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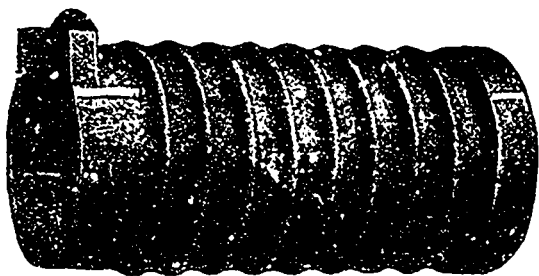
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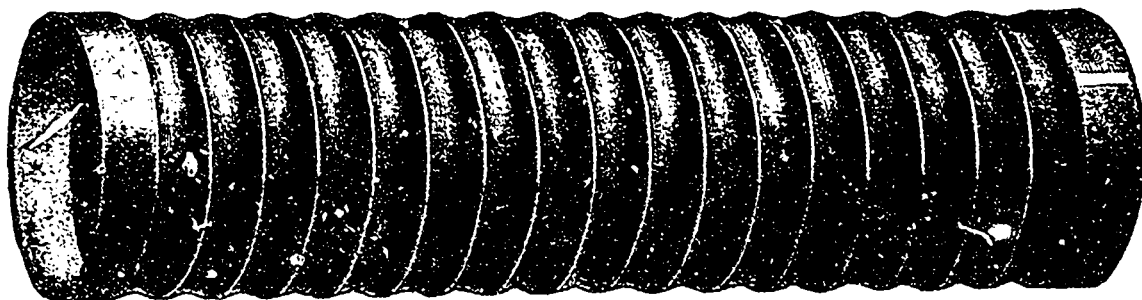


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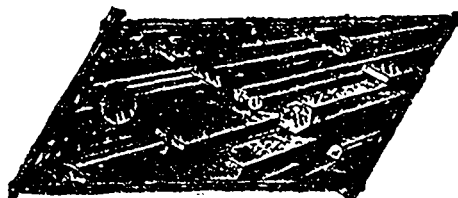
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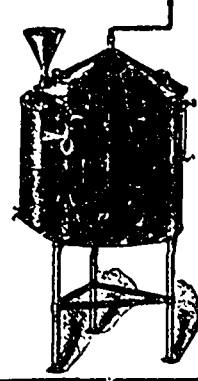
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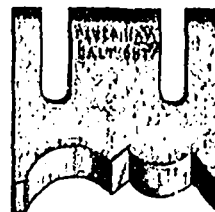
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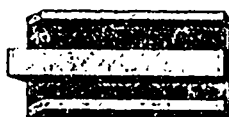
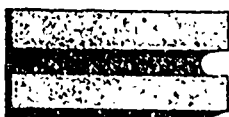
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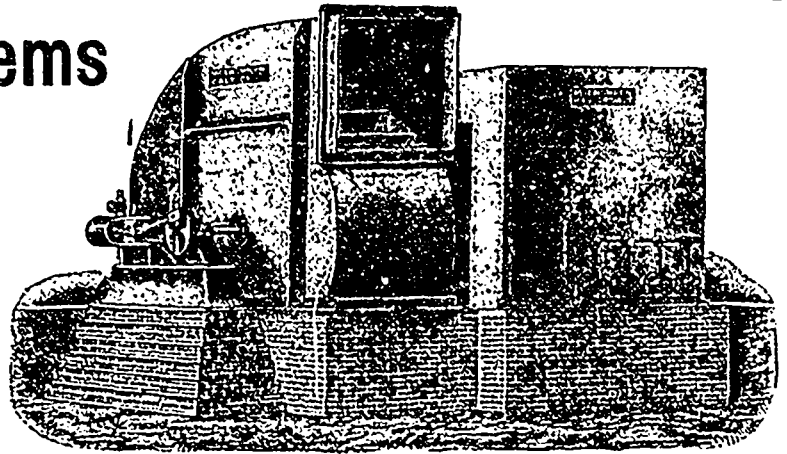
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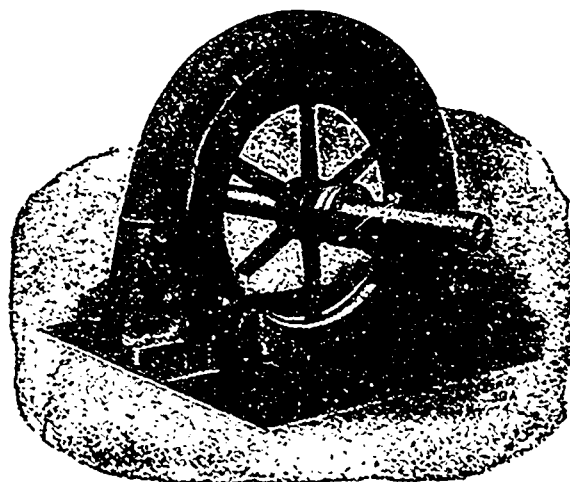
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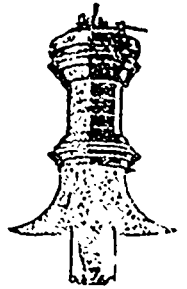
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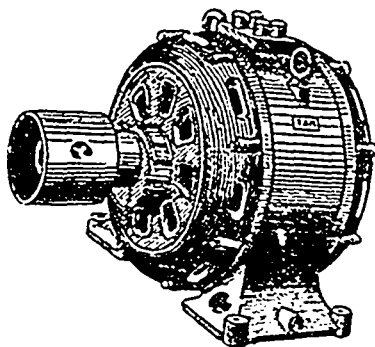
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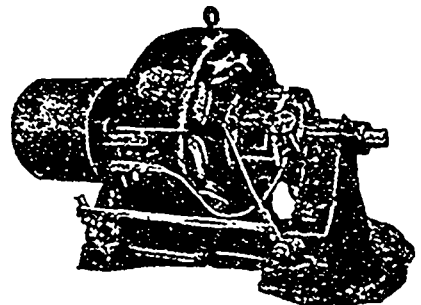
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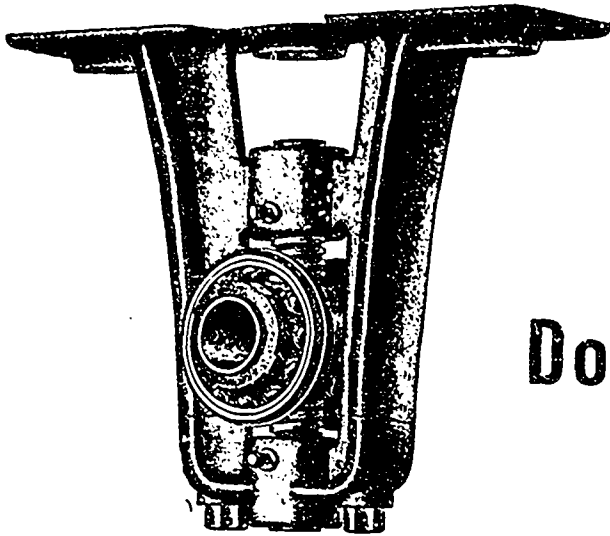
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J. J. CASSIDY, Editor and Manager

Classified IndexPage 37
Index to AdvertisersPage 45

Another Tariff Edition.

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

CANADIAN IMPORTS OF FUEL.

During the fiscal year ending June 30, 1905, the imports of fuel into Canada, and the value thereof were as follows:

	Tons.	Value
Bituminous and dust..	4,826,535	\$8,346,352
Anthracite and dust	2,604,137	12,093,371
Coke..	371,593	807,842
Charcoal.		46,862
	7,802,265	\$21,294,427

Under the general tariff the duty on bituminous coal is 53 cents per net ton, and upon bituminous dust, or slack, and upon charcoal, 20 per cent. There is no duty imposed upon anthracite or coke.

CANADIAN TRADE.

The total foreign trade of Canada for the year ending June last was \$470,151,289, a decrease of \$2,581,749 compared with the previous year. There was an increase of \$7,629,614 in the imports and a decrease of over \$10,000,000 in the exports. While the trade shows a small decrease still, it is \$222,512,669 better than any year during the Conservative regime.

The imports from Britain last fiscal year were \$60,588,811, a decrease of \$2,422,093. The exports to Britain in the same period were \$101,968,771, a decrease of \$15,632,065. Canada's purchases from all the British possessions, together, were \$75,662,290, a decrease of \$13,121. The exports to the British Empire totalled \$113,876,842, a decline of \$15,000,000. On the other hand, Canada's purchases of \$193,172,128 from foreign countries represented an increase of nearly \$8,000,000, whilst the exports to foreign countries of \$87,595,213 represented an increase of \$5,491,083.

From the United States we took imports of \$166,040,890, an increase of over \$9,000,000, whilst our exports to that country were \$85,563,015, a betterment of close on \$5,000,000.

Canada's trade with France shows an increase of almost \$1,000,000 in imports and of \$66,630 in our exports thereto. Germany, in spite of the customs surtax, sold us goods to the value of \$6,642,139, a decrease of \$1,336,495, compared with 1904. On the other hand we sold \$1,146,654 worth of goods to Germany, a decrease of \$672,569.

Canada sold Newfoundland goods to the value of \$3,473,598, as compared with \$2,898,690 in 1904, whilst our imports from that colony were \$1,059,418 as compared with \$1,071,621 in 1904.

We imported \$6,077,013 from the British West Indies, as against \$4,815,768 in 1904, and sold them in return \$2,404,232 worth of goods, as against \$2,170,774 in 1904.

CANADIAN BOUNTIES.

From official figures just compiled at Ottawa it is shown that \$2,234,685 was expended by the Dominion Government in bounties on various commodities for the fiscal year ending June 30 last. The details of this expenditure are as follows:

Pig iron.	\$624,66 98	
Puddled bars.	7,894 83	
Steel ingots .	614,433 16	
Manufactures of steel	293,208 51	
		\$1,540,203 48
Lead .	233,844 53	
Lead exported for treatment	96,800 59	
		330,645 12
Binder twine.		13,789 27
Crude petroleum		350,047 17

Total.		\$2,234,685 04

This is an increase of \$250,000 over the previous year. The rate of bounty payable on iron and steel decreases with each successive fiscal year and entirely ceases upon June 30, 1907. The following statement shows the comparison between the present rate and that for the previous fiscal year:

	1904- 1905. Per ton.	1905- 1906. Per ton.
Pig iron made from Canadian ore	\$2 25	\$1 65
Pig iron made from foreign ore.	1 50	1 10
Puddled bars	2 25	1 65
Steel ingots.	2 25	1 65
Manufactures of steel:		
Wire rods	6 00	6 00
Rolled angles, tees, channels, beams, joists, girders or bridge building or structural rolled sections, etc.	3 00	3 00
Rolled plates..	3 00	3 00

In connection with these bounties it is possible for one company to get several in the course of manufacture, say, beginning with pig iron of \$1.65 a ton, then upon the steel ingot of \$1.65 and then \$6 upon wire rods, or a total of \$9.30. This bounty is in addition to the customs duty.

The other rates of bounty granted by the government are as follows:

	Per ton.
Lead smelted in Canada	\$15 00
Lead exported to Europe for treatment	10 00

Crude petroleum produced from Canadian wells, 1½c. per gallon.

Binder twine equal to export duty on Manila fiber, 75c. per 100 kilos.

THE TARIFF ENQUIRY.

The basis of the Tariff Commission's enquiries cover the following points:

(a) The extent (approximate) to which cost of goods imported is increased to the ultimate consumer over and above the amount of the tax imposed, as far as you can ascertain. This, it is presumed, will depend largely on the number of hands through which goods pass before reaching consumer.

(b) Effects of heavy duty on quantity of goods imported. How far do producers try to meet by reducing quality of goods.

(c) General effect of heavy duties on trade and commerce. How far is the total consumption of such goods likely to be diminished by the rise in price, including goods of same kind produced in Canada.

(d) Result in your judgment if duty was totally abolished on class of goods in which you chiefly deal.

(e) How far are the disadvantages of which Canadian manufacturers complain of a temporary or a permanent character?

(f) How do prices of goods imported by you at present compare with prices paid for articles of equal quality ten, fifteen or twenty years ago, and to what cause do you attribute rise or fall in prices, as case may be?

(g) To what extent, if any, do you find that goods now imported are being sold below cost of production? In what sort of goods and from what countries have you found this to be the case?

This is taken to mean that the Government is seeking

information regarding the cost of goods to the consumer. It is doubtful if any importer will care to answer such queries, even if they possess the necessary information

MADE IN CANADA.

There was a time in the history of Canada, and that not long ago, when imported goods were preferred to those made in this country, but according to the newly elected president of the Canadian Manufacturers' Association, a change has set in, and now a preference is shown for home-made goods. This, says the Shareholder, is due to the fact that many Canadian manufacturers have reached such an excellence that they have worked their way into public appreciation on their merits. We have the same facilities for production as other countries, and with the adoption of the best and most modern machinery instead of using old-fashioned and ill-adapted means of production, Canadian manufacturers, when they keep abreast of the times, have no cause to fear competition from other countries. The reason for the change referred to above is found in the fact that those Canadian manufacturers who have experienced the change in public sentiment, have taken every possible means to put their factories on the best possible footing in relation to newest and best machinery to be had. They have discarded the old fashioned and worn out machinery and they are, consequently, in a position to produce articles equal in every respect to those made elsewhere. Such a testimony is highly gratifying. It should serve as a useful lesson to those who think that what was good enough for a decade or two ago, should be good enough for the present time, forgetting that their competitors have left them far behind in the race. Many of our Canadian manufactures are of the highest quality of excellence. Others, however, are not, and until they are it cannot be expected that they will take the place of a better article. What was good enough for the masses of consumers a few years ago, is not so now. Their improved condition enables them to do better. Those manufacturers who have realized this and provided for it are meeting with encouragement, while those who have shut their eyes to what is going on blame everything and everyone except themselves.

EDITORIAL NOTES.

The importance of keeping up steam in factory boilers for purposes of fire protection was demonstrated by tests recently made in several New England mills. It was found that a well banked factory boiler may be relied upon to promptly operate a fire pump at the rate of 1,000 gallons per minute, and that banking such a boiler so as to maintain a steam pressure of 50 pounds per square inch requires about 800 pounds of coal per day. In one of the tests four fire streams were had in 13 minutes when the boilers had been banked for a week; while tests upon cold boilers showed that the amount of time required to get up a steam pressure of 50 pounds was, on the average, an hour and a half.

The exhibition of British manufactures at Cairo and Alexandria, Egypt, which was to have been held in the latter part of the current year, has been postponed until the latter part of 1906 and the beginning of 1907, the reason for the delay being, as we are informed, that the scheme has assumed very much larger proportions than was at first anticipated. Mr. D. S. Murray is London agent for the Exhibition, with office at 11 and 12 Foster Lane, Cheapside, who would be pleased to correspond with Canadian manufacturers who might be inclined to show some of their products at the dual exhibition.

The impression prevails that Parliament will meet not later than the first week in February, and that the new tariff resolutions will be ready to be tabled immediately the address is disposed of. This view is confirmed by the knowledge of the fact that representations have been made that there will be the least disturbance to public business if the new tariff is enacted and becomes effective before the opening of navigation in the spring.

The United States has concluded to drop its contention that an additional duty should be levied on wood pulp, the product of pulp wood cut from Crown lands and private lands in the province of Quebec. This information is contained in a letter written by James B. Reynolds, assistant secretary of the treasury, to the collector of customs at Plattsburg, N.Y. The case is of considerable interest to manufacturers of wood pulp and paper, and has been in litigation for several years, the American Government insisting that it had the right to collect a countervailing duty on all wood pulp irrespective of whether the product came from wood cut on Crown or private lands. The United States Treasury Department had maintained that Canada pays a bounty on all wood pulp sent to that country, and that the merchandise thereby became liable to the extra duty upon importation into the United States. While the test case has been under consideration, many cases have been placed on the suspended files of the board of appraisers. These will now be decided and large refunds made to importers.

Correspondence between Canada and Japan over a commercial treaty has advanced to such a point, that it is practically certain Canada will shortly be accorded favored nation treatment in tariff matters by Japan. In 1897, Canada declined to become a party to Great Britain's treaty with Japan and has since been on the high tariff list. This has proved awkward in meeting the competition of the United States, which is on the lower tariff basis. The new treaty will put Canada on a footing of equality with competing nations in the Japanese market.

The Sault Ste. Marie Board of Trade asks for the abolition of the Canadian duty on soft coal used in the manufacture of coke. The matter has been laid before the Tariff Commission with the object of obtaining the location of the coke plant the Lake Superior Corporation has

decided to erect. The removal of the duty on soft coal would assist not only the manufacturers of Ontario but the railways which consume such large quantities that the duty paid must be a factor in the settlement of freight rates.

Hon. Mr. Parent, chairman of the Transcontinental Railway Commission, states that reports from some of the board's surveyors engaged in exploration work in the Lake Abitibi region, tell of the discovery of coal as well as of several other minerals. There has been no opportunity yet to test the quality of deposits and their extent, but should it prove to be the genuine article and to exist in workable quantities it will prove of enormous advantage to the Grand Trunk Pacific and also to the provinces of Ontario and Quebec. No use can be made of any coal that may exist in this remote region until the railway is built to get it out.

Representatives of the International Harvester Co., who have their headquarters in Chicago, have, as said, secured options on sites in Sweden with a view to building factories there, from which the trade of northern Europe can be supplied. Besides saving freight charges, the harvester company wishes to fortify itself against anti-American tariffs, which will shortly come into force in Germany, Austria-Hungary and elsewhere. Tariff difficulties caused the company several years ago to build a plant at Hamilton, Ont., and to incorporate in Canada. The company is also incorporated in Sweden and in numerous other European countries.

A new automatic fire alarm was recently tested in Nottingham, England. In a large room of a hotel, where three of the alarms, small instruments, were attached to the ceiling, a quantity of waste on a tray was saturated with methylated spirit and set on fire. In twelve seconds a gong attached by electric wires to the instruments on the ceiling sounded an alarm. Only the raising of the temperature to a certain degree (which may be varied according to circumstances) is required to cause the alarm. The instrument is merely a scientific application of the fact that heat causes expansion. As soon as the metal in the little apparatus becomes affected by the rise in temperature which must inevitably take place immediately a fire breaks out, it expands, completes an electric circuit, and the bell, which may be placed anywhere—at the fire station if desired—rings. An ingenious arrangement regulates the degree of heat at which the instrument shall give warning. In a room where, by reason of the work carried on, the temperature is ordinarily high, the point at which the warning shall be given must obviously be proportionately higher. A turn of a little clock hand is all that is required to effect it. It is claimed that the instrument may be made so sensitive that merely breathing upon it will cause the alarm to be given. The test at the hotel is reported to have been entirely successful. It is also stated that several fires have started in rooms where the alarm has

already been installed, and in every case were so quickly extinguished that the damage was trifling.

The Acadian Recorder, in commending the work of the Canadian Forestry Association, says that it is a work of true patriotism, in which all Canadians should join. The objects of the association are the preservation of the forests for their influence on climate, fertility and water supply, the exploration of the public domain and the reservation for timber production of lands unsuited for agriculture; the promotion of judicious methods in dealing with forests and woodlands; reforestation where advisable; tree planting on the plains and on the streets and highways; the collection and dissemination of information bearing on the forestry problem in general. This plan is so broad that there are few who cannot render aid of some kind. Every tree planted or saved represents a substantial addition to the wealth and beauty of the country. At the same time, the work should be done with intelligence and judgment, and herein is the value of the Forestry Association.

A glance over the trade returns of past years shows that Germany has been hard hit in its tariff war with Canada. In 1901 we imported from Germany goods for consumption to the amount of \$7,821,405. The year following our purchases from that country for consumption went up to \$10,823,169, and in 1903 they stood at \$12,282,637. The year following the effect of the surtax was felt, and imports for consumption dropped to \$8,175,604. Last fiscal year our total imports from Germany were \$6,642,130. Of course, there will be certain goods, such as musical instruments, that we will continue to get from Germany.

Among the questions considered at the recent meeting of the Association of Chambers of Commerce of the United Kingdom, held at Liege, Belgium, was the desirability of devising an international postage stamp for use in all countries in the International Postal Union. The idea is to provide a stamp which could be bought in all countries and used for all correspondence between all countries. Under this plan a merchant in Toronto could, by the use of these stamps, provide return postage for a correspondent in Europe without the bother and expense of purchasing the stamp issued by the European country. He could also remit small amounts in stamps to his foreign correspondents, sending a stamp which could be used by the correspondent at any time. The idea of the international postage stamp has many attractive advantages and no disadvantage has as yet appeared, except such as could be quickly overcome by completion of arrangements between the various countries in the Postal Union.

English manufacturers and merchants are much concerned over the usurpation of their home market by American and German manufacturers. The English

appear slow to realize that the conditions in the commercial world have changed, and that the markets so long dominated by sentiment can only be retained by competitive selling. An example of this national belief in British loyalty to home manufacturers is seen in a patriotic stamp which an English merchant has suggested be affixed to each article of British manufacture. The stamp would be sold in perforated sheets of regulation postage size, printed in the three colors which make up the Union Jack. Either the manufacturer or the retailer would be authorized to affix these to goods, but it would not be long before unscrupulous dealers would be using the stamp to dispose of cheap foreign wares at fancy prices.

"Too busy with home trade" is the reason often advanced by manufacturers for failure to seek export trade. When domestic business slackens a bit and these manufacturers conclude that they need a few foreign orders to keep their shops busy, they find that they cannot get export business at a minute's notice, and wonder why it is so hard to obtain. For their reply, let them study the methods of the consistent exporter, the man who cultivates his foreign trade persistently every month in the year, and they will learn something to their advantage. How they can regard export customers as conveniences to be accommodated only when convenient, it is hard to understand. They would never think of applying such methods to their home trade.

German technical papers report that Mr. Cowper Coles, an Englishman, has invented a new process of galvanizing, and has recently demonstrated the same with samples of iron, copper, aluminum, and other metals. The objects to be galvanized are simply heated to 260° in a bath of zinc vapor, the duration of which depends upon the desired thickness of the coating, but which is always short. After heating the objects are thoroughly coated with a layer of zinc, which on the surface has formed an alloy with the other metal by penetrating into it to a considerable depth. A copper rod can in this way be almost entirely transformed into brass, while the temperature employed remains far below the melting point of both metals. A great advantage of the process lies in the evenness of the coating, which is so perfect that such zinc galvanized screws and bolts afterwards fit perfectly into the nuts, while with other methods they have to be polished. It is also very convenient that the objects to be galvanized have not first to be cleaned. The retorts in which the heating takes place are of iron, and are heated from the outside. Another peculiar advantage is that the zinc does not adhere to the walls of the retort, but that these, after months of use, are entirely clean. The explanation for this is that the walls of the retort are heated most, so that no zinc vapor condenses on them. Experiments to use the process with metals other than zinc have been so far made with copper and antimony, and have been partly successful, but not to a degree to make them of practical use.

MACHINERY AND ENGINEERING.

MEASURING vs. WEIGHING.

Almost all manufacturing processes demand some method of determining mass. The most important commercial properties of mass are cost of purchasing and the chemical and physical results obtained from bringing different predetermined masses into intimate contact.

The usual methods of determining mass are by weight or by measurement, and both are open to objections. Impurities occur which can only be allowed for by chemical analysis, and where the impurities vary, exact results can only be obtained by continually analyzing

automatic and hand operated and accurate in themselves, fail because of this difficulty with the supply gates.

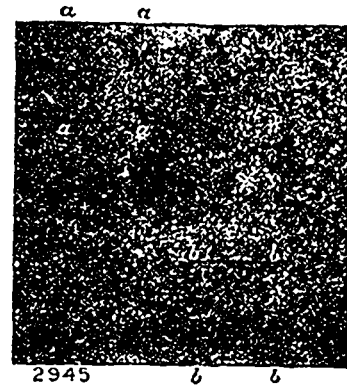
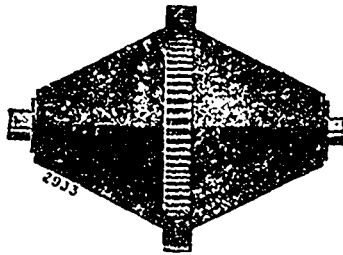
The economy of weighing increases with the size of the batch, and regardless of size it is possible, though expensive, to insure that the proper proportions of each material enter into the batch.

It is not so easy, however, to be sure that after the batch is mixed each part of the batch is like every other part, or that the mass is uniform. The mixing apparatus may be a tumbling barrel or a paddle trough, but all such apparatus depends on the hap-hazard transfer of one portion of the batch to another, a large number of such transfers being ex-

but measuring can be done continuously, provided it be true and accurate measurement and not merely an average of errors. To be continuous it is necessarily automatic and therefore economical.

The presence of voids cannot be avoided with crushed materials, but the proportion of voids in any one material crushed in any one crusher is remarkably uniform, and once determined and allowed for can be neglected. Means must be provided, however, to prevent uneven packing, especially with the finer materials.

Where materials are to be fed to kilns or furnaces, the intermittent introduction of cold materials from weighing machines, or



at close intervals. When this is done mass can be determined very closely by weight, but beside the obvious objection of cost, generally out of all proportion to the importance of the result accomplished, there are mechanical objections to weighing which will be referred to later.

Measurement of volume may be inaccurate from impurities the same as weighing, and also from the presence of voids. Most materials are handled in a crushed or pulverized state, so that the proportion of voids is large. If however, the voids can be kept constant or nearly so, this objection is obviated. This is a physical problem and can be solved by mechanical means. An ordinary crusher will break materials so that the amount of voids in even relatively small samples are remarkably uniform. Furthermore, the presence of absorbed water does not swell the dimensions, but simply fills the voids, causing no inaccuracy. In weighing, however, such absorbed water would be counted in as so much active material, unless the materials are previously dried or this moisture determined and allowed for, and might seriously affect the value of the finished article and its cost of manufacture.

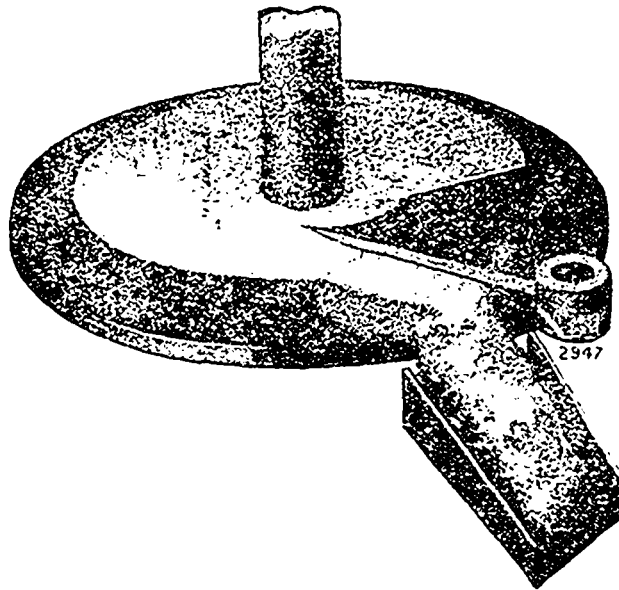
Where two or three materials are to be used it has been the custom to weigh a considerable proportion of one and place with it the required proportion of the other, the whole forming a batch, which is then mixed by tumbling about in some form of agitating device. The weights are usually set at predetermined positions on the scale beams, and where the materials are very finely divided it is difficult to stop the flow from the supply just in time to prevent what is often a gross error. Many weighing devices, both

designed to make the mass uniform. There is nothing, however, to absolutely insure this.

If the mass is not uniform and the poorest part is rich enough then the rest of the batch is too rich, and valuable ingredients are being wasted. Also the larger the batch (and the more economical the weighing) the

even a continuous, but slightly irregular, feed may cause a deterioration of the product, and in any event cuts down the capacity of the apparatus, sometimes as much as 50 per cent., besides injuring the furnace itself. To meet the urgent need of such apparatus in the works of the Solvay Process Co., Mr. E. N.

Trump, chief engineer of that company, devised a continuous measuring machine, which is adapted to feed one substance or to proportion the several ingredients of a mixture. More than a dozen of these machines were made for this company, and were used in their different plants for such varying

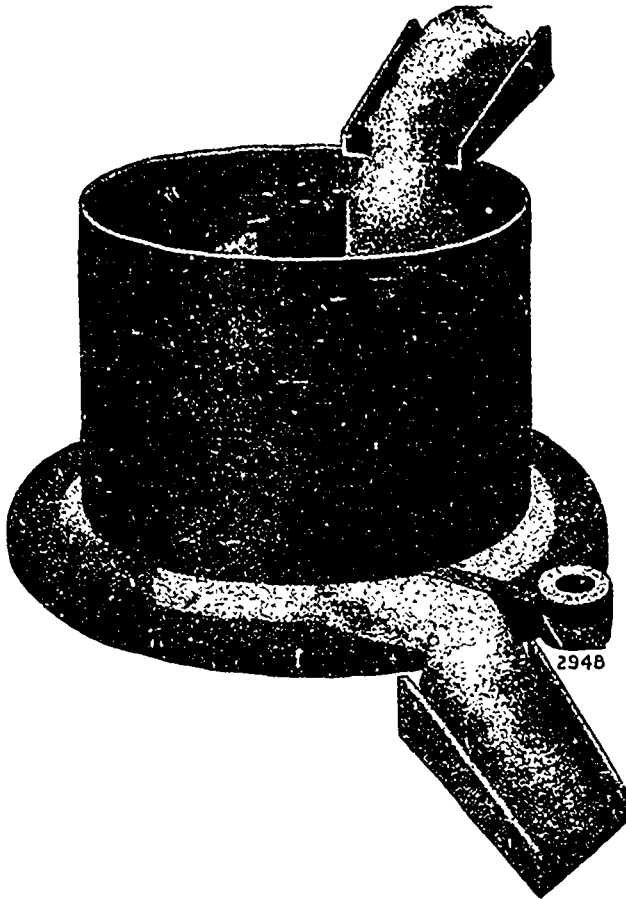


more mixing is required and the less uniform the mixture. This leads to the conclusion that the materials should be proportioned and placed together in infinitesimal quantities, and by logical sequence the proportioning should be continuous.

Weighing by any method is intermittent.

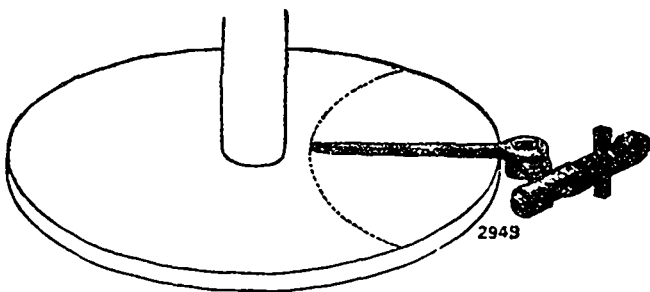
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purposes as the feeding of kilns, the mixture of chemicals, the manufacture of coke briquettes, feeding of rocks, the making of concrete, etc., and handled material of 6-inch cube dimensions to the finest of powders—both wet and dry. In actual service they were so successful that Mr. Trump protected his rights and the machines are now being marketed by the Link-Belt Engineering Co., Philadelphia, Pa.

The Trump measuring machine consists essentially of a horizontal revolving table, on which the material to be measured rests, and a stationary knife set just above the table and pivoted on a vertical shaft just outside the circumference. This knife can be adjusted so as to extend the proper distance into the material on the table, at each revolution of which it peels off a certain amount, which falls over the table edge into the chute. This is shown by Fig. No. 2947.



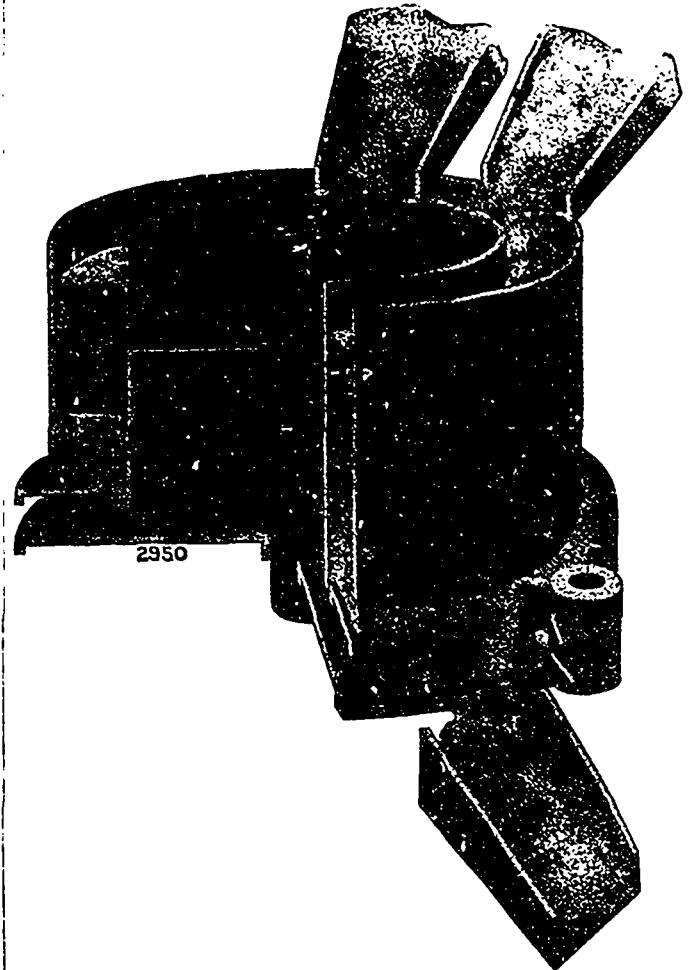
As the material is peeled off by the knife, it must be replenished, so that the pile on a certain part of the table is filled into approximately the same shape and size by the time it has revolved so as to be again presented to the knife. This is accomplished, as shown by Fig. No. 2948, by placing a bottomless storage cylinder, somewhat smaller in diameter than the table, and revolving with it, with its lower edge a short distance above the table so that the material flows out from under the edge of the cylinder and assumes a conical shape.

The factors determining the amount measured off are the distance between the bottom of the cylinder and the top of the table, the width of the knife and its depth of cut, and the speed

of rotation of the table. The depth of cut of the knife is adjusted by swinging the knife around on its pivot, so that it extends a greater or less distance into the material. This swing is controlled by a screw attached to an arm, cast as part of the knife, and a micrometer scale with pointer shows the amount of movement. This is shown by Fig. No. 2949.

Where it is desired to measure off and mix two or more materials, the machines are made with two or more tables, set one above the other, and mounted on the same spindle so that they revolve together, each table having its own storage cylinder above it, and the cylinders being placed one within the other as shown by Fig. No. 2950.

For each table there is a knife, with its own adjusting mechanism, which allows the user to vary, at will, the percentage of each material in a mixture, and, as the materials flow together constantly and regularly in small streams as they drop down the common chute, each infinitesimal



amount of one ingredient is accompanied by the proper amounts of the other ingredients, and the particles become intimately mixed.

In feeding materials to the storage cylinders of these machines a conveyer can be employed; they can be delivered by gravity from a storage bin, or they can be shoveled; and it is only necessary to see that enough is kept in the storage cylinders so that the amount which the knives peel off will be constant. With some finely powdered materials, which flow very freely, it is necessary to place feeding-seals at the top of the storage cylinders to regulate the density and pressure on the material below, so that it will not pack or flow out at the bottom too rapidly and flood the table.

The tables and storage cylinders are all mounted on and driven by the same centre sleeve, which is carried on a dirt-proof step bearing with hard bronze and steel washers, and proper oiling device. The lowest table has a bevel gear cast on the under side and is driven by a pinion mounted on a counter-shaft. The casing of the machine is made dust-proof to avoid any possibility of leakage or pollution of the air by finely powdered materials, and the whole is mounted on a substantial base, thus making the machine entirely self-contained. The counter-shaft can be connected up to an electric motor by direct gearing, or can be driven by means of a belt and pulley.

CAPTAINS OF INDUSTRY.

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

The Hamilton Bridge Co., Hamilton, Ont., have received the contract for two bridges, one over the Muskoka river at Bracebridge, Ont., to cost about \$14,000, and the other at the outlet of the Lake of Bays, and is to cost \$3,100.

The Ontario Government are considering the advisability of establishing a government printing plant to do the voluminous work in order to produce the different department reports, session papers, bills, statutes, etc.

The Canadian White Co., Montreal, have been awarded the contract for the new head office building of the Federal Life Assurance Co., Hamilton, Ont., Messrs. Finley & Spence, Montreal, architects. This building will be an eight storey modern steel construction, fire-proof structure. The company take the entire contract and turn the building over for occupancy not later than August 1, 1906. The same company have also been awarded a contract for the new car sheds of the Montreal Street Railway Co., Messrs. Marchand & Haskell, architects.

H. F. Slater & Co., recently brought in probably the best well that has yet been finished in the Leamington, Ont., field. The sand was struck at a depth of 1,080 feet, and immediately the oil shot out high over the derrick. Within one hour there were forty barrels in the tank. This is the fourth big gusher that has been completed in the last two weeks.

In the Iron Age of July 27, 1905, was given the unique record of the No. 1 blast furnace of the Algoma Steel Co., Sault Ste. Marie, Ont., in the production of charcoal pig iron. On July 8, 1905, the output was 173 gross tons, and the average for four days ending July 9 was 163 tons. Charcoal consumption was 1,741 pounds per ton of pig iron; the pressure of the blast was 9½ pounds; and the volume of air 10,172 cubic feet per minute. The furnace was built to use charcoal as fuel but since the middle of July it has been running on coke. No change whatever was made in the construction or connections of the furnace in going from charcoal to coke, except the necessary increase in the amount of blast blown. For one week the experiment of part coke and part charcoal was tried with good results. The product was only a little higher than on all charcoal, 175 tons being the best day's output. The best week's product on all coke was 1,372 tons, or a daily average of 196 tons. This is at the rate of 224 tons per week per 1,000 cubic feet capacity. The furnace is only 70 feet by 13 feet six inches bosh diameter by eight feet six inches hearth. The best day's product was 216 tons.

The Britannia Paper Co. will erect works at Port Hope, Ont., upon which \$50,000 will be expended for plant and machinery, for the manufacture of paper goods.

Whalen & Bowman of the Great Lakes Dredging Co., Port Arthur, Ont., have purchased a site on Island No. 2 at Port William, Ont., for building a dry dock and marine railway, together with a foundry and machine shop. The property has a frontage of 600

feet on the south side of the river at the junction of McKellar and Kaministiquia Rivers. The town is giving the company exemption from taxes for ten years, and will also close the streets in front of the site. The new industry will employ about 100 men.

According to the revised figures issued by the Assessment Department of the City of Toronto, the population of the city is 256,045, an increase of 12,597 compared with the assessors' returns made last year.

The Hamilton Steel & Iron Co., Hamilton, Ont., have just completed the installation of a new steam hammer of the double leg type, built for them by the John Bertram & Sons Co., Dundas, Ont. The cylinder is 20 inches diameter by five feet stroke, capable of delivering a 50-ton blow. The outfit includes a forger's steam jib crane to lift 15 tons, built by the American Machine Co., Cleveland, Ohio; a furnace with door at each end to accommodate extra long shafts, with boiler heated with waste gases from the furnace, which will provide steam to the hammer and crane at a pressure of 200 pounds. The plant is enclosed in a new steel building erected by the Hamilton Bridge Co., Hamilton, Ont., and is designed to meet the increased demand for marine forgings, car axles and other heavy work.

The Wm. Hamilton Mfg. Co., Peterborough, Ont., inform us that they are having very good success with the Samson Turbine Water Wheel, manufactured by them, having recently secured orders for about 10 of these wheels, to go into plants, pretty much all throughout Canada. There is one for the Yukon District, three for Southern British Columbia, some for Eastern Quebec, and three for the Province of Ontario.

The Grand Valley Railway, which connects Brantford and Paris with Galt, Ont., have laid rails and made connection with the Galt, Preston and Berlin Railway.

The Central Church congregation, Galt, Ont., have decided to put in electric lighting at a cost of about \$1,500.

A committee has been appointed to consider and report upon the advisability of removing Knox Presbyterian College from College St. to the Queen's Park, Toronto.

The cheese factory at North Smith, near Lakefield, Ont., was destroyed by fire October 8. Loss about \$4,000.

Under the terms of the transfer of the right of way of the Nipigon Railway Co., to Mackenzie & Mann, of the Canadian Northern railway as an adjunct in the Toronto-Sudbury line, the Canadian Northern comes into control of the valuable water power privileges at Cameron's Falls, on the Nipigon river, and the Nipigon Pulp Co., which had valuable concessions and rights.

The industrial section of the census of 1901 for the Dominion of Canada has just been issued. It covers 14,650 establishments in the Dominion, representing 264 classes of industry. The value of capital employed is given at

\$446,916,487, of which \$209,378,638 represents lands, buildings and plants, and \$237,537,849 working capital. In the census year 344,035 persons were employed, their salaries and wages amounting to \$113,249,350. The cost of materials and manufacturing \$266,527,858, and miscellaneous expenses \$24,688,837, making a total of \$464,466,045. The total value of products was \$484,053,375, as compared with 1891 for works employing five hands and over. The census of 1901 shows a gain of 585 factories, 72,002 employes, \$34,015,039 in earnings, and \$112,356,652 in value of product.

The London Box Co., London, Ont., will erect a large new factory to replace the one destroyed by fire.

The Wm. Hamilton Mfg. Co., Peterborough, Ont., inform us in regard to some of their recent contracts for saw-mill machinery. They have secured the orders for the complete outfits of the Colonial Lumber Co., the Small & Bucklin Lumber Co., Messrs. John B. Smith & Sons, and the Taylor-Pattison Mill Co. These are for complete plants, and in addition they have secured large orders from the North Pacific Lumber Co., and the Victoria Lumber & Mfg. Co. They also report that they are having excellent success with their new steam tension band mill. There are two of these included in the contract for John B. Smith & Sons, one for the Colonial Lumber Co., and one for the Small & Bucklin Lumber Co. They have also lately sold several of their 4-inch steam setters which is rapidly replacing the smaller steam set throughout the country.

The Jackson Wagon Co., St. George, Ont., are considering moving their plant to Galt, Ont., if they are granted a site and a building loan.

The Milton Pressed Brick Co., Milton, Ont., have erected a new kiln which will be 70x35 feet and have a capacity of 250,000 brick.

Messrs. Chick Bros., Windsor, Ont., have obtained the contract from the Pere Marquette Railway Co., to build fifteen tracks, each 3,000 feet in length, at St. Thomas, Ont., for sidings.

It is stated that the Grand Trunk Railway Co., are considering the feasibility of using Niagara power in equipping the St. Clair tunnel with electricity.

The John Bertram & Sons Co., Dundas, Ont., manufacturers of machine tools, will make extensive additions to their works at that place.

Messrs. Mackenzie & Mann will establish a second blast furnace at Port Arthur, Ont., as a result of recent mining developments in Loon Lake properties.

The report of president C. D. Warren to the shareholders of the Lake Superior Corporation stated that the last Canadian property to remain in the receiver's hands, the Lake Superior Power Co., has been released and has passed into the full control of the corporation.

The Northern Oil & Gas Co., have been operating for coal oil near Manitowaning, Manitoulin Island. A few days ago while the pumps were at work the oil and gas broke loose, and oil overflowed in hundreds of barrels. The well is now overflowing through the valves of a three-inch pump in the well, which cannot be removed with safety, with

100 barrels actual measurement per day, with gas at 2,500 pounds pressure. Oil is found at about 400 feet.

The Sawyer-Massey Co., Hamilton, Ont., have taken out a permit for an extension to their factory, at a cost of about \$16,000.

Active operations have been begun on the tunnel under the Detroit river by the Michigan Central Railway Co., and there will be no cessation of work until the big bore is completed.

The ratepayers of Sarnia, Ont., will vote on a by-law to grant a loan of \$25,000 and a free site to Messrs. Richards & Maguire, of Cleveland, Ohio, to establish a machinery plant to continue the business of the Canada Machinery Co., which was recently burnt out.

The propeller Glenellah the latest addition to the fleet of the Union Steamboat Co., Hamilton, Ont., arrived in Toronto, from Glasgow, Scotland, a few days ago. The Glenellah, which was built on the Clyde, is a full canal-sized vessel, and brought over a cargo of 1,000 tons of fire-brick. The Glenellah will ply on the upper lakes.

The York Radial Railway Co., Toronto, have purchased 2,500 tons of steel rails from the Algoma Steel Co., Sault Ste. Marie, Ont., for the extension of the Metropolitan Railway from Newmarket to Sutton, Ont.

The London Machine & Tool Co., London, Ont., will erect a factory in Hamilton, Ont., 180x180 feet, to cost about \$40,000.

The Hamilton Baynes Carriage Works Co., Hamilton, Ont., have applied for incorporation with a capital of \$125,000. The provisional directors will include Messrs. Baynes, Buffalo, N.Y., C. L. Grantham, F. W. Gates and A. K. Melbourne, Hamilton.

The Canadian Woven Wire Fence Co., Woodstock, Ont., have awarded the contracts for the erection of their factory, which will be commenced immediately.

The Canadian Tool Co., Woodstock, Ont., recently organized, will commence operations at once.

The Standard Fence Co., Woodstock, Ont., have their machinery installed and will begin manufacturing at once.

The waterworks department, Hamilton, Ont., will lay 37,000 feet of water service pipe this year.

Col. H. M. Pellatt, Toronto, will erect a new residence at a cost of about \$200,000. E. J. Lennox is the architect.

Allison's coal wharf at Wolfe Island, near Kingston, Ont., collapsed a few days ago and several hundred tons of coal were dumped into the river.

The Michigan Central Railway depot at Tilsonburg, Ont., was destroyed by fire recently.

The Board of Control, Toronto, granted a business permit to the Minerva Mfg Co., to erect a large factory in that place.

The old Bruce mines, a sulphide copper property near Sault Ste. Marie, Ont., have passed into the possession of an English company, who will reopen them and build a smelter.

A school for manual training and domestic science will be erected in Owen Sound, Ont., at a cost of about \$15,000.

Thomas Crooks, Hamilton, Ont., will build a brick and steel store and office building, six stories high, at a cost about \$50,000.

The evaporating factory of John Whiddon, Bayfield, Ont., was destroyed by fire October 7. Loss about \$2,000.

The D. Moore Co., Hamilton, Ont., manufacturers of stoves and tinware, will erect a four story addition to their foundry, at a cost of about \$6,000.

Fairbanks, Morse & Co., Toronto, will construct a foundry of reinforced cement at a cost of about \$22,000.

The Toronto School Board will appropriate \$50,000 to provide additional accommodation in the Jameson Avenue Collegiate Institute, Toronto.

The Robertson Machinery Co., Welland, Ont., have been incorporated with a capital of \$40,000, to manufacture machinery, engines, etc., and to acquire the business of Robertson Bros. The provisional directors include Alexander Robertson, G. W. Sutherland and C. H. Hanson, Welland.

Sandersons, Limited, Toronto, have been incorporated with a capital of \$50,000, to manufacture dry goods, neckwear, fancy goods, etc. The provisional directors include J. S. Demson, J. C. MacMurchy and H. C. Bedington, Toronto.

The Miller Mfg. Co., Parry Sound, Ont., have been incorporated with a capital of \$15,000, to manufacture Miller's adjustable gang. The provisional directors include G. B. Miller, G. G. Gladman and C. A. Phillips, Parry Sound.

The Rothschild Cobalt Co., Haileybury, Ont., have been incorporated with a capital of \$500,000, to carry on a mining, milling and reduction business. The provisional directors include Maniel Rothschild, H. J. M. Rothschild, New Liskeard, and John McKay, Sault Ste. Marie, Ont.

The Russell Bottling Works, Ottawa, have been incorporated with a capital of \$20,000, to manufacture non-alcoholic beverages, etc. The provisional directors include A. O. Rochon, W. G. Thomson and O. J. Rochon, Ottawa.

The New York Tailors, Limited, Toronto, have been incorporated with a capital of \$20,000, to manufacture clothing, hats, etc. The provisional directors include N. L. Garland, G. E. Dunbar and M. W. White, Toronto.

The Standard Silver & Cobalt Mining Co., New Liskeard, Ont., have been incorporated with a capital of \$40,000, to carry on a mining, milling and reduction business. The provisional directors include John Armstrong, George Warrell and W. E. F. Stephenson, New Liskeard.

The Brakehurst Oil Co., Sarnia, Ont., have been incorporated with a capital of \$100,000, to carry on a mining, milling and reduction business. The provisional directors include G. M. Trefts, Buffalo, N.Y., H. H. Cooper, Jamestown, N.Y., and J. H. Cooper, Sarnia.

The Blanche River Mining Co., New Liskeard, Ont., have been incorporated with a capital of \$40,000, to carry on a mining, milling and reduction business. The provisional directors include John Pearce, G. S. Royce and E. T. Ord, New Liskeard.

The Robson Leather Co., Oshawa, Ont., have been incorporated with a capital of

\$100,000, to carry on a business of tanners. The provisional directors include C. N. Robson, F. W. Robson and Thomas Thornby, Oshawa.

The Clinton Knitting Co., Clinton, Ont., have been incorporated with a capital of \$25,000, to manufacture hosiery, knitted goods, etc. The provisional directors include Samuel Owen, New York City, H. T. Kane and W. P. Spalding, Clinton.

The Canadian Oil & Waste Saving Machine Co., Brockville, Ont., have been incorporated with a capital of \$50,000, to manufacture machines for separating and reclaiming oil waste, etc. The provisional directors include R. W. Clayes, W. S. Buell and J. H. Botstord, Brockville.

The Gananoque Bolt Co., are equipping their extensive plant in Gananoque, Ont. with Chapman Double Ball Bearings.

The Canadian Oil Refining Co., Toronto, have been incorporated with a capital of \$100,000, to manufacture petroleum oil, salt, etc. The provisional directors include J. F. Hollis, T. H. Wilson and T. H. Hamilton, Toronto.

The Port Colborne Milling Co., Port Colborne, Ont., have been incorporated with a capital of \$40,000, to manufacture flour, feed, grain, etc. The provisional directors include J. P. Hanham, S. T. McColl and O. C. N. Kanold, Port Colborne.

The E. H. Harcourt Co., Toronto, have been incorporated with a capital of \$100,000, to carry on a business of printers, publishers, book-binders, etc. The provisional directors include E. H. Harcourt, Thomas Chapman and J. W. S. Corley, Toronto.

The corporate name of the Federal Screwless Door Knobs, Limited, Toronto, has been changed to the National Hardware Co.

The Pembroke Electric Light Co., Pembroke, Ont., will increase their capital stock from \$50,000 to \$150,000.

The Canadian Hart Corundum Wheel Co., Hamilton, Ont., have been incorporated with a capital of \$75,000, to manufacture abrasive materials, machinery, hardware, etc. The provisional directors include G. F. Webb, C. S. Wilcox, Hamilton and C. D. Warren, Toronto.

The Grand Trunk Railway Co., will erect a large new station at Wingham, Ont.

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

The Rat Portage Lumber Co.'s mill at Norman, Ont., was destroyed by fire recently. Loss about \$20,000.

The Welding Compound Co., a United States incorporation, have had their license to do business in Canada, revoked.

The Windy Arm Syndicate, Limited, Toronto, have been incorporated with a capital of \$150,000, to carry on a mining, milling and reduction business. The charter members include Edmund Bristol, Edward Bayly and C. W. Mitchell, Toronto.

The Federal Electric Construction Co., Brantford, Ont., have been incorporated with a capital of \$40,000, to manufacture electric dynamos, motors, etc. The provisional directors include G. H. Kilmer and W. H. Irving, Toronto.

The Levy, Weston & McLean Machinery Co., Toronto, have just supplied a No. 3 universal milling machine to the Toronto Gas & Gasoline Engine Co., made by the R. K. LeBlond Machine Tool Co., Cincinnati, Ohio.

Chapman's, Limited, Toronto, have been incorporated with a capital of \$80,000, to acquire the business of the Grenadier Ice & Coal Co. The provisional directors include Alfred Chapman, G. A. Chapman and E. W. Trent, Toronto.

The Port Colborne-Welland Natural Gas & Oil Co., Port Colborne, Ont., have been incorporated with a capital of \$50,000. The provisional directors include T. F. White, Port Colborne, and W. J. Best, Welland, Ont.

The Sublime Hygienic Cement Flooring Co., Toronto, have been incorporated with a capital of \$50,000, to manufacture hygienic cement tiles and blocks and marble mosaic. The provisional directors include L. P. Scarrott, L. V. McBrady and Joseph Murphy, Toronto.

Among the firms who have recently changed their transmission equipment from self oiling bearings to Chapman Double Ball Bearings, is the Geo. E. Tuckett Co., Hamilton, Ont.

The Coleman Development Co., Haileybury, Ont., have been incorporated with a capital of \$300,000, to carry on a mining, milling and reduction business. The provisional directors include J. F. Gillies, R. R. Little, Haileybury, and John McKay, Sault Ste. Marie, Ont.

The Standard Bolt & Screw Co., Toronto, have been incorporated with a capital of \$40,000, to manufacture machinery of every description. The provisional directors include Thomas Clark, Buffalo, N.Y., P. S. McKergow, and John Jennings, Toronto.

The Mathews Steamship Co., Toronto, have been incorporated with a capital of \$250,000, to build vessels, ships, etc. The provisional directors include A. W. Mathews, W. B. Raymond and Britton Oster, Toronto.

The Canada Steel Goods Co., Hamilton, Ont., have been incorporated with a capital of \$115,000, to amalgamate the Grand River Metal Works of Galt, and the Canada Steel Goods Co. The provisional directors include J. S. Ainslie, Comber, Ont., A. F. Hatch, Toronto, George Hancock, Galt, Ont., and A. G. Moffatt, Leamington, Ont.

The Walker Bin & Store Fixture Co., Berlin, Ont., have been incorporated with a capital of \$40,000, to manufacture furniture and store fixtures. The provisional directors include T. A. Witzel, W. C. McCuaig, Toronto, and J. A. Hackett, Berlin.

The Fox Bearings, Limited, Toronto, have been incorporated with a capital of \$40,000, to acquire patent for an anti-friction bearing and to manufacture same. The provisional directors include Tobias Fox, Woodbridge, Ont., Thomas Sullivan and John Nicol, Pine Grove, Ont.

The Department of Public Works is equipping the Government Printing Bureau, Ottawa, with Chapman Double Ball Bearings.

The ratepayers of Kenora, Ont., have voted favorably on a by-law to raise \$30,000 for the improvement and extension of the water-works system.

The planing mill, sash and door factory of S. Gibson & Sons, Lucan, Ont., were destroyed by fire October 13. Loss about \$6,000.

The ratepayers of Parry Sound, Ont., have voted favorably on two by-laws, one to bonus the James Bay Railway to the extent of \$25,000 to establish a divisional point there, also the erection of machine and car repair shops, the other for \$20,000 towards the improvement of the electric light plant.

R. S. McDonald, manager for the Backus-Brooks syndicate, states that every unit of power now being developed on the two sides of Rauny River, near Fort Francis, Ont., is already sold. Thirty thousand horse-power is the estimated force of the falls there. The new industries to be located at the point are a large pulp mill, a large flour mill, a sash and door factory, woodenware factories, saw mill, grain elevators and other works.

The Chapman Double Ball Bearing Co., Toronto, supplied the complete transmission equipment for the new factory of the Canada Furniture Manufacturers, Limited, Waterloo, Ont., including double ball bearings, shafting, hangers, etc.

Ground has been broken for the erection in Toronto, of a two-story factory by Henry Disston & Sons, at 112 Adelaide Street East. The concern is the Canadian branch of Henry Disston & Sons, Philadelphia, saw manufacturers, and have been incorporated with a capital of \$100,000. The factory will probably be in operation before the end of the year and will employ about 75 men. The company intend to manufacture for the export trade as well as for the Canadian market. The manager is W. E. Radcliff.

The Beck Mfg. Co., Penetanguishene, Ont., are installing a Sturtevant dry kiln outfit for drying pail and tub staves. This apparatus consists of a large steel plate fan driven by direct connected horizontal engine and drawing the air through a heater.

The Kildare Mining Co., Ottawa, have been incorporated with a capital of \$100,000, to carry on a mining, milling and reduction business. The charter members include W. W. G. Bronson, J. W. Woods and Hon. N. A. Belcourt, Ottawa.

The J. H. Conrad Yukon Mines, Ltd., Toronto, have been incorporated with a capital of \$100,000, to carry on a mining, milling and reduction business. The charter members include Edmund Bristol, Edward Bayly and C. W. Mitchell, Toronto.

Messrs. Foley Bros., Larsen & Co., Winnipeg, Man., have received the contract for the construction of the roadbed complete, ready for the ties and rails, on the Lake Superior branch of the Grand Trunk Pacific from Fort William, Ont., to Lake Superior Junction.

The Waterloo Glove Mfg. Co., Waterloo, Ont., have been organized to manufacture gloves, mitts, gauntlets, etc. John Schon-delwayer and Norman Eugelter are interested in the company.

A company has been formed in Port Hope, Ont., to manufacture building paper, paper for boxes, etc. About \$50,000 will be spent in machinery and buildings.

The Mackay, Limited, Bowmanville, Ont., have a three story brick pot barley mill, equipped with both steam and water power, a large 100 h.p. engine having been installed.

The Deacon Shirt Co., Belleville, Ont., are erecting an addition to their plant 160x52 feet, three stories high.

The Sylvester Machinery Co., Belleville, Ont., will erect a large warehouse for the storing of their machinery.

A new convocation hall will be erected on the University lawn, Toronto, at a cost of about \$160,000.

The Hamilton Bridge Co., Hamilton, Ont., have secured the contract for the big new steel bridge at Mattawa, Ont.

The brass foundry of the Stevens Mfg. Co., London, Ont., was destroyed by fire, October 14. Loss about \$50,000.

The premises of the Atlas Table Co., Preston, Ont., were destroyed by fire, October 11. Loss about \$5,000.

The Chapman Double Ball Bearing Co., Toronto, have equipped the Government Canal Repair Shops at Cornwall, Ont., with their bearings.

The sale of the St. Catharines, Pelham & Welland Electric Railway Co.'s charter to build from St. Catharines, Ont., through Fenwick to Dunnville, and another by way of Fonthill to Welland, has practically been closed with a syndicate of capitalists, with which it is said the Pellatt-Nicholls interests are identified.

The Department of Public Works, Ottawa, have awarded contracts for new Immigration Buildings as follows:—At Halifax, N.S., to Samuel Marshall, for \$51,997; at Winnipeg, Man., to Cotter Bros., for about \$53,000; at Quebec City, to Juchereau & Lamont, for \$55,850.

Messrs. Sullivan & Langdon, Kingston, Ont., have received the contract for the construction of the new barracks in Toronto, for the accommodation of the permanent corps.

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

The Dean Block, Belleville, Ont., was destroyed by fire recently. Loss about \$22,000.

The Grand Trunk Pacific Railway Co. have awarded the contract for building 2,000 freight cars to the Canada Car Co.

The planing mill, sash and door factory of G. W. White, Parry Sound, Ont., were destroyed by fire October 16. Loss about \$6,000.

Messrs. Curry, Sproat & Rolph, architects, Toronto, have received a permit for the construction of the new Government postal station "F." The building will be two stories high and will cost about \$90,000.

The Canadian Pacific Railway Co., Montreal, will erect five new buildings in the neighborhood of Angus, Que., shops to cost about \$62,350.

Messrs. Ross & McRac, Montreal, railway contractors, have been awarded the contract for the construction of the St. Maurice Valley Railway running from Three Rivers, Que., to Shawinigan Falls.

The Locomotive & Machine Co., Montreal, have closed a contract with the Canadian Pacific Railway Co., for 35 ten-wheeled freight and passenger locomotives.

The Chimalapa Land Co., will erect a large modern band mill in Montreal, equipped with

the latest improved machinery for the manufacture of lumber from the company's property in Mexico.

The Dominion Government will construct a marine railway at Sorel, Que., which will accommodate vessels up to 3,000 tons.

The Simplex Railway Appliance Co., St. Henri, Que., will erect a new plant at Lachine, Que., for the manufacture of simplex bolsters, side bearings, beak beams, structural steel, etc., to be used in the construction of steel cars.

The clubhouse of the Victoria Yacht Club, at Aylmer, Que., was destroyed by fire October 10. Loss about \$10,000.

The Grand Trunk Railway Co., are constructing a round house at Turcot, Que., which will have sixty stalls and a turntable 100 feet long.

Steam shovels are the latest addition to the already numerous products of the Allis-Chalmers Co., Milwaukee, represented in Canada by Allis-Chalmers-Bullock, Limited, Montreal. They are especially designed to meet all the requirements of up-to-date contractors. One of the many good features claimed for the Allis-Chalmers steam shovel, is the method of operating dipper with drum of different diameters on the boom. The rope from hoisting engine drum passes around the large diameter of the boom-drum, and is permanently fastened to it. Two ropes lead to the dipper from smaller diameters of the boom-drum, one on each side of the large diameter, which increases the pull on the hoisting rope without multiplying gears, and materially quickens the operation of shovel without carrying an immense weight on the boom. These and other features are admirably illustrated in Bulletin No. 1402.

The Canadian factory at Montreal of the Syracuse Smelting Works have recently made some large shipments of their products to Europe, and also to China and Japan. They inform us that their babbitt metal business is expanding wonderfully. Messrs. L. and H. Sapery, the proprietors, are Canadians, and deserve much credit in establishing branch works in New York from which to supply their American trade.

The Standard Lime & Quarry Co., Joliette, Que., have been incorporated with a capital of \$10,000, to manufacture lime, cement, brick, etc. The charter members include J. O. Dupuis, Montreal; J. E. Theriault, Three Rivers, Que.; and Charles Noreau, city of Quebec.

La Compagnie Commerciale et Manufacturiere de St. Romuald, St. Romuald, Que., have been incorporated with a capital of \$20,000. The charter members include D. S. Bilodeau, Joseph Villeneuve and J. A. Marier, St. Romuald.

The confidence of Cobalt miners in the future of that district is shown by the scale on which they are investing in mining machinery. M. J. O'Brien & Co., whose mine is on the edge of Cobalt Lake, recently bought from Allis-Chalmers-Bullock, Limited, a complete power house equipment, including boilers, hoisting engines, 7-drill compressor plant, boiler feed pump, large general supply pump, high speed engine and generator for electric lighting. The compressor is of the Ingersoll-Sergeant self-contained type and the whole

machine is mounted on a continuous box girder frame specially designed for heavy mining work.

The Municipal Trenching Co., Montreal, have been incorporated with a capital of \$1,000,000, to carry on a business of contractors and engineers. The charter members include F. C. Austin, Chicago, Ill.; J. W. Harris, H. A. Richardson, Montreal.

The Automobile Import Co., Montreal, have been incorporated with a capital of \$20,000, to manufacture all kinds of vehicles, etc. The charter members include A. E. H. Crawford, F. R. Crombie, and W. W. Skinner, Montreal.

The Montreal Copper Co., Montreal, inform us that they have recently made a shipment of 100,000 pounds of refined ingot copper to China to be used by the Government of that country in the manufacture of coins. The company was founded a little over a year ago by Messrs. L. and H. Sapery, Montreal, who are the principal owners of the Syracuse Smelting Works of that city. They use a new refining process, discovered by them, which they find very efficient, and inform us that they are about to install a much larger plant than they are now using for the refining of copper, to enable them to keep up with the demand they have for the article from all parts of the world.

J. & T. Bell have recently installed the fourth order of Chapman double ball bearings in their factory. Montreal.

Mayer & Co., Philadelphia, Pa., manufacturers of files, have established an agency with Beaudoin & Lapalme, 447 St. Paul Street, Montreal, where a full stock of their files will be carried for the Canadian trade.

The Allan Line, Montreal, have placed an order for two more turbine steamships for the Canadian-British trade.

The wood-working factory of D. Fullerton & Son, Pictou, N.S., was destroyed by fire October 13. Loss about \$20,000.

The Canadian Northern Coal & Ore Dock Co., Port Arthur, Ont., have recently purchased from the Robb Engineering Co., Amherst, N.S., one 300 h.p. Robb-Armstrong tandem engine.

W. K. Lowden, of the Sewer Pipe Manufacturers, St. Lambert, Que., has recently purchased from Robb Engineering Co., Amherst, N.S., two 100 h.p. boilers and one 150 h.p. engine.

The mill plant and warehouse of the Fossil Flour Co., Castlesea, N.S., were destroyed by fire October 6. Loss about \$30,000.

The sinking of the Allan shafts at the Acadia Coal Co.'s mines, Stellarton, N.S., has resulted in striking coal at a depth of 1,050 feet. The coal is of the most exceptional quality.

J. R. Booth, Ottawa, has recently purchased from Robb Engineering Co., Amherst, N.S., two 400 h.p. Robb-Armstrong Corliss engines, one 350 h.p. Robb-Armstrong Corliss engine and three 100 h.p. Robb-Armstrong Corliss engines. This machinery is for Mr. Booth's new paper mills.

The first Wabana, Newfoundland, ore received in England, was recently shipped by the Nova Scotia Steel & Coal Co., and the Dominion Iron & Steel Co., of Sydney, N.S.

The town of Napanee, Ont., have recently purchased from Robb Engineering Co., Amherst, N.S., two 200 h.p. Robb-Armstrong Corliss engines, two 150 h.p. return tubular boilers and one 200 h.p. Robb feed water heater. This machinery is for their new municipal lighting plant.

Messrs. Rhodes Curry & Co., Amherst, N.S., have just completed an order for the Canadian Northern Railway Co., for 100 box cars.

Sir Robert Bond, premier of Newfoundland, has completed arrangements for the issue of a loan of \$2,000,000, to be paid to R. G. Reid, for the Newfoundland telegraph lines.

The town of Westmount, Que., have recently purchased from Robb Engineering Co., Amherst, N.S., two 350 h.p. Robb-Armstrong vertical engines for their new municipal lighting plant.

George Campbell & Sons, Limited, Middle Sackville, N.B., have been incorporated with a capital of \$24,000, to manufacture carriages, sleighs, etc. The provisional directors include C. C. Campbell, W. E. Campbell and G. R. Campbell, Middle Sackville.

The New Brunswick Coal Co., Minto, N.B., have applied for incorporation with a capital of \$25,000, to mine and sell coal. The applicants include George McAvity, C. N. Skinner and A. I. Trueman, St. John.

McLean, Holt & Co., St. John, N.B., will erect a stove foundry to cost about \$10,000.

The Record Stove Foundry, Moncton, N.B., will increase their capital stock from \$800,000 to \$1,000,000. The company will establish a branch stove foundry at Vancouver, B.C.

The Dominion Antimony Co., have awarded John McArthur, Glasgow, Scotland, a contract for the construction of a complete plant at their mine at West Gore, N.B. This will cost in the vicinity of \$75,000.

The mill of the Tracadie Lumber Co., Tracadie, N.B., was destroyed by fire October 8. Loss about \$119,000.

The Stuart Machinery Co., Winnipeg, Man., will increase their capital stock from \$49,000 to \$200,000.

The City of Winnipeg Power Association, Winnipeg, Man., have been incorporated with a capital of \$100,000, for the purpose of dealing in water power rights, etc. The incorporators include J. H. Ashdown, D. W. Bole and R. C. Riley, Winnipeg, Man.

George Stamp and David Ross, electrical contractors, Winnipeg, Man., have dissolved partnership and business will be carried on as the United Electric Co., by George Stamp.

The Canadian Pacific Railway Co., will build a branch line of 122 miles from a point in the vicinity of Wolseley on the main line, to Reston, Man., on the Souris branch.

A new Presbyterian congregation has been formed in Brandon, Man., and a new church building will be erected.

The Methodist Church at Carman, Man., was destroyed by fire recently. Loss about \$12,000.

The E. B. Eddy Co., Hull, Que., will erect a five story warehouse 172x60 feet, in Winnipeg, Man.

The Dominion Bridge Co., Montreal will erect a branch plant in Winnipeg, Man., for the manufacture of structural steel.

The town council of Souris, Man., will purchase the gas plant.

The Melita Roller Mills Co., Melita, Man., are improving their mill by the addition of a new bolting system.

Wakopa, Man., and Dufresne, Man., have openings for grain elevators.

The Canada Malting Co., is erecting a malting plant at Winnipeg, Man., to cost about \$15,000.

The Canadian Pacific Railway Co. will build a new depot at Varcoe, Man.

A. M. Nanton, Winnipeg, Man., will erect a large office building in that city.

The contract for the erection of the steel and concrete bridge to be erected at Edmonton, Alta., has been awarded to Charles May, Edmonton, and Charles Sharpe, Winnipeg, Man.

The Calgary Natural Gas Co., Calgary, Alta., have been incorporated with a capital of \$100,000. The incorporators include William Pearce, Hon. W. H. Cushing and I. K. Kerr, Calgary.

The ratepayers of Souris, Man., will vote on a by-law to raise \$5,000, for the purchase of additional fire apparatus.

James Mack, Prince Albert, N.W.T., will erect a grain elevator and flour mill at Vonda, N.W.T.

Hitecock, Sask., and Fielding, Sask., have openings for grain elevators.

The Alberta Grain Co., Edmonton, Alta., will erect an elevator at that place.

The Alberta Building Co., Calgary, Alta., will build an elevator at that place, with a capacity of 150,000 bushels.

John Wilson, Collingwood, Ont., will erect a pork packing plant in Edmonton, Alta.

The Winnipeg Paint Co., Winnipeg, Man., will erect a branch factory in Edmonton, Alta.

The Western Canada Cement Co., Calgary, Alta., will erect a plant at a cost of about \$1,000,000.

The British Columbia Sugar Refinery Co. will erect a large plant at Regina, Sask.

The British Columbia Soap Works, Victoria, B.C., will erect a new soap factory, four stories high, and two large warehouses.

The Government of British Columbia have seized six large booms of logs that had been sold to United States mills and were being exported. All British Columbia lumber must be manufactured in that province.

The Dominion Copper Co., will erect a smelter on the North Fork River, B.C., near the Granby smelter. The plant will have six furnaces and will cost about \$750,000.

Victor Michaels, Montreal, was in Victoria, B.C., recently considering the advisability of erecting a cigar factory in the latter place.

The Adair Mfg. Co. have been incorporated at Victoria, B.C., with a capital of \$75,000, to manufacture machinery, plant, tools, etc.

The Medley Non-Refillable Bottle Co., have been incorporated with a capital of \$50,000, to manufacture bottles, etc.

The Forbes Hardware Co., have been incorporated at Victoria, B.C., with a capital of \$40,000, to manufacture stoves, furniture, etc.

The Northern & B.C. Sampling & Milling Co. have been incorporated at Victoria, B.C., with a capital of \$20,000, to carry on a mining milling and reduction business.

The British Columbia Telephone Co. will install a telephone system in North Vancouver, B.C., at a cost of about \$10,000.

Messrs. Henrick & Pace will install a plant for the manufacture of exhaust plants for sawmills, induced drafts for boilers and ventilating and heating systems.

FUEL.

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

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

The Dominion Coal Co., Sydney, N.S., have in contemplation the construction of an electric plant near their No. 2 colliery, which will be used as a central power station for all the mines operated by the company in the vicinity of North Sydney, N.S. Should the project be carried out, the pumping at all the operations will be performed by electricity, and the fans will also be electrically operated.

The output and shipments from the collieries of the Dominion Coal Co., Sydney, N.S., for the month of September, 1905, were as follows:

Dominion No. 1	49,520
Dominion No. 2	46,670
Dominion No. 3	32,409
Dominion No. 2.	55,500
Dominion No. 5.	68,739
Dominion No. 6.	4,718
Dominion No. 7.	14,434
Dominion No. 8.	19,977
Dominion No. 9.	30,321
	322,288
Total shipments	299,403

The meeting of the representatives of the Retail Coal Dealers' Association which was held at Buffalo, N.Y., a few days ago, was attended by delegates from 26 organizations, representing about 6,000 coal dealers of the United States and Canada. There were represented the coal exchanges of New York City, Baltimore, Philadelphia, Atlantic City, Cleveland, Toronto, and Harrisburg, in addition to every state association in the United States. It was decided to embrace not only the state associations, but the exchanges of all cities where the membership list reached 100 or more. Topics of interest were discussed, questions of demurrage, short weight, etc., and it was decided to establish a bureau of information, by means of which information of interest to members regarding sales of coal to various parties, etc., should be distributed. This is one of the most important and valuable features of the international organization. The officers elected were: president, W. F. Endress, Jamestown, N.Y.; vice-president, Robert Lake, Jackson, Mich.; secretary, W. M. Bertolet, Reading, Pa.; treasurer, Charles A. Cruickshank, Hannibal, Mo.; board of directors, J. S. Smoot, New York City; F. G. Humphrey, Waterbury, Conn.; John C. Hay, Listowel, Ont.; C. M. Morse, Winona, Minn.; F. E. Lukens, Chicago, Ill.; executive committee, J.

S. Smoot, New York City; B. M. Watts, Baltimore, Md.; George H. Reeves, Minneapolis, Minn.

Contracts for the construction of a big coal dock on the St. Mary's River, between Detroit, Mich., and Sault Ste. Marie have been awarded by the Pittsburgh Coal Co., who intend to make a strong bid for the fuel business of craft utilizing the Soo ship canals. A site of approximately 100 acres has been acquired at Point Aux Frene, and it is estimated that altogether an expenditure of \$100,000 will be made. The dock will be over 1,000 feet in length and will have a storage capacity of 35,000 tons, equipped with the most modern machinery.

The coming winter promises to be the brightest ever experienced in the coal trade in Nova Scotia. Commencing this month, the quantity of coal supplied to the Dominion Steel Co. has increased from 40,000 to 60,000 tons per month. The contract with the Maine Central Railway calls for 75,000 tons for winter shipment. Louisburg, the winter port of shipment of the Dominion Coal Co., will have the busiest season in its history. The Dominion Coal Co. have erected immense coal pockets at St. John and at Halifax, which are now nearly completed. Thus increased steamship traffic will be readily supplied, as well as the local trade of the provincial towns and cities. The time is not far distant when Nova Scotia will utilize two million tons of coal per year. The coal pocket structure at St. John measures 200 feet long, 36 feet wide, and 56 feet high from the wharf line. The pocket will have a capacity of 5,000 tons, and by the utilization of up-to-date machinery the average vessel will be emptied in ten hours, at a cost of three-quarters of a cent per ton. Eight hundred thousand tons of coal will be required of the Dominion Coal Co. between January 1 and April 1. This means steady work throughout the winter.

A prominent Toronto coal dealer, speaking of the cubical contents of a ton of coal, says: "The space which a ton of coal should occupy depends altogether on the quality of the coal. The highest grade of anthracite should measure 32 cubic feet—that is to say, it should fill a bin four feet long by four feet wide and two feet high. I have never known the high grade of coal to measure less. The poorer coals will run up as high as forty cubic feet. The coal weighs lighter, and consequently more of it is needed to make up the ton, hence an increase in the cubic measurement. A coal that contained a considerable proportion of stone would measure less than 32 feet, but, as I have said, the best grade will every time fill that space."

In England and the United States the unit of heat is the amount of heat necessary to raise one pound of water through one degree Fahrenheit. It is preferably called the British Thermal Unit, usually abbreviated to B.T.U. These terms are often used in describing the heating qualities of different grades of coal, and there are probably many readers who never understood their exact significance.

Because of the continual scarcity of cars many of the larger coal companies in the United States have issued notices to customers that additional orders will not be received for immediate delivery. The railroads are offering little hope of relief of the situation, and the shortage of cars is expected to continue

until the large orders for equipment recently placed by the roads begin to arrive.

OPPORTUNITIES.

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

The Department of Public Works, Fredericton, N.B., will receive tenders for constructing two metal superstructure spans, each of 236 feet 10 inches from centre to centre of end pins, for Fredericton bridge.

Tenders will be received by the Department of Public Works, Fredericton, N.B., for rebuilding Forest Glen bridge over Pollet river, near Salisbury, N.B.

The Department of Public Works, Ottawa, are calling for tenders for the Port Burwell breakwater, until November 3

The Department of Indian Affairs, Ottawa, will receive tenders for timber until October 26 for the merchantable timber, comprising pine, tamarack, cedar, birch, spruce and balsam, of nine inches and upwards, at the stump on the Temiscamingue Indian Reserve and ranges 4, 5 and 6, of the surrendered portions thereof, but excluding the portion of the unsurrendered Indian locations, which have been surveyed, the total area to be licensed being 22 square miles.

The Department of Public Works, Ottawa, will receive tenders for the construction of a spur to the Rivière Quelle, Que., wharf.

Tenders will be received by the City Council of Winnipeg, Man., for the sinking of another well.

The Mayor of Edmonton, Alta., will receive tenders for a bridge to be built over Rat Creek.

Private information received in the city from Pincher Creek, Alta., is to the effect that the flow of oil recently encountered by the Rocky Mountain Development Co. in their borings at Oil City, some miles south of Pincher, is phenomenal and is creating much excitement. It is claimed that the 12-inch boring is flowing fully 300,000 gallons of oil per day, the pressure being so great as to force a stream 50 feet in the air. When the boring had reached a depth of 1,500 feet, the oil stratum was struck and oil immediately commenced to flow, the pressure becoming so great as to compel the drillers to cease. Great secrecy was maintained about the strike, the idea being to get control of all the neighboring land, and in this they have partially succeeded. News of the strike, however, gradually gained currency, and many people have gone into the district for the purpose of staking land, title to which must be obtained through the Interior Department at Ottawa. —Vancouver, B.C., Province.

PUBLICATIONS.

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

The Goulds Mfg. Co., Seneca Falls, N.Y., have issued a very extensive catalogue, describing and illustrating the products of their factory, which include power pumps of every description. The company claim that for nearly all pumping operations the Goulds are the best and most economical. These pumps are guaranteed to properly perform the work for which they are recommended and sold, and the company will supply, without charge, any part returned to them within a year of shipment, which bears unmistakable evidence of imperfection in material or workmanship.

The Detroit Graphite Mfg. Co., Detroit, Mich., have issued a brochure entitled "Rust, How to Prevent It." The reply to this is presented in a neat illustrated vest-pocket leaflet. Superior graphite paint is the material offered. It is used in protecting the structural steel of buildings, and bridges, corrugated roofs, metal in other forms of construction, wood brick and stone surfaces, canvas, etc.

Owners of open-hearth furnaces and progressive managers of such plants will find interesting reading in the large illustrated pamphlet now being issued to describe the Wellman patent open-hearth charging and manulating apparatus. The Wellman-Seaver-Morgan Co., Cleveland, Ohio, manufacture the apparatus, and have supplied it to not only leading steel works of America, but also to a large number of plants in foreign countries. The list of charging machines presented speaks for itself, as to the extensive adoption of these celebrated labor-saving and cost-reducing machines and to their use is directly traceable a very large proportion of the economies secured in the modern manufacture of steel. To meet the varying requirements of different plants the machines are built in a variety of sizes and in three types, as follows: high type, low type and overhead or crane type. A complete detailed description of the Wellman patented open-hearth furnace charging machines and charging Boxes will be found in the pamphlet. The latter is a handsome specimen of trade literature, its letter-press and photographic reproductions of the machinery in reference being exceptionally perfect. Enquirers who are interested in this important auxiliary to the operation of open-hearth furnaces are invited to write the company for a copy of the pamphlet.

The Youngstown Steam Trap Co., whose main offices are in the Keystone Building, Pittsburg, Pa., have issued an illustrated descriptive catalogue of the Youngstown steam trap. This trap is the invention of practical men after years of experience in this line in large plants, and in perfecting their invention they state it has overcome all the difficulties in steam-trap design and construction. The trap is governed by the permanent laws of gravity. It has no pins to wear out, no float to leak, sink or collapse, no small levers to become disarranged or broken, no valve

discs or seats to cut out and leak, but it has a hardened bronze ball for a discharge valve, resting on a countersunk seat in the trunion, and makes an absolutely tight discharge arrangement.

The Lincoln-Williams Twist Drill Co., Taunton, Mass., have issued an 18-page pamphlet catalogue of high speed and carbon steel drills, manufactured by them. List prices are given of taper shank or straight shank drills; jobbers' and machinists' sets, wire gauges, three and four groove chucking reamers, etc., taper square shank drills for ratchets; straight shank machine bits for wood, and straight centre drills, etc., are also included in contents.

The Lamson & Sessions Co., Cleveland, Ohio, are again bringing into prominence their bolts, nuts, wrenches, etc., by the use of a carefully arranged price list, in book form with flexible cloth cover. This book is a valuable one to those interested in this line, the idea uppermost in the author's mind being to arrange the particulars in regard to each article in such a manner as to make them easy of access, and a thumb index has been inserted enabling one to see at a glance on which page the information is that he wants, thus making it a very useful reference book. The wrenches manufactured by the Lamson & Sessions Co. are made from the best quality steel and are thoroughly case-hardened, and all their tools including many varieties of bolts, screws, nuts, rivets, burrs and rods, are claimed to be of the highest grade. Send for their price list for further information.

We are in receipt of the last edition of illustrated catalogue of machine tools manufactured by the R. K. LeBlond Machine Tool Co., Cincinnati, Ohio, in which the different lines of tools made by this concern are illustrated and described. Special reference is made to their quick change gear lathes, the demand for which we are informed is very large. The Levy, Weston & McLean Machinery Co., Toronto, handle the machinery made by the Cincinnati concern.

The Union Drawn Steel Co., Hamilton, Ont., have sent us their new illustrated catalogue and price list having reference to the different forms and shapes of cold finished steel and iron for shafting and various machinery uses. This important concern have recently established themselves in Hamilton, and are prepared to meet all demands for rounds, flats, squares, hexagons, sheets, shapes, Bessemer, open hearth, crucible, cold die rolled steel, etc. Their mills are located in the heart of one of the greatest iron and steel districts in the world; and continual experiment and trial have placed the company in position to furnish the best analysis of steel for various special work, such as hubs, cups, cones, axles, etc., for bicycle and automobile work, typewriters, sewing machines, computing scales, screw machines, collets, and all parts where some special steel is required.

Jackson, Cochrane & Co., Berlin, Ont., have issued an exceedingly handsome illustrated descriptive catalogue having reference to the wood-working machinery made by them. The specialties alluded to include combined planing and matching machines, surface planing machines, hand planers and jointers, moulding machines, shaping, tenoning, boring, carving, mortising and dovetailing machines, etc. Levy, Weston & Mc-

Lean Machinery Co., Toronto, represent Jackson, Cochrane & Co., in Toronto.

The Wm. Hamilton Mfg. Co., Peterborough, Ont., have sent us an illustrated descriptive catalogue of the modern lath mill machinery manufactured by them, which constitutes a very complete list of lath mills and bolters suitable for any saw mill. Special mention is made of their Pacific Coast gang lath bolter; Improved Hamilton lath bolter, improved Hamilton lath mill, No. 1 and No. 2 gang lath bolter, No. 1 and No. 2 gang lath mill, and lath binder and trimmer.

The Flint & Walling Mfg. Co., Kendallville, Ind., have sent us literature having reference to the "Star" windmills, towers, wood and steel tanks, steel substructures, "Hoosier and Fast Mail" pumps, etc., made by them.

The Canadian Westinghouse Co., Hamilton, Ont., have sent us a pamphlet containing instructions for the installation and care of Westinghouse type B. self-contained integrating wattmeter for three wire single-phase circuits.

People who are interested in the use of graphite will find information of value in the October number of Graphite. It presents timely data respecting various uses of graphite products. It tells about lengthening the life of wire rope by using graphite, graphite on cylinder gasket heads, graphite for rifles, protecting elevator cables, the Chapman automatic graphite cylinder lubricator, Dixon's graphite brushes, etc. If you want to keep informed as to the many forms of gra-

phite and their uses, write the Joseph Dixon Crucible Co., of Jersey City, N.J., for a copy of Graphite.

An illustrated pamphlet which is being sent to interested parties tells of a deep-well pumping engine designed for general pumping to take the place of windmills and other contrivances of that nature. The pump in reference is adapted for pumping water from deep or shallow wells for farms, factories, dwellings, etc. It is self-regulating in every way, and is both cheap and economical; it can be attached to any plunger rod; will elevate water from any depth, and do it constantly without any attention. The outfits have been extensively introduced in the natural-gas region, and work equally well with gas as with steam. They are noiseless. A pumping engine with such merits as these will doubtless interest many persons whose attention has not heretofore been called to it. The Marsh deep well pumping engine is the device. It is manufactured by the American Steam Pump Co., of Battle Creek, Mich., for whom the A. R. Williams Machinery Co., Toronto, are Canadian agents.

The Cincinnati Milling Machine Co., Cincinnati, Ohio, have sent us their 1905 catalogue of complete line of milling machines and attachments, including four new sizes of plan millers. This contains specifications, dimensions, speed tables for high-speed steel cutters, and very fine half-tone illustrations.

The Westinghouse Electric & Mfg. Co., Pittsburg, Pa., have sent us Circular No. 1120, illustrating and describing No. 113 rail-

way motor, Circular No. 1123, illustrating and describing prepayment wattmeters.

The Independent Pneumatic Tool Co., First National Bank Building, Chicago, Ill., have sent us circular illustrating and describing "Thor" piston air drills, reversible wood-boring machines and pneumatic riveting, chipping and calking hammers.

The Laidlaw-Dunn-Gordon Co., 114 Liberty Street, New York, have sent us Bulletin L-508, describing the improved Cincinnati air compressor. Illustrations showing the adaptation of the compressor to different methods of driving are shown.

The Peerless Mfg. Co., New York City, have issued their catalogue No. 70, devoted to mechanical rubber goods. A Peerless catalogue may be depended upon to contain something new in each edition.

The Gutta-Percha & Rubber Mfg. Co., of Toronto, have issued a catalogue of their "Maltese Cross" interlocking rubber tiling, illustrating a wide variety of applications of this desirable floor covering, including a number of interior views of Queen's Hotel, Toronto, lately equipped with it. These are followed by a number of designs in color, indicating that a variety in color schemes is now available in rubber.

A. P. Lundberg, manufacturer of electrical accessories, 477-487 Liverpool Road, London, N., England, has sent us an illustrated price list having reference to the electric light accessories made by him, including armored, ebonite disc, twin and triple socket, and

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"Magnum" two-pin plugs, pivot and pivot intermediate switches, etc. The book contains full illustrated instructions regarding electric wiring.

The Norman W. Henley Publishing Co., 132 Nassau Street, New York, have sent us a copy of their recently published book, entitled "Sloane's Electrician's Handy Book." It is handsomely bound in half morocco, and should be in the hands of every one interested in electricity. The publisher's price is \$3.50. It is a thoroughly practical reference book of 768 pages, covering the entire field of electricity. Everything in it is to the point and can be easily understood by the student, the practical worker, and the every-day working electrician. The advanced electrical engineer will also receive great benefit from its perusal and study. It is written in a clear, comprehensive manner, and covers the subject thoroughly, and gradually takes the reader to the more advanced branches of the science. It teaches just what one should know about electricity. It contains 41 chapters and whenever the text can be simplified by means of an illustration, an illustration is given. There are consequently throughout the work no less than 610 specially made engravings. There is not a student, engineer, electrician, business manager or foreman who can afford to be without the information contained in its pages. THE CANADIAN MANUFACTURER will, upon receipt of the publisher's price, \$3.50, send this valuable book, postage paid, to any address.

Catalogue No. 40B, of E. Leonard & Sons, London, Ont., makes reference to their Leonard-Tangye, and Leonard-Clipper engines,

standard stationary, locomotive, upright and eclipse semi-portable return tubular, standard low pressure heating boilers, etc., all of which are described in connection with which the names of some of the Canadian users of them are enumerated. The Levy, Weston & McLean Machinery Co., handle these engines and boilers in Toronto.

PERSONALS.

Mr. Joseph Cawley, formerly of Messrs. James Bonar & Co., and the Pittsburg Feed Water Heater Co., Pittsburg, Pa., has assumed the position of vice-president of the Cadwallader Tin Plate & Metal Co., of that city. This company are manufacturers of tin plates and metals, terne metals, solders, babbitt metals, brasses, etc.

The O. J. Mulford Advertising Co., Detroit, Mich., who have heretofore occupied offices in the Stevens Building, have moved into more commodious and convenient quarters at 83 Fort Street West, that city.

Dr. George Johnson, Dominion Statistician, Ottawa, will, it is stated, retire from public life, in order that he may have more leisure to devote to his literary pursuits.

The twenty-fourth annual meeting of the Canadian Pacific Railway Co., Montreal, was held a few days ago. The directors present were:—Sir William Van Horne, chairman; Sir Thomas Shaughnessy, president; R. B. Angus, Montreal; E. B. Osler, M.P., Toronto; Sir Sandford Fleming, K.C.M.G., Ottawa; W. D. Matthews, Toronto; Thomas Skinner,

London; C. R. Hosmer, Montreal; Hon. Sir Geo. A. Drummond, K.C.M.G., Senator Montreal; Hon. Robert Mackay, Senator, Montreal; David McNicoll, Montreal. The features of the meeting were the resolution passed to expend a sum of \$7,500,000 in order to acquire additional rolling stock, the authorization of the issue of the requisite four per cent. Consolidated Deben'ure Stock to the extent of \$30,000 per mile, for the purpose of building the Wolseley branch line, and the resolution authorizing the issue of the necessary securities to meet the expenditure of £800,000, the cost of the two new transatlantic liners the company are having built.

W. H. Smith, formerly General Auditor of the Canada & Atlantic Railway, has been appointed manager of the Canada Atlantic Transit Co., with offices in Ottawa.

The executive offices of the Canadian Rand Drill Co., of Sherbrooke, Que., have been removed to the Sovereign Bank Building, Montreal.

Kenneth B. Thornton, a past president of the Canadian Electrical Association, who has been for several years in different departments of the Royal Electric Co., of Montreal, and the Montreal Light, Heat & Power Co., has been appointed operating engineer of the Canadian White Co., of Montreal.

A. L. Schultz, of Pittsburg, Pa., engineer in charge of the construction of the large bridge plant being established in Buffalo, N.Y., in connection with the Lackawanna Steel Co., recently spent several days in Canada examining the field as a prospective market for the product.

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Mr. Byrne, manager of the Garlock Packing Co., Hamilton, Ont., returned home this week from an extended trip to the Old Country.

A consolidation of interest to the engineering world is announced. It comprises the water-tube boiler business of the Aultman & Taylor Machinery Co., of Mansfield, Ohio, manufacturing the Cahall boiler, and the Stirling Co., Barberton, Ohio, manufacturing the Stirling boiler, as a result of which the Stirling Consolidated Boiler Co. have been organized with a capital of \$4,500,000. The new company's general offices are at 111 Broadway, New York.

OIL FUEL FOR THE BRITISH NAVY.

In connection with the decision of the Admiralty to utilize the extensive wharves at Plymouth for the construction of a large oil-fuel depot, this is the outcome of a long and rather costly series of experiment with oil fuel. Those experiments have been so far satisfactory that very extensive alterations to permit of the use of this fuel were made in the boiler furnaces of the battleship "King Edward VII," which, when completed, was regarded as the most perfect warship afloat. Other vessels have been similarly fitted, among the number being the battleship "New Zealand" and the cruiser "Carnarvon," and it is now intended that much smaller ships shall be adapted for the use of oil fuel. Warships so fitted have hitherto received their supplies from steamers like the "Petroleum," "Khaki" and "Scourge," but as the use of oil fuel is becoming more general, it has been found

necessary to establish storage depots in the principal home ports. Thus it comes about that the Plymouth wharves are to be used for this purpose. For the past fortnight architects and surveyors have been preparing plans for new works there, and orders have been given that the coal which has been stored on the property for some time past is to be removed without delay. Only three weeks ago something like 8,000 tons were stored on the Government property at Plymouth. Most of this stock has already been removed. -Colliery Guardian.

SETTLERS LOW RATES WEST.

The Chicago and North Western Railway will sell one way second class settlers' tickets, daily from September 15 to October 31, 1905, to points in Utah, Montana, Nevada, Idaho, Oregon, Washington, California and British Columbia. Rate from Toronto to Vancouver, Victoria, New Westminster, B.C., Seattle, Wash., or Portland, Ore., \$42.25; to San Francisco or Los Angeles, Cal., \$44.00. Correspondingly low rates from all points in Canada, choice of routes. Best of service. For full particulars and folders write to B. H. Bennett, general agent, 2 East King Street, Toronto, Ont.

SEVENTY-FIVE PER CENT

The following data forms part of a report made by Prof. C. H. Benjamin, of Cleveland, Ohio, to the December 1896 meeting of the American Society of Mechanical Engineers:- During 1895-96 a series of experiments were conducted by Prof. Benjamin to deter-

mine the ratio of the power required to drive shafting and belts, to the total power consumed, in twelve manufacturing plants on both light and heavy work. The results were as follows:

Manufacturing Plant Number	Total Horse-Power	Horse Power to Drive Shafting	Per Cent. to Drive Shafting
1	400	157	39 2
2	74	57	77
3	38 6	25 3	65 6
4	59.2	47 9	80 7
5	112	64	57
6	168	91	54 2
Average, heavy machine work,			62 3
7	40 4	20 7	51 2
8	74 3	40	53.8
9	47.2	24 5	51.8
10	190	108	56.9
11	107	74 5	69 7
12	241	114	47 3
Average, light machine work,			55 1

Prof Benjamin, who is connected with the Case School of Applied Science, of Cleveland, Ohio, is recognized as one of the best known authorities on friction losses.

The above is the purport of a brochure published by the Chapman Double Ball Bearing Co., of Toronto, in which they say that 75 per cent. of power is what is saved in shaft friction when equipped with their apparatus

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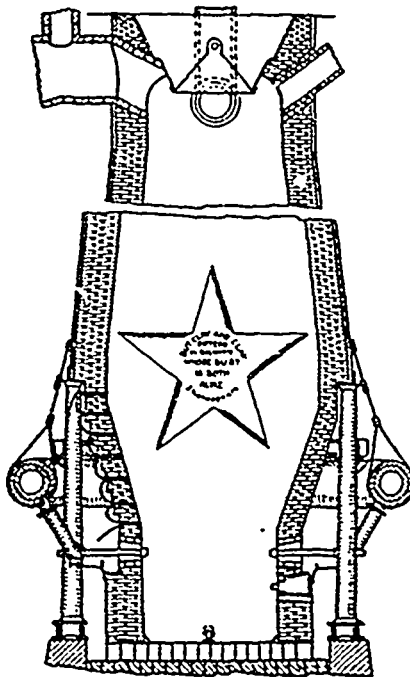
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THE LAKE SUPERIOR CORPORATION

At the first annual meeting of the Lake Superior Corporation, held at Jersey City, N.J., October 1, it was shown that a surplus of \$31,802 was the result of the operations of the past year. The corporation arose from the ashes of the Consolidated Lake Superior Co., and has only lately been placed on its feet, in the face of great difficulties. The report shows that, despite the adverse circumstances under which the company had begun business, the net income for the first year was \$4,585,539. After paying interest on first mortgage bonds, amounting to \$152,175, and \$98,562 for taxes and general expenses, there remains the surplus noted above.

President Warren, in his report, reviewed the work of last year. He stated that the indebtedness has been practically all settled. Plans have been made for an extension of additions to the plant. The report showed that the rail mill manufactured 12,138 tons, and that the blast furnaces produced 11,997 tons of pig iron during the month of August, 1905. More than 200,000 tons of ore were taken from the Helen mine. The sawmill has

been operated at a profit. The pulp mill produced 27,817 tons of ground wood, the largest output in its history.

The Algoma Central & Hudson Bay Railroad, Manitowlin & North Shore Line, and the fleet of steamers have also been operated profitably. Two traction companies at Sault Ste. Marie have shown a small loss, but the traffic is increasing. The Tago-ma Water & Light Co., with a business of comparatively small volume, is mentioned as one of the best properties in proportion to the investment.

The export trade from Canada to South Africa is largely on the increase. A valuable cargo which left recently included 300 tons of plows and agricultural implements, 30,000 bags of flour, and a quantity of fine pine lumber.

Among recent sales of heating and ventilating apparatus made by the B. F. Sturtevant Co., Boston, Mass., are the following for installation in school buildings: Starr School, Richmond, Ind., Linwood and Swit-

zer Schools, Kansas City, Mo.; Franz Sigel Ellearville and Shields Schools, St. Louis, Mo.; High School buildings at Hutchinson, Kansas; Holton, Kansas; Barkwill School, Cleveland, Ohio, and the Commercial High School, Brooklyn, N.Y.

The Palmer-Bee Co., Detroit, Mich., have purchased the stock of the Pittsburg Shafting Co., Detroit. Their business will be devoted to the sale of transmission equipment and elevating and conveying machinery, consisting of hangers, couplings, Hyatt roller bearings, iron, steel and wood pulleys; friction clutches, collars, rope drives, shafting for transmission purposes, sprocket wheels and chain, belt conveyors and appliances for the handling of materials.

That man is not poor who has the use of things necessary.

Happiness is the over-retreating summit of the hill of ambition.

Patient waiting is often the highest way of doing God's will.

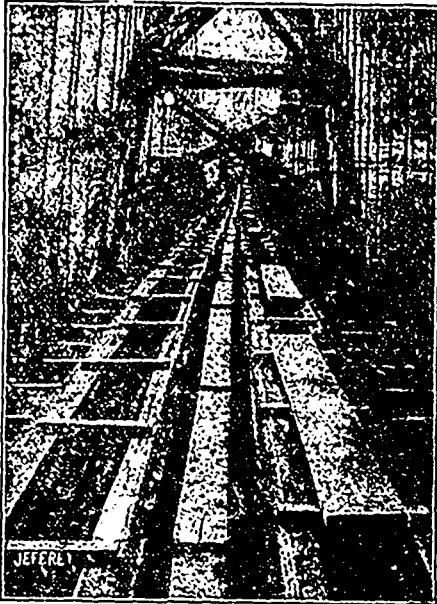
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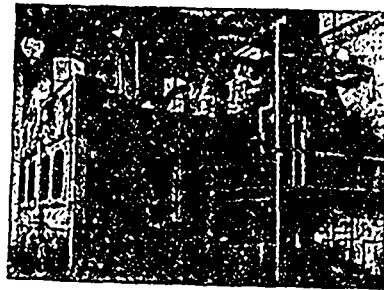


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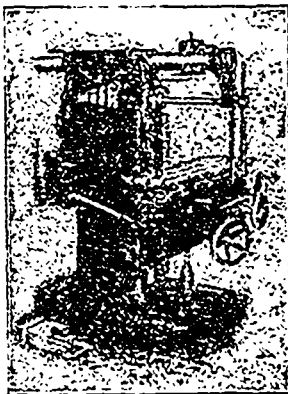
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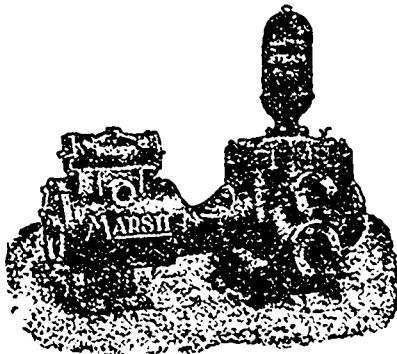
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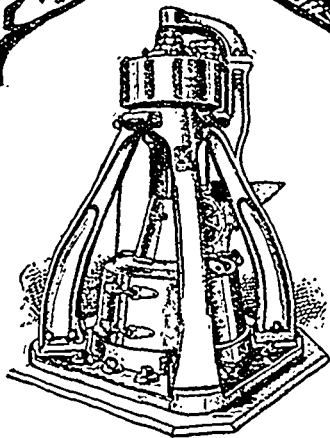
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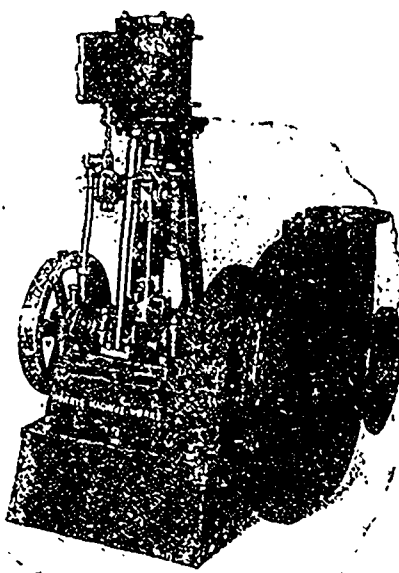
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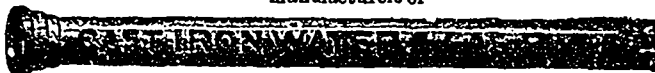
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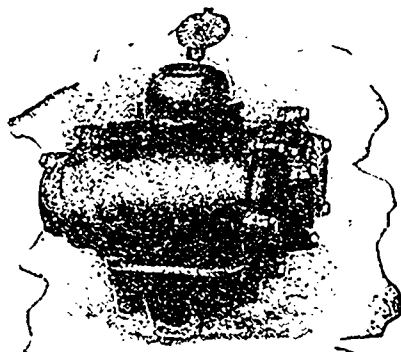
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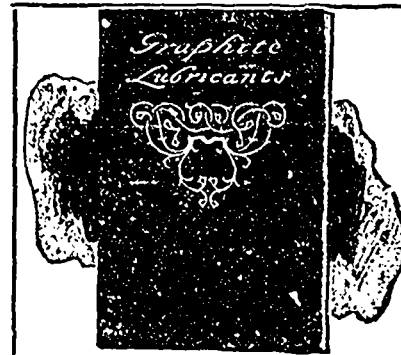
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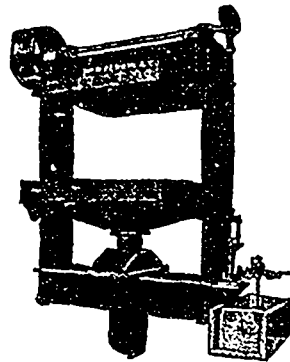
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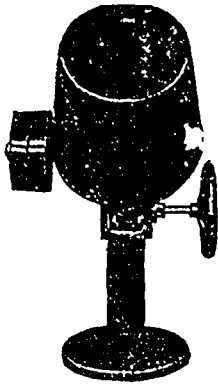
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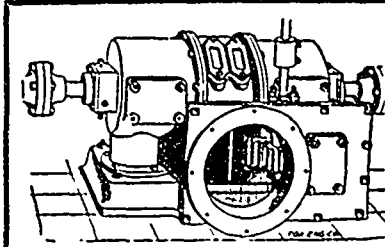
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169 Prince William St., ST. JOHN, N.B.



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Abrasives

Williams, A. R. Machinery Co., Toronto.

Acids

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

Air Compressors

Chalmers-Bullock, Limited, Montreal.
American Steam Pump Co., Battle Creek, Mich.
Canada Foundry Co., Toronto.
Canadian Rand Drill Co., Sherbrooke, Que.
Cobett, R. B., Brooklyn, N.Y.
Crosby Bros., Montreal.
Schutte & Koerting Co., Philadelphia, Pa.

Alum

Acids Chemical Co. of Canada, Montreal.

Aluminum

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

Angles, Beams and Girders

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

Aniline Colors and Dyewood Extracts

Brown, W. T. & Co., Montreal.
Brunner, Mond & Co., Norwich, England.
Canada Chemical Mfg. Co., London, Ont.
Aniline Color Co., New York City.
Lea Aniline & Extract Co., New York City.
Arthur, Cornelio & Co., Montreal.
Acids Chemical Co. of Canada, Montreal.
Kee & Holland, Montreal.

Annealing Muffles and Furnaces (Wire)

Leake, A. C. & Co., Montreal.
Ezer, Vaughn & Taylor Co., Cuyahoga Falls, Ohio.

Antimony

Crescent Smelting Works, Montreal.

Anvils and Vises

Egans, F. H. & Co., Montreal.
Leake, A. C. & Co., Montreal.

Architects

Brands, R. J., Toronto.
Leake, R. J., Toronto.
Hepel, C. H., Ottawa.

Automatic Gear Cutting Machines

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

Axles

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

Babbitt Metal

Leake, H. W., Toronto.
Crescent Smelting Works, Montreal.

Banks

Bank of Hamilton, Hamilton, Ont.

Bar Iron and Steel

Beane-Fuller Co., Cleveland, Ohio.
Egans, F. H. & Co., Montreal.
Leake, A. C. & Co., Montreal.
London Rolling Mills, London, Ont.
New Drawn Steel Co., Hamilton, Ont.

Belt Dressing

Blair, J. C. Belting Co., Montreal and Toronto.
Leake, H. W., Toronto.
Ezer & Haworth, Montreal and Toronto.
Williams, A. R. Machinery Co., Toronto.

Belt Fasteners

Leake, H. W., Toronto.
Blair, D. K., Montreal and Toronto.
Blair, J. C. Belting Co., Montreal and Toronto.
Leake, H. W., Toronto.
Ezer & Haworth, Montreal and Toronto.
Williams, A. R. Machinery Co., Toronto.

Belting (Cotton)

Common Belting Co., Hamilton, Ont.
Blair, D. K., Montreal and Toronto.
Blair, J. C. Belting Co., Montreal and Toronto.
Leake, H. W., Toronto.
Edwards, F. & Co., Manchester, England.
Ezer & Haworth, Montreal and Toronto.

Belting (Leather)

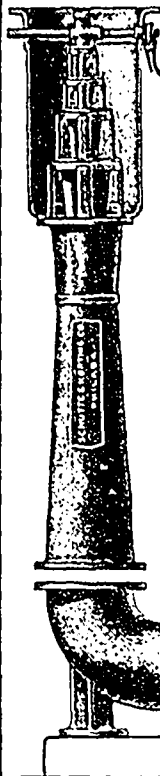
Common Belting Co., Montreal.
Blair, D. K., Montreal and Toronto.
Blair, J. C. Belting Co., Montreal and Toronto.
Leake, H. W., Toronto.
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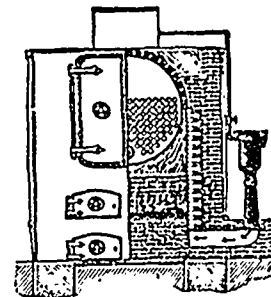
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Belting (Rubber)

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

Belting and Supplies

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

Blast Furnace Brick

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

Blowers

Schutte & Koerting Co., Philadelphia, Pa.
Sheldon & Sheldon, Galt, Ont.
Sturtevant, B. F. Co., Boston, Mass.

Boiler Compounds

Canada Chemical Mfg. Co., London, Ont.

Boiler Inspection

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

BOILERS (See Engines and Boilers)

Bolts and Nuts

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

Brass Founders

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

Brick and Bricklaying Machinery

Allis-Chalmers-Bullock, Limited, Montreal.

Building and Paving Brick

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

Building Iron and Steel

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

Builders' Materials

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

Cables

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

Canada Plates

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

Canoes

Peterborough Canoe Co., Peterborough, Ont.

Caps

McCullough-Dalzell Crucible Co., Pittsburgh, Pa.

Card Clothing

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

Cast Iron Piping

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

Castings (Grey Iron, Malleable Iron and Brass)
International Harvester Co., Hamilton, Ont.
Jenkes Machine Co., Sherbrooke, Que.
Kerr Engine Co., Walkerville, Ont.
McDougall, John, Caledonian Iron Works Co., Montreal.

Cement Machinery

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

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

Chain Making Machinery (Welded Coil Chain)

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

Channels

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

Charcoal Pig Iron

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

Chemicals

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

Chemists

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

Clay Working Machinery

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

Coal and Coke

Bourne-Fuller Co., Cleveland, Ohio.
Ferguson, J. D., Hamilton, Ont.
Miles, James H. & Co., Toronto.
Myles' Sons, Hamilton, Ont.
Old Colony Coal & Coke Co., Pittsburgh, Pa.
Shawmut Coal & Coke Co., St. Mary's, Pa.
Wick, H. K. & Co., Buffalo, N. Y.
Wilson, H. T. Coal Co., Detroit, Mich.

Coal Cutting Machines

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

Coal Tipples

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

Coil Chains

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

Coke Oven Brick

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

Collection Agency

Petrie, H. D., Hamilton, Ont.

Concrete Mixers

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

Conduits (Interior)

Conduits Company, Limited, Toronto.

Contractors' Machinery

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

Contractors' Plants

Allis-Chalmers-Bullock, Limited, Montreal.
Hopkins, F. H. & Co., Montreal.
Jenkes Machine Co., Sherbrooke, Que.
Petrie, H. W., Toronto.
Von der Osten, E. & Co., Toronto.
Williams A. R. Machinery Co., Toronto.

Conveying Machinery

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

Copper Materials

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

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(CONTINUED).

Cotton Banding and Rope

Laren, J. C. Belting Co., Montreal

Covers

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

Crayons

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

Crucibles

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

Crucible Caps

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

Crucible Covers

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

Cutter Grinding Machines

Brainard Milling Machine Co., Hyde Park, Mass.

Deep Well Engines

Lebanon Steam Pump Co., Battle Creek, Mich.

Detective Agency

Detective Agency, St. Louis, Mo.

Dies (Socket, Sewer Pipe and Tile)

Vaughn & Taylor Co., Cuyahoga Falls, Ohio

Directories

McKenzie's Directories, Limited, Toronto.

Draw Benches (Wire)

Vaughn & Taylor Co., Cuyahoga Falls, Ohio.

Drilling and Fishing Tools

General Supply Co., Leamington, Ont.
Well Supply Co., Pittsburgh, Pa.

Drilling Machines (Portable)

General Supply Co., Leamington, Ont.
Well Supply Co., Pittsburgh, Pa.

Drills

Chalmers-Bullock, Limited, Montreal.
B. F. Co., Rockford, Ill.
Canadian Westinghouse Co., Ltd., Hamilton, Ont.
H. W., Toronto.

Drills (Pneumatic and Rock)

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

Drop Forgings

Machine & Stamping Co., Cleveland, Ohio.

Drop Forging Dies

Machine & Stamping Co., Cleveland, Ohio.

Dry Kiln Apparatus

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

Dust and Shavings Separators

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

Dye Stuffs and Chemicals

W. T. & Co., Montreal.
Baker Mond & Co., Northwich, England.
Canada Chemical Mfg. Co., London, Ont.
Color Co., New York City.
Aniline & Extract Co., New York City.
Arthur, Cornelle & Co., Montreal.
Canada Chemical Co. of Canada, Montreal.
Holland, Montreal.

DYNAMOS (See Motors and Dynamos)

Electric Motors and Transformers

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

Electric Mine Locomotives

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

Electrical Repairs

Keystone Engineering Co., Toronto.

Electrical Supplies

Chalmers-Bullock, Limited, Montreal.
Cord Co., Waterbury, Conn.
Canadian General Electric Co., Toronto.
Canadian Westinghouse Co., Ltd., Hamilton, Ont.
Electrical Construction Co., London, Ont.

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

Elevators and Conveyors

Allis-Chalmers-Bullock, Limited, Montreal.
Darling Bros., Montreal.
Jeffrey Mfg. Co., Columbus, Ohio.
Jencks Machine Co., Sherbrooke, Que.
Link-Belt Engineering Co., Philadelphia, Pa.
Otis-Fensom Elevator Co., Toronto.

Elevator Insurance

Canadian Casualty & Boiler Insurance Co., Toronto.

Emery and Emery Wheels

Forman, John, Montreal.
Petrie, H. W., Toronto.

Engineers (Chemical)

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

Engineers (Civil)

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

Engineers (Consulting)

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

Engineers (Contracting)

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

Engineers (Electrical)

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

Engineers (Mechanical)

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

Engineers (Mill and Hydraulic)

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

Engineers (Mining)

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

Engineers (Municipal)

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

Engineers and Contractors

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

Engines and Boilers

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



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TORONTO.

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

Engravers

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

Exhaust Fans

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

Exhaust Heads

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

Exhausters

Schutte & Koerting Co., Philadelphia, Pa.
 Sturtevant, B. F. Co., Hyde Park, Mass.

Explorer and Geologist

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

Factory Sites

(See Factory Locations, page 34.)
 Board of Trade, Orillia, Ont.
 Central Ontario Power Co., Peterboro, Ont.
 Hutcheson, S. M., Paisley, Ont.

Feed Water Heaters

Babeck & Wilcox, Limited, Montreal.
 Darling Bros., Montreal.
 McDougall, John, Caledonian Iron Works Co., Mont-
 real.
 Robb Engineering Co., Amherst, N.S.
 Schutte & Koerting Co., Philadelphia, Pa.

Files

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

Fillet (Pattern)

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

Filters (Oil)

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

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

Filters and Filtering Systems (Water)

Babeck & Wilcox, Limited, Montreal.
 Jenckes Machine Co., Sherbrooke, Que.
 McDougall, John, Caledonian Iron Works Co., Mont-
 real.

Financial

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

Fire Brick and Clay

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

Fire Escapes

Darling Bros., Montreal.

Fire Insurance

Inter-Insurers of America, New York City.

Flour Mill Machinery

Goldie & McCulloch Co., Galt, Ont.

Forges and Blowers

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

Founders

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

Foundry Facings and Supplies

Hamilton Facing Mill Co., Hamilton, Ont.

Fuel Economizers

Babeck & Wilcox, Limited, Montreal.
 Schutte & Koerting Co., Philadelphia, Pa.
 Sturtevant, B. F. Co., Hyde Park, Mass.

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

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Ontario Wind Engine & Pump Co., Toronto

Galvanizing and Tinning Machinery and
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Turner, Vaughn & Taylor Co., Cuyahoga Falls, Oh.

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

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Bristol Co., Waterbury, Conn.

Gauges (Steam)

Penberthy Injector Co., Windsor, Ont.

Petrie, H. W., Toronto.

Williams, A. R. Machinery Co., Toronto.

Gauges (Water)

Babeck & Wilcox, Limited, Montreal.

Penberthy Injector Co., Windsor, Ont.

Generating Sets

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

Generators

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Canadian General Electric Co., Toronto.

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Glue Room Equipment

Advance Machinery Co., Toledo, Ohio.

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Minister of Agriculture.

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

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

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Sadler & Haworth, Montreal and Toronto

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Gallatin Hotel, New York City.

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 real.

Hydraulic Accumulators

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Canada Foundry Co., Toronto.

Darling Bros., Montreal.

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Jenckes Machine Co., Sherbrooke, Que.

McDougall, John, Caledonian Iron Works Co., Mont-
 real.

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

Petrie, H. W., Toronto.

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

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Fire-Insurers of America, New York City.

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 Leeds Foundry Co., Toronto.
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 London Rolling Mill Co., London, Ont.
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 Paine Drawn Steel Co., Hamilton, Ont.

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Leeds Foundry Co., Toronto
 Hamilton Brass Mfg. Co., Hamilton, Ont.
 Penberthy Injector Co., Windsor, Ont.
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Lamps—Electric

Allis-Chalmers-Bullock, Limited, Montreal.
 Canadian General Electric Co., Toronto.
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 Hazard Electric Co., St. Catharines, Ont.
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 Paine, H. W., Toronto.
 Adams, A. R. Machinery Co., Toronto.

Loom Reeds

Egan, J. C., Belting Co., Montreal.

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 Robb Engineering Co., Amherst, N.S.
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 Leeds & McCulloch Co., Galt, Ont.
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 Hopkins, F. H. & Co., Montreal.
 Jeffrey Mfg. Co., Columbus, Ohio.
 Morrow John, Machine Screw Co., Ingersoll, Ont.
 Paine, H. W., Toronto.
 Webb & Martin, Toronto.

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

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 Hopkins, F. H. & Co., Montreal.
 Jeffrey Mfg. Co., Columbus, Ohio.
 Jencks Machine Co., Sherbrooke, Que.
 Morrow, John, Machine Screw Co., Ingersoll, Ont.
 McDougall, John, Caledonian Iron Works Co., Montreal.
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 McLaren, J. C. Belting Co., Montreal.
 Penberthy Injector Co., Windsor, Ont.
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 Spence, R. & Co., Hamilton, Ont.
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 Hopkins, F. H. & Co., Montreal.
 Jeffrey Mfg. Co., Columbus, Ohio.
 Jencks Machine Co., Sherbrooke, Que.
 Link-Belt Engineering Co., Philadelphia, Pa.
 McDougall, John, Caledonian Iron Works Co., Montreal.
 Perrin, William R. & Co., Limited, Toronto.
 Petrie, H. W., Toronto.
 Schutte & Koerting Co., Philadelphia, Pa.
 Williams, A. R. Machinery Co., Toronto

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 Forman, John, Montreal
 Jeffrey Mfg. Co., Columbus, Ohio.
 Jones & Moore Electric Co., Toronto.
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 Petrie, H. W., Toronto.
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 United Electric Co., Toronto.

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Canadian Copper Co., New York, N.Y.
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 Pittsburg Crucible Works, Pittsburg, Pa.

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 Queen City Oil Co., Toronto.

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 Leshe, A. C. & Co., Montreal.

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 Sheldon & Sheldon, Galt, Ont.

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 J. J. CASSIDY, Manager.

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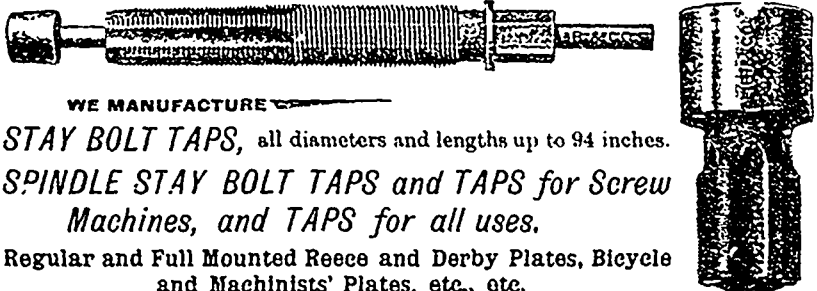
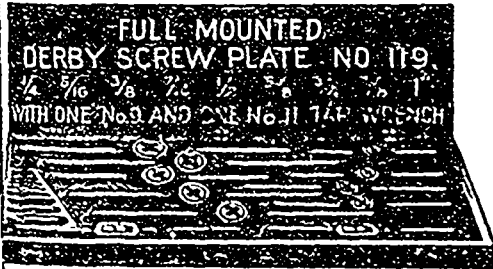
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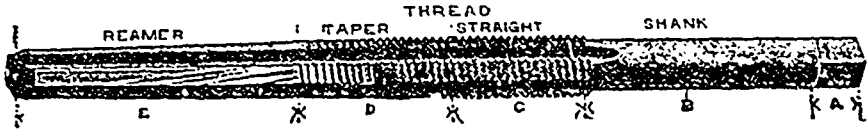
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