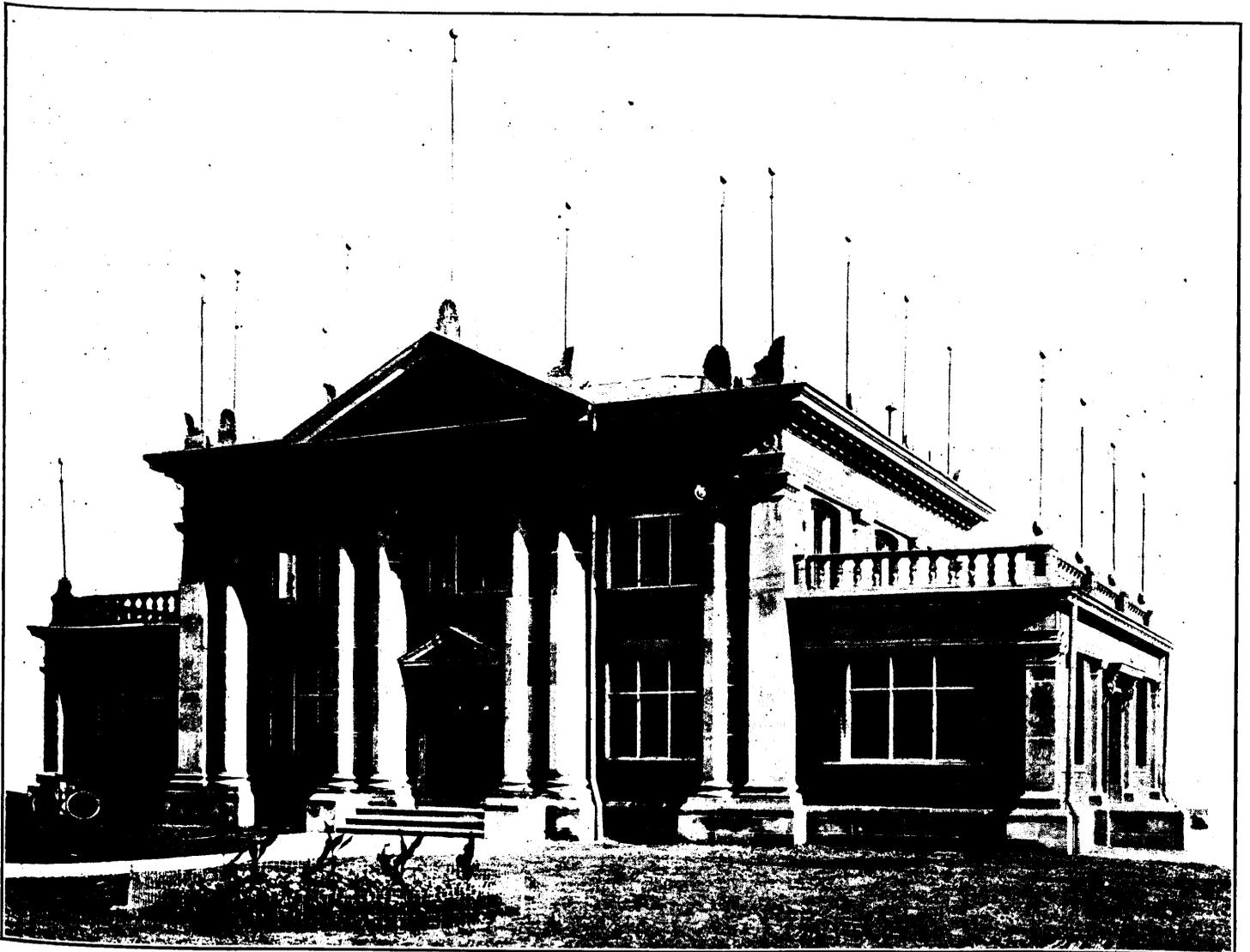
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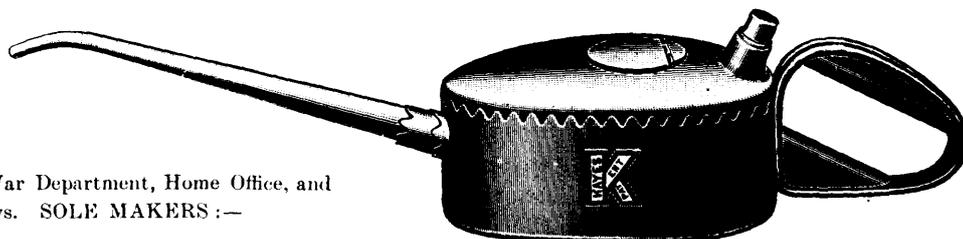
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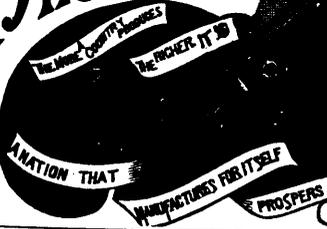
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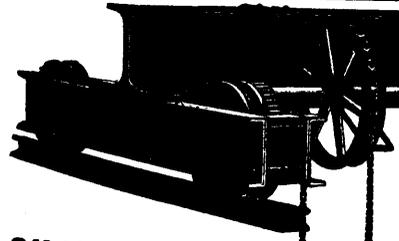
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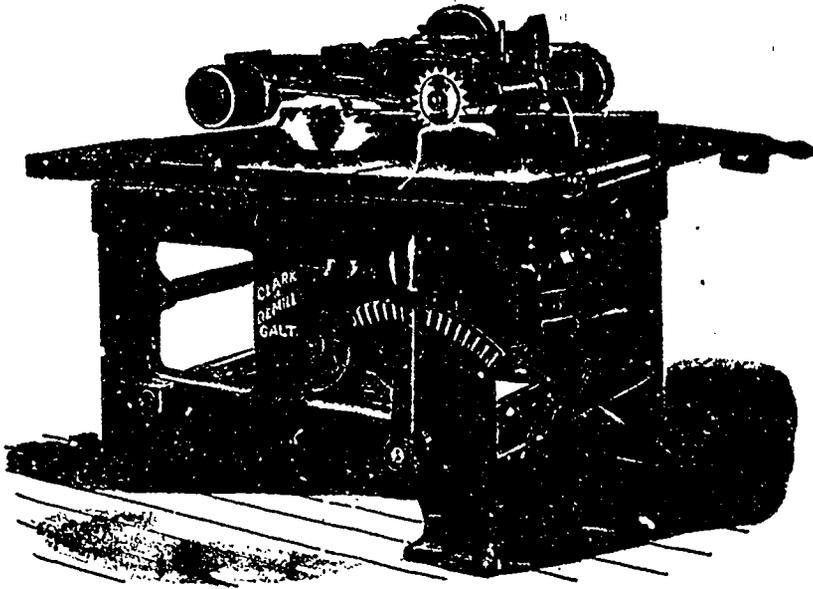
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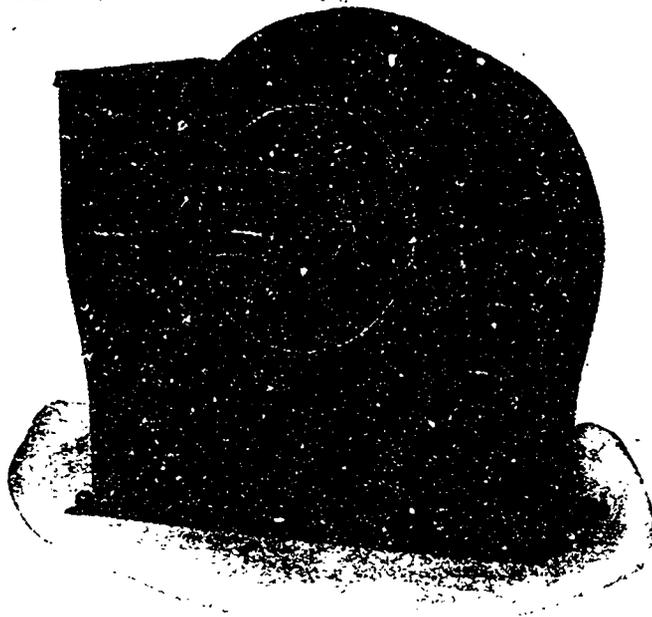
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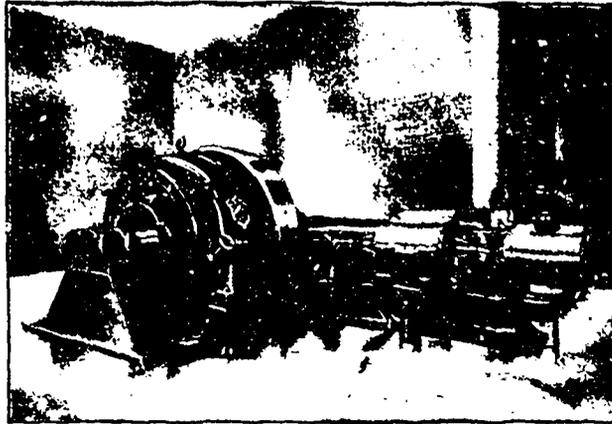
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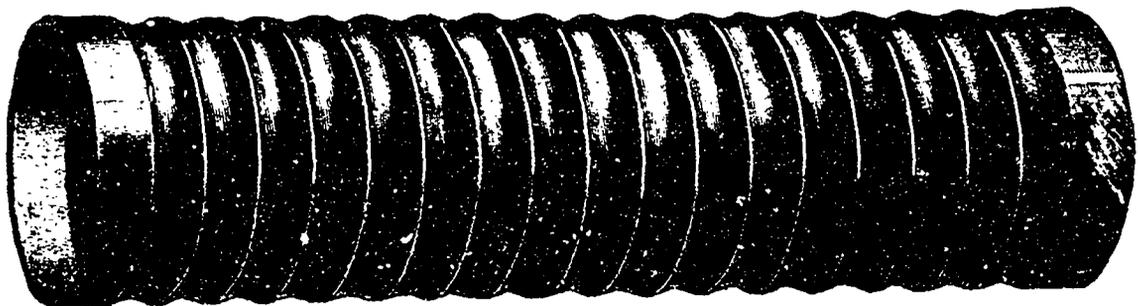


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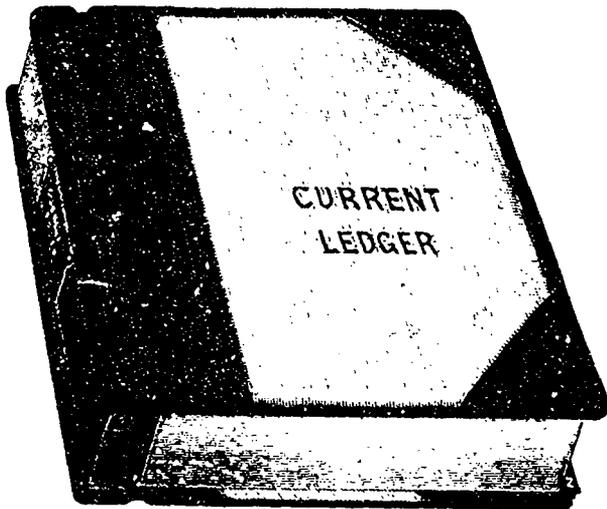
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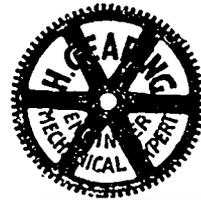
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Special Mixtures for use in Rolling Mills,
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High Grade Uses.

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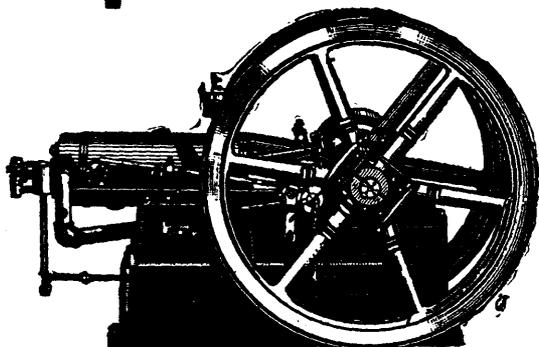
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Guaranteed to develop rated horse power. Adapted to the use of Gasoline, Gas or Denatured Alcohol.

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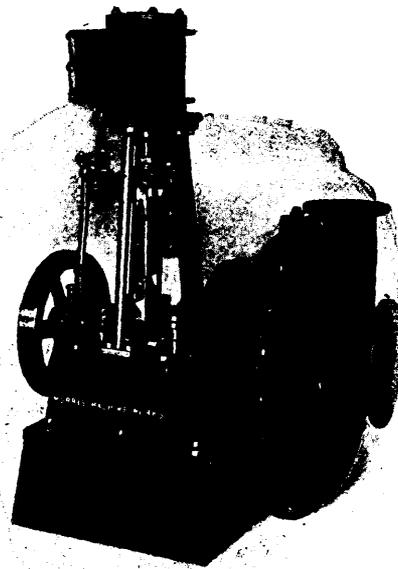
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Estimates Furnished upon Application.

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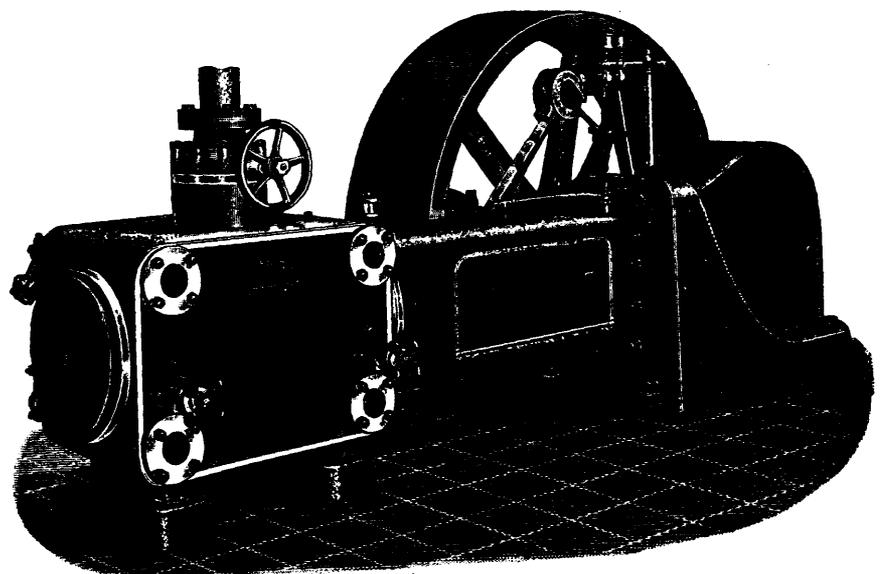
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Steam Geared or Electrically Driven.

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

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Our Corliss engines are fitted with Robb-Armstrong Corliss valve gear, which has the following good points.

**Positively Driven
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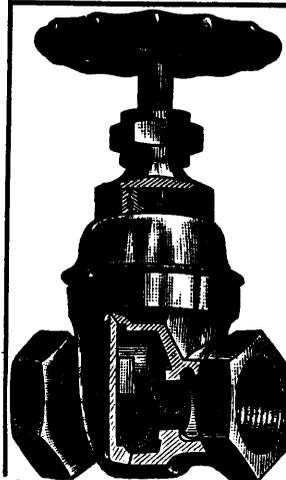
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THE CHEAPEST POWER KNOWN

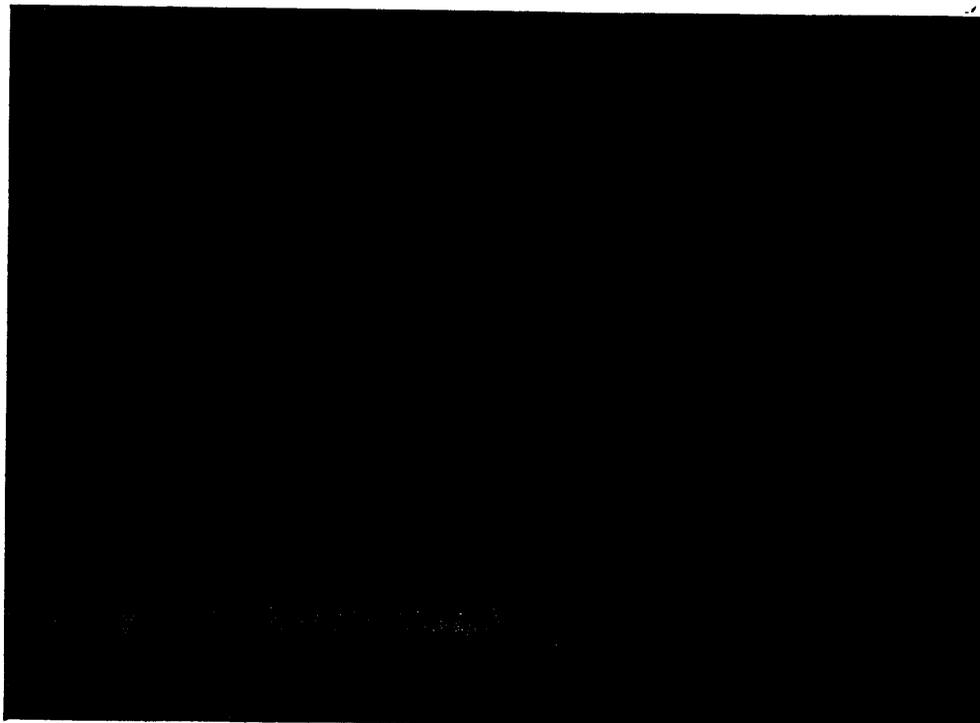
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Engines in sizes from 2 to 800 B.H.P.

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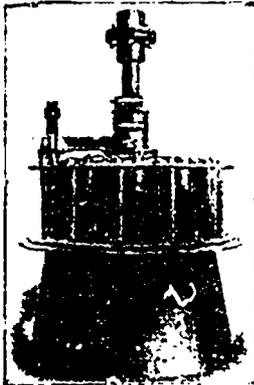
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Develops more power per inch of diameter than any other wheel, and costs less to install per horse power developed.

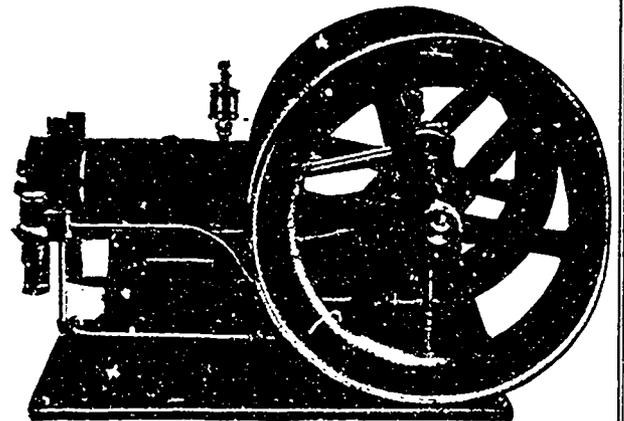
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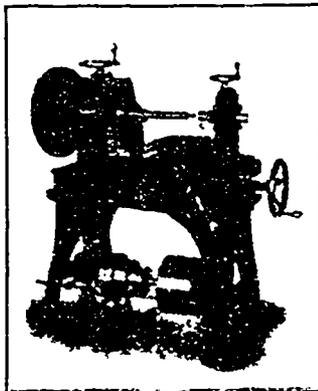


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¶ One-third the number of parts.

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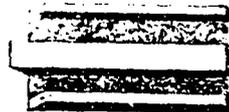
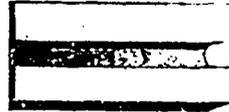
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For WOOD-WORKING,
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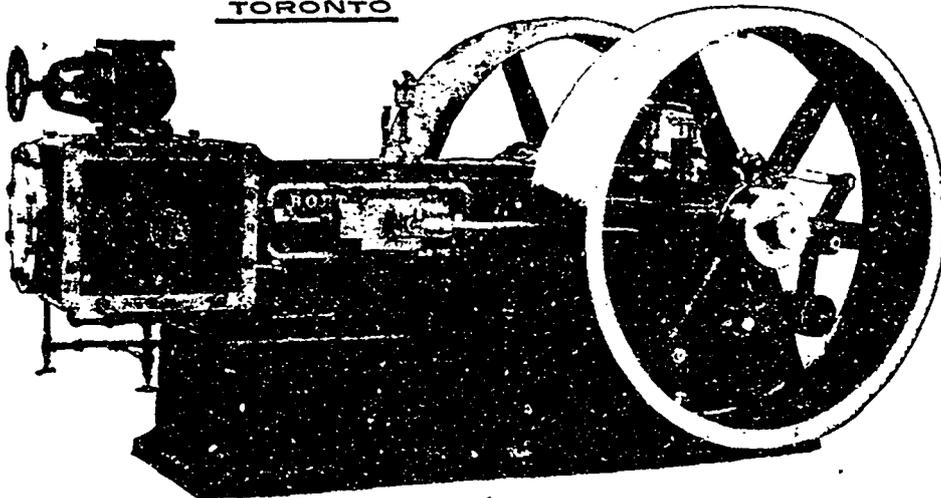
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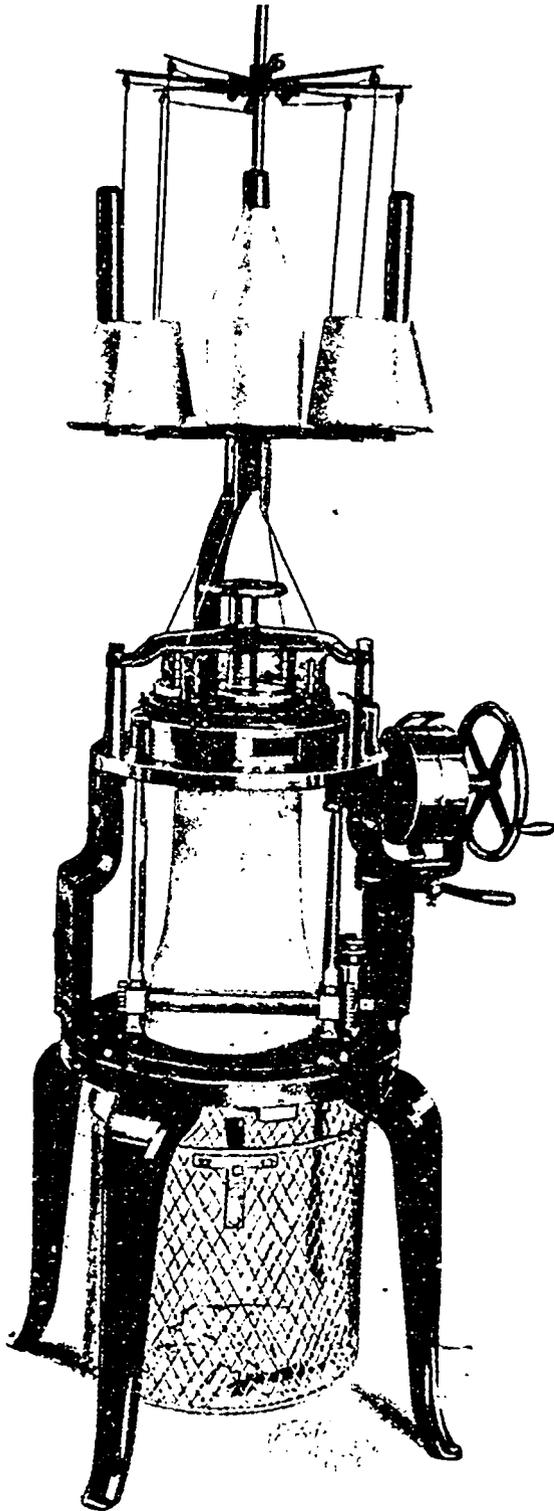
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MILLING CUTTERS of all Descriptions.
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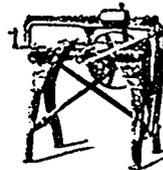
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DIES, TOOLS AND SPECIAL MACHINERY MADE TO ORDER.
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Also manufacturers of upright, bench and friction drills, drill chucks, etc.

WIPING RAGS

Use washed and fumigated wiping rags.

No. 1 Grade, 5c. per lb., delivered

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We pay all expenses and duty is free.

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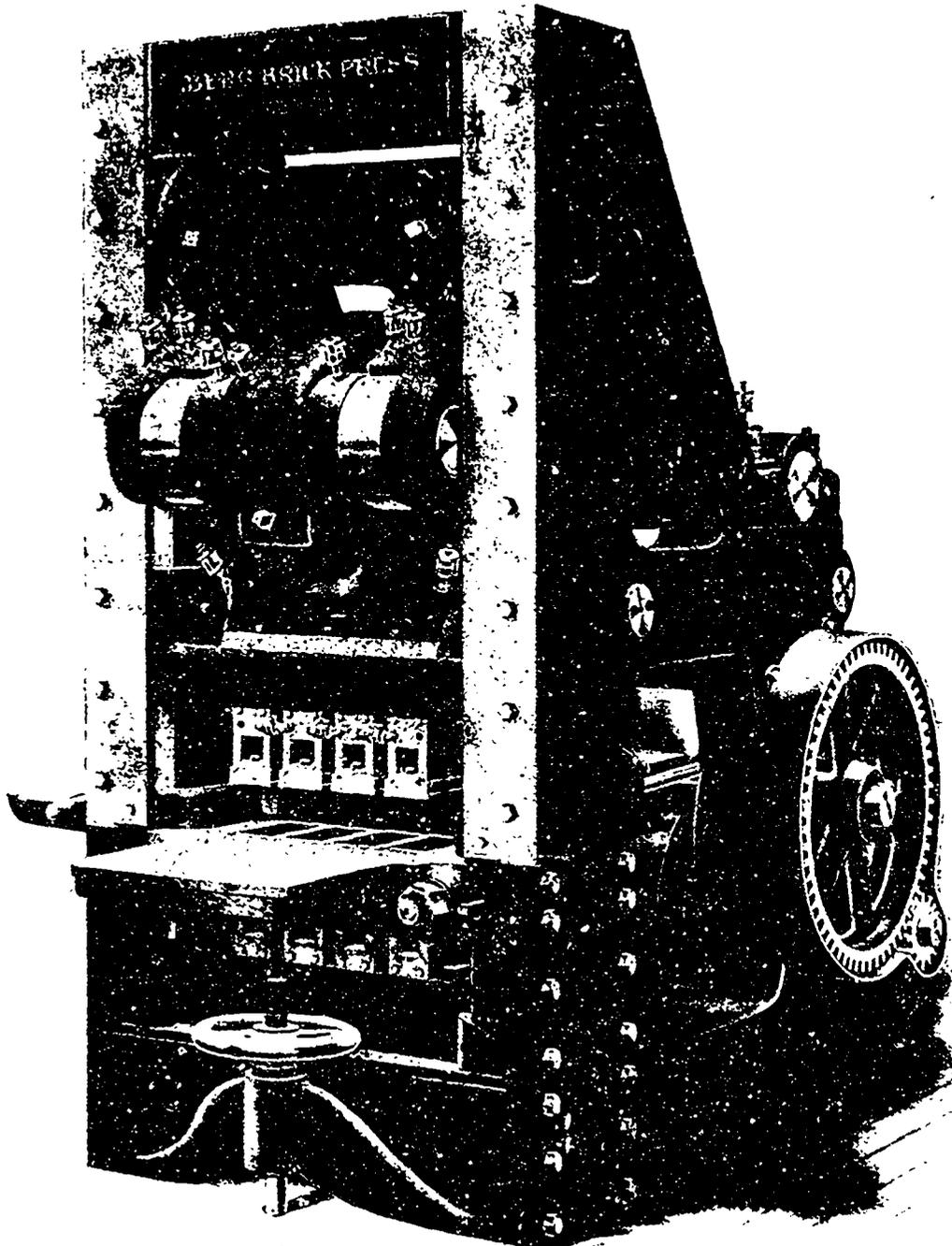
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Name

SIMPLICITY
STRENGTH
DURABILITY

ACCESS
TO ALL
PARTS

GREATEST
PRESSURE

BEST
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IMPROVED BERG BRICK PRESS.

The BERG is built for quality, for simplicity and for strength.



The BERG is built for work; long work; hard work; steady work—and it never fails to do its work, day after day, year after year.



The Berg saves the most time and saves the most labor—and it makes the most money for the brick manufacturers.



Correspondence invited.

Manufactured by its inventor in Toronto, Canada, exclusively.
All equipment for Pressed Brick Plants to make Sand Lime Brick, Sand Cement Brick, Shale Brick, Clay Brick and Fire Brick.

A. Berg & Sons, Manning Chambers
TORONTO, CANADA

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FIRE ALARM APPLIANCES



Every second saved in getting the firemen to the fire may mean hundreds of dollars saved—a minute may prevent a conflagration.

Insist on having the safest, simplest, surest, quickest appliance—the one used by nearly all the big cities in America. It is the

Non-Interference Fire Alarm Signal Box

Where several boxes are on the same circuit the act of sending signals from one shuts off the others, and so there can be no confusion.

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So simple that anyone can operate it, no matter how excited.

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Outputs—Belt Type, 25 K.V.A. up.

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ALL STANDARD TYPES AND SIZES, IN ANY FINISH

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Bare and Insulated Electric Wire
Electric Light Line Wire, Incandescent and Flexible Cords,
Railway Feeder and Trolley Wire

Americanite, Magnet, Office and Annunciator Wires,
Cables for Aerial and Underground Use.

LONG DISTANCE PHONE 1103.

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Perfection TYPE **DYNAMOS and MOTORS**

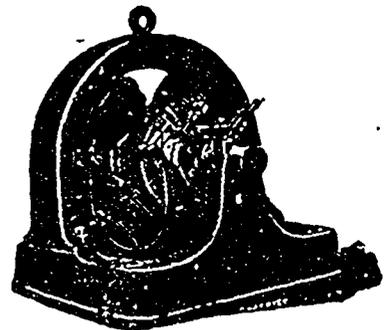
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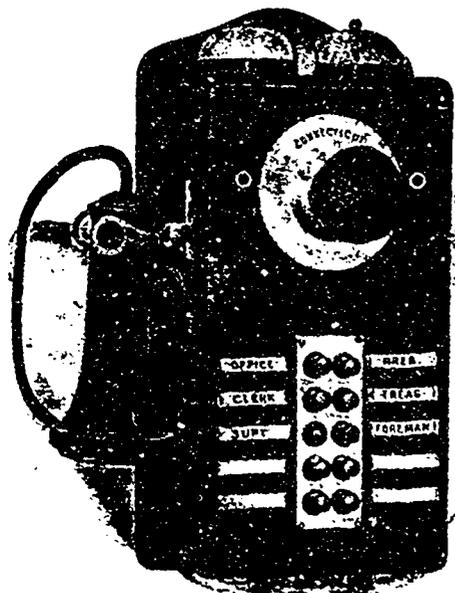


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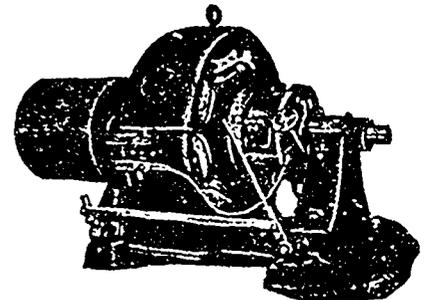
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The Jones & Moore
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ELECTRICAL CONTRACTORS



DYNAMOS, TELEPHONES, SLOW SPEED MOTORS, MOTORS, SUPPLIES, DIRECT CONNECTED DYNAMOS.
We manufacture Direct Current Machinery in all sizes and for any purpose.
196 ADELAIDE WEST, TORONTO.

How Much of Your Power is Wasted ?

¶ During 1895-96 a series of experiments were conducted by Prof. C. H. Benjamin, of Cleveland, Ohio, to determine the ratio of the power required to drive shafting and belts, to the total power consumed, in 12 manufacturing plants on both light and heavy work. ¶ The results were as follows :

TABLES

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

75 per cent. saving is what we guarantee on shaft friction.

Over 200 of the leading Canadian factories are equipped with Chapman Double Ball Bearings.

Send for Catalogues and Letters from Manufacturers who have them in use.

THE CHAPMAN DOUBLE BALL BEARING CO. OF CANADA, LIMITED

Office—89 Scott St., Factory—80 Pearl St., TORONTO.

Another of Our Favorite "Specials"

WE were pleased to meet so many customers and delighted to make so many sales during the Toronto Exhibition.

But, remember, you do not need to see our goods to buy them—our guarantee is sufficient proof of their merit.

YOU CAN ORDER BY MAIL

And be sure that in every respect this engine will do everything we claim for it—that it will fully meet your requirements.

We intend to build up a mail order business and we are taking every precaution to please every customer who orders in this way.



WRITE FOR DETAILS AND PRICE OF THIS ENGINE

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

J. J. CASSIDY, - - - Editor.
D. O. MCKINNON, - - - Business Manager.

Montreal:—E. J. Chave, 242 Blouay St.
London, Eng.:—H. Crankshaw, 101 Leadenhall St., E.C.

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Classified IndexPage 42
Index to AdvertisersPage 49

NEW ADVERTISERS IN THIS ISSUE:

- Wm. Abbott, Montreal.
- Ambursen Hydraulic Construction Co., Montreal.
- Fyle Scale Co., Montreal.
- Gustav Kahn, Toronto.
- Laurie Engine & Machine Co., Montreal.
- A. & E. Loignon, Montreal.
- Northern Electric & Mfg. Co., Montreal.
- Sadler & Haworth, Montreal.
- St. Lawrence Supply Co., Montreal.

THE CANADIAN NATIONAL EXHIBITION.

If there is a man, woman or child in Canada, or in the adjacent States of the American Union who knows how to read, who does not know about the "Great Toronto Fair" as it is more generally called, he, she or it must be either in an asylum or a graveyard. It is without doubt the most prominent event going on on the American continent to-day, not excepting the Pan-American Conference in South America, the Isthmus Canal in Central America, the revolution in Cuba, or the return to his own country of Mr. W. J. Bryan and his presidential aspiration speeches in the United States. None of these things are of more than secondary consideration compared with Toronto's Great and Only Fair. It is bigger than ever, more interesting than ever, has better exhibition buildings than ever, and more of them—a better class of amusements than ever, and there are features connected with it, particularly in the section where methods of manufacture are shown in operation, that tells more for the advancement of Canada than can be imagined by any who have not been there.

A very large proportion of the exhibits at the Fair are of Canadian production, and indicate that the Dominion is blessed with a high degree of manufacturing ingenuity. There is nothing worth mentioning that Canada cannot produce, and what Canada makes is excellent in every particular.

In the earlier days the Toronto Exhibition was spoken of as Canada's Great Industrial Fair, and it is surely now

more than ever entitled to claim so distinguished a name. In the excellent handy Municipal Handbook, compiled by the City Clerk, some figures are given that succinctly indicate the wonderful growth that has been made in little more than a score of years. For instance, in 1883, the receipts were \$56,011. Ten years later they were \$87,247. Eleven years later again, avoiding the Dominion Exhibition year in 1903, the receipts were \$166,858, and last year they had risen to the magnificent total of \$182,164, or more than three times as much as they were a couple of decades ago. In like manner the distribution of prizes grew from \$23,138 in 1883 to \$39,080 in 1905, the total amount of prizes paid up to the close of last year being \$892,694. This year, with \$45,000 to add, a big stride will be made towards the round million. Turning to the attendance, the same satisfactory indication of rapid and substantial growth is shown. In 1883, for instance, the turnstiles registered 171,765 admissions. In 1893 the number was 267,192. In 1903, Dominion Exhibition year, it was 527,320. In 1904 it was 556,193, and in 1905 it was 684,413, or approaching three times the total population of the city. Even outside constituencies that regard Toronto with some sense of envy must acknowledge that this state of things is extraordinary, and speaks volumes for the excellence and attractiveness of the Exhibition annually held in this city from some date in the last week of August to some date in the second week of September.

THE CANADIAN MANUFACTURER accentuates its high appreciation of Toronto's Great Fair by enrobing itself in a special cover that is, without doubt, a thing of beauty and a joy to those who are interested in it, at the same time giving accurate descriptions of many of the fine exhibits.

CANADIAN BOUNTIES.

Canada's payment of industrial bounties during the fiscal year ending June 30, 1906, was \$3,088,407, an increase of \$229,056 over the year previous. The statement concisely is as follows:

	1904-05.	1905-06.
Iron and steel and steel products...	\$2,234,684	\$2,400,773
Lead.....	330,645	90,197
Binder twine....	13,789	15,079
Petroleum..	350,407	291,157

The heaviest earner of bounty was the Dominion Steel Co., which was paid in the last fiscal year on iron, steel and articles made from steel the sum of \$957,337. The Algoma Steel Co. came next, with \$535,190; Hamilton Steel, \$200,965, and Nova Scotia Steel, \$187,693.

The bounties for iron and steel earned by the several companies in 1905-06 were as follows:

Pig iron:	
Canada Iron Furnace Co.	\$40,256
Deseronto Iron Co....	13,664
Hamilton Steel & Iron Co.....	98,897
Dominion Iron & Steel Co.....	246,353
Nova Scotia Steel & Coal Co..	65,075
Londonderry Iron & Mining Co.....	51,525
Algoma Steel Co.	167,420

Steel ingots:	
Hamilton Steel & Iron Co.	\$67,578
Nova Scotia Steel & Coal Co.	96,803
Dominion Iron & Steel Co.	408,571
Algoma Steel Co.	367,770
Articles manufactured from steel:	
Dominion Iron & Steel Co.	\$302,415
Nova Scotia Steel & Coal Co.	25,815
Montreal Rolling Mills Co.	7,386
Hamilton Steel & Iron Co.	34,217

AUSTRALIAN TRADE.

Those who do or propose to do an export trade to Australia should study its recently enacted commercial law bearing upon imports. The regulations provide that the importation of articles of food and drink, medicines and medicinal preparations, manures, apparel and materials for same, jewelry, seeds and plants is prohibited unless bearing a trade description in legible characters, affixed in a prominent position, showing the nature of the goods, together with the actual country and place of production or manufacture. In cases where goods have both an outside and inside covering the label or brand shall be affixed to both.

In regard to all spirits, the date of manufacture must be given in the label or brand; in the case of blended spirits, the date of such blending. When the spirit is described as whisky, the method of manufacture and the material from which made must be stated in the description. Any description in which the word "cognac" is used shall be understood to mean spirit which is the produce of grapes only, and the importation of any spirit so described other than pure grape spirit is prohibited. In regard to wines, the date of production, or if blended, the date of blending, must be included in the description. The descriptions "port" and "sherry" when used by themselves, can be applied only to the unadulterated wine produced in Oporto and Xerxes. Other ports and sheries must have the name of the country of production preceding the name of the wine.

In the case of medicines or medicinal preparations where any article contains not less than ten per cent. of ethyl alcohol, and the average dose recommended for use is greater than one teaspoonful, or when any such article contains morphine, cocaine, heroin or the salts or derivatives of the same or any of them, or of chloral hydrate, belladonna, cotton root, ergot or other abortifacien, the description must contain intimation to that effect. The description of manures or fertilizers must include the chemical ingredients.

No goods can be imported into Australia which are described as "wool" or made of wool piece, which contain less than 90 per cent. of pure wool; nor as leather or made of leather which are not entirely leather without any loading or admixture of any foreign material. In the case of jewelry the description must include, when the term "gold" is applied to goods, a statement showing the purity of the gold used in its composition.

The contents of each package of seeds and plants must be accurately described as to the purity of the seed, and must also indicate the place of production and the

year in which grown. A description must be attached to all plants imported, giving the name of the plant and the country of origin and whether free from any disease.

AGRICULTURAL IMPLEMENTS.

In the issue of this journal of January 20, 1905, it was shown that the imports of agricultural implements into Canada for the preceding fiscal year, including 21 items, were valued at \$2,934,594, of which \$2,911,120 came from the United States; and it was also shown that our exports of precisely the same lines of implements were valued at \$2,556,834, of which only \$26,837 was to the United States. In these lines our imports exceeded our exports by only \$377,740. There are no statistics to show what the domestic demand for such articles was, but it is fair to presume that it was five and a half or six million dollars. The trade, both import and export for the year 1906 was no doubt very much larger than during the year before, and considering the large influx of farmers into the western sections of the country, it is safe to assume that the demand for agricultural implements exceeded \$7,000,000 in value, at least one-half of which came from the United States.

In view of the fact that in 1905 we exported more than \$2,500,000 worth of agricultural implements, and imported a much larger value; and in view of the increased demand for implements and largely increased facilities for transportation, it would be gratifying to know the condition of preparedness our manufacturers are in to supply the needs of the country. It is claimed by some that it is impossible to greatly reduce the imports of American implements without a material increase of duty; and it is also claimed that the McKinley duty prevents our selling implements in the United States, while our duty is not high enough to even to a small extent shut out American implements from the Canadian market. It may, however, surprise some of our readers to learn that the rates of duty on implements is identically the same in both countries.

Item 318 of the Canadian tariff specifies as follows:—Mowing machines, harvesters, self binding or without binders; binding attachments; reapers; cultivators; plows; harrows; horse rakes; seed drills; manure spreaders; weeders; and malleable sprocket or link belting chain for binders, 20 per cent. ad valorem.

Item 460 of the United States tariff specifies as follows:—Plows, tooth and disc harrows; harvesters; reapers; agricultural drills and planters; mowers; horse rakes; cultivators; threshing machines and cotton gins, 20 per cent. ad valorem.

IT PROVES TOO MUCH

The American Economist prints the following clipping from Tom Watson's Magazine (which it says is a free trade publication) going the rounds of "tariff ripping" papers:

Tom Watson's Magazine claims to have some interesting figures from Buenos Aires, as follows:

The Advance plow, which sells in this country for \$18, is sold in Buenos Ayres for \$9.

The hay tedder, which costs you \$45, is sold in Buenos Ayres at \$30.

The mower costs you \$65, it costs the South American farmer \$40.

You pay \$25 for a horse rake, down trodden South Americans pay \$17.

The feed cutter No 3, for which we pay \$90, goes to the poor foreigner at \$60.

The Ann Arbor cutter demands \$40 of us; it is satisfied with \$28 in Buenos Ayres.

The cultivator which is priced to you at \$30 is sold to the South American for \$22.

These are not the products of the "pauper labor of Europe," but of the factories of America, which are glad to get the prices that they have to take when they get out from under the protection of a too high tariff.

Regarding which the Economist says:

Practically all the machines named in this list are controlled by trusts which, like the Standard Oil Trust, the Ice Trust, the Anthracite Trust and many others, are in no way assisted by the tariff. The various farm implement trusts get all their protection from patents and patented processes of manufacture. They hate the tariff, and would like to see it cut down by revision or by reciprocity agreements which would give them a still better chance to sell to foreigners at cut prices.

We are not aware that it is a fact as stated in Tom Watson's Magazine, that the prices quoted by it are correct—that American agricultural implements are sold at such remarkable reductions in South America than in the home market in the United States. The Economist seems to accept the statement, and its comments are based thereon. It tells us that all the implements enumerated in the list are controlled by the trusts, and intimates that similar implements not made by the trusts are sold in the home market at the much higher prices. It is not to be supposed that "the trusts" slaughter their goods in the home market at lower prices than those obtained by the non-trust manufacturers, else the latter would be very quickly driven out of business. The trusts, then being unwilling or unable to compete with the other manufacturers in the home market, find it to their advantage to sell their wares in the South American market, where they are forced by the competition of the whole world to sell at the lower prices. "The trusts," composed of business men, do not sell their products at exceedingly low prices for the benefit of their health or for excessive love for the foreign consumer, but really to make money; and they certainly would not sell at the low prices if they did not make money in the transaction.

The Economist tells us that the trusts are in no way assisted by the tariff—that they get all their protection from "patents and patented processes of manufacture." But one conclusion, therefore, can be reached—that as the trusts hold these advantages, which they will not share with the other manufacturers of agricultural implements, these latter cannot do otherwise than produce only non-patented articles of antiquated style and of inferior value, the sale of which can only be forced upon American farmers, the McKinley duty of 45 per cent. ad valorem enabling them to do so. According to the Economist the only relief in sight for the non-trust

American manufacturer of agricultural implements is to increase the duty; but we fail to see that were it doubled it could afford no relief, seeing that the trusts hold the whip handle. We are aware that Canada last year imported nearly \$3,000,000 worth of first-class agricultural implements from the United States, a large portion of which was the product of non-trust makers.

We find the Economist in a leaky boat in its defence of McKinleyism, when it accepts the statements of Tom Watson's Magazine regarding the prices at which American manufacturers of agricultural implements sell their products at home and abroad. It may be conceded that the price obtained for the Advance plow in Buenos Aires, \$9, is the real cost of the article in the United States factory, to say nothing of land and ocean freights and other expenses, and that the American farmer has to pay \$18 for the same article. It would be open to any one to purchase Advance plows in Buenos Aires at \$9, ship them back to the United States, pay freight charges same as paid when exported, also the 20 per cent. McKinley duty, and sell to consumers at a good profit at considerably less than \$18, the current price in the United States. We notice in some of our American agricultural exchanges that advertisers are loud in their assertions that they make first class goods and sell them at reasonable prices, and this is undoubtedly so; but the Economist, unintentionally, no doubt, discounts these claims and discredits the theory of tariff protection. It cannot be true that "the trusts" control all the valuable patents and patented processes affecting the manufacture of agricultural implements, and that the non-trust manufacturers possess no such advantage.

Our esteemed contemporary had better revise its argument.

FACTORY LAW INVALID.

A law enacted by the legislature of the State of New York to prohibit night work in factories by women and children has been declared unconstitutional by the court of special sessions. A few days ago in the city of New York Judge W. H. Olmsted read the opinion which was very long, and Justices J. M. Deuel and J. B. McKean concurred. The decision was a test case. The case was brought under Section 77 of Article VI., Laws of 1897, later amended by Chapter 192, laws of 1899. The section read:

No minor under 18 years of age and no female shall be permitted or suffered to work in any factory before six o'clock in the morning and after nine o'clock at night, or more than ten hours in any one day, except to make a shorter workday on the last day of the week, or more than 60 hours in any one week, that will make up an average of ten hours per day for the whole number of days so worked.

