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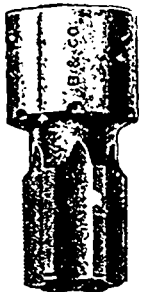
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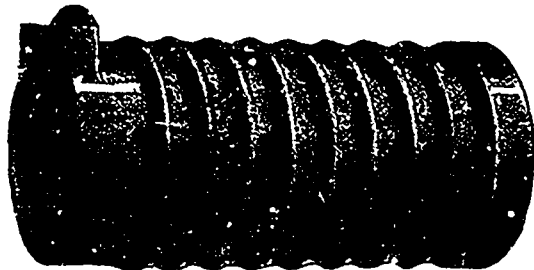


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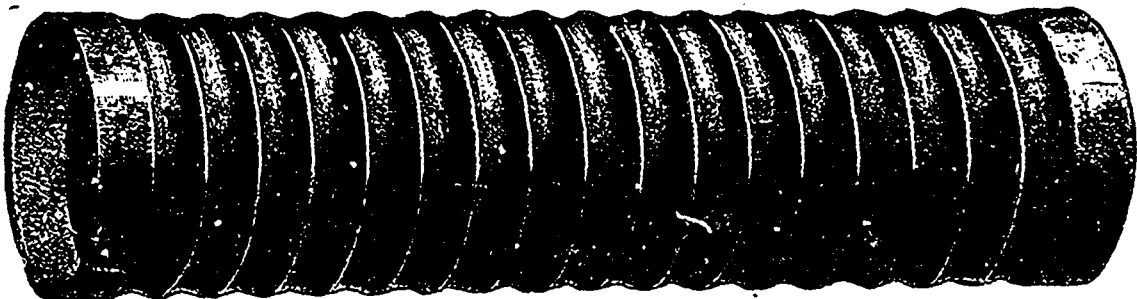