Attorney-General Mayer appeared for the people and Frederick B. House for the defendant, David L. Williams of the Williams Printing Co., New York City. To test the law Williams was arrested charged with having employed one Katie Mead in the making of books during the forbidden hours. He admitted that his place was

a factory within the meaning of the statute. In the magistrate's court the case was made as brief as possible, and upon his conviction, Williams at once appealed.

Mr. House held that the law violated the constitution of the United States, in that the section in question was an infringement of the privileges and immunities of citizens of the United States and denied to women the equal protection of the laws; that it violated the state constitution, because it deprived a person of liberty and property without due process of law.

Attorney-General Mayer held that while the right to employ labor is a property right, it is fundamental law, and this right must be limited and made subject to "the superior obligation" so to use it that it shall not be an injury to another; that it must be subordinate to public policy and the necessity of protecting the public from any injury. He held that the right to limit the hours of labor of women in factories was clear because of the effect of such employment on them, because of their greater physical weakness and the necessary and consequent effect upon the well-being of society.

Justice Olmsted in his decision said that the single ground advanced in favor of the law was a plea of justification that it had been enacted to protect the comfort, welfare and safety of the whole people, and, that individuals must suffer curtailment of their rights for the common good. He said the attorney-general had urged no other reason than that the general welfare of the state demands that the progeny of factory women shall have healthy mothers to the end that the state may have sturdy citizens. He said:

"With no other excuse this law appears to be a most palpable piece of special class legislation and it is an unwarrantable invasion of constitutional rights and individual liberty."

Justice Olmsted granted an arrest of judgment and ordered the discharge of the defendant.

EDITORIAL NOTES.

We are informed by Mr. Edward Johnson, Secretary of the Decimal Association, of London, that the movement in favor of the adoption of the metric system of weights and measures has been strengthened by the election of more than a score of new vice-presidents of the Association, including the Right Honorable Lord Avebury, which, in our opinion, does not specially recommend the Association to Canadians, although his views in the matter are quite as valuable as any of the other officers. Canada takes only a languid interest in the metric system propaganda.

In his useful report on the Liege arms industry Consul-General Sir Cecil Hertslet mentions that Belgian admiration for the British weapon is carried so far that "Guns are frequently manufactured at Liege, which, though they are entirely manufactured in that town, are yet described in such a manner as might lead to the supposition that they are of British manufacture." Another grievance against Belgian guns is that they are imported here in a condition which is within a few shillings' worth of labor off completion, and then stamped with the British proof-mark. This practice is manifestly wrong, and we

hope the Birmingham movement to introduce a distinguishing mark for guns of foreign origin may meet with success.—Commercial Intelligence.

It is this sort of thing that makes one tired of the so-called Canadian-British tariff preference. If these Belgian guns were imported direct into Canada they would be liable to duty under the general tariff, but they come in via a British port and are supposed to be of British origin, and therefore entitled to the preferential tariff.

As a result of the passage of the bill allowing the production and utilization of alcohol for industrial purposes, without the internal revenue tax, the United States Department of Agriculture has decided to publish a bulletin on January 1, 1907, when this law goes into effect, placing before the public a collection of the best obtainable data on the use of alcohol in small engines. For this purpose Prof. Charles E. Lucke has been retained by the Department as expert to conduct a protracted series of investigations in the laboratories of Columbia University. The bulletin will contain all of the work done on the subject both here and abroad, as far as it is possible to obtain the same, and it will constitute a very complete bibliography, giving as well the results of experiments and the conclusions drawn therefrom regarding American engines. It is hoped that all those interested in this question will forward to Prof. Lucke any information of which they may be in possession, or inform him of the location of existing data. Possessors of patents covering inventions bearing upon the subject will do well to provide Prof. Lucke with copies of the same, and if possible to submit all apparatus intended for the utilization of alcohol, such as vaporizers, carbureters, or engines complete. These will be tested in the most thorough manner, and the experiments will be conducted without any expense whatever to the public, except for the transportation of the apparatus. The reports of the tests will be published in the bulletin. Information or apparatus should be addressed to Prof. Charles E. Lucke at Columbia University, and they will be returned when the work is completed, due acknowledgment being given for the assistance rendered.

The growth of the export trade of the United States is remarkable. In 1896 it amounted in value to about \$5,000,000, which, ten years later in 1906, increased to \$25,000,000.

The intimation is made, with official confirmation, that the present is the richest agricultural year Ontario has ever experienced. An immense yield of grain of excellent quality is everywhere reported, and even better times than the present are heralded. The August crop bulletin issued by the Agricultural Department evidences this fact. With natural conditions no more favorable than in former years the average yield per acre in all grains shows a substantial advance over all previous records. This is due to a kind Providence and improved agricultural methods. Barns are filled and prices in all products are at high water mark.

It is believed in some quarters that the new Canadian Tariff law may stimulate reciprocity between the Dominion and this country. Just who it is that believes it we don't know, but it is somebody who has great faith in political platforms.—Philadelphia North American.

No one in Canada entertains any belief or desire that the new Canadian tariff will contain any feature looking to or stimulating reciprocity between Canada and the United States. Any suggestions of that character must come from Washington, and even then the sincerity of it would be seriously questioned. Canada's new tariff **should** be of a two-fold sort: of a friendly character for **commercially** friendly nations, and of a retaliatory description for **commercially** unfriendly nations. They may choose for themselves out of which dish they would be served.

Exporters to Japan must bear in mind that on October 1, new regulations relating to the production of certificates of origin will be rigidly enforced in that country. According to these regulations business firms wishing to enjoy the benefit of special trade arrangements recognized in the customs duties law of Japan must furnish proof of the fact that the goods they are importing are the product or manufacture of the locality to which special conventions are applicable, except on postal matter and goods, the dutiable value of which does not exceed 100 yen. The proof must be furnished by means of a certificate of origin by the Japanese consulate or commercial agency at the place of production, manufacture, or shipment of the goods, or where the Japanese have no such consulate or agency by the custom house or other government of public office or by the chamber of commerce of the locality. The certificate of origin must show the marks, numbers, descriptions, number of packages, weights and measurements of the goods and the place of manufacture. All goods which are not accompanied by the necessary certificates at the time of their clearance through the custom house at the port of entry, will be liable to the duties of the statutory or maximum tariff.

The German postal department has recently introduced a card of identification for the benefit of the travelling public which will prove of great utility to travellers. Upon the card or folder is printed its number, the date of its expiration at the end of the year, the name, profession and residence of its owner, the date of its issue and the seal of the postoffice issuing it. Within the fold is pasted a small unmounted photograph of the owner. A small cancellation stamp is pasted partly upon the photograph and partly upon the page. Opposite is a description of the applicant, his general appearance, color of hair and eyes. His birthplace and age are also given, and he is required to sign the card. The last page of the little folder describes the uses to which the card is to be put and the means of obtaining it. The fee is 50 pfennigs (12 cents). The card is to be used in obtaining mail where the owner is not known, and in case he changes his appearance so that he no longer conforms to the description a new card must be issued after proper identification of the applicant.

The complete reports of the Congress of the Chambers of Commerce of the Empire in London last month are extremely suggestive. In parliaments of this sort there will always be too much talk about some subjects and too little about others. Agendas are apt to be overloaded; and insufficient compulsory condensation of remarks is exercised early in the proceedings. This Congress, which is the nearest practical approach to deliberate Imperial Federation yet devised, should sit longer than three days. It is supposed to take no longer to thrash out, once in three years, commercial policies for a world-wide empire, than is necessary for a body of artisan co-operators to settle their common affairs once a year. It is ridiculous that resolutions, for the elucidation of which some delegates travelled thousands of miles, should be disposed of in a few minutes because of lack of time to discuss them. The delegates from all over the world must have spent thousands of days in journeying to and from the Congress. It is no economy of time to occupy so much in travelling, and so little in turning it to account.—Monetary Times.

The great question now before the country is that of the control of the corporations. Speaking broadly, the issue involves an effort on the part of the human race to find a safe and reasonable balance between unrestricted and wasteful competition on the one side, and the tyranny of what the London Times calls "omnipotent, uncontrolled capitalism" on the other. There must be somewhere a golden mean between uncontrolled competition which means wasteful, disastrous trade wars and the operation in its harshest aspects, of the law of the survival of the fittest, and uncontrolled monopoly which means tyranny and oppression. Socialism seeks the destruction of competition and the merging of monopoly into a state of public ownership of the agencies of production and transportation. As against this the experiment is being tried, upon a grand scale, of government regulation, in order to preserve an even balance between the two extremes of competition and monopoly. But regulation involves the evil of centralization of power in the federal government. It is a hard question to settle. It involves the most intricate and deepest of economic problems. The greatest students of political economy are divided in regard to it. Nevertheless, this stupendous issue, the solution of which makes for the weal or woe of countless generations to come, is really subject to the decision of the sixteen million voters of the country.—Wall Street Journal.

The barometer of trade in Western Canada is the business in agricultural implements. Current reports are to the effect that the farm implement trade in Western Canada during the present year is likely to exceed all previous records. It was said recently that there had already been an increase of from 50 to 150 per cent. over the business done a year ago. The influence of this great growth of agricultural activity is far-reaching, extending to other industries which the great natural resources of the country support, and reaching also to further railroad developments, which in turn open up other new opportunities for trade and industry.

Exhibits at the Canadian National Exhibition

A Review of Some of the Exhibits of Particular Interest to Manufacturers.

THE PROCESS BUILDING.

Each year makes the Canadian National Exhibition at Toronto more interesting and more valuable from an educative standpoint to manufacturers and others connected with the industrial expansion of Canada.

The erection of the new Process Building during the past year did much toward relieving the shortage of space for displays of machinery, power appliances, etc., and

THE PRODUCER GAS CO.

In the north aisle, south wing, in the Process Building, was an exhibit which attracted wide attention—that of the Producer Gas Co., 11 Front Street, East, Toronto. The feature of this exhibit was a 35 h.p. Campbell suction plant and engine which was driving all the machinery along the north side of the Process Building. This plant was started up each morning at 9.45 and continued in operation until 9 p.m., on an average daily consumption of 165 pounds of pea coal.

vertical and suction gas plants for manufacturing ice in Scotland. This engine operates day and night for thirty days together without being shut down for any purpose whatever.

Campbell plants are being operated in all parts of the world, and have engines successfully operated as far north as the Arctic circle in Spitzbergen. The great aim of the Campbell Co. has been to turn out engines and plants economical in fuel costs, and they have successfully endeavored to se-

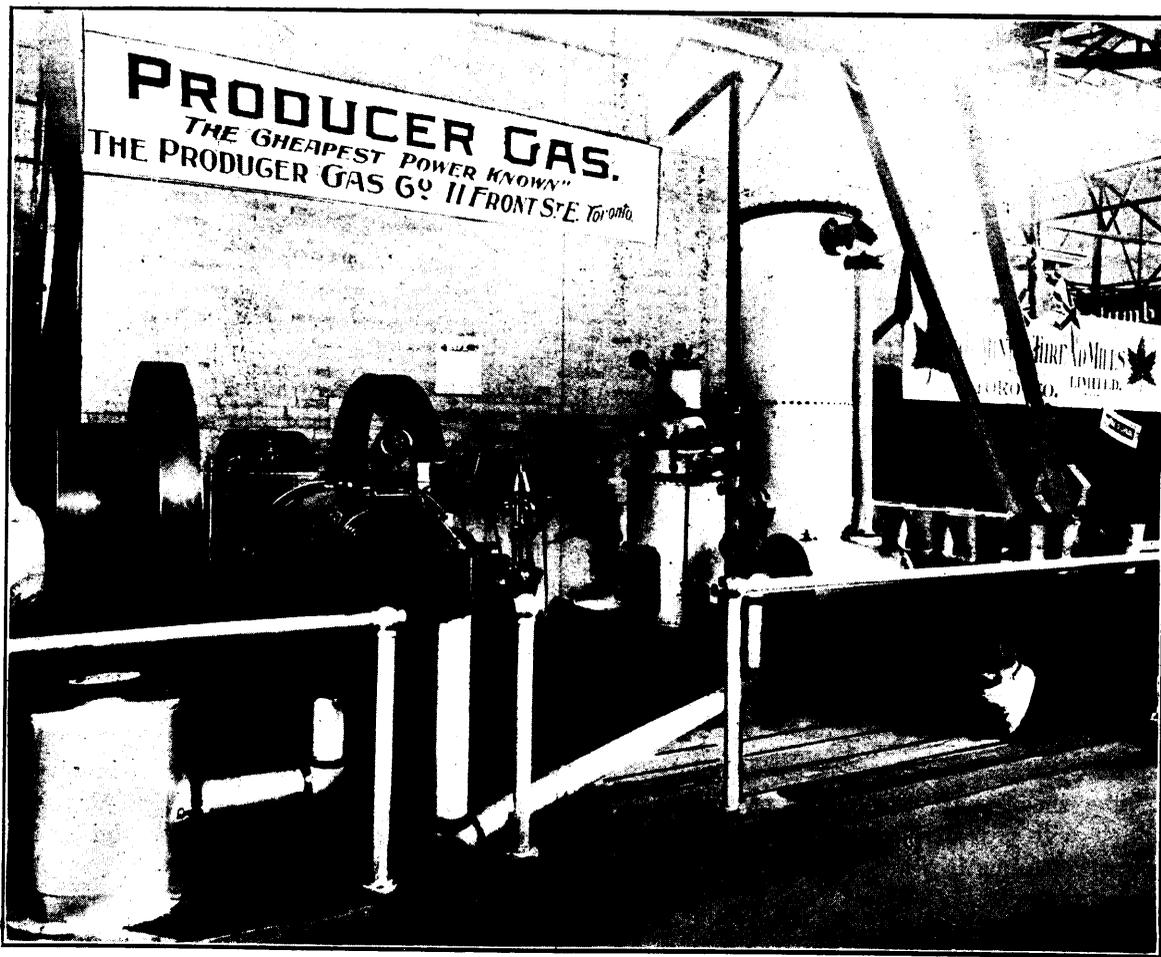


EXHIBIT OF THE PRODUCER GAS CO., TORONTO.

added to the group of buildings in the grounds one which has already proved popular with all classes of visitors and which is suited for the purpose of display to most complete degree.

In this building were two new exhibits which probably aroused as much interest on the part of visiting manufacturers and other power users as any exhibits. These were two suction gas producer plants, one German, the other English, operating gas engines, and providing power and light.

Although this is the first year the Campbell plant has been exhibited at the Canadian National Exhibition, the plant is by no means untried in Canada, there being several plants of this type in successful operation, the total horse power now in use and on order throughout the Dominion being practically 1,000 brake h.p.

The average power user has but little idea of the immense possibilities of producer gas power and gas engines. Messrs. Campbell make quite a variety of types of engines to suit the various needs of their customers, and recently supplied some multiple cylinder

cure economy in repairs, oil, water and attendance. The greatest possible simplicity consistent with efficiency is secured throughout the engines, having all working parts and other wearing parts, not only replaceable, but are accessible to an exceptional degree.

The exhibit in the Process Building was under charge of Mr. G. P. Wallington, of the Producer Gas Co., and Mr. S. G. Doyle, the Canadian engineer of Messrs. Campbell, manufacturers. Although these gentlemen were kept very busy during the exhibition hours satisfying the commendable curiosity of visiting Canadian manufacturers, engi-

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neers and users of power generally, the exhibition has been such that further results are anticipated in future exhibitions.

The Producer Gas Co. will be pleased to send literature describing their plant to any manufacturer or power user throughout the country.

ECONOMIC POWER, LIGHT & HEAT SUPPLY CO.

Many were the attractions in the Process Building, but none more so to manufacturers than the demonstration made by this concern. A 40 h.p. Pintsch suction gas producer developed gas for a 20 b.h.p. National gas engine which operated an electric dynamo and through it supplied lighting for many exhibits in the Process Building. This served to show the method of operation and the fine results produced by this type of plant, which was working on a 20 per cent. level during the exhibition; also to demonstrate the truth that it is exceptionally economical

England, by the Royal Agricultural Society, referred to in last issue, the National gas engine proved its good points in operation from producer gas by winning the gold medal. The coal consumption during these tests was but 0.84 pounds per brake horse power and 0.91 pounds per brake horse power in the half load test.

The Pintsch producer is of German make while the National gas engine is English. It is the intention of the company to manufacture the producer in Canada, however; but will continue to import the engine. The offices of the Economic Power, Light & Heat Co. are at 40 York Street, Toronto, the Quebec agents being N. J. Holden & Co., Montreal.

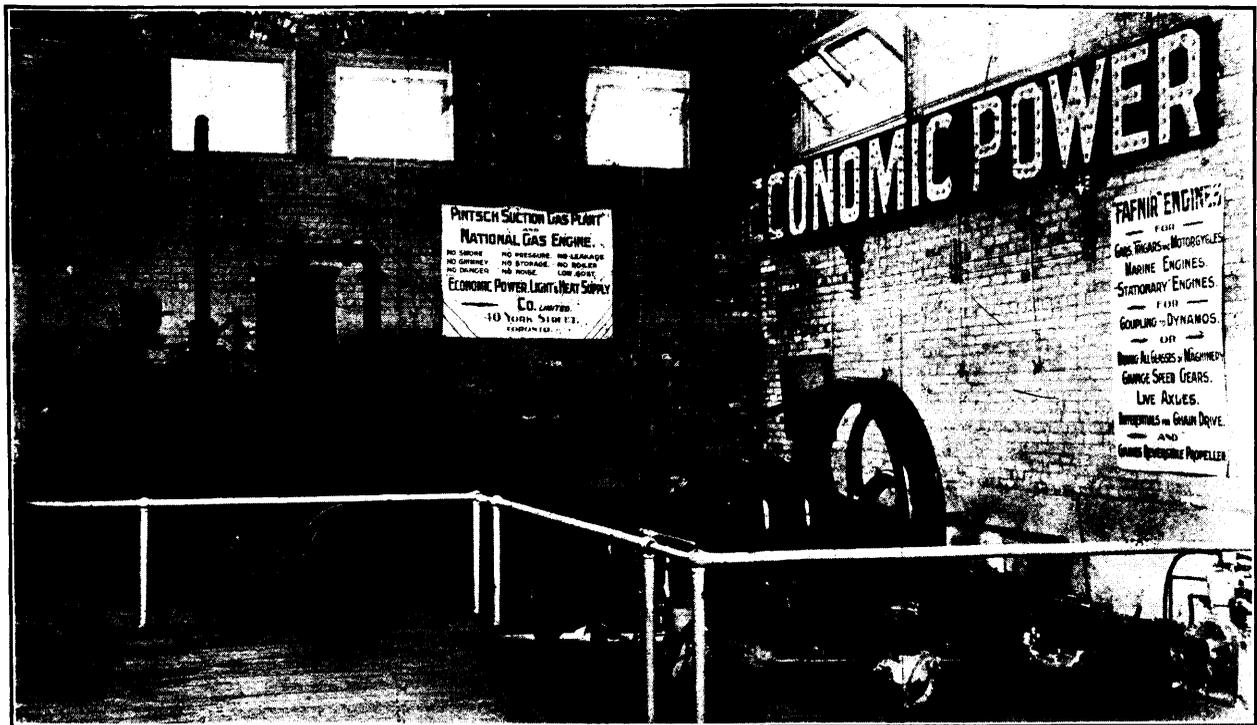
T. & H. ELECTRIC CO.

In their accustomed place at the east end of the Machinery Hall the exhibit of the Toronto & Hamilton Electric Co. won much attention from manufacturers. The

THE CANADIAN FAIRBANKS CO.

The predominant feature of the Canadian Fairbanks exhibit was the display of Fairbanks-Morse gasoline engines. The most popular of these is the "Jack of all Trades" made in sizes from 2 h.p. to 4 h.p. on wood base, self-contained, with or without walking beam pump jack and can be used while pumping water to do other work such as sawing wood. It can easily be moved or can be placed on wagon and moved from place to place for temporary work.

Engines of more interest to manufacturers, however, were the 5 h.p. Fairbanks-Morse standard gasoline engine and the 6 h.p. Fairbanks-Morse standard vertical electric engine. The former is made stationary or portable. In its mechanical construction, and its finish, it is ideal, being fitted with large crank shaft and connecting rod, phosphor bronze bearings and bushings throughout and with large water jacket on both the cylinder and valve chambers. This engine is just adapted for small manufacturers.



DISPLAY OF THE ECONOMIC POWER, LIGHT & HEAT SUPPLY CO., TORONTO.

in the production of power. The Pintsch producer plants are built in sizes from 4 to 2,000 h.p., it being possible for more than one engine to be supplied from the one producer by means of the Pintsch automatic governor, which prevents the suction force through the producer from varying, without reference to the number of engines which are running.

Among the features of the Pintsch suction gas plant are that there is no smoke, pressure, danger, leakage, gas holder noise, boiler nor chimney; also its ease in starting, and low cost, while the features of the National engine are loose liners; its heavy fly wheel, and its special fitness for electric lighting plants.

The attention of all enquirers was drawn to the fact that in the recent tests at Derby,

central feature of this exhibit was a 30 k.w. 110 v., slow speed dynamo, which was used for lighting many exhibits in Machinery Hall. This dynamo, also 7½ k.w. and 4 k.w. moderate speed dynamos are especially adapted for light plants such as would be used by a manufacturer or a small municipality. In fact the 30 k.w. dynamo was sold on the grounds for this purpose. Several induction motors, wound for different voltages and number of phases also won attention from power users. A new product of this company was a selector switch designed for use in power stations for disconnecting transformers from high potential circuits where repairs are desired or where it is desired to make other connections. At the back of the exhibit were switchboards, each designed for operating two dynamos running in parallel.

having few moving parts and requiring no attention, except its supply of gasoline and lubrication.

The very desirable feature of the starting pump is also connected to this engine which makes it very easy to operate and a safe and reliable power for any purposes, where a larger power than the Jack of all Trades engine is required.

The vertical electric engine is a high grade engine and is specially designed to run dynamos for electric light purposes or anything requiring a steady power. It is equipped with a special governor of the throttling type and is very sensitive and accurate. It has large water jacket, make and break ignitor, finely ground cylinder and valve seats, heavy expansion cylinder rings. It is fitted throughout with phosphor bronze

bearings and bushings which are all interchangeable and easily adjusted.

This engine has revolutionized the question of lighting in a great many manufacturing establishments and has made a very creditable reputation for itself in the generating of electricity.

A unique feature of the Canadian Fair-

PHILIP CAREY MFG. CO.

On the east side of Machinery Hall the exhibit of the Philip Carey Mfg. Co., Bay Street, Toronto, was in its accustomed place. This display included two lines of especial interest to manufacturers.

To the left of the illustration will be noted

vibrations and consequently its wear is exceptional. Asbestos coverings of all grades for hot water, steam and furnace work are made by this firm, samples being displayed here in a show case.

In the background of the illustration will be noted a small house covered with Carey's magnesia flexible cement roofing (famous for durability), which has won the reputation of having all the good features of a compound roofing. This roofing is especially suited for use on factories, business blocks, dwellings, barns, etc. It has stood the test of the elements for thirty years and is steadily growing in favor. It is composed of a heavy woolen felt, flexible asphalt cement, a heavy burlap and is coated over with Carey's special cement paint—is fireproof and unaffected by extremities of heat or cold, fumes or gases. Over 200,000 squares are in use in Ontario. The Philip Carey Mfg. Co., 112 Bay Street, Toronto, invite readers of THE CANADIAN MANUFACTURER to write for catalogue describing this pipe covering of the roofing.

HAVE TESTED THE BEARING.

In an interview with a CANADIAN MANUFACTURER representative a few days ago Mr. E. G. Yeates, of the London Machine Tool Co., Hamilton, Ont., expressed great satisfaction at having installed Chapman double-ball bearings throughout their plant.

"We wanted the most up-to-date plant we could have and were persuaded that in the interests of economy of power we should equip all our shafting, etc., with the Chapman bearings," said Mr. Yeates.

"The results have been away beyond our expectations. Not only are our power charges kept down to the minimum rate—which alone was unexpected—but we find a great saving in time, as there is no trouble



GAS ENGINE DISPLAY BY THE CANADIAN FAIRBANKS CO., TORONTO.

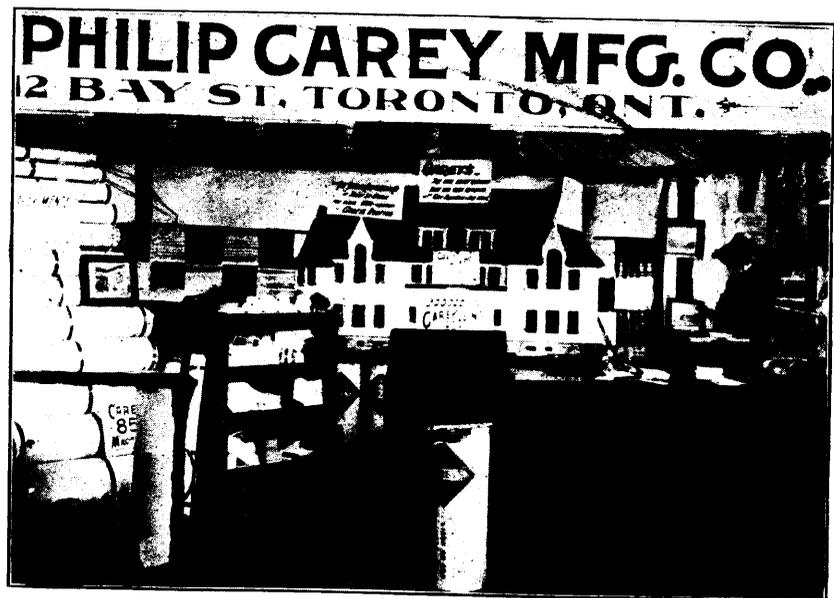
bank exhibit was the chair shown to the left of the illustration, which was made of Fairbanks valves and iron pipe, each valve true and firm in place, a pretty effect in white and gold.

To the left of the exhibit, not included in the illustration were a full line of Fairbanks scales, made for all purposes, while to the left of the cut may be seen a pyramid of wood-split pulleys and iron pulleys, riveted as well as pieced, especially suitable for canning factories, etc., where the glue in a pulley is apt to weaken.

At the east end of the exhibit was a portable 12 h.p. Fairbanks-Morse gasoline engine adapted for threshing, ensilage cutting or any power necessary to move from place to place. This engine, which is made in all sizes up to 32 h.p. has circulating pump which keeps water continually in motion around cylinder; commodious tank, strongly made of galvanized angle steel, cross braced on the interior, for cooling water; heavy crank shaft and connecting rod of special quality steel, large water jacket on cylinder free from obstruction of cross walls, while valve chambers are water jacketed, starting pump and hand ignition, making it easy to start, a feature particularly important in a portable engine.

Though none were shown in this exhibit the Canadian Fairbanks Co. are selling agents for a suction gas plant, the Fairbanks-Morse. They have such a plant operating the Fairbanks-Morse plant in Toronto and have sold and are now installing a plant in Montreal, the producer of which will be of 100 h.p. capacity, while there will be two 45 h.p. vertical producer gas engines, direct connected to 30 k.w. generators, which will operate motor driven machinery.

a display of Carey's 85 per cent. carbonate magnesia. For the protection of high pressure steam pipes and boilers, blast furnaces, etc., this covering has amply proven its worth throughout America. This means to the users of this material increase of power and of



THE PHILIP CAREY MFG. CO., LIMITED, TORONTO.

the capacity of the plant and a saving of wear and tear, also of fuel. In all the saving will cover the cost of the covering in less than a year. It is made of 85 per cent. magnesia and 15 per cent. asbestos fibre. This covering will not char nor burn, is unaffected by

with hot bearings and a similar saving in lubrication as we find all we need do is put vaseline in the bearings once in two months or so.

"We now see that we are going to save the cost of installing these bearings during the

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER

first year and have decided that when we make the additions to our plant we expect to shortly, Chapman bearings will be installed throughout."

A NEW INDUSTRY.

"And the house, when it was in building, was built of stone made ready before it was brought thither." 1 Kings 6 : 7.

Such was the thought that came to mind during a visit to the Canadian Art Stone Co., Price Street, Toronto, where one sees being moulded columns of intricate cornice moulding, balusters, stone tracing, window trimmings, and carved work, in white, grey, buff, red, and brown stone, which would have taken days to cut in natural stone. Anything that can be cut or carved can thus be reproduced without the expense of importing the stone.

In conversation with Mr. Badgley, the secretary and manager of the company, we learn that, although the firm has been in business but a few months, they have contracts on hand for several large buildings.

The process of making stone is not an experiment. This method of making stone has been carried on in Germany for about a century, where there are large foundries covering acres of ground, and costing many thousands of dollars, moulding stone in wood and plaster moulds, and thousands of articles are moulded in stone, as well as building stone for all kinds of structural work. There are examples of stone made by this process in Toronto, which have been in buildings for over thirty years.

The durability of the material is now seldom questioned. Manufacturers and builders realize that cement as a building material is here to stay. The most important problem being that of handling cement artistically so as to carry out architectural designs without having to reconstruct a building to suit the material. By using this material it is possible to get the same effect as with cut stone at a greatly reduced figure, or, for the same price, get a building of much better design. An excellent example of the possibilities with this stone was admired by many visitors to the Canadian National Exhibition at Toronto. A view of the Press Bureau will be seen on the front cover of this issue. The stone throughout was made by the Canadian Art Stone Co.

THE LABATT MFG. CO.

Another new firm seeking popular approval—and winning it, was the Labatt Mfg. Co., London, Ont. Owing to the lateness in deciding to exhibit this company was able to show but two of their "Reliance" gasoline engines, but these served to amply demonstrate their good points. The two shown were a 5 h.p. and a 3 h.p. vertical engine. The "Reliance" has long been one of the most popular throughout the United States and the exhibit here was in charge of Mr. Frost, who has had many years familiarity with their operation. The "Reliance" is a model of simplicity, having few parts and all being accessible and easily kept clean; can be started and its full load developed in a few seconds and stopped instantly, using fuel only when running; has electric jump-spark igniter, which is at once efficient and durable. Each engine is complete—a power plant in itself—always ready to use. As it is vertical

it requires an exceptionally small floor space.

In a gasoline engine economy and efficiency are the great considerations. Its efficiency is referred to above. The company make the following statement *re* its economy: "Practically the only expense in operating the 'Reliance' is the cost of fuel.

"On account of the accurate workmanship, perfect mechanical design, very superior mixing chamber, electric jump-spark igniter and spark advancer, the saving in gasoline alone will amount to about one-half of the total amount consumed by the average gasoline engine, although we know of an instance in this locality where one of our 'Reliance' 6 h.p. engines replaced a 3 h.p. engine, made by a prominent company, which was using one-third more gasoline than our 6 h.p. We recommend the use of 68 degree test gasoline, from which can be obtained much better service than the higher and more expensive grades of gasolines which are so needed by many engines."



EXHIBIT OF THE LABATT MFG. CO., LIMITED, LONDON, ONT.

The finish of the Reliance engines are compact in design, substantial in construction and superior in performance. They are carefully built by skilled workmen. Castings are all free from rough spots, being thoroughly rubbed with a good filler and carefully painted before shipment.

The finished machine presents a graceful and pleasing appearance, no matter where installed.

Among the uses to which the Reliance may be put are the operation of dynamos for lighting, wood-sawing machines, farm machinery of all kinds, elevators, machine tools, pumps, blacksmith shops, buffing and polishing machines, foundries, hoists, blowers, ventilating fans. In fact a Reliance can be advantageously used wherever power is needed.

The Labatt Mfg. Co., who recently took over the business of the Canada Brass & Supply Co., London, have equipped their plant with all machinery, etc., necessary to the most economical production of "Reliance" gas and gasoline engines. They have a number of their engines, both portable and stationary on display at the Wes-

tern Fair, London, and would be pleased to meet any enquirers there. A new catalogue is now being printed and readers of this paper are invited to write for same.

THE MANSON MFG. CO., THOROLD.

A new exhibit in the Machinery Hall was that of the "Tree" rotary engine, shown by the Manson Mfg. Co., Thorold, Ont. The company was recently organized to take over the "Tree" patents and are now seeking charter of incorporation with the intention of manufacturing and selling this engine at once. The company have secured the Thorold Foundry & Machine Co. for their plant and are now prepared to take orders.

The engine exhibited was a 35 h.p. one, running 30 k.w. dynamo, which supplied the power for the lighting of the exhibit. The chief points claimed for the engine are economy in steam consumption, in oil consump-

tion, and in floor space. Besides building this engine as a steam engine the company are adapting it to the use of compressed air.

MACHINE TOOLS IN OPERATION.

In the Process Building metal working manufacturers had the opportunity of seeing two machines in operation such as have never before been shown at this exhibition. These were a Gisholt lathe made by the Gisholt Machine Co., Madison, Wis., and a Landis grinder made by the Landis Tool Co., Waynesboro, Pa. These machines were shown in the Canada Cycle & Motor Co.'s exhibit, both having been purchased by that company for the manufacture of their automobile engines. The demonstration of the work done by the Gisholt lathe was under the direction of Mr. Chas. Spaulding, while the Landis grinder was operated under the supervision of Mr. T. H. King. Needless to say the operation of such modern machine tools attracted a great many manufacturers and machinists to this exhibit.

S. F. BOWSER & CO.

To the manufacturer who has learned the necessity of stopping all leaks about a factory the exhibit of S. F. Bowser & Co., 530 Front Street West, Toronto, proved of exceptional interest. Merchants, automobile owners, railway officials as well as manufacturers were quick to recognize and take advantage of the safe, economical, clean and profit insuring method which the Bowser system alone affords. In these days of keen competition every device which reduces cost or fire risk, or conserves time, labor and material, is just so much gain and advantage in the battle for supremacy. So broadly adaptable are the Bowser equipments, so complete in detail and so simple and comprehensive in construction that they meet all conditions required. No money or care have been spared in making these outfits the very best that can be produced.

rick and S. W. Paisley of Ontario. Thos. Cragg, of Manitoba and West; Napoleon Roseoni, of Quebec; Wm. Robertson and J. H. W. Strubbe of the Maritime Provinces were unable to be present.

In garages, public and private, the gasoline may be brought directly into the reservoir of the machine, and in shops, mills, factories, railroad roundhouses, etc., by adjustable measures, accurate quantities, according to size of oiler or other vessel to be filled, may be drawn in minimum time, at minimum labor and with maximum safety, in all cases keeping the gases in and dirt and grit out; preventing all loss by waste so common to the ordinary method through evaporation, overflow, over-measure, spilling, dripping, etc.

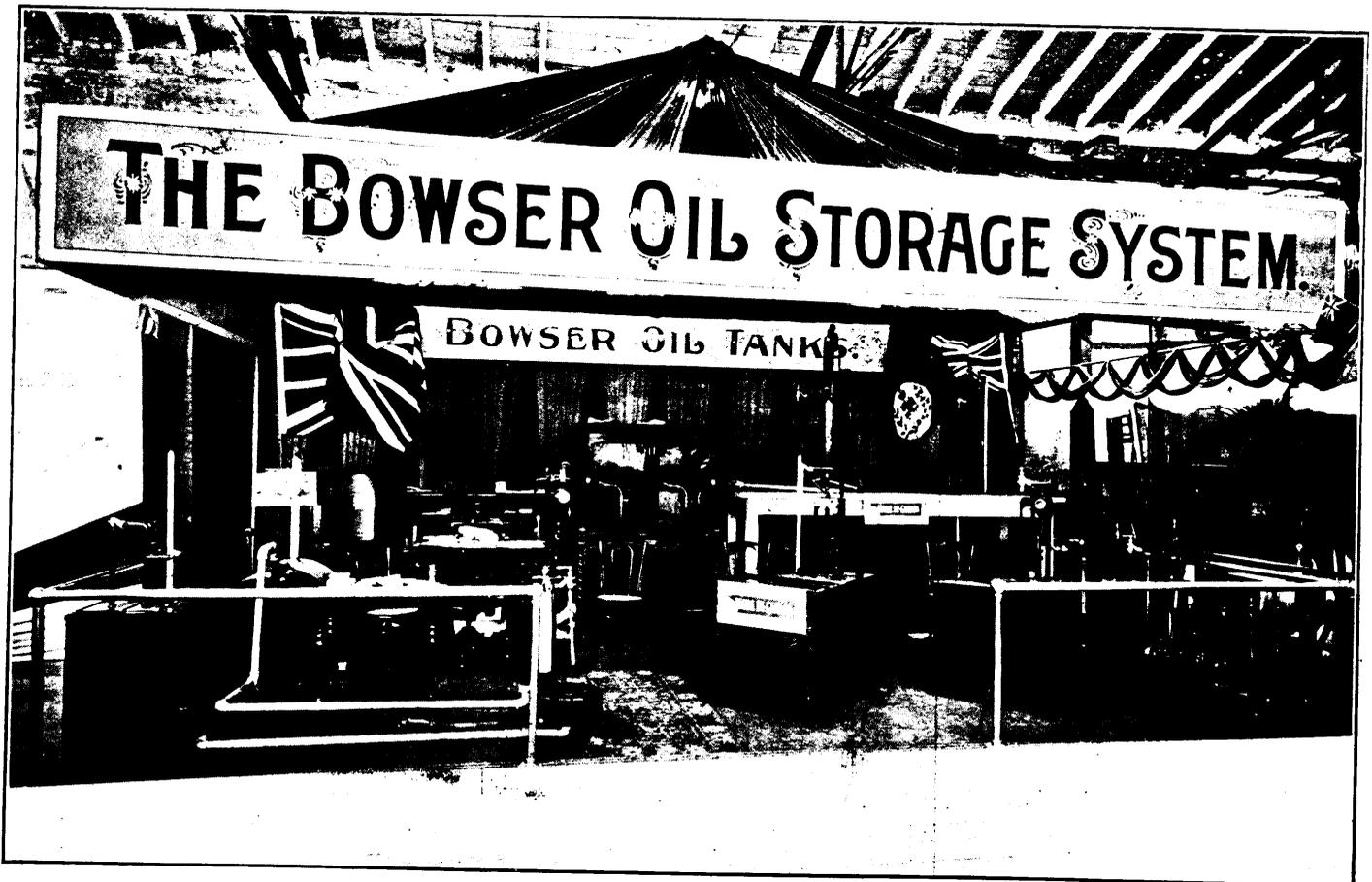
Among the manufacturing concerns who have installed the Bowser systems are the Singer Sewing Machine Co., St. John's, Que.; the Park-Davis Co., Walkerville, Ont., and London, Eng.; the Canadian Rubber Co., Montreal; the Canadian Furniture Co.,

sure and oil-soaked floors, as many gallons are sold or used, as bought, and thus all the profits are secured.

"In a word, these outfits pay for themselves over and over during their lifetime. Many in use fifteen to twenty years are still giving satisfactory service. In proof of the great utility and lasting qualities of these systems, your reporter was shown letters from a number of users, all of whom are enthusiastic in their statements that the Bowser is one of the very best investments they ever made. Then, too, they have the unqualified approval and endorsement of fire-boards, underwriters and insurance companies. Indeed Bowser outfits possess the peculiar quality and design that comes within the most rigid specifications."

TO EXTEND THE C.P.R.

A Canadian Pacific Railroad extension from the Toronto, Grey & Bruce Division,



THE S. F. BOWSER CO., LIMITED, TORONTO.

The demand for Bowser four-measure self-measuring outfits of a few gallons to thousands of gallons capacity has increased so rapidly and to such an extent that larger manufacturing facilities have become necessary and a large new (two-story) building, 180x60 feet, is being erected at 66-68 Fraser Avenue, two squares west of the King Street Subway to be ready for occupancy by October 15.

In looking after the enquiries of visitors, the manager, W. K. Hance, was ably assisted by the Ontario salesmen, J. B. Bate, A. E. Moffatt, J. E. Hale, Levi Swartz, C. S. Het-

Waterloo; the Dominion Automobile Co., Montreal, Toronto and Winnipeg.

"Nearly one-third of a million outfits are in use throughout the world," said Mr. Hance, "and the wonderful part of it all is that such heavy fluids as varnish, paints, oils, lard oil and rubber cement by means of specially designed combination suction and force pumps may be drawn any distance and to any height, and thus distributed for use as needed as readily and easily as the lightest fluids made. And better still by absolutely preventing every drop of waste of whatever kind and doing away with open, sloppy mea-

probably at Flesherton, to Southampton, Hanover and Chesley, may materialize as the result of a deputation from these towns, which waited upon Mr. J. W. Leonard, assistant to the General Manager of the Canadian Pacific, Toronto, this week. Mr. Leonard replied that they were exceedingly busy and that labor was difficult to obtain at the present time, but that surveyors would be sent over the route this fall. Sir Thomas Shaughnessy, he said, had an eye to the traffic possibilities of this route.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

WM. R. PERRIN & CO., LIMITED.

An exhibit which should have been allowed more room in Machinery Hall on account of the interest to manufacturers and of the size and weight of the machinery shown was the display of Wm. R. Perrin & Co., Toronto.

In the foreground of the exhibit was shown a hydraulic die press, capable of doing work requiring a pressure of 400 tons. This press has been largely in demand during the past year by manufacturing jewellers and others requiring a large amount of pressure. The press in itself is massive in construction and is highly finished, the rods being $4\frac{1}{2}$ inch polished steel and the cylinder semi-steel casting

manufacturers using veneer. This press is particularly simple in construction, a feature being the ease with which the wood can be placed in the press at either side, yet the screws are so well and firmly set that the pressure is even and satisfactory. This press was sold to the Kerr Co., Limited, Toronto Junction, during the exhibition. To the left was shown an hydraulic accumulator. This is constructed to give the greatest possible rapidity yet leaving the pressure firm and even. Wm. R. Perrin & Co. have made a specialty of hydraulic presses of all kinds and since the establishment of their plant on King Street East, Toronto, they have found a steady expansion in their business throughout Canada, and have opened up an export

the collieries was brought to the machine shop to be repaired. To have forged a new piece and then finished it in the machine shops, as would formerly have been necessary, would have required at least three days, during which time the colliery would have been idle. However, the break was welded with thermit and the piece was returned to the colliery within ten hours."

Goldschmidt thermit is sold in Canada by Wm. Abbott, St. James Street, Montreal.

SHOULD HAVE BETTER SIGNALS.

The system of signalling and despatching passenger trains out of the Union Station, Toronto, was explained by three officials of the



DISPLAY OF WM. R. PERRIN & CO., LIMITED, TORONTO.

and other parts equally substantial. The press exhibited was sold to G. W. Lees, Hamilton. This press should fill a long-felt want among manufacturers in Canada requiring this class of machine, the establishment of the Canadian plant having enabled the company to put these presses as well as their other lines on the market at considerably less cost than the former import basis.

This press was operated by a three plunger hydraulic pump capable of carrying a steady pressure of 5,000 pounds to the square inch. This pump was given the test, which it stood to advantage, of constant operation.

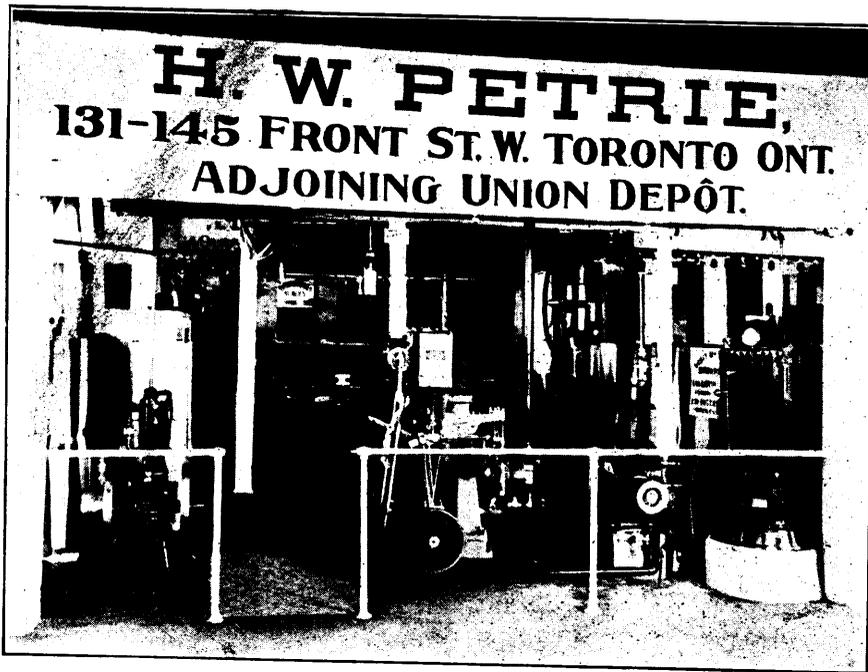
In the centre of the rear was a five foot double veneer press adapted for all classes of

trade to England and some of the colonies. Catalogues with full details of their new presses will be sent any reader of this paper on request.

GOOD RESULTS WITH THERMIT.

Most satisfactory results have been secured with the use of Goldschmidt thermit by Robert Bell, of the Dominion Coal Co. "With thermit," says the Glace Bay, N.S., Gazette, "several heavy engine repairs have been effected and locomotive frames have been welded in a very short time. Only the other day a piece of heavy machinery connected with the haulage system of one of

Union Station Co. on Wednesday night at the adjourned inquest into the death of Wm. H. Atkinson, the Canadian Pacific Railway fireman of Toronto Junction, who was killed by a rear-end collision in the Grand Trunk Railway freight yards on August 22 last. The jury found that deceased came to his death on account of the negligence of the Union Station Co. in not having a proper signal system, and added a rider recommending the installing of a block system or the repair of the distance semaphore at the curve on the main line, operated from cabin D, which was put out of operation in 1901.



SOUTHERN VIEW OF DISPLAY OF H. W. PETRIE, TORONTO.

H. W. PETRIE.

In former years H. W. Petrie had no exhibit at the Fair, but made a great feature of his display in the capacious "Cyclorama Building" near the Union Station. This year, in addition to having a splendid display and a full staff in service to wait on the customers who accepted his oft repeated invitation that they make a personal inspection of his display there, he had an exhibit in Machinery Hall, which attracted much attention. At both places a great many orders were placed during the exhibition.

In the foreground of the view of this exhibit will be seen a No. 1 Jewel automatic engine 8 h.p. operating a band saw. This engine is sold in all sizes up to 75 h.p., and is winning much favor. To the right may be seen a Petrie vertical steam boiler, while to the left is a 3 h.p. Petrie Imperial gas engine, one feature of the latter being its quietness in running. This engine exhausts into a muffler standing on the floor and from thence the exhaust comes into the building and though it can be felt by the hand placed over the exhaust pipe, it can be neither smelt, seen nor heard. This engine is also capable of exceptional range of speed, from 100 to 600 revolutions per minute, it being possible to change the speed while the engine is in motion. A Rider-Ericsson hot air engine and pump were in continuous operation.

In the centre of the foreground will be noted a fore and aft compound condensing 6x12x9 marine engine. This stood to advantage the test of continuous operation.

In the background, not shown well in the illustration was a Lodge & Shipley improved patent head lathe built for use with high speed steel, tests being made to demonstrate its serviceability and its adaptability in feed and speed with different metals. There were also a McDougall pipe-cutting and

threading machine, a Petrie pedestal grinding machine and a Phoenix centreing machine, while in a case was a handsome display of small tools and supplies for engineers, machinists and mill men.

THE DOMINION BELTING CO.

As will be seen from the accompanying view the exhibit of the Dominion Belting Co., Hamilton, Ont., was unique. The large range of belting shown, combined with the beautiful tints of the Maple Leaf, to give to the exhibit a distinctive appearance that caused all passers to stop and examine carefully. As may be noted in the illustration this display included stitched cotton duck belting for main drive belts, conveyor belts, thresher belts—in fact belting for practically every purpose.

"Maple Leaf" belting is made from duck to the Dominion Belting Co.'s own formula, containing the least stretch with the greatest possible strength, and is machine folded. It is lock stitched with special strong cord, each row of stitching being entirely independent of the other rows. By the company's method their belts are waterproofed and rendered impervious to water, steam, oil or gases, and remain flexible under all conditions.

It is uniform in weight, strength and surface throughout, and no belt could be made which would be superior to it for true running. It can be made any length desired without joins.

For main drives and for heavy work, such as lumber mills, brick yards, quarries, mining, packing houses, "Maple Leaf" belting is particularly serviceable. It has a sale in all parts of Canada, also to the Argentine Republic, South Africa, Australia, and other foreign points. Literature describing this belting will be sent on request.



DISPLAY OF DOMINION BELTING CO., HAMILTON.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER

GOOLD, SHAPLEY & MUIR CO., LIMITED.

The popularity of the gas engine was amply evidenced by the number of visitors to the display of "Ideal" gas and gasoline engines made by Goold, Shapley & Muir Co., Limited, Brantford, Ont.

Included in this display were a 6 h.p. engine operating a double cylinder Acme pump; an 8 h.p. engine operating direct (without countershaft) a dynamo, which provided electricity for the display; also a 13 h.p.; 18 h.p. and 25 h.p. stationary engines; a 12 h.p. portable and an Ideal automatic concrete mixer.

The steadiness and reliability of the "Ideal" engine was demonstrated in the even, regular flow of water from the pump, and the steady clear light from the dynamo operated by one of the engines.

Great emphasis was laid by the representatives of the concern on the fact that the "Ideal" engine contains the best of material throughout in its construction, that all the modern improvements have given it the greatest simplicity combined with economy and efficiency.

These engines are splendidly adapted for manufacturers needing power not in excess of 25 h.p. and many are being sold throughout Canada for this purpose.

A catalogue devoted to "Ideal" gas and gasoline engines will be sent to readers of this paper on request.

connection in the city and throughout the province. A feature of the exhibit was the demonstration of the remarkable speed possible in copying letters with the "Rapid

paper which can then be placed in any letter file or loose sheet binder. Its work is distinct as well as rapid and economical. As may be seen from the accompanying illus-



GAS ENGINE DISPLAY OF GOOLD, SHAPLEY & MUIR, BRANTFORD.

HENRY & ADAMS.

In the Process Building a new firm had a display which won general attention from manufacturers and office men generally. This firm, Henry & Adams, Toronto, have been acting as Toronto agents for the Canada Cabinet Co., and have already won a wide

Rotopress," also of the serviceability of the "Loose Sheet Rotary" letter copying press. It is but a few months since this firm introduced the "Rapid Rotopress," but already it has won general attention and seems likely to have a wide sale. The "Loose Leaf Rotary" was here shown for the first time. This press makes copies on regular standard

tration a full line of office furniture was also shown, including vertical filing cabinets in steel and oak, sectional filing devices, filing cabinets, legal form cabinets, desks ranging from \$13.50 to \$80, sectional book cases, etc. Literature concerning the letter copiers and the office furniture may be had on request from this firm.

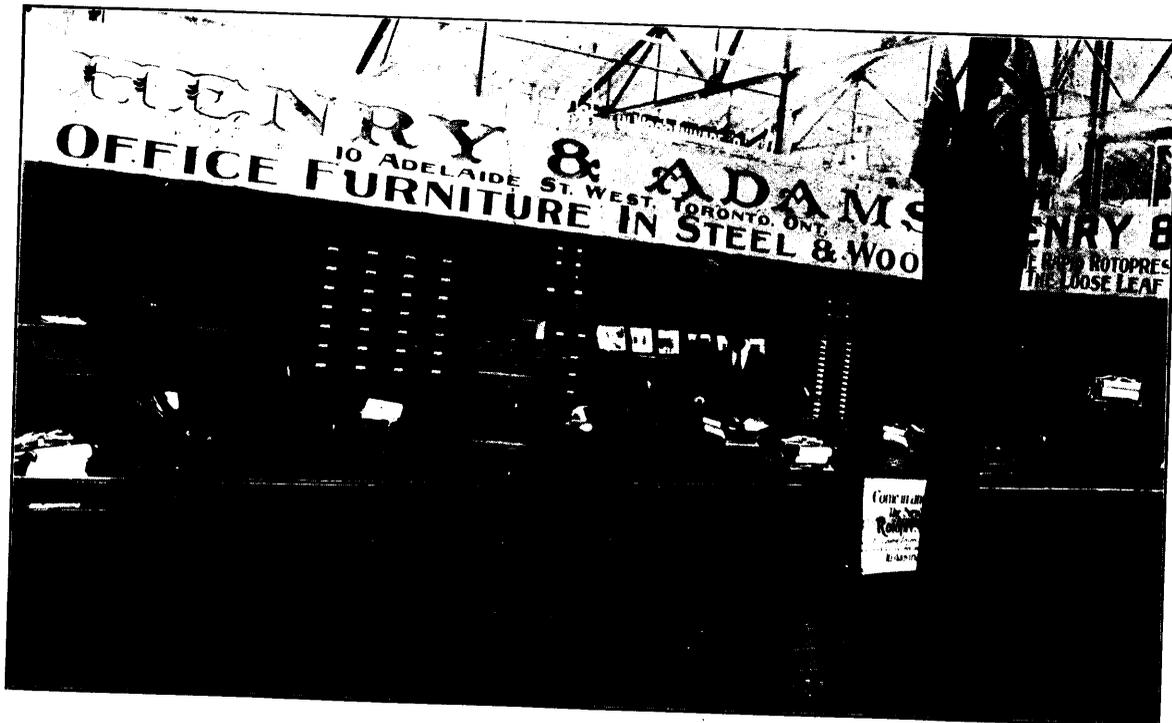


EXHIBIT OF HENRY, & ADAMS, TORONTO.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

THE METALLIC ROOFING CO.

Probably the most expensive as well as the most elaborate and ornate exhibits throughout the entire exhibition is that of the Metallic Roofing Co., Toronto. Mr. J. O. Thorn, general manager of this company, has won the reputation of doing things thoroughly and this display is fully in keeping with such a reputation.

An idea of this superb exhibit may be had from the accompanying illustration yet owing to the lights and shades in the Manufacturers' Building it is practically impossible to get a photograph which would do full justice

with as base a dado of "Dolphin" design. The ceiling served to demonstrate the exceptional beauty and clearness of pattern in the Metallic Roofing Co.'s embossed designs.

The embossing was of such depth that it showed each member of the design clearly and distinctly. This richness of pattern is only possible where the highest grade of open-hearth steel is used and where the heavy machinery and especially constructed steel dies perfectly accurately made are used.

With such steel and with such machinery and dies a metal product infinitely superior to the ordinary stamped goods is obtainable. Not only is the beauty of the embossing brought out clearly but the plates can be

ies it would seem there is no limit to the popularity of this shingle.

The Metallic Roofing Co. have brought the manufacture of sheet metals to such a state of perfection that the demand for them, in addition to covering all Canada, extends to practically every portion of the British Empire—and to many other countries. Literature will be sent readers of this paper on request.

AMBURSEN HYDRAULIC CONSTRUCTION CO. OF CANADA.

Owing to the rapid growth of the Ambursen Hydraulic Construction Co. in Canada, it has been found necessary to organize a separate Canadian company and a charter has been issued to the Ambursen Hydraulic Construction Co. of Canada, Limited, with offices in the Coristine Building, Montreal.

The special construction of the company is the Ambursen concrete steel gravity dam; but they are also prepared to contract for the installation of bulkheads, flumes, power houses, and general hydraulic construction.

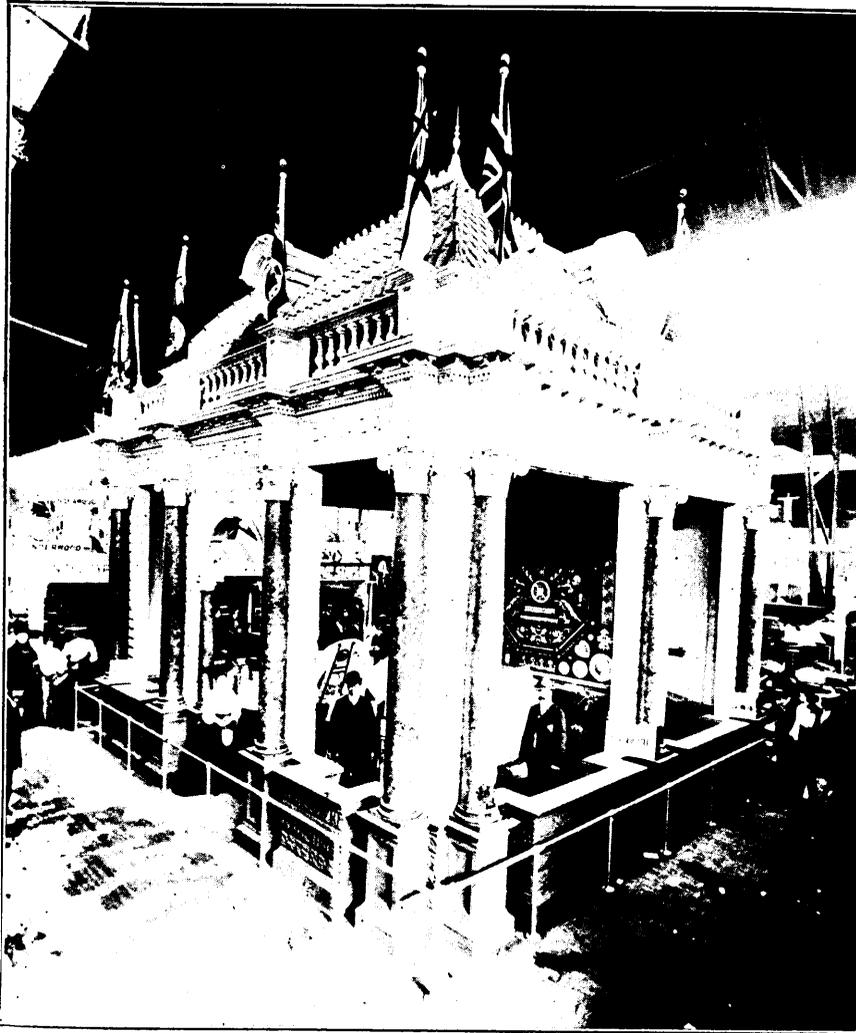
The concrete steel gravity dam has stood very severe tests of floods and ice jams, and is in this respect especially suited for Canada. In one notable instance thousands of tons of heavy ice passed over one of these dams, the water being four feet below the crest and the ice was shoved over it on the dry concrete without doing any damage.

A dam built last year for the Missisquoi Pulp Co., at Sheldon Springs, Vt., a few miles from the border, stood the test of flood and ice this spring, and took the place of two wooden dams which had been carried away in two successive years before.

The United States government through its reclamation service is building a concrete steel dam under the patents of this company as a part of the Shoshone project at what is known as the Corbett site, in Wyoming, and that government is now investigating this dam very thoroughly with reference to their general use in irrigation service.

An engineer of great prominence volunteered the following statement to the president of the company last spring and said substantially: "The more I consider your designs, the more I am impressed with the fact that you are always designing on a basis of certainty, instead of a basis of assumption. That is to say, if I design a solid dam I necessarily base all my stresses in the assumption that the dam will be when constructed what it purports to be on paper—a solid, monolithic structure. As a matter of fact no engineer knows that his dam when completed is solid. It may have cavities or shrinkage cracks into which the water may enter and introduce an entirely unknown distribution of pressures. These cannot possibly be taken into account in the normal proportioning of the dam, therefore, I am necessarily designing on what I hope the dam will be instead of what I know it will be.

"You on the other hand, it seems to me, are always designing with perfect certainty that your work when completed is in exactly the internal condition that is assumed on the design. Your dam is hollow and there can be no concealed joints or cavities or cracks to introduce unknown pressures. Your concrete being thin is perfectly controllable in its texture. If there is any leak or crevice it is necessarily so small as to be



THE METALLIC ROOFING MFG. CO., LIMITED, TORONTO.

to the finish and artistic design of the embossed metal products included in the display.

The exterior view served to illustrate the diversity of lines made. On the roof were three distinct types of tile, including Eureka "Diamond," Eureka "Gothic" and Eureka Spanish tiles also the "Empire" steel shingles, these being but four of the many metal roofing lines made by this company. The walls were made of so good an imitation of New Brunswick sand stone that many visitors stopped to examine them closely to decide whether they were metal or stone.

The interior wall decoration included plain tile patterns and "Fleur de Lis" side walls,

made so that the joints, instead of showing in an unsightly manner, become part of the pattern of the ceiling or wall.

Furthermore, all the Metallic Roofing Co.'s lines are dipped in the best quality of white zinc paint, giving permanence to the priming coats and retaining the colors or shading in the patterns.

On the back wall of the exhibit were numerous stamped zinc ornaments, illustrating some of the productions of this company for use in connection with metal cornices.

Samples of the famous "Eastlake" steel galvanized shingles such as are used by elevators and farmers throughout Canada were shown, and from the number of enquir-

negligible—and more than that, you have facilities for inspection to enable you to instantly detect and correct them. You certainly are working on the right principle.”

In addition to the many important features referred to above this dam has also that of being easily constructed in out of the way places, as the amount of concrete employed in its construction is much less than in any other permanent dam.

This Canadian Company is associated with the Ambursen Hydraulic Construction Co., of Boston, and has the advantage of their designs and experience in this work.

THE JAMES MORRISON BRASS MFG. CO.

Probably the most beautiful display in the entire exhibition was that of the James Morrison Brass Mfg. Co., Toronto. This company have long been recognized as the

bers' brass goods, while their exhibit of ship chandlery was of much interest to many. Two of the important lines with this firm were their Hancock inspirators and their J. M. T. locomotive injectors.

A close examination of the exhibit shows that the company continues to manufacture practically everything in brass and that what it makes, it makes well.

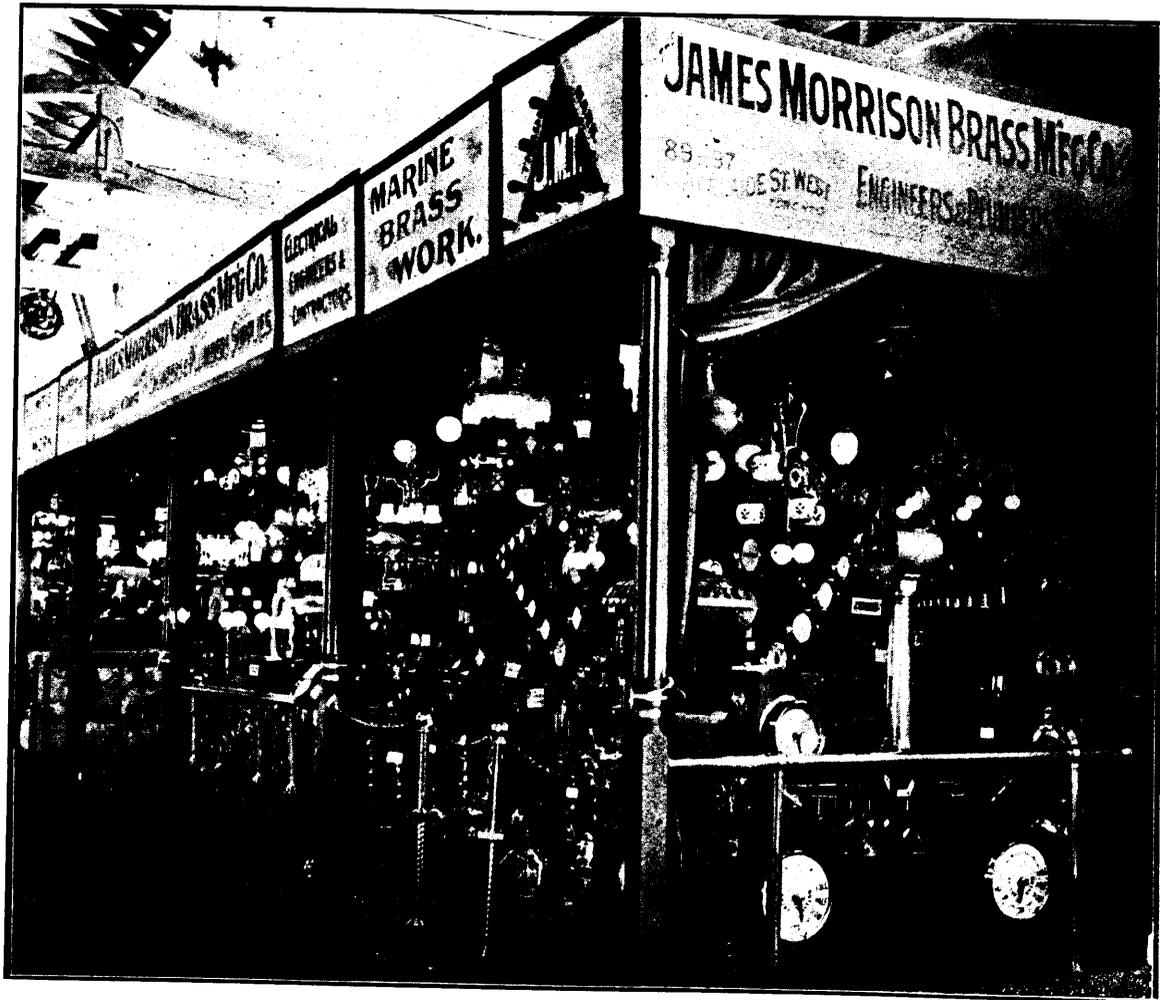
D. K. McLAREN.

The only display of leather belting on the grounds was that of D. K. McLaren, Montreal. This display consisted of rolls of belting of various widths and grades and for all purposes—showing that this company is prepared to meet any demand for good leather belting for any purpose.

making a specialty of gas engines and producers for all purposes.

BOILER EXPLOSIONS IN ENGLAND.

England's few boiler explosions and persons killed and injured as compared with those of America is shown by a report of the board of trade. During the 12 months ending June 30, 1905, there were 14 persons killed and 40 injured from British steam-plant accidents, smaller returns than for any year since the boiler-explosions act of 1892 was passed, the average for the past twenty-two years being 28 persons killed and 60 injured. On the other hand, The Locomotive, published at Hartford, Conn., gives 383 persons as killed and 585 injured in the United States.



THE JAMES MORRISON BRASS MFG. CO., LIMITED, TORONTO.

great brass goods house of Canada; but of late years they have made great strides in the manufacture of artistic gas and electric fixtures so that their display included many fixtures which for beauty in design and workmanship compare to advantage with the finest imported lines. This is also true of their altar rails and brass lecturns.

The feature of this display of greatest interest to manufacturers, engineers, etc., was however, their comprehensive display of locomotive, engineers, steamfitters, and plum-

NEW GAS ENGINE COMPANY.

The Producer Gas Co., with Mr. G. P. Wallington, mechanical and civil engineer, as manager, have started business at 11 Front Street East, Toronto. This firm have secured the Ontario agency for the Campbell gas engine made by the Campbell Gas Engine Co., of Halifax, England, and sold in Canada for some time by Wayland Williams & Daddon, Montreal. The Producer Gas Co. are

The number of steam boilers in America does not exceed by 50 per cent. those in Great Britain, hence the total number killed in the States should not exceed 40 per annum, whereas the actual death roll is nearly ten times this amount, a fact which speaks volumes for the bad design and reckless working associated with American boiler practice. Heavy fines are imposed in Great Britain on factory owners, engineers, engine builders, and others to whom any blame attaches for explosions.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

System in Contracting.

In these days of progress it is not saying too much to assert that most of the great manufacturing and commercial industries both in Canada and the United States owe their success to organization. These organizations, while varied to meet the special demands of particular businesses, are all worked out to secure the greatest effective results in reliability, economy and speed of output. As far as the ordinary enterprise is concerned, its organization has usually to deal with more or less uniform conditions so that present and future exigencies can be met with experience gained under similar situations in the past.

To build up a machine, however, capable of overcoming conditions which are constantly changing and hourly presenting new problems is a far more difficult task. Perhaps the contracting field presents more obstacles to the perfection of a working force than any other industrial enterprise. From this point of view the organization of the Dominion Engineering & Construction Co., of Montreal, affords an interesting and instructive lesson.

This company whose operations are not only extensive but difficult and widely scattered has put into practice the maxim that nothing connected with its business is too small to claim its attention. As a result the head office aims to be as familiar with every phase of every contract as the work progresses as the head of a manufacturing establishment is with the operations of his various departments. By means of a time tried field and office system the company is able to tell what its operations cost day by day, their state of progress and their requirements in men and material.

The organization in question has been developed to guard as far as possible against delays and to secure the greatest economy, reliability and speed in construction consistent with the best work. With these ends in view each department is laid out with duties distinctly marked and all in touch with each other and with the management.

To understand the working of these departments and their value from a cooperative standpoint it will be best to take them in the order in which they deal with a contract. In the first place come the plans, specifications and designs to be used in the work. These are furnished by the engineering department, whose duty it is to give complete engineering information, with the classes of material to be used and their quality. In addition, it is required to make its designs as far as possible to suit material easily available. The quality of the actual work is always subject to the inspection of the engineering department and it is responsible for testing all materials entering into the construction. This department includes the drafting section whose duty it is to provide drawings, sketches and schedules whenever called for by the construction or purchasing departments. As all these departments are closely allied they are expected to cooperate in every way.

Immediately the first plans of the engineering department are in working order they are passed to the construction depart-

ment which is responsible for and has entire charge of the company's construction work. This department makes known its requirements in tools, material, and plant to the purchasing department. Once the plant is furnished it is required to keep a complete record of it. This department is expected to prepare a written field system covering the most approved methods of conducting the various operations in the field and to lay out an organization chart of each contract with the names of the superintendents, assistants and foremen in charge of each section of the work. Each superintendent is required to send to the department a daily letter giving in detail the progress of the work under his care and any information of advantage in expediting or of improving it.

Next in order is the purchasing department to which reference has been made. This department is responsible for the supply and purchase of all material, plant, tools, etc., required on various contracts and is naturally in close touch with the engineering and construction departments through which requisitions for supplies come. It is expected to make a complete list of items on each contract. All the material purchased is bought according to schedule and on a formal order stating specific price and showing any discounts. This department is in addition responsible for the prompt delivery of all material and must advise the construction department when delivery is expected. In general it is required to act as an information bureau with regard to supplies of material and to see that it obtains all the requisite information to carry on its share of the operations without waiting for the information to come to it.

Moreover, it is expected to keep up-to-date lists of the location of materials and of their prices and to be in a position to take advantage of every favorable opportunity to obtain the best deliveries. A copy of the daily letter from the various contracts is supplied to this department and its attention called to the items within its province.

Combined with this department is an estimating branch which makes up required detailed estimates of quantities of materials and is expected to act promptly in order to be ready to send out for prices at the earliest moment. The purchasing department is also required to care for the shipping and routing of goods and to notify the other departments concerned of their arrival.

To the accounting department belongs the care of the company's books, pay roll, reports of contracts dealing with the cost of the work, invoices, etc. It is responsible for all disbursements and for the preparation of a complete set of accounting instructions for every contract. Mailing, filing, stenographers, etc., also come under its jurisdiction and it furnishes when called upon by the management, statistics, reports and statements relative to the standing of any contract.

Both in the purchasing and accounting departments owing to the system of keeping the records it is possible at a glance to tell what materials have been received to date, whether they have been delivered in the condition specified in the terms of purchase and

also the quantities of materials remaining undelivered in the various orders placed.

These records are kept in such shape that they are ready at any time for the inspection of the owner for whom the work is being done. At the end of every week the owner is furnished with a report showing the exact amount of work accomplished, its cost, and every detail connected with it.

It will be seen that this organization aims to leave nothing to chance. Every department has its duties clearly defined and its work is laid out to fit in with and supplement the work of every other department to avoid friction and delays. To further facilitate the general plan there is a weekly meeting of the heads of the different departments in which the progress of work is discussed and suggestions listened to and weighed.

As the work of the company is done entirely on the cost-plus-a-fixed-sum basis the organization has been developed to utilize to the utmost the many advantages of this form of contract. This organization, however, might be applied to any enterprise where conditions prevail similar to those in the contracting field.

GAS POWER IN ENGLISH FACTORIES.

According to the Gas & Oil Engine Record, the annual report of the Chief Inspector of Factories and Workshops has recently been published, and many interesting references are made in the supplemental reports of the District Superintending Inspectors and their subordinates. We give a few extracts below:

THE INCREASING USE OF SUCTION GAS PRODUCERS.

Mr. Hartson (Kent): "Perhaps the most striking feature of the year's changes is in the great increase of the number of factories in which plant has been, or is being, erected for the manufacture of producer gas for motive power purposes."

Mr. Edwards (Southampton): "One of the principal industrial developments last year was the laying down of a large number of gas producing plants in factories, thereby doing away with steam power."

Mr. Seymour (Southampton): "The use of plants for producing suction gas is very greatly on the increase. One meets them constantly, not only in the towns, but in isolated places such as country flour mills."

Mr. Ireland (Norwich): "I find in this district the same development I noted in the Midlands—the fitting up of gas engines with water-gas generating plant operated by the engine itself. It is being laid down in increasing numbers."

Mr. Bremner Davis (North London): "Suction gas plants for large and small gas engines have proved successful both mechanically and economically. As there is no actual storage of the gas anywhere, the danger of leakage is reduced."

Mr. Thomas (North London): "In larger factories there is an increase in the number of power-gas plants. As a rule they are placed outside the factory, under a shed, and then no gas or fumes can escape into the workrooms."

Mr. Wilson (East London): "There is a distinct tendency to replace steam by gas and still more by electricity."

Mr. Beverley (West London): "In this district there is an important generating station with two gas engines of 1,000 h.p."

Mr. Beaumont (Superintending Inspector, Southern Division) lays stress upon the necessity for suction gas plants to be placed, whenever possible, so that any escaping gas would not be harmful to the workers.

Mr. Seymour (Southampton) states that in his district, though no accidents from poisoning have been reported, he urges very thorough ventilation, as in several instances, where the plant is completely inclosed in a shed or similar building, the man in charge has admitted suffering from an occasional dizziness.

Mr. Wright (Northampton) also insists upon thorough ventilation, and in factories where the engine room is faulty in this respect, he personally interviews the occupier and suggests improvements. No accidents

have been reported from the use of producer gas.

Mr. Thomas (North London) states that in one instance he came across a suction plant in a basement, where women were employed. He mentions that so long as the engine is at work little risk of injury to health exists; but when the engine stops the gas in the mains between the generator and engine might leak into the workroom through a faulty joint. For this reason he considers it undesirable to have these plants inside a factory unless isolated and separately ventilated.

Mr. Stevenson Taylor (Kent) reports a large increase in the use of producer gas for power purposes, but no serious case of carbon monoxide poisoning came to his notice.

breakdown which is inevitable under such conditions. It smears a portion of the transformer with a particular kind of paint, which emits a very penetrating odour when it is heated above a certain temperature, as it would be when a transformer was heavily overloaded for an hour or so. The result is that the company receives a letter complaining of an abominable ——— emitted by the transformer, and requesting that the nuisance be abated at once. Thus the mischief is detected before any damage is caused.

Other forms of cruelty to motors are of a minor nature, but none the less destructive if allowed to continue. Motors are often allowed to run with persistent sparking at the brushes, causing unnecessary wear of the commutator and the carbon brushes. Uneven commutator surface, wrong brush position, and faulty brush tension and connections are the common cause of the trouble.

Frequently the life of open or semi-enclosed motors is shortened by the use of wood or metal covers to prevent the machinery getting dusty. The lack of sufficient air-cooling circulation causes rapid deterioration in the insulation of the armatures and field coils, especially where the motor is running continuously. If the situation is such that protection against dust is necessary, the proper thing to do is to use a totally enclosed motor, specially designed for the purpose. Generally speaking, everything should be done to allow the motor to run cool; if an armature has been permitted to continue in a hot condition the whole of the insulation is apt to become brittle and to necessitate complete re-winding of the armature. Over-oiling and under-oiling are both common sources of trouble. In the one case the oil is thrown on to the armature winding and drips down to the lower field coils, rotting the insulation and ultimately causing the burning out of the motor. Insufficient lubrication causes another sort of breakdown. Where white-metal bearings are used, they get heated and melt, allowing the armature to drop so that the windings rub on the pole faces and are ripped off. Another source of destruction is located in the carbon brushes, which are sometimes allowed to become worn down until the holders rub on the commutator. In one case which may be mentioned, damage to the extent of about £18 was caused by this form of neglect.

It may be said that these forms of cruelty to motors do not occur with power users who are familiar with electrical machinery, and that the other class of user cannot be expected, in this imperfect world, to pay constant attention to details of overloading, heating, lubrication, cleaning, and so on. That may be so, but even the unskilled power user will find a motor the easiest thing in the world to keep in condition if he observes a few simple rules. He has, however, a very simple means of obtaining technical advice at a very low cost. The available methods of insuring electric motors against breakdown include, as a regular item in the insurance policy, periodical inspections. Such inspections by competent electrical engineers, whose interest it is to see that the motor (or dynamo) is maintained in good condition, not only diminish the risk of breakdown, but insure the best results from the everyday working of the motor.—Electrical Industries and Investments.

The Care of Electric Motors.

The electric motor is one of the most reliable pieces of moving machinery ever constructed. It is capable of working continuously with great efficiency for long periods, although the surrounding conditions are by no means ideal, and for that reason its good nature is repeatedly imposed upon. Like the willing horse, it has to bear not only its own proper burden, but the burdens of others. It is expected to do twice its normal work without complaining, and to work in heat and damp and dust without the risk of breakdown. In many cases the motor, if constructed by a first-class firm, comes through the ordeal successfully; but some power users give their motors treatment which is more than copper and insulation can stand. Manufacturers are familiar with the type of customer who sends violent complaints about the failure or misbehaviour of a motor, only to learn that his own ignorance or culpable negligence is the cause of the trouble. It may be worth while, therefore, to emphasize the fact that there is such a thing as cruelty to motors, and to urge the manufacturer, for his own reputation, to force that fact upon the attention of individual customers and the power user in general. With so many strenuous rivals in the field, it is of great importance to obviate any prejudice to the motor through the outrageous treatment to which it is so often subjected. There will always be trouble so long as the average user of the electric motor treats it like woman in the abstract—a creature without rights, and with an infinite capacity for being imposed upon. Even woman, as we see nowadays, is turning.

We have recently gathered some practical information on the causes of breakdowns in motors—not the breakdowns due to faulty construction (which is really an exceptional cause), but to indifferent treatment by the owner. It appears that about 25 per cent. of the cases of breakdown are due to neglect in cleaning the motor. Like the small boy who gives his face "a lick and a promise," and leaves a high-water mark hidden under his collar, the average unskilled dynamo attendant has a habit of cleaning the external case of a motor and polishing up the brush holders, name plate, and other odds and ends, leaving alone the parts which really need cleaning, and may, if neglected, cause temporary and even permanent failure of the motor. A kindred fault is that of allowing the motor to

run in a dusty and oily condition. The accumulations of oil and dust on the commutator end, insulating ring, brush spindles insulating washers, on the edges of core slots, and so on, are almost certain to lead to trouble of a serious nature.

But perhaps the most common form of cruelty is to run the motor at a continuous overload. Very often a motor is installed to work a shaft with a certain number of tools, and the satisfactory results induce the user to add other tools to be driven from the same shaft. Because the motor does not immediately protest by breaking down completely, the user is quite content. The motor has to work day by day at far beyond its normal capacity; and the repeated overstrain, both electrical and mechanical, shortens the life of the machine. Fuses and other circuit breakers are no safeguard against this treatment by negligent users. It is a habit among them to insert fuses of higher capacity if those first fitted persist in blowing; other forms of circuit breaker are all right unless they are tied up. A useful device for detecting the existence of continuous overloads is to place in the circuit a copper fuse that will blow at about 25 per cent. over the proper load on the motor. At about 20 per cent. overload the fuse will get very hot, and if the overload is continued the wire will scale and eventually blow at under its original fusing point, owing to the reduction of sectional area. But careful power users will have ascertained the horse power required to work each machine, and will have installed motors of sufficient capacity to deal with the machines, allowing for momentary overloads, which the electric motor is quite capable of standing without sensible injury. Once the installation has been made on this basis, it is mere folly to go on adding new machines indiscriminately without strengthening the motor equipment.

It may be interpolated that motors are not the only form of electrical machinery subjected to continuous overload. Very often a factory will install a transformer to bring down the pressure of current supplied in bulk by a power company, and the success of the first effort is so great that the manufacturer equips more machines electrically and calmly expects the transformer to deal with far more energy than it is rated to do. One well known transformer company has hit upon an ingenious way of preventing the ultimate

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.

In order to get rid of the sewage east of Woodbine Avenue, the City of Toronto, has purchased from Allis-Chalmers-Bullock, Limited, Montreal, a set of two four inch vertical submerged centrifugal pumps to be driven by two of their induction motors for Station No. 1 at the south end of Kenilworth Avenue, and another similar set to be driven by two of their induction motors for Station No. 2 on the lake front. Each pump will be capable of lifting 550,000 gallons in 24 hours.

The Department of Railways and Canals, Ottawa, will call for tenders for the construction of railway shops for the Intercolonial Railway Co., at Charlottetown, P.E.I.

L. L. Peltier, Fort William, Ont., will erect a business block 100x50 feet.

The Standard Fence Mfg. Co., Woodstock, Ont., will erect a large factory there.

The Victoria Curling Club, Hamilton, Ont., will erect a new curling rink at a cost of about \$5,000.

It is stated that the Grand Trunk Railway Co. will erect a large freight building at Toronto.

It is stated another oil well has been discovered at Tilbury, Ont. It is producing 135 barrels a day and is one of the best in the field.

C. H. Bowman, of the Great Lakes Dredging Co., Fort William, Ont., will erect a large shipbuilding plant at a cost of about \$50,000.

The Toronto, Hamilton & Buffalo Railway Co. have ordered two fire hydrants from the Smart-Turner Machine Co., Hamilton, Ont.

J. J. Hill, the head of the Great Northern and other railroads, will construct a canal to connect the Great Lakes with Lake Winnipeg. The canal will follow the chain of small lakes from Lake Huron, northwest through the Lake of the Woods to Lake Winnipeg.

The Department of Mines, Ottawa, is engaged in a survey of the graphite deposits of Ontario and Quebec, which will shortly be published in book form giving full particulars as to their known extent, and the localities in which the mineral has been found.

The Collingwood Shipbuilding Co., Collingwood, Ont., have been awarded the contract by the Canadian Pacific Railway Co. for two large freight steamers.

The icebreaker Lady Grey, built for the Canadian government, and intended for use in the Gulf of St. Lawrence was launched a few days ago at Barrow-in-Furness, England.

Messrs. Thos. Ogilvie & Sons, Toronto, will erect a large building 118x60 feet.

The Smart-Turner Machine Co., Hamilton, Ont., have supplied the Parry Sound Lumber Co., Parry Sound, Ont., with one of their duplex pumps.

The Kakabeka Falls Brewing Co., Fort William, Ont., have been incorporated with a capital of \$10,000, to manufacture wines, liquors, etc. The provisional directors include T. P. Kelly, W. C. Lillie and J. P. Doyle, Fort William, Ont.

The Ingersoll Telephone Co., Ingersoll, Ont., have been incorporated with a capital of \$50,000, to carry on the business of a telephone company. The provisional directors include O. E. Robinson, H. F. Boyce and T. R. Mayberry, Ingersoll, Ont.

The Violet Mining Co., Toronto, have been incorporated with a capital of \$250,000, to carry on a mining, milling and reduction business. The provisional directors include E. W. McNeill, R. Gowans and W. F. Ralph, Toronto.

Fairgrievies, Limited, Toronto, have placed an order for a standard duplex pump with the Smart-Turner Machine Co., Hamilton, Ont.

The Canadian Steel Construction Co., Midland, Ont., have been incorporated with a capital of \$50,000, to manufacture steel vessels, steel tanks, etc. The provisional directors include W. J. Lethbridge, D. S. Storey and F. W. Grant, Midland, Ont.

The Niagara Falls Heating & Supply Co., Niagara Falls, Ont., have been incorporated with a capital of \$50,000, to manufacture hot air pipes, plumbers' supplies, etc. The provisional directors include O. D. Glasgow, W. L. Doran and F. E. Dalton, Niagara Falls, Ont.

A High School building will be erected at Oshawa, Ont.

A new Collegiate Institute building will be erected at Picton, Ont.

The International Marine Signal Co., Ottawa, have been incorporated with a capital of \$1,200,000, to manufacture gas, electricity, etc. The provisional directors include T. L. Willson, A. M. Scott, Ottawa, and H. A. Little, Woodstock, Ont.

The Smart-Turner Machine Co., Hamilton, Ont., have received an order for a duplex boiler feed pump from the Breithaupt Leather Co., Berlin, Ont.

The ratepayers of Woodstock, Ont., will vote on a by-law to loan the Canadian Bearings Co., Hamilton, Ont., \$25,000. If carried the company will erect a factory at a cost of about \$15,000, and install machinery aggregating \$35,000.

F. Libier, Tavistock, Ont., will erect an hotel there.

Vandrick Bros., Listowel, Ont., will erect a business block.

The Wm. Davies Co., Toronto, will erect a brick stable at a cost of about \$20,000.

Orr Bros., Toronto, will erect a restaurant on Queen Street at a cost of about \$30,000.

An addition will be erected to the McKellar hospital, Fort William, Ont., at a cost of about \$30,000.

Messrs. E. Leonard & Sons, London, Ont., have placed an order with the Smart-Turner Machine Co. for one of their duplex steam pumps.

The planing mill of Mustard Bros., Websterville, Ont., was destroyed by fire August 21. Loss about \$12,000.

The Smart-Turner Machine Co., Hamilton, Ont., are supplying a full equipment of pumps for the steamer "Collingwood" of the Farrar Transportation Co.

The Dominion Carriage Co., Toronto Junction, Ont., will erect a factory at a cost of about \$60,000.

The Western Shoe Co., Berlin, Ont., have been organized with a capital of \$40,000. The company will erect a plant at a cost of about \$10,000.

The Domestic Specialty Co. have ordered a mixer from the Smart-Turner Machine Co., Hamilton, Ont.

Messrs. V. O. Philip and G. A. Richardson, Hamilton, Ont., will erect an oil refinery at Berlin, Ont.

The National Drug & Chemical Co., London, Ont., will erect a warehouse, 100x45 feet, at a cost of about \$25,000.

The ratepayers of Preston, Ont., voted favorably on two by-laws for the installation of a waterworks and sewerage system, entailing an expenditure of \$73,000.

Mr. E. D. Smith, Winona, Ont., has placed an order with the Smart-Turner Machine Co., Hamilton, Ont., for two of their standard duplex pumps to be used in connection with his new canning factory, at Beamsville, Ont.

The premises of the Maple Leaf Harvest Tool Works, Tillsonburg, Ont., were destroyed by fire August 28.

The planing mill of Wm. Gerry, London, Ont., was destroyed by fire August 29. Loss about \$25,000.

A new Y.M.C.A. building will be erected at Galt, Ont., at a cost of about \$25,000.

The business district of the town of Haileybury, Ont., was destroyed by fire August 20. Loss about \$170,000.

The premises of the Diamond Park Mineral Water Co., Arnprior, Ont., were destroyed by fire August 13. Loss about \$15,000.

The cheese factory of Archibald Knipe, Stratford, Ont., was destroyed by fire recently. Loss about \$25,000.

The Waterous Engine Works, Brantford, Ont., will erect a large addition to their plant there.

The Lake Simcoe Dredging Co. have placed an order with the Smart-Turner Machine Co., Hamilton, Ont., for two of their duplex tank pumps.

The station and freight shed of the Grand Trunk Railway Co., Jarvis, Ont., were destroyed by fire August 21. Loss about \$4,000.

The Temiskaming & Northern Ontario Railway have a fine show at the Canadian National Exhibition of products of the forests, farms and mines of the Cobalt district. This will take the place of the exhibits formerly shown by the Colonization Department. Mr. W. D. Cunmyworth, traffic manager of the Temiskaming and Northern Ontario Railway has charge of the exhibits, which includes about \$100,000 worth of exhibits from the mines.

The ratepayers of Port Colborne, Ont., voted favorably on a by-law to grant a fixed assessment to the Great Lakes Portland Cement Co. This company will erect warehouses on the Welland Canal adjoining Port Colborne.

The Smart-Turner Machine Co., Hamilton, Ont., are building a single beam hand power travelling crane for the Canadian Westinghouse Co. of the same place.

The premises of the Empire Wall Paper Co., Toronto, were damaged by fire, August 25. Loss about \$10,000.

Mr. F. Mossop, Toronto, will erect a six story hotel on Yonge Street, Toronto, at a cost of about \$100,000.

The ratepayers of Waterloo, Ont., voted favorably on a by-law to grant \$10,000 to the Interior Hardwood Furnishing Co.

A. J. Small, Toronto, will erect a theatre at Brantford, Ont., at a cost of about \$45,000.

The Waterhouse Mfg. Co., Ingersoll, Ont., are erecting a large factory 108x50 feet.

The Northern Iron & Steel Co., Collingwood, Ont., whose plant has been idle for about two years have started operations.

The Smart-Turner Machine Co., Hamilton, Ont., have supplied one of their standard duplex pumps to Messrs. Loveland & Stone, Cutler, Ont.

W. F. Sinclair, of the firm of Sinclair & Morrison, Montpelier, Ind., will erect a large factory at Chatham, Ont., for the manufacture of drillers' tools and supplies.

The Department of Public Works, Ottawa, invites tenders up to September 11 for the construction of an addition to the Supreme Court Library, Ottawa.

It is stated that J. Davidson and A. E. Dymont, Ottawa, will erect an apartment house there at a cost of about \$60,000; also a theatre at a cost of about \$70,000.

The lumber mills of the Rathbun Co., Deseronto, Ont., were destroyed by fire recently.

The P. J. Powers Co., Ottawa, have been incorporated with a capital of \$45,000, to manufacture tools, machines, engines, boats, vessels, etc. The provisional directors include P. J. Powers, M. Lannon and M. Viau, Ottawa.

The Grand Trunk Railway Co. will erect a large freight office and shed at Goderich, Ont.

The Canada Cycle & Motor Co., Toronto Junction, Ont., will extend their plant.

The Sage Storm Front Co., Rosini, Ohio, have started a plant at St. Thomas, Ont., for the manufacture of buggy coverings.

A Carnegie library will be erected at Wallaceburg, Ont.

The Canada Stove Co., Ottawa, have been incorporated with a capital of \$150,000, to manufacture stoves, furnaces, scales, locks, etc. The provisional directors include F. J. Travers, F. R. Yule, Montreal, G. Tomlinson, Ottawa.

The north ward school, Peterborough, Ont., will be enlarged from a four to a ten room building.

The congregation of the Walmer Road Baptist Church, Toronto, will erect an edifice at a cost of about \$20,000.

The Chairman of the Board of Control, City Hall, Toronto, will receive tenders up to September 18 for the construction of a steel foot bridge across the railway track at Wallace Avenue.

Councillor Cook, Port Arthur, Ont., will erect a business block there.

The town of Bracebridge, Ont., invites tenders for a new library building.

The congregation of the Avenue Road Presbyterian Church, Toronto, will erect an edifice at a cost of about \$45,000.

The Wood Products Co., Toronto, have been incorporated with a capital of \$500,000 to manufacture timber, lumber, wood alcohol, charcoal, etc. The provisional directors include F. A. Hall, H. R. Wood and R. L. Cowan, Toronto.

An addition will be erected to the Crown Bank building, Toronto, at a cost of about \$5,000.

The premises of the Toronto Mill Stock Co., Toronto, were damaged by fire August 29. Loss about \$3,500.

The two most important water powers in the vicinity of Cobalt have recently gone under lease to local syndicates. They are the Hound Chute and the Montreal Notch, both on the Montreal River. The Notch is capable of producing 11,000 h.p. and the Hound Chute, 2,600.

The Traders Bank of Canada is opening a branch at Stratford Station, Ont.

It is stated that the Temiskaming & Northern Ontario Railway Co., Ottawa, will construct a branch line from Englehart to Charlton, Ont.

The Wells & Emmerson Co., Port Arthur, Ont., will erect another large warehouse.

W. A. Greene, Waterloo, Ont., will enlarge his plant there.

Messrs. Sleeman & Sons, Guelph, Ont., will erect a new malt house there.

E. J. Rodd, London, Ont., will erect a two story machine shop.

The Forwell Foundry Co., Berlin, Ont., will double the capacity of their plant.

The freight sheds of the Grand Trunk Railway Co., Berkeley Street, Toronto, were destroyed by fire August 29. Loss about \$12,000.

The Department of Public Works, Ottawa, invite tenders up to September 10 for the construction of a concrete lock and dam at St. Andrew's Rapids, Red River, Man.

The Chalmers Milling Co., East Toronto, are installing a 65 h.p. Tangye engine and a 75 h.p. Dominion gas producer. They expect to have it in operation during September. The plant was purchased from Wm. Gillespie, Front Street East, Toronto.

The sawmill of Messrs. Hesson & Co., Sault Ste. Marie, Ont., was destroyed by fire September 4. Loss about \$10,000.

The premises of the Durham Rubber Co., Bowmanville, Ont., were damaged by fire, September 5. Loss about \$35,000.

The Locomotive & Machine Co., Montreal, have ordered three belt driven, vacuum pumps from the Smart-Turner Machine Co., Hamilton, Ont.

Fifty-one induction motors ranging from 20 h.p. down to 1 h.p. were supplied by Allis-Chalmers-Bullock, Limited, Montreal, to the Northern Electric & Mfg. Co., Limited, to operate the various machines and tools of their new factory in Montreal.

The Canada Quarry & Transportation Co., Montreal, have been incorporated with a capital of \$20,000, to carry on a contracting and transportation business. The charter members include T. Gauthier, E. A. D. Morgan, and V. Lamarche, Montreal.

The Belmont Mfg. Co., Montreal, Que., have been incorporated with a capital of \$45,000, to manufacture waterproof garments, wearing apparel, etc. The charter members include H. Fitzgerald, G. Whitfield, and A. E. Emblem, Montreal.

The Smart-Turner Machine Co., Hamilton, Ont., have supplied Shawinigan Water & Power Co., Shawinigan Falls, Que., with one of their side suction centrifugal pumps.

Among recent sales by the electrical department of Allis-Chalmers-Bullock, Limited, Montreal, were a 260 k.w. engine type, alternating current, generator, with exciter, switchboard, etc., to the Western General Electric Co., Red Deer, Alta.; 300 k.w. engine type alternating current generator, with exciter and other accessories to the corporation of Barrie, Ont.; 300 k.w. engine type alternating current generator and 25 k.w. exciter to the Belleville Portland Cement Co.; 125 k.w. engine type alternating current generator, exciter, etc., to the city of Greenwood, B.C., Waterworks; 62½ k.w. engine type alternating current generator, switchboard, etc., to C. P. Walker, Winnipeg; 125 k.w. engine type alternating current generator, five 10 h.p., three 15 h.p. and one 20 h.p. induction motor to P. Burns & Co., Calgary, Alta.

The Dominion Engineering & Construction Co., Montreal, have been awarded the contract for the construction of the addition to the Canadian General Electric Works, Montreal.

The Sherwin-Williams Paint & Varnish Co., Montreal, will erect an addition to their factory to be used as a linseed oil plant.

To break the stone at the quarry on his property at Beauport, Que., Francis Parent has bought from Allis-Chalmers-Bullock, Limited, Montreal, a No. 2 style "D" "Gates" breaker.

Messrs. Henry Morgan & Co., Montreal, will erect a warehouse at a cost of about \$55,000.

The Canadian Rubber Co., Montreal, will erect extensive additions to the plant there.

Men's Wear, Limited, Montreal, have been incorporated with a capital of \$100,000, to manufacture caps, hats, furs, boots, etc. The charter members include R. Wilson, G. Bale and D. A. Smeall, Montreal.

The St. Francis Hydraulic Co. have found the demand for power so great that they have been obliged to double their plant at D'Israeli, Que. They have bought from Allis-Chalmers-Bullock, Limited, Montreal, a 750 k.w. waterwheel type generator, a duplicate of the "Bullock" machine already there, three 250 k.w. transformers, switchboard, and other accessories.

Messrs. Peter Lyall & Sons, Montreal, have been awarded the contract for the construction of the grain elevator at Port Colborne, Ont.

The congregation of the Church of the Messiah, (Unitarian), Montreal, will erect an edifice at a cost of about \$68,000.

The waterworks building, Boucherville, Que., was destroyed by fire August 13. Loss about \$20,000.

The ratepayers of Masson, Que., voted favorably on a by-law to grant a bonus of \$10,000 to L. J. R. Senez, who is erecting a boot and shoe factory there.

The Robert White Co., Montreal, have been incorporated with a capital of \$250,000, to manufacture boots, shoes, leather, etc. The charter members include L. T. Marechal, J. P. Landry, and H. E. Moles, Montreal.

The St. Lawrence & Great Lakes Dredging & Wrecking Co., Montreal, have been incorporated with a capital of \$350,000, to construct dredges, vessels, tugs, etc. The charter members include H. W. Prendergast, Montreal, W. J. McWhinney and E. P. Brown, Toronto.

The Dominion Portland Cement Co., Montreal, Que., have been incorporated with a capital of \$1,000,000, to manufacture cement, gas, electricity, etc. The charter members include H. Domville, J. H. Redpath and H. E. Boiradaille, Montreal.

The premises of Messrs. Bastein & Poirier, Montreal, leather dealers, were damaged by fire August 28. Loss about \$3,000.

The L'Album Universal Co., Montreal, have been incorporated with a capital of \$100,000, to carry on a printing and publishing business. The charter members include J. Brault, H. A. A. Brault and A. L. Rinfret, Montreal.

The Protestant School Commissioners, Westmount, Que., will erect a school at a cost of about \$75,000.

A new hospital will be erected at East Sherbrooke, Que., at a cost of about \$300,000.

Sewers will be installed at St. Paul, Que., at a cost of about \$100,000.

The Sisters of the congregation of Notre Dame church, Montreal, are erecting an edifice at a cost of about \$19,500.

The Sisters of St. Anne church, Lachine, Que., will erect a new convent.

The Bank of Toronto purpose erecting a bank building in Montreal at a cost of about \$500,000.

Ames-Holden, Limited, Montreal, have increased their capital to \$2,500,000, and will erect a new factory at a cost of about \$200,000.

The premises of the Star Cap Mfg. Co., Montreal, were damaged by fire August 28.

The E. K. Watson Co., Montreal, have been incorporated with a capital of \$20,000, to manufacture machinery, implements, hardware, etc. The charter members include E. K. Watson, G. A. Savage, Westmount, Que., and A. R. Picard, Montreal.

The Quebec, Ontario & Cobalt Silver Mining Co., Montreal, have been incorporated with a capital of \$1,000,000, to carry on a mining, milling and reduction business. The charter members include G. Langlois, J. A. Tanguay, and R. Houle, Montreal.

The Algonquin Hotel, belonging to the Canadian Pacific Railway Co., St. Andrews, N.B., will be considerably enlarged.

The Campbell Clad Co., Moncton, N.B., have been incorporated with a capital of \$100,000, to manufacture garments, clothing, etc. The provisional directors include A. S. Campbell, Montreal, W. F. Humphrey and J. H. Harris, Moncton, N.B.

The Porto Rico Railways Co., Halifax, N.S., have been incorporated with a capital of \$3,000,000, to manufacture tramway carriages, automobiles, vans, etc., and to construct tramways in the Island of Porto Rico. The provisional directors include W. N.

Tilley, R. H. Parmenter and A. J. Thomson, Toronto.

The premises of the Acadia hotel, Tracadia, P.E.I., were destroyed by fire recently. Loss about \$8,000.

The waterworks system, St. John's, Nfld., will be extended.

The Saskatchewan & Western Elevator Co., Winnipeg, Man., have been incorporated with a capital of \$200,000, to construct mills, elevators, warehouses, bridges, vessels, etc. The provisional directors include F. E. Topper, Radisson, Sask.; J. T. Haig and C. E. Williams, Winnipeg, Man.

The McCabe Elevator Co., Winnipeg, Man., have been incorporated with a capital of \$150,000, to manufacture lumber, timber, etc., and to construct warehouses, elevators, etc. The provisional directors include W. J. McCabe, W. M. McCabe and G. Wilson, Duluth, Minn.

It is stated that coal oil has been found in large quantities on the farm of H. G. Nicholson, near Dauphin, Man.

The city council, Winnipeg, Man., will install a Decarie garbage incinerator at a cost of about \$200,000.

The Winnipeg Fire, Water & Light Committee, Winnipeg, Man., will erect three new fire halls there.

The Deloraine Farmers' Elevator Co., Deloraine, Man., will erect a flour mill in connection with their elevator.

The congregation of the Roman Catholic Church, Melita, Man., will erect a church building.

The Ajax Mfg. Co., Winnipeg, Man., have been incorporated with a capital of \$100,000, to manufacture building materials, implements, machinery, etc. The provisional directors include G. F. Stephens, C. W. Clark and A. G. Akin, Winnipeg, Man.

The British America Elevator Co., Winnipeg, Man., have been incorporated with a capital of \$500,000, to construct elevators, wharves, docks, etc. The provisional directors include J. S. Lovell, R. Gowans and C. H. Black, Toronto.

The Sherwin-Williams Paint & Varnish Co., Montreal, will erect a warehouse at Winnipeg, Man.

The Canadian Pacific Railway Co. will construct a branch line from Strassburg to Saskatoon, Sask., a distance of 130 miles.

The Credit Foncier Co., Edmonton, Alta., will erect a three story business block there.

The Agricultural Society, Meliott, Sask., will erect an agricultural hall.

The Edmonton Hospital, Edmonton, Alta., will be improved at a cost of about \$11,500.

The Canadian Bank of Commerce will erect a branch building at Saskatoon, Sask.

A school building will be erected at Star City, Sask.

O. Baker, of Baker & Sons, Vermillion, Alta., will erect a grain elevator there.

Western Canneries, Medicine Hat, Alta., will erect a cannery at a cost of about \$100,000.

Messrs. Gorman & Clancey, Edmonton, Alta., will erect a large warehouse there.

A waterworks system will be installed at Maple Creek, Sask., at a cost of about \$60,000.

Granolithic sidewalks will be laid at Fort William, Ont., at a cost of about \$47,106.

A hospital will be erected at Red Deer, Alta., at a cost of about \$6,000.

The town of Cardston, Alta., has purchased from Allis-Chalmers-Bullock, Limited, Montreal, an electric and waterworks plant including generator, switchboard, transformers, lights, and a special compound duplex pump.

The city council, Edmonton, Alta., have authorized the signing of an agreement to pay the Grand Trunk Pacific Railway Co. a bonus of \$100,000, to establish their workshops there.

The Canadian Bridge Co., Walkerville, Ont., have been awarded the contract for the construction of the steel bridge at Saskatoon, Sask. The cost will be about \$105,000.

A city hall is being erected at Regina, Assa., which will cost about \$175,000.

The Canadian Pacific Railway Co. will enlarge their machine shops at Calgary, Alta.

M. McDonald, the flour mill promoter, is busy making arrangements for the erection of the Pincher Creek mill. A company has been formed under the style of the Pincher Creek Mill & Elevator Co., Pincher Creek, Alta., with a capital stock of \$35,000. M. McDonald has been elected president; C. Kettles, vice-president, and M. B. Heath, of Calgary, Alta., temporary secretary. The capacity of the mill has been increased to 100-barrels, and the capacity of the engine and boilers has been increased so as to run a creamery in connection or to run a mill of a capacity of 150 barrels.

It is reported that J. D. McGregor, of the Grand Forks Cattle Co., has verified the statement that an English syndicate had taken over their company's immense land holdings and will irrigate the same and place them on the market. The surveyors have already done a lot of work on the property. This is the syndicate which, it is said, will erect the largest sugar beet factory in the world in Medicine Hat, Alta.

The Lamb-Watson Lumber Co., Minneapolis, Minn., have purchased the plant and timber holdings of the Arrow Head Lumber Co., Arrow Head, B.C.

The premises of the Boundry Iron Works, Grand Forks, B.C., were destroyed by fire August 17. Loss about \$16,000.

R. Bowman, Vancouver, B.C., will erect a business block at a cost of about \$15,000.

Messrs. P. Burns & Co., Vancouver, B.C., will erect an abattoir at a cost of about \$100,000.

The congregation of the Roman Catholic Church, Vernon, B.C., will erect a new church, and also a convent.

The Bank of Hamilton is opening a branch at Salmon Arm, B.C.

The British Columbia Agency Corporation, Vancouver, B.C., have been incorporated with a capital of \$20,000, to carry on a printing and publishing business. The provisional directors include T. Robertson, Toronto, R. N. Smyth and E. M. Edgar, Montreal.

A general hospital will be erected at Hedley, B.C.

The False Creek Lumber Co., Vancouver, B.C., will erect a saw mill at a cost of about \$15,000.

The Canadian Pacific Railway Co. will erect a saw mill at Hosmer, B.C.

The town of Port Moody, B.C., which at one time had dreams of being the Liverpool of the West, but which has been nothing more than a mere hamlet for many years, is now growing steadily and times are prosperous. The town is located at the head of Burrard Inlet on the Canadian Pacific Railway and when the transcontinental line was first surveyed it was planned to stop at Port Moody, and the place immediately sprang into a thriving city. But it was not for long, for a few months later the company decided to build to Vancouver, and the boom fell flat. Most of the buildings erected then have since been torn down or otherwise destroyed. Now, however, many new stores and dwellings are being put up. The cause of the increase in population is the erection of the new Emerson sawmill, which is now in operation, and the building of a shingle-mill by J. McLean, a well known lumberman of Vancouver. There is also talk of a mill being put up at Rocky Point, close to the Emerson & McLean mills.—The Commercial.

PERSONALS.

Mr. Roderick J. Park, consulting electrical engineer, Toronto, has been instructed by the Ontario Railway and Municipal Board to make an inspection of the London & Southwestern Traction Co.'s line between London and St. Thomas, and to report to the board.

Mrs. Frances A. W. McIntosh, formerly advertising manager of the Standard Tool Co., Cleveland, Ohio, and more recently connected with the advertising department of Power, New York, now has charge of the publicity department of the Norton Co., Worcester, Mass., the appointment taking effect August 1.

Cecil B. Smith has been formally engaged by the city council of Winnipeg to superintend the construction of the civic power plant.

Mr. James Ross, of Montreal, has resigned the presidency of the Mexican Light, Heat & Power Co., and has been succeeded by Sir George Drummond.

On Saturday, August 18, E. T. Hannam, inventor of the Atlas water tube boiler died suddenly of heart disease. Mr. Hannam had just been promoted to the position of sales manager of the water tube department of the Atlas Engine Works, Indianapolis, Ind.

Mr. Roland Yeates, of the London Machine Tool Co., Hamilton, Ont., has been laid up for some weeks with a severe attack of typhoid fever.

Messrs. J. L. Baxter, formerly with L. W. Beard, and Wm. Patterson, formerly with B. & S. H. Thompson & Co., have formed a partnership under the style of Baxter, Patterson & Co., and have opened office and warehouses at 102 St. Antoine Street, Montreal. The firm will represent some leading English manufacturers of machinery and hardware lines.

Messrs. McLean & Sophus, engineers and machinery experts, 301 St. James Street, Montreal, have dissolved partnership. Mr. Sophus retains the agency of Schuchart &

Schutte, and will push their Gronkvist twist drills and "Vesta" cream separators. Mr. McLean continues in the old premises on St. James Street under the style of W. B. McLean & Co.

Mr. Everett S. Kiger, formerly with the J. A. Fay & Egan Co., Cincinnati, has joined the selling force of the A. R. Williams Machinery Co., Toronto. Mr. Kiger had charge of this firm's exhibit at the exhibition and secured several good orders for machine tools while there.

NEW INDUSTRY IN MONTREAL.

Just east of the Canadian Pacific Railway tracks, at the corner of Ontario and Moreau Streets, Montreal, is a new manufacturing establishment, which promises to be an important addition to Montreal's industries.

The St. Lawrence Supply Co., Limited, was formed about a year ago, and their plant has been in operation about five months. The plant occupies premises 250 feet by 80 feet, very favorably located beside the Canadian Pacific Railway tracks, from which a siding runs the whole length of the company's property, of some 35,000 square feet.

The plant covers a complete equipment for general manufactures in iron and steel, from the pattern to the assembled article. The company are catering especially to the demand for equipment and supplies among the contractors and railways, so can manufacture or supply everything in these lines, making a specialty of manufacturing derricks of all descriptions, Drake concrete mixers, builders' iron work, Morden security switch stands, Ross impassable cattle guards, rail braces, track tools, etc.

They also control the Bladon oil burner for furnaces, boilers, etc. They manufacture any description of drop and other forgings. The repair department has received careful attention, and the railway sidings and other facilities now in operation, and others which are being installed as rapidly as possible, place the company in the unique position of being able to handle all repairs from a locomotive down.

The orders placed so far have been very encouraging, necessitating the employment of about fifty hands. They have now on order with the different machinery houses considerable additional plant.

HAVE ENLARGED THEIR PLANT.

The Laurie Engine & Machine Co., Limited, Montreal, who a few months ago took over the business carried on for so many years by the Laurie Engine Co., Montreal, are enlarging the plant considerably and are now in the most advantageous position for manufacturing the Laurie Corliss engine feed water heaters, mining machinery, power pumps, etc. The present company are making a feature of special machinery and invite correspondence from those requiring anything along these lines.

ELECTRIC HOISTS.

As builders of both electrical apparatus and hoisting engines, Allis-Chalmers-Bullock, Limited, Montreal, are able to supply a complete electric hoist. Both motors and engines are constructed and tested in their own shops and under the immediate supervision of the engineers who designed them and who are

familiar with the conditions necessary for their successful operation as one unit.

They recently sold the Dominion Coal Co., Sydney, N.S., a hoisting engine to operate two water buckets each capable of holding 800 Imperial gallons to a depth of 345 feet. The hoist will be driven by one of their 300 h.p. induction motors. The contract also included three 125 k.w. transformers.

TO BUILD OCEAN RAFTS.

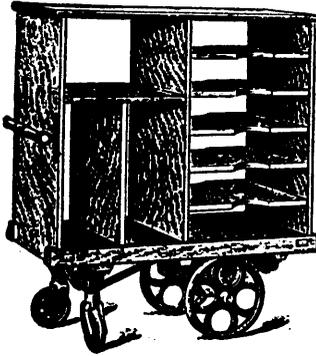
Immense sea-going log rafts may soon be started on their journey from New Westminster, B.C. Capt. H. R. Robertson, manager of the Robertson Raft Co., of Portland, with Capt. J. Cates, of the steamer Britannia, Vancouver, came to New Westminster recently to look over the ground. He is anxious to find a suitable site for the erection of cradles on which to assemble the large rafts. It is essential that these rafts should be constructed in fresh water, and for that reason the Fraser River has been chosen, but since British Columbia logs are not exportable Capt. Robinson intends to purchase the logs on Puget Sound and tow to the Fraser River and make them into logs for exportation there. The project has proceeded so far that two oil-burning steamers are now being built on the Atlantic Coast for the special purpose of towing the log rafts, and these vessels are expected here early next year. The contract for logs and piling in connection with the United States government canal work at Panama has already been secured, and the outlook for log rafting is so good that it has been possible to secure capital for the construction of these steamers on the Atlantic Coast. Both vessels are equipped with special towing apparatus, and it is said that when they go into commission, no more rafts will be broken up and lost at sea to the peril of navigation.

The rafts would each contain about 10,000,000 feet of lumber, would be 1,000 feet long and 36 feet deep. The rafts would draw about 24 feet of water.

LOW SUMMER TOURIST RATES WEST.

During the entire summer the Chicago & North-Western Railway will have in effect very low round trip tourist rates to Colorado, Utah, California, Oregon, Washington and British Columbia points. Choice of routes going and returning with favorable stopovers and time limits. Very low excursion rates to the Pacific Coast from June 25th to July 7th. For further particulars, illustrated folders, etc., write or call on B. H. Bennett, General Agent, 2 East King St., Toronto, Ont.

The contract for building the Michigan Central's tunnel under the Detroit River, has been awarded to the Butler Brothers-Hoff Co., of New York. The tunnel will be built on the open trench system, and in sections of 500 feet at a time, which will obviate obstruction to navigation. These trenches will go 40 feet below the river bed, where a rock and cement foundation will be laid to receive the great steel tubes of the two bores, each of which will be imbedded in concrete, several feet in thickness. The top of the solid structure will be about on a level with the river bed.



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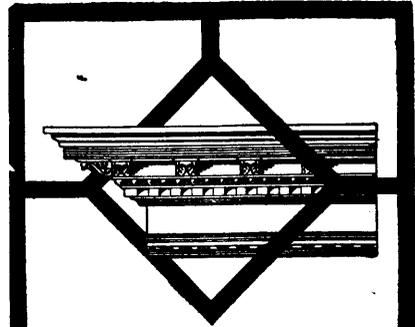
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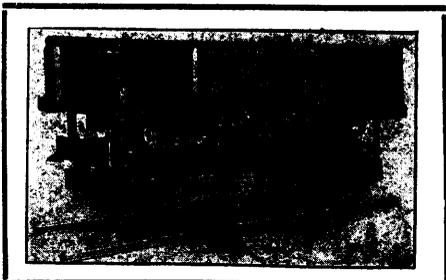
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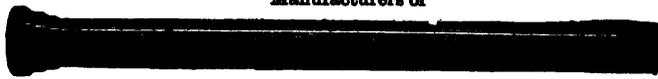
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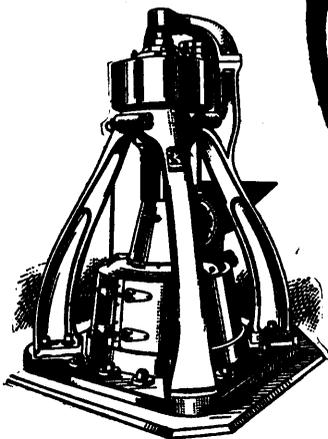
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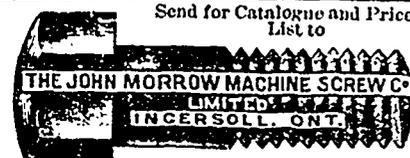
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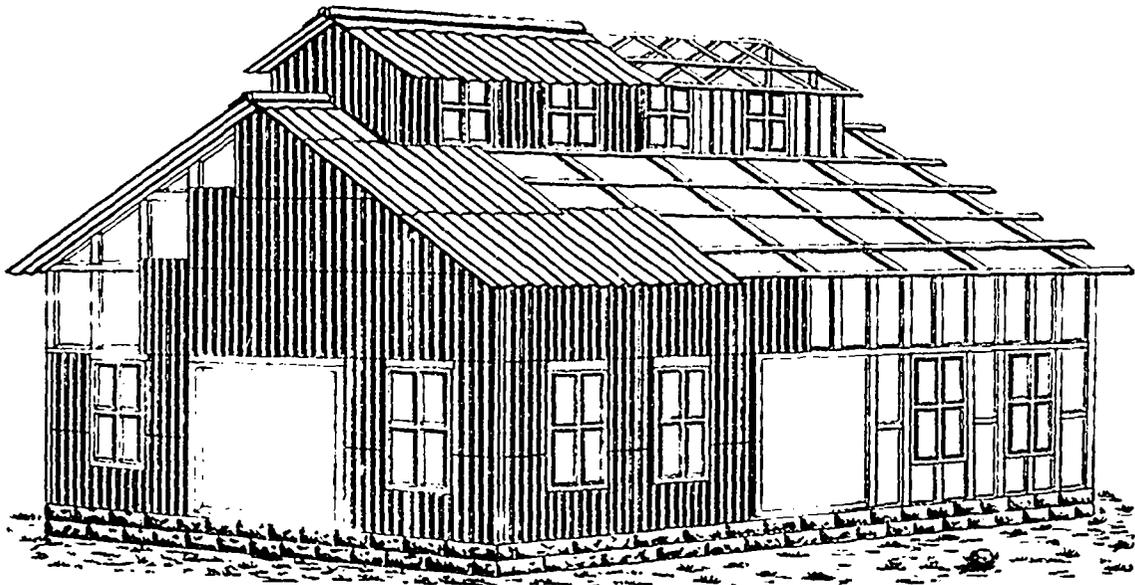
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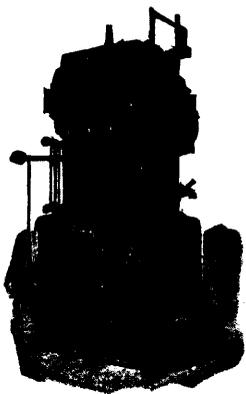
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Canada Foundry Co., Toronto.
Canadian Rand Drill Co., Sherbrooke, Que.
Darling Bros., Montreal.
Smart-Turner Machine Co., Hamilton, Ont.

Alum

Nichols Chemical Co. of Canada, Montreal.

Aluminum

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

Angles, Beams and Girders

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

Aniline Colors and Dyewood Extracts

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

Annealing Muffles and Furnaces (Wire)

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

Antimony

Syracuse Smelting Works, Montreal.

Anvils and Vises

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

Architects

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

Automatic Gear Cutting Machines

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

Axles

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

Babbitt Metal

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

Banks

Bank of Hamilton, Hamilton, Ont.

Bar Iron and Steel

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

Belt Dressing

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

Belt Fasteners

Bristol Co., Waterbury, Conn.
McLaren, D. K., Montreal and Toronto.
Petrie, H. W., Toronto.
Williams, A. R. Machinery Co., Toronto.

Belting (Cotton)

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

Belting (Leather)

McLaren, D. K., Montreal and Toronto.
Petrie, H. W., Toronto.
Williams, A. R. Machinery Co., Toronto.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

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Beltting (Rubber)

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

Beltting and Supplies

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

Blast Furnace Brick

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

Blowers

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

Boiler Compounds

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

Boiler Inspection

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

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

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

Brass Founders

Hamilton Brass Mfg. Co., Hamilton, Ont.

Building and Paving Brick

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

Building Iron and Steel

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

Builders' Materials

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

Cables

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

Canada Plates

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

Canoes

Peterborough Canoe Co., Peterborough, Ont.

Caps

McCullough-Dalsell Crucible Co., Pittsburg, Pa.

Card Clothing

McLaren D. K., Montreal and Toronto.

Cast Iron Pipe

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

Castings (Grey Iron, Malleable Iron and Brass)

Jenckes Machine Co., Sherbrooke, Que.
Kerr Engine Co., Walkerville, Ont.
McDougall, John, Caledonian Iron Works Co., Montreal.
McKinnon Dash & Metal Works Co., St. Catharines, Ont.
Maxwell, David & Sons, St. Mary's, Ont.
Smart-Turner Machine Co., Hamilton, Ont.

Cement Machinery

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

Centrifugal Pumping Machinery

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

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

Chemists

Heys, Thomas & Son, Toronto.

Clay Working Machinery

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

Coal, Coke and Charcoal.

Bourne-Fuller Co., Cleveland, Ohio.
Hamilton Facing Mill Co., Hamilton, Ont.
Milnes, James H. & Co., Toronto.

Coal Cutting Machines

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

Coal Tipples

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

Coil Chains

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

Coke Oven Brick

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

Collection Agency

Petrie, H. D., Hamilton, Ont.

Concrete Mixers

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

Condensers

Smart-Turner Machine Co., Hamilton, Ont.

Conduits (Interior)

Conduits Company, Limited, Toronto.

Contractors' Machinery

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

Contractors' Plants

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

Conveying Machinery

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

Copper Materials

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

Corrugated Iron

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

Covers

McCullough-Dalsell Crucible Co., Pittsburg, Pa.

Cranes (Electric and Hand Power)

Smart-Turner Machine Co., Hamilton, Ont.

Crayons

Lowell Crayon Co., Lowell, Mass.

Crucibles

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

Crucible Caps

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

Crucible Covers

McCullough-Dalsell Crucible Co., Pittsburg, Pa.

Cutter Grinding Machines

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

Dashes

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

Dies (Socket, Sewer Pipe and Tile)

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

Directories

Kelly's Directories, Limited, Toronto

Draw Benches (Wire)

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

Dredges

Allis-Chalmers-Bullock, Limited, Montreal.

Drills

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

Drills (Pneumatic and Rock)

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

Drop Forgings

Globe Machine & Stamping Co., Cleveland, Ohio

Drop Forging Dies

Globe Machine & Stamping Co., Cleveland Ohio.

Dry Kiln Apparatus

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

Dust and Shavings Separators

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

Dye Stuffs and Chemicals

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

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

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

Electric Mine Locomotives

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

Electrical Repairs

Keystone Engineering Co., Toronto.

Electrical Supplies

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

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

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

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

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

Engineers (Chemical)
 Heys, Thomas & Son, Toronto.
 Hunt, Robert W. & Co., Chicago, Ill.

Engineers (Civil)
 Parke, R. J., Toronto.
 Vogel, C. H., Ottawa.

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

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

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

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

Engineers (Mill and Hydraulic)
 Fensom, C. J., Toronto.
 Smart-Turner Machine Co., Hamilton, Ont.
 Vogel, C. H., Ottawa.

Engineers (Mining)
 Heys, Thomas & Son, Toronto.
 Mills, S. D., Toronto.

Engineers and Contractors
 Jeffrey Mfg. Co., Columbus, Ohio.
 Jenckes Machine Co., Sherbrooke, Que.
 Smart-Turner Machine Co., Hamilton, Ont.

Engines and Boilers
 Allis-Chalmers-Bullock, Limited, Montreal.
 Babcock & Wilcox, Limited, Montreal.
 Canada Foundry Co., Toronto.
 Goldie & McCulloch Co., Galt, Ont.

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

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

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

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

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

Factory Sites
 (See Factory Locations, page 31.)

Feed Water Heaters
 Babcock & Wilcox, Limited, Montreal.
 Darling Bros., Montreal.
 McDougall, John, Caledonian Iron Works Co., Montreal.
 Pittsburg Filter Mfg. Co., Pittsburg, Pa.
 Robb Engineering Co., Amherst, N.S.
 Smart-Turner Machine Co., Hamilton, Ont.

Feed Water Purifiers
 Pittsburg Filter Mfg. Co., Pittsburg, Pa.

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

Fillet (Pattern)
 Hamilton Facing Mill Co., Hamilton, Ont.
 Sadler & Haworth, Montreal and Toronto.

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

Filters and Filtering Systems (Water)
 Babcock & Wilcox, Limited, Montreal.
 Jenckes Machine Co., Sherbrooke, Que.
 McDougall, John, Caledonian Iron Works Co., Montreal.
 Pittsburg Filter Mfg. Co., Pittsburg, Pa.

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

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

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

Fire Escapes
 Darling Bros., Montreal.

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

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

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

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

Foundry Facings and Supplies
 Hamilton Facing Mill Co., Hamilton, Ont.

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

Furniture (Lodge, Opera and School)
 Canadian Office & School Furniture Co., Preston, Ont.

Galvanizing
 Ontario Wind Engine & Pump Co., Toronto.

Galvanizing and Tinning Machinery and Furnaces (Wire)
 Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio.

Gas and Gasoline Engines
 Economic Power, Light & Heat Supply Co., Toronto.
 Morrison, T. A. & Co., Montreal.
 Smart-Turner Machine Co., Hamilton, Ont.

Gauges (Recording Pressure)
 Bristol Co., Waterbury, Conn.

Gauges (Steam)
 Petrie, H. W., Toronto.
 Williams, A. R. Machinery Co., Toronto.

Gauges (Water)
 Babcock & Wilcox, Limited, Montreal.

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

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

Gloves, Mittens and Moccasins
 Storey, W. H. & Son, Acton, Ont.

Government Notices
 Factory Inspectors.
 Minister of Agriculture.

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

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

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

Heating and Ventilating Apparatus
 Darling Bros., Montreal.
 Sheldon & Sheldon, Galt, Ont.
 Sturtevant, B. F. Co., Boston, Mass.

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

Holts (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.

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

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

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

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VARNISH MANUFACTURERS

WALKERVILLE, ONT.

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

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Insulated Wires and Cables

Phillips, Eugene F., Electrical Works, Montreal.

Iron and Steel Specialties

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

Injectors

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

Iron and Steel Inspection

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

Lamps—Electric

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

Lathes

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

Lathes (Wood-working)

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

Lubricators

Hamilton Facing Mill Co., Hamilton, Ont.

Machinists

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

Machinists' Supplies

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

Machine Tools

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

Malleable Castings

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

Marine and Stationary Engines and Boilers

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

Mechanical Draft

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

Metal Doors

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

Metal Stamping

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

Metallurgists

Mills, S. D., Toronto.

Mill Machinery and Supplies

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

Milling Cutters and Machines

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

Miners' Lamps

Allis-Chalmers-Bullock, Limited, Montreal.

Mining Machinery

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

Motors and Dynamos

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

Moulding Sand

Hamilton Facing Mills Co., Hamilton, Ont.

Moulders Supplies.

Hamilton Facing Mill Co., Hamilton, Ont.

Municipal Filtration Plants (Water)

Pittsburg Filter Mfg. Co., Pittsburg, Pa.

Nickel

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

Nozzles

McCullough-Dalsell Crucible Co., Pittsburg, Pa.

Office and Bank Fittings

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

Oils and Lubricants

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

Oil Cloth

Dominion Oil Cloth Co., Montreal.

Paints and Colors

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

Paper Manufacturers

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

Patents

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

Patterns (Wood and Iron)

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

Perforated Metals

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

Personal Accident

Canadian Casualty & Boiler Insurance Co., Toronto.

Phosphorizers

McCullough-Dalsell Crucible Co., Pittsburg, Pa.

Piano Action and Key Machinery

Gearing, H., Toronto.

Pig Iron

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

Pipe (Riveted, Iron and Steel)

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

Pipe Threading Machines

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

Pipes and Tubes

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

Plaster

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

Plates

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

Plumbago

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

Pneumatic Tools

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

Pointer Rolls (For Rods and Wire)

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

Power Plants—Equipments

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

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.
 Petrie, H. W., Toronto.
 Smart-Turner Machine Co., Hamilton, Ont.

Producer Gas Plants

Economic Power, Light & Heat Supply Co., Toronto.

Pumps and Pumping Machinery

Allis-Chalmers-Bullock, Limited, Montreal.
 Canada Foundry Co., Toronto.

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Downie Pump Co., Downieville, Pa.
Goldie & McCulloch Co., Galt, Ont.
Jenckes Machine Co., Sherbrooke, Que.
Kerr Engine Co., Walkerville, Ont.
Morris Machine Works, Baldwinsville, N.Y.
McDougall, John, Caledonian Iron Works Co., Montreal.
Ontario Wind Engine & Pump Co., Toronto.
Petrie, H. W., Toronto.
Smart-Turner Machine Co., Hamilton, Ont.

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., Rook Island, Que.

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

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

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

Roofing
Bourne-Fuller Co., Cleveland, Ohio.
Metallic Roofing Co., Toronto.
Pedlar People, Oshawa, Ont.

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.

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

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

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

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

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

Sewer Pipes.
Dominion Sewer Pipe Co., Swansea, Ont.

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

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

Sheets (Iron and Steel)
Bourne-Fuller Co., Cleveland, Ohio.
Leslie, A. C. & Co., Montreal.
Lysaght, John, Limited, Bristol, England, and Montreal.
Metallic Roofing Co., Toronto.
Pedlar People, Oshawa, Ont.

Sheet Metal Goods

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

Sheet Metal Stamping

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

Shovels.

Hamilton Facing Mill Co., Hamilton, Ont.

Smoke Stacks

Gearing, H., Toronto.
Hamilton, Wm. Mfg. Co., Peterborough, Ont.
McDougall, John, Caledonian Iron Works Co., Montreal.
Robb Engineering Co., Amherst, N.S.
Smart-Turner Machine Co., Hamilton, Ont.

Solder

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

Special Machinery

Allis-Chalmers-Bullock, Limited, Montreal.
Globe Machine & Stamping Co., Cleveland, Ohio.
Smart-Turner Machine Co., Hamilton, Ont.

Speed Recorders

Bristol Co., Waterbury, Conn.

Sprinkler Insurance

Canadian Casualty & Boiler Insurance Co., Toronto.

Stamps and Stencils

Globe Machine & Stamping Co., Cleveland, Ohio.

Steam Pumps

Allis-Chalmers-Bullock, Limited, Montreal.
Canada Foundry Co., Toronto.
Darling Bros., Montreal.
Goldie & McCulloch Co., Galt, Ont.
McDougall, John, Caledonian Iron Works Co., Montreal.
Petrie, H. W., Toronto.
Smart-Turner Machine Co., Hamilton, Ont.
Williams, A. R. Machinery Co., Toronto.

Steam Separators

Babcock & Wilcox, Limited, Montreal.
Darling Bros., Montreal.
Robb Engineering Co., Amherst, N.S.
Sheldon & Sheldon, Galt, Ont.
Smart-Turner Machine Co., Hamilton, Ont.

Steam Shovels

Allis-Chalmers-Bullock, Limited, Montreal.

Steam Specialties

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

Steam Valves

Babcock & Wilcox, Limited, Montreal.
Darling Bros., Montreal.
Kerr Engine Co., Walkerville, Ont.
Petrie, H. W., Toronto.
Williams A. R. Machinery Co., Toronto.

Steel Balls

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

Steel Shafting

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

Stocks and Dies

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

Stoppers

McCullough-Dalsell Crucible Co., Pittsburg, Pa.

Structural Steel

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

Sulphate of Alumina

Nichols Chemical Co. of Canada, Montreal.

Suspension Furnaces

Continental Iron Works Co., New York City.

Tanks (Oil and Water)

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

Taps and Dies

Butterfield & Co., Rook Island, Que.
Globe Machine & Stamping Co., Cleveland, Ohio.

Tees

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

Textile Manufacturers

Dominion Oil Cloth Co., Montreal.
Storey, W. H. & Sons, Acton, Ont.

Thermometers (Recording)

Bristol Co., Waterbury, Conn.

Tin

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

Tool Steel

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

Trucks

Hopkins, F. H. & Co., Montreal.
McDougall, John, Caledonian Iron Works Co., Montreal.
Sheldon & Sheldon, Galt, Ont.

Trucks (Railway)

Canada Foundry Co., Toronto.

Trucks (Wire Mill Supplies)

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

Tubs (Cleaning and Coating Wire)

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

Tumbling Barrels

Globe Machine & Stamping Co., Cleveland, Ohio.
Petrie, H. W., Toronto.
Smart-Turner Machine Co., Hamilton, Ont.

Turbines

Canada Foundry Co., Toronto.
Hamilton, Wm. Mfg. Co., Peterborough, Ont.
Jenckes Machine Co., Sherbrooke, Que.

Valves

Babcock & Wilcox, Limited, Montreal.
Canada Foundry Co., Toronto.
Hamilton Brass Mfg. Co., Hamilton, Ont.
Kerr Engine Co., Walkerville, Ont.
Petrie, H. W., Toronto.
Smart-Turner Machine Co., Hamilton, Ont.
Williams, A. R. Machinery Co., Toronto.

Valves (Rubber)

Gutta Percha & Rubber Mfg. Co., Toronto

Varnishes

Berry Bros., Walkerville, Ont.

Ventilators

Darling Bros., Montreal.
Metallic Roofing Co., Toronto.
Pedlar People, Oshawa, Ont.
Sheldon & Sheldon, Galt, Ont.
Sturtevant, B. F. Co., Boston, Mass.

Wagon and Carriage Wood Work

Hors, F. W. & Son, Hamilton, Ont.

Washers or Hollinders (Cleaning Rubber)

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

Water Power Development

Vogel, C. H., Ottawa.

Water Purifying Chemicals

Canada Chemical Mfg. Co., London, Ont.
Canada Process Co., Toronto.

Water Softening Plants

Pittsburg Filter Mfg. Co., Pittsburg, Pa.

Wheelbarrows.

Hamilton Facing Mill Co., Hamilton, Ont.

Windmills

Ontario Wind Engine & Pump Co., Toronto.

Wiping Rags for Waste

Schienenman, I. L. & Co., Detroit, Mich.

Wire Mill Supplies

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

Wire and Wire Rope

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

Wire Rope Fittings

Dominion Wire Rope Co., Montreal.

Wire Cloth

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

Wire Drawing Machinery

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

Wood-Working Machinery

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

Zinc

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

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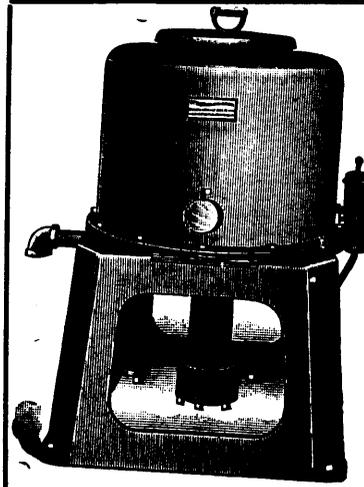
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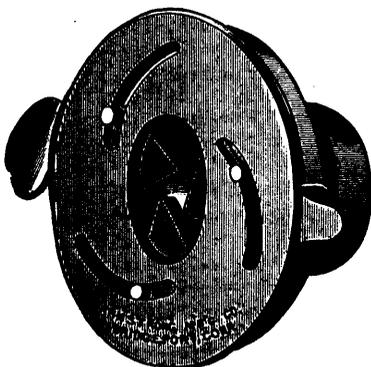
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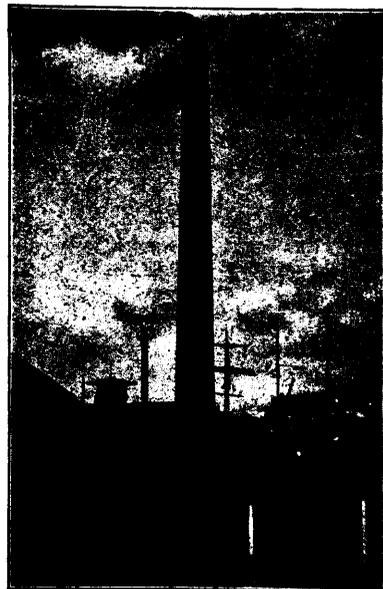
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Better bars for re-working are obtained from selected scrap than from pig iron—have more life and strength.

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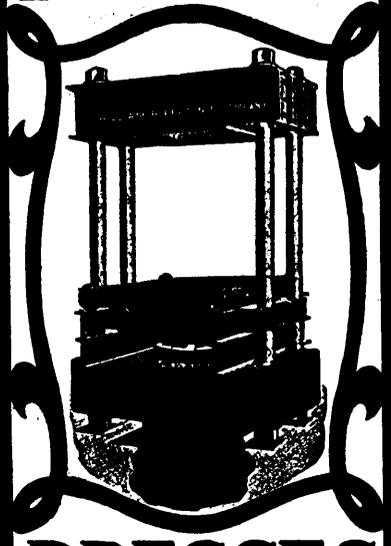
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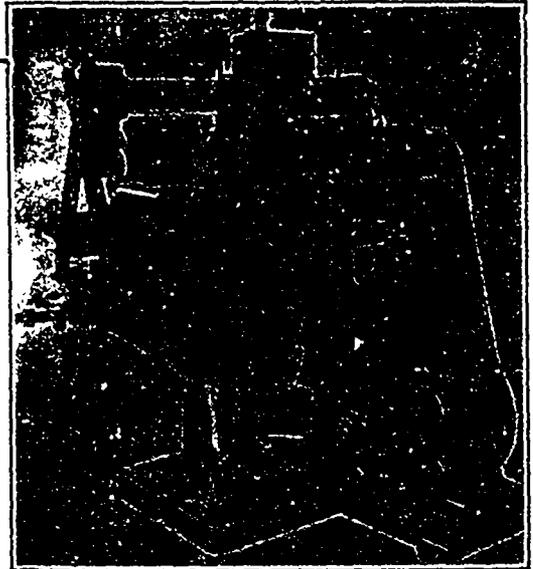
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**THE BOILER INSPECTION
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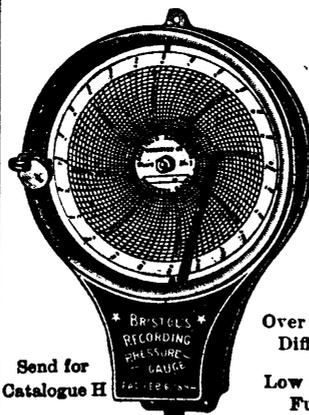
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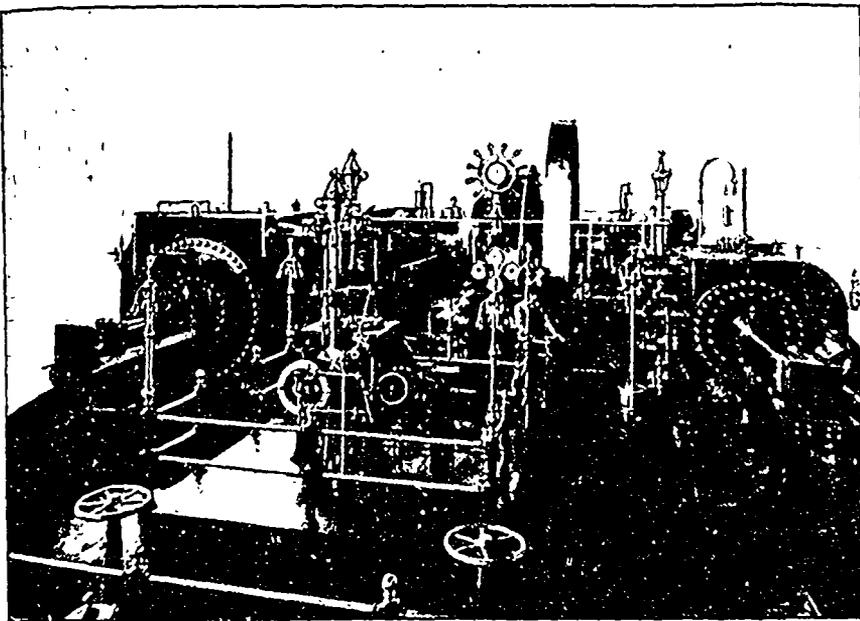
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