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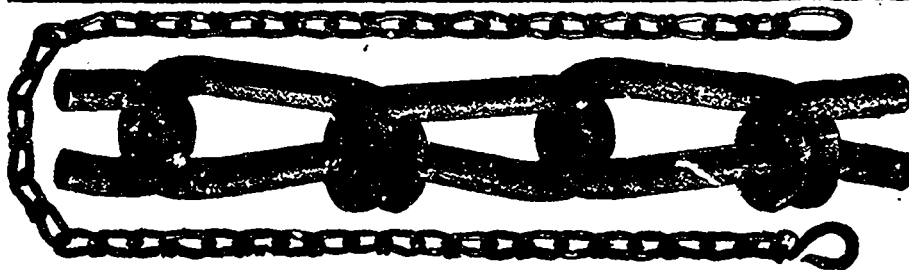
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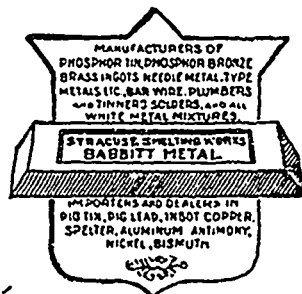
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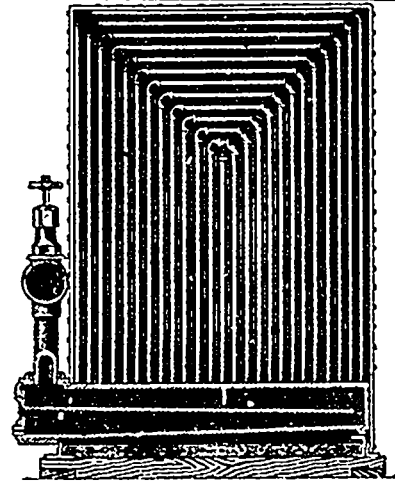
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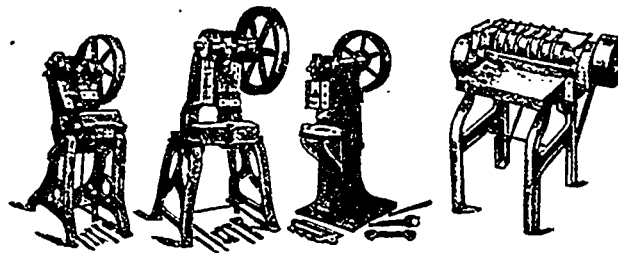
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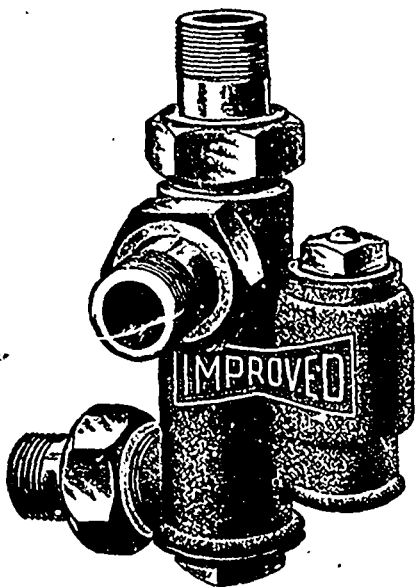
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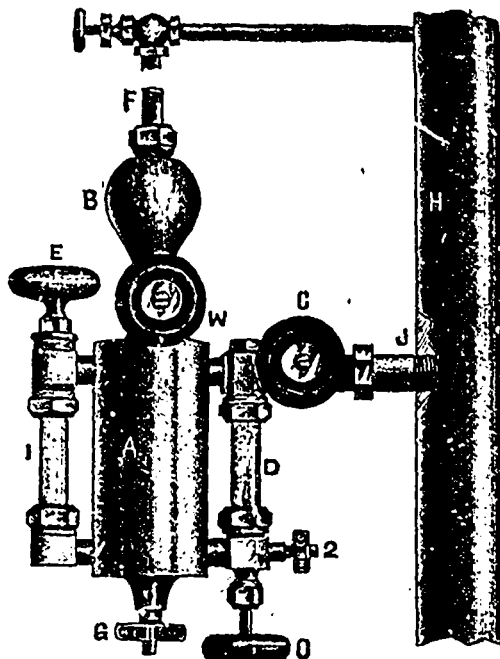
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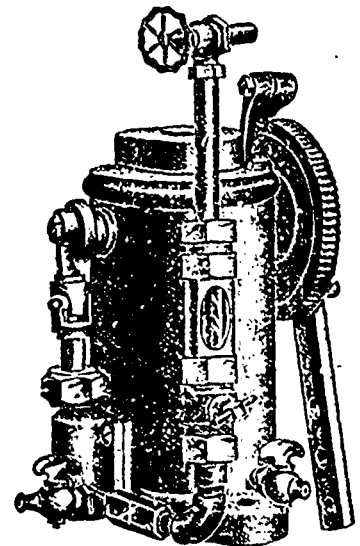
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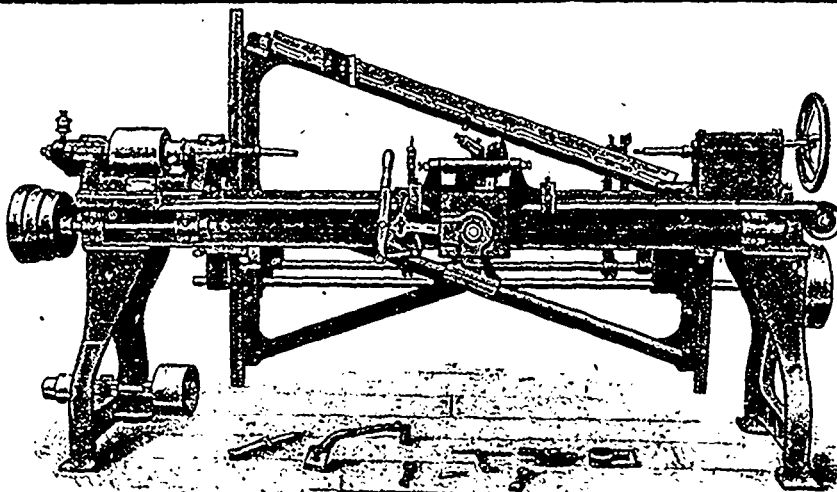
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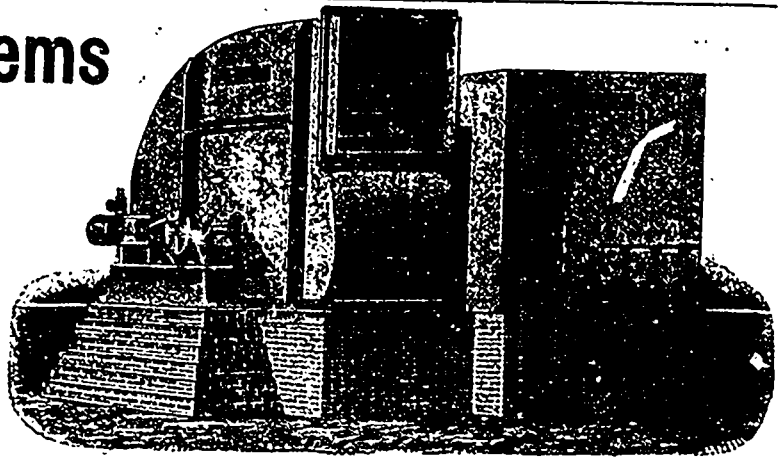
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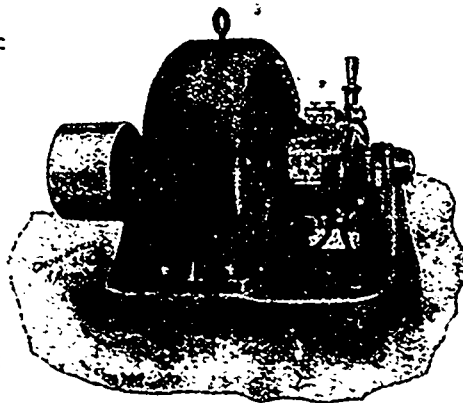
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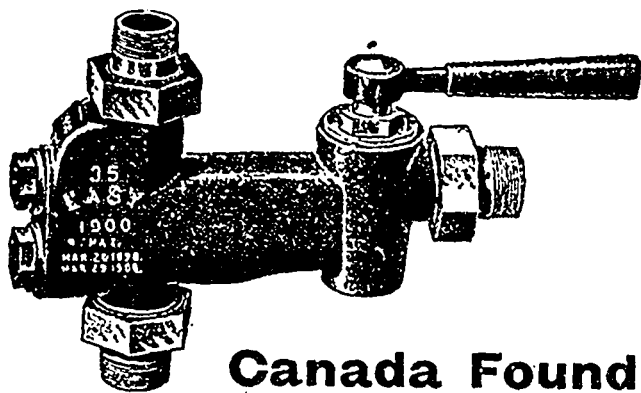
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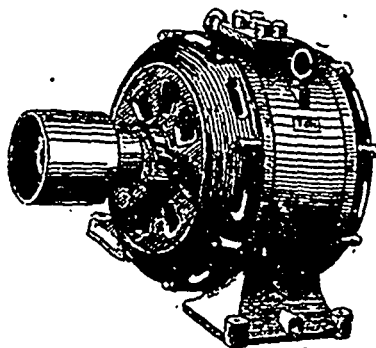
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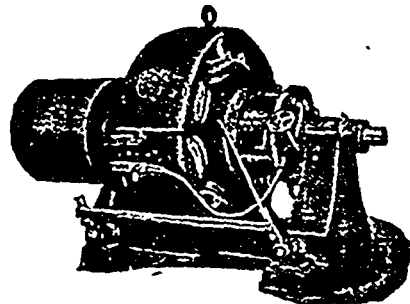
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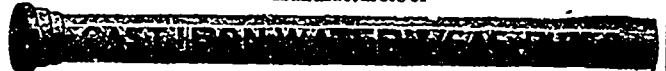
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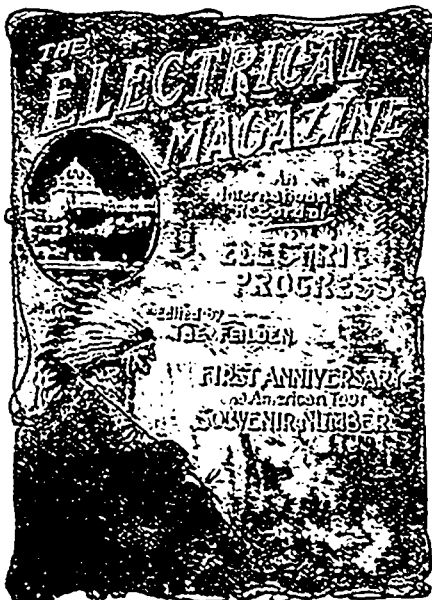


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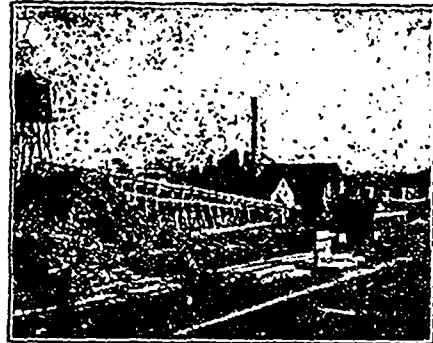
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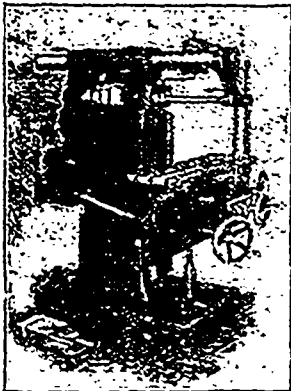
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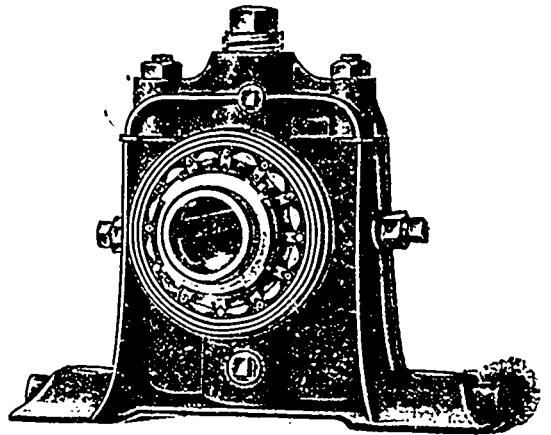
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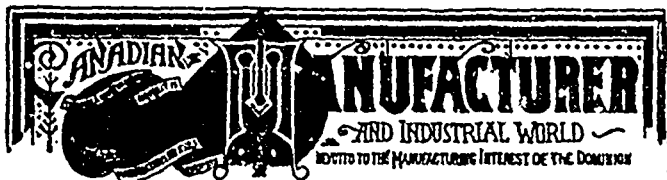
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PUBLISHED ON THE FIRST AND THIRD FRIDAYS OF EACH MONTH

The Canadian Manufacturer Publishing Co., Limited.

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

Cable address: "CANAMAN." Western Union Telegraphic Code used.

SUBSCRIPTIONS:

Canada and United States \$1.50 per year. All other Countries in Postal Union ten shillings sterling, including postage.

J. J. CASSIDY, Editor and Manager.

Classified IndexPage 42

Index to AdvertisersPage 49

PROMOTING TOWNS BY ADVERTISING.

The really enterprising city or town is as much a believer in publicity as the modern manufacturing establishment. It does not wait for business men to come and invest their money within its borders and for growth of population. It sends literature broadcast, exploiting its advantages, or it employs an agent to search for manufacturers who are looking for locations for their factories. A dozen conspicuous examples of the success of these methods could be named. The localities are very few that have nothing to offer to outsiders that will increase their prosperity and importance.

On the other hand, there are always people looking for homes and wishing to find the best, and there are always manufacturing concerns wishing to establish branches or to change their locations, and always capitalists with money to invest in new concerns if conditions are favorable. The city or town very clearly has an incentive to go after these new prospective citizens and these new enterprises. In the same way the prospective manufacturer may save himself a good deal of time, annoyance and expense if he sees just what he wants in the business literature of a town, or if he applies to its business agent.

Both the literature campaign and the personal agency plan are employed with success by all kinds and conditions of towns and cities. Sometimes both are employed at the same time, with good results, letting the one supplement the other. There is much money wasted on both plans, as there is in any other advertising. Probably more money is wasted than is well-spent, but in this the experience of the publicity-seeking towns is no different from that of the advertising manufacturer. The fact that has been demonstrated clearly beyond dispute is that the right kind of promotion pays handsomely. Manufacturers will come more quickly to a promising industrial centre when they have impressed on them the possibility of good transportation facilities, cheap fuel, freedom from labor troubles, or any other natural or acquired advantage.

Numerous reasons enter into the problems that impel a manufacturing establishment to make a change of location. Often a desire to escape burdensome taxation, or a wish to improve the physical and moral environment of its employes is the impelling cause. Frequently it is the difficulty in securing labor at all times, and in many cases it is the desire for a location where a larger factory plant or additional capital can

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

be secured to increase its output. Hence it is that every case must be considered on its individual merits. A town may not want another textile mill, perhaps it has one or more already. But it would like a machine shop. On the other hand, employers of labor might or might not desire to move into a community where their class of business was already too well represented. The problem of labor is a vital one to employer and employe alike. All of these interrelated problems must be considered in the choice of location and industry alike.

The town ascertains from every quarter the wants of manufacturers who are considering the advisability of making a change of location for any cause whatever, and also acquaints itself with new enterprises as they become known; and becoming satisfied that a particular industry would be an advantage to it, proceeds immediately to secure for the concern the most advantageous site and obtaining necessary concessions and such additional capital as may be required.

ANOTHER "TRADE INDEX."

The Canadian Manufacturers' Association announce that initial steps are being taken in preparing for the fourth issue of the Canadian Trade Index. The publication will be issued solely in the interests of the members of the Association, and will make no reference to other manufacturers or to the articles they produce. In view of the fact that three editions of the Association's Index which have already been published, possessed but very little value, seeing that they included the names and nature of products manufactured by only such concerns as happened to be members, quite a number of which were not manufacturers at all, while to the knowledge of the Association there were perhaps twenty thousand other bona fide manufacturers in Canada to whom no allusion whatever was made, it was to be hoped that when another Trade Index was to be published by the Association those whose duty it might be to prepare the matter for it, would have in mind the incompleteness and lack of intrinsic usefulness of their previous efforts, and that there would be an exhibition of largeness of mind and comprehension of the importance that should attach to such a work that would make it in name and in fact an index of Canadian manufacturing trades. We regret, therefore, to learn from the announcement that there will be no deviation from the previous characteristics of these publications.

In the nature of things it is practically impossible to include in the roster of membership of the Association the names of even a large portion of Canadian manufacturers. Quite true there are a considerable number of such concerns who are now included; but the managers who are again proposing to issue another index lose sight of the fact that it cannot but be incomplete when it shows the names of not more than perhaps 10 or 15 per cent. of the names of Canadian manufacturers, including duplicates, and also of quite a number of members who are not manufacturers, entirely omitting and ignoring the existence of 80 or 90 per cent. of manufacturers who do not happen to belong to the Association. This, we suppose, is according to the policy of the managers in their endeavor to increase the membership, and it may have the desired effect with some; and if the circulation of the book were confined to the membership, or even to Canada, no great harm would be done; but great pains is taken at large expense, to circulate it abroad, much to the detriment, we think, of the best interests of Canada. People in other lands know little and care less about the Association as such, and the only interest they could possibly have or take in the index would be to learn what lines of goods were made in Canada, and the names and addresses of the manufacturers who produce them. They are led to believe that the index gives the desired information, and when it is referred to it is found that in many instances but exceedingly few names are given of makers of certain lines of products; in other instances no names are given because the lines wanted are not even mentioned, and in yet other instances the information is entirely incorrect and misleading. What is to be thought of an index that refers to a member as a manufacturer of potatoes? Potatoes are not a manufactured article; but there are a large number of people in Canada who grow them on farms.

A true and useful Canadian trade index should include the names and location of every city, town and village in Canada in which any important manufacturing concern is located, described in alphabetical or other systematic order, with the names of the concerns in each place, a description of the goods they make, number of employes, etc; and there should be a classified directory of the manufacturers.

Such a directory or trade index, referring to Canada, would be of infinite benefit to our manufacturers, whether they are members of the Association or not, and to the country generally; and would be of great service in making known the advantages possessed by our industrial centres which offer tempting facilities for the location of other industries and in advertising the numerous mills, factories and workshops with which the country is already studded. There is plenty of room in Canada for more manufacturing industries; and the generous distribution of such an index in other countries would be of great benefit not only to the Association but to the entire country.

NEW FREIGHT RATES IN ONTARIO.

The Dominion Board of Railway Commissioners have ordered the following railway freight rates in Ontario per 100 pounds from the undermentioned station groups to St. John and West St. John, N.B., and Portland, Maine, substituted for those now in force:

1. West of Stratford. London and St. Thomas to the St. Clair and Detroit Rivers, 25 cents.
2. Stratford, London and St. Thomas to, but not including, Guelph, Galt, Harrisburg, Brantford and Simcoe, 24 cents.
3. Guelph, Galt, Harrisburg, Brantford and Simcoe to the Niagara River and to and including Mimico, Lambton and Weston, 23 cents.

4. North of Toronto, Point Edward, main line to and including Clinton, Goderich, Listowel and Palmerston, 25 cents.
5. North of said main line to and including Elmira and Fergus, 24 cents.
6. North of said main line to and including Caledon East and King, 23 cents.
7. North of Caledon East to and including Beeton, north of King to and including Barrie, 24 cents.
8. North of Beeton to, but not including, Allendale, and to and including Creemore, north and west of Allendale to and including Stayner and Phepston, 25 cents.
9. Beyond groups Nos. 4 and 8 to and including Kincardine, Southampton, Warton, Owen Sound, Meaford, Hillsdale and Penetanguishene, 26 cents.
10. Toronto to Cobourg, Stouffville, Myrtle, Bethany and Peterborough, 22 cents.
11. East of Cobourg and Peterborough, to and including Collins Bay, Eldorado and Mountain Grove, 21 cents.
12. Kingston and Sharbot Lake to Prescott and Kemptville, inclusive, 20 cents.
13. East of Prescott and Kemptville to and including Dorval, 19 cents.
14. North and west of Stouffville, Myrtle, Burketon, Bethany and Peterborough, to and including Sutton, Cannington, Lindsay and Lakefield, 23 cents.
15. North and west of Lindsay to and including Bobcaygeon, Kinmount, Cobocouk and Orillia, 24 cents.
16. Beyond Orillia to and including Midland, Gowan and Gravenhurst, also north of Kinmount, 25 cents. Where not specified above the rates of the Canadian Pacific are to be the same as the Grand Trunk Railway from the same common points and from contiguous and corresponding rate groups.

RAILWAY TAXATION.

The report submitted to the Legislature by H. J. Petty-piece, Judge Bell, and Prof. Shortt, the Commissioners appointed last year to investigate the different methods of railway taxation, and to report on the systems best adapted to the conditions existing in Ontario, have been presented to the legislature by Hon. J. W. Hanna, the Provincial Secretary, and is a very bulky affair.

The first part consists of an exhaustive description, the history of the development, and a discussion of the faults and advantages of the methods of railway taxation in vogue in Ontario, Quebec, Nova Scotia, New Brunswick, Manitoba, British Columbia, North-West Territories, Michigan, Indiana, Illinois, Wisconsin, Minnesota, New York State, Pennsylvania, New Jersey, Vermont, New Hampshire, and Great Britain.

The recommendations of the Commissioners are a general tax on the gross earnings of the railways within the Province to be levied by the Provincial Government, which will refund a certain proportion to the municipalities. The rate of taxation on this basis proposed by the Commissioners is 3 per cent. The municipalities would tax the railways only on real estate and buildings.

The conclusions of the Commissioners are as follows:

That the railways should be adequately taxed, everyone, including themselves, will admit, though there is apt to be an exaggerated idea throughout the country of a railway's capacity to pay taxes, but as we have seen it is not possible nor necessary to tax railroads on the same basis as other properties. However, by Provincial taxation of railroads in addition to their municipal taxation on real estate only, the desire of the public for the adequate taxation may be satisfied.

The benefits of railroad taxes may in this way be diffused

throughout the whole Province without respect to the accidental location of the lines. The municipalities have no occasion to look with jealous eye on the amount of corporate taxes which may pass into the Provincial Treasury, for on the one hand much of the Provincial revenue is distributed in one form or another in the municipalities, and on the other unless the Provincial Treasurer finds some direct means of sharing in the general increase in the country's wealth, it will either be forced to curtail the assistance which it now furnishes to educational, charitable, and other local needs, or it will be compelled to resort to a direct taxation of the general property of all the ratepayers of the Province with all the complexity and inequality which that would entail. Hence, in every way it is in the interests of the municipalities as well as of the efficiency of the corporate taxation that the Province should undertake the general taxation of corporations, leaving to the municipalities the right to tax their lands and buildings only.

There still remains the question of how the Provincial and local authorities are to distinguish between their respective proportions of railroad taxes. That matter can be very easily adjusted as follows: on the basis of gross earnings the Province would be able to determine the whole of the taxes which the railroads and similar corporations should pay within its borders. The portion to be assessed on real estate within each municipality would be determined locally as at present; then, by deducting from the total Provincial taxes of each corporation the portion to be paid in various municipalities the difference would represent the share of the Provincial Treasurer.

Such a system of taxation would be much more equitable than the present system, which levies a uniform rate of \$30 a mile on all roads in excess of 150 miles in length in the settled portions of the Province, and \$15 per mile on shorter lines. If such a tax is a fair one for some of the poorer lines, then it is very inadequate for the wealthier ones, and certainly far below the most reasonable rates paid by the same company on other parts of their line in the adjoining States east and west.

A tax on gross earnings, however, would very largely correct these inequalities, and would to a far greater extent than any other system possible of application to the railroads of Ontario result in an equitable adjustment of burdens between the different railways operating in the Province.

As to the rate at which the gross earnings should be taxed, that is of course a matter which can be adjusted from time to time to suit the increasing prosperity of the country and of the corporations. As may be gathered from the sections of this report dealing with the different States, and from the opinions of various experts on the subject, both within and without railroad circles, 3 per cent. is regarded as a very fair percentage to be levied upon gross receipts. The American railroads in general, many with smaller surplus revenues per mile than leading Ontario lines, regard this as a very reasonable rate, and it may be considered a reasonable rate here.

The effect of this applied uniformly would probably be to lower the taxes now paid by three of the smaller lines, to very slightly affect two or three others, and, on the other hand, undoubtedly to increase to a considerable extent the total revenue obtained by the Province from the railroads.

Should the Legislature determine to introduce the gross earning tax for railroads of other similar corporations, it would be necessary to select a basis for determining the proportion of earnings assignable to this Province in the case of

those operating in several Provinces or States. The best opinion would favor some such arrangement as this: Receipts from all traffic between terminals in Ontario to be assigned entirely to Ontario. Receipts from traffic between an Ontario terminal and one outside to be assigned to Ontario in proportion to Ontario mileage to the mileage of the whole haul. Receipts from traffic passing through the Provinces to be assigned to Ontario in the proportion of the Ontario mileage to the whole haul, in which case some allowance might be made for terminal charges.

As to the most efficient methods for administering a Provincial system of corporate taxation, whatever basis of taxation might be adopted, there is almost a unanimous conviction alike in the United States and Great Britain, as also in Canada, that a Provincial board of taxation should be established, composed of, say, three persons, only part of whose time would be required, however, for their duties, with a permanent secretary and assistant for clerical and statistical details. To such a board should be assigned the duties of prescribing forms of schedules, verifying returns, determining the proper proportion assignable to the Province where corporations extend beyond the boundaries, supervising and adjusting the assessment and taxation of corporations as between municipal and Provincial authorities (which assumes that municipalities retain the right to tax local real estate), and generally to supervise the administration of the taxation of corporations.

Inasmuch as the business of telegraph, express and sleeping car companies is so intimately associated with railroad corporations, especially in Canada, and inasmuch as the electrical railways are not only furnishing urban service, but are extending throughout the country in competition with the regular steam railroads, and are likely to be indefinitely extended in the future, it would be advisable to treat these corporations, and doubtless several others, upon the same basis as the railroads, and to apply to them a tax on gross receipts, with rates adjusted to their ability to pay.

PROFIT-SHARING IN CANADA.

Mr. J. Buntzen, of Vancouver, B.C., General Manager of the British Columbia Electric Railway Co., was in Toronto a few days ago to receive applications from practical electricians for the position of general superintendent of that road, which now extends to about seventy miles, including the Vancouver lines. Mr. Buntzen received more than one hundred applications, but will not make a decision as to his choice until after his return to Vancouver.

Mr. Buntzen says that about three years ago, owing to the excellent feeling which prevailed between the employees and the management, the plan of profit-sharing was introduced by the directors and has been eminently satisfactory. The company recognizes the men's union, pays standard wages and frankly meets the representatives of the union to discuss any matter which the men or the management desire.

The company decided that in addition to paying union wages, one-third of the surplus earnings, after paying a 4 per cent. dividend, should be divided yearly among all employees who had remained in the company's employ at least one year continuously. This surplus is divided equally among all employees, from the office boy to the general manager. At the close of 1902 each employee's share was \$25; at the close of 1903 the amount was \$35 each, and although the amount for 1904 has not yet been ascertained, it will probably reach \$40 per employee. There are between 300 and 400 employees who secure the bonus.

The company is composed entirely of British capitalists, and has a capital, including its light and power branches, of about \$6,000,000. It is just now completing the installation of a 30,000 h.p., provided by the water from two small lakes near Vancouver. To connect these lakes a tunnel 12,775 feet long and nine feet in diameter has been drilled through solid granite.

EDITORIAL NOTES.

The date of the opening of the Toronto Industrial Exhibition has been fixed for Tuesday, August 29. Lord Roberts will open the fair.

A deputation of stationary engineers waited on Premier Whitney and Hon. Nelson Monteith on April 1. They asked that an act be passed by the local Legislature compelling all stationary engineers to hold certificates endorsed by a committee appointed under the provisions of the act. They pointed out the efficacy of the Dominion marine boiler inspection act and the stringent precautions regarding qualifications of stationary engineers in British Columbia and Quebec. The Premier promised to give the matter due attention.

Representatives of the Montreal Board of Trade, the Corn Exchange, the Shipping Federation of Montreal and the Dominion Coal Co. waited on the Government a few days ago and preferred requests relating to commerce flowing through the St. Lawrence route. They asked that the St. Lawrence harbors be brought to a proper standard, that free wharfage be provided, that the Government take over the port, or else remodel the harbor commission, that specific improvements be made to navigation, such as a vigorous prosecution of the hydrographic survey, the improvement of the river channel, the erection of permanent beacons at Lake St. Peter, an additional and more powerful ice breaker, new buoys and the pressing forward of the thirty foot channel. A modification of the steamship inspection laws to aid the coal trade was also asked.

Lithographers of Winnipeg, Man., want to know why the Interior Department paid over \$60,000 to Rand, McNally & Co., Chicago, Ill., last year for work which might have been done in Canada. The expenditure is mentioned in the Auditor's report.

The trade outlook in Australia is improving, according to a report received at the Department of Trade and Commerce from Mr. D. H. Ross, Commercial Agent for Canada in Melbourne. Australia's over-sea trade during 1904 amounted to \$94,501,278, the largest on record.

The birthday of the new Provinces of Alberta and Saskatchewan will be celebrated by the civic authorities of Regina on July 1 next in a manner befitting so great an occasion. It is desired to have the presence of both the Governor-General and Sir Wilfred Laurier, and on behalf of Mayor Laird, Mr. Walter Scott, M.P., has conveyed to the Prime Minister an intimation to that effect. Sir Wilfred has not yet definitely accepted, but it is hoped that he and Earl Grey may be able to attend. The swearing in of the Lieut. Governors of the two new Provinces on their natal day is another feature which may be arranged for. All the municipal and public bodies throughout the North-West will be invited to send representatives, in order that the inaugural ceremonies may take place with becoming impressiveness.

A New South Wales court has given a decision which destroys the pivotal principle of the industrial arbitration law heretofore in force in that country—namely, preference to trade unionists. The Master Carriers' Union appealed against a decision of the arbitration court on this point, and the full court held that if a unionist and a non-unionist offered their services simultaneously to an employer the latter must, other things being equal, employ the unionist. But, the decision added, the employer is at liberty to determine whether the applicants are equally competent. Thus an obvious loophole is left open. The Chief Justice declared that the decision of the arbitration court was an offence against the liberty of the subject.

THE CANADIAN MANUFACTURER declares that Canada cannot stand any further reduction of duty on British goods, even in return for a preference in the British market. Imperialism, on the economic side, has a hard row to hoe.—London Advertiser.

The question naturally presents itself, for whom does the Canadian Parliament legislate? The supposition is that any legislation that may be enacted would be in the interests of Canada. But how can Imperialism benefit Canada if we are to sacrifice our home industries for the sake of giving British manufacturers freer entry into our home market than they now enjoy? We love our British kinsmen but we are not called upon to strangle our own industries to enable them to live.

The annual convention of the Canadian Manufacturers' Association will be held in Quebec City on September 18, 19 and 20.

There is every likelihood that Ontario's northern boundary will be extended to Hudson Bay. This announcement was made in the Speech from the Throne, which opened the Ontario Legislature a few days ago. The statement is made that when it was ascertained that Manitoba had applied for permission to extend its boundaries northward the Ontario Government had promptly taken steps to prevent the granting of any territory to the sister province which should naturally come to Ontario. The territory affected would have a coast line of several hundred miles on Hudson Bay, and a fine harbor at York. The land is about 500 miles east and west, and from 200 to 300 miles north and south.

Mr. D. A. Gordon, of Wallaceburg, Ont., is about to try an important experiment in his large beet sugar plant at that place by importing Trinidad raw sugar to be refined during the season when sugar beets are not obtainable. As the latter can only be had for a few months in the fall and early winter, the project to use the mill during the rest of the year is of the greatest importance from a business and economic standpoint. The Wallaceburg mill is the first beet sugar plant in Canada to try this work. It is likely to commence operations in a few days.

At different dates during February and March we have had communications from Manchester and Birmingham telling of the injury done to Canada's reputation and to Canadian trade by the reckless statements and perfidious promises of the long notorious Gustavus W. Griffin, "Doctor" Guthrie, as he styled himself. This dangerous man too long posed as the agent in the United Kingdom for one or two commercial journals in Montreal, which he falsely alleged to be subsidized by the Government of Canada. And we consider that the Canadian Government has not done its whole duty in the way of repudiating the man, for they might thereby have thrown

suspicion upon the odious misrepresentations by which he secured advertisements in England for his journals. True, the Department of State disavowed him in December, 1902, in a letter replying to the Monetary Times. But this was not enough, for he had the hardihood to go on last year and the year before with his dirty work in the manufacturing cities of England, repeating his dishonest claims to recognition as a Government emissary. Now we hear that Griffin having been pretty thoroughly exposed and discredited in Birmingham, has left that city. Our North of England correspondent, writing from Manchester on March 31, says: "The latest recorded adventure of the arch-charlatan 'Doctor' Griffin is his flight from Birmingham. That talented exponent of the humbugging art is under the suspicion of non-compliance with certain financial formalities which are customarily discharged before departure. His re-appearance in new places is being awaited by anxious friends." The cleverness of this plausible rascal is so great that it would compel one's admiration if the consequences were not so serious in effecting the good name of this country, and in arousing abroad suspicion of good faith among our merchants. —The Monetary Times.

"Does it pay? Is it worth all the money spent? These, says a contemporary, are the questions sometimes asked by the manufacturer as he glances over his accounts for the year's advertising. Over and over again, it has been debated whether trade journal advertising does or does not bring in the desired results, and over and over again advertisers have had the fact brought home to them that the trade journal is a thing that cannot be lightly passed over, and that if a given article is to be widely known, and widely sold, its advantages and superiorities must be heralded far and wide in the advertising columns of every trade journal that is likely to be read by possible buyers of the article in question. The advertised articles must be kept constantly before the notice of the readers of the journal. One insertion, or two insertions, or less than a half year's contract is of little if any value. A regular reader of a journal will often glance at an advertisement regularly throughout the year without feeling any particular desire to buy the article advertised. But, some day, certain circumstances lead up to his needing the very article. The only question with him is: Which make? A reply is immediately forthcoming: the make for him is the one that has been constantly brought under his notice in the columns of his trade journal.

Dr. Wallcott of Washington State, who was in Ottawa a few days ago, was commissioned to endeavor to settle a very important matter in connection with the irrigation of the lands on both sides of the boundary line between our North-West Territory and Montana, particularly along the Milk River. This river draws its water from both sides of the boundary line, which it crosses and recrosses. An amicable arrangement in regard to the use of the water of this river is of the utmost importance to the welfare of the settlers on both sides. At different places in the course of the stream it would be possible for either government to ruin the farms of thousands of settlers by adopting a purely selfish policy. Dr. Wallcott expressed the sentiments of the United States Government by saying he was anxious to avoid this, and was prepared to make any reasonable arrangement with our government. It was understood that a friendly arrangement was likely to be carried out before any extensive irrigation works were undertaken on either side.

At the recent annual banquet of the Toronto Automobile Club, Mr. A. W. Campbell, Deputy Minister of Public Works, predicted that in five years every county in Ontario will have adopted the Government system of good roads, and the motorist will be able to travel from the Quebec boundary of Ontario to Detroit on scientifically constructed through highways. He also pointed out that in the last three years three-quarters of a million dollars had been expended on good roads by the people of Ontario, \$300,000 of which had been contributed by the Government. In all, 1,642 miles of the best roads had been constructed. He said that in a few years a system of mail delivery by motor would doubtless be introduced throughout Ontario, and asked the Automobile Club to co-operate with the Department in a scheme to establish a continuous improved highway from Niagara Falls to Toronto, and from Toronto to Lake Simcoe, which would afford an ideal motor run for tourists from the United States.

An influential deputation of lumbermen were in Ottawa a few days ago to protest against legislation permitting the construction of a dam across the St. John River at the international boundary at Edmundston, N.B. The dam is desired by United States lumbermen in order to get sufficient depth of water to collect their logs in the State of Maine and manufacture them there, instead of sending them down to St. John, there to be sawn and shipped in bond to the United States. The Canadian lumbermen on the St. John River claim, however, that the dam will be an obstruction to navigation, and as such, a violation of the Ashburton treaty. They also oppose the construction of the dam as contrary to the public interests, and an encroachment on vested interests established under the treaty. Accompanied by all the New Brunswick members, with the exception of Mr. Costigan, who is promoting the bill, the deputation waited upon the government, who promised to look into the matter.

At a meeting of the Nova Scotia branch of the Canadian Manufacturers' Association held in Halifax last week, the following resolution, advocating a customs preference for all goods coming to Canada direct from the country of their origin, was passed unanimously:

This association expresses its conviction that the interests of the Canadian people can best be served and a strong national sentiment be fostered by keeping the trade of the country, as far as possible, in Canadian channels; and whereas, a large portion of the goods imported into Canada now enter via foreign ports and are carried over foreign railway lines, therefore cooperation is asked from the Canadian Manufacturers' Association, the various boards of trade and other representative bodies in pressing upon the Dominion government the desirability of so framing the tariff that there shall be a customs preference on all goods which enter Canada direct from the country of their origin. Also, on all goods entered at Canadian ports when carried in British shipping.

The Government of Australia has appointed a commission to inquire into the operation of the customs tariff of the Commonwealth. It is anticipated that it will recommend that the present duty on many articles be raised to provide more adequate protection to Australian manufactures. The recommendations must be discussed and passed by Parliament before becoming operative.

The tenth annual convention of the National Association of Manufacturers of the United States will be held in Atlanta, Ga., May 16, 17 and 18.

MACHINERY AND ENGINEERING.

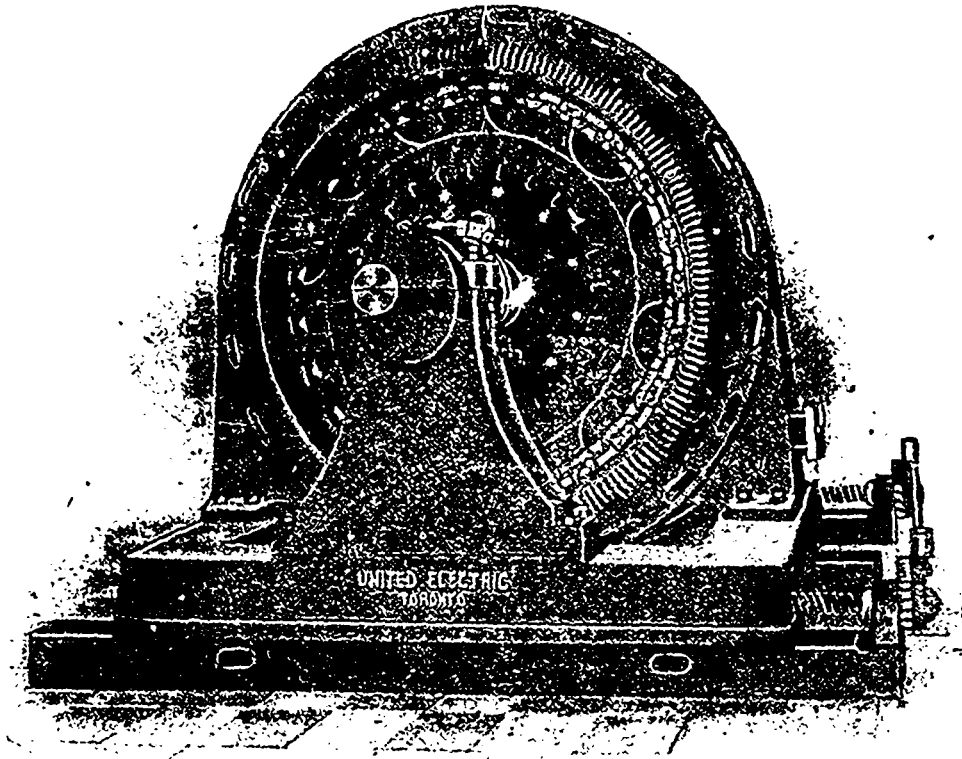
A NEW GENERATOR.

By William Asahel Johnson, Toronto, Canada, (Inventor.)

The alternating current generator of the Revolving field type herein described is considered by the writer and admitted by parties who have investigated and no-

on the line as an induction motor and when up to the speed the field can be excited and thereafter operate as a synchronous motor. This auxiliary winding would also be of use where two or more generators are run by separate engines and intended to be operated in parallel as they would keep in synchronism better at

mits of this special short circuited winding and without very material increase in expense of construction. The writer desires to state, however, that such extra winding is not essential to his machine when used as a generator, but simply adds extra qualities when used as either a generator or synchronous motor and

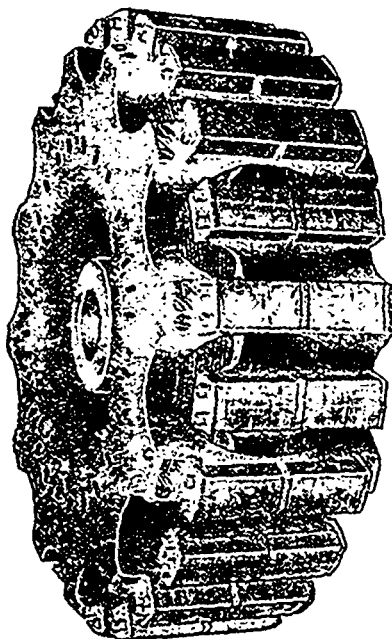


CUT NO. 1—NEW REVOLVING FIELD ALTERNATOR. W. A. JOHNSON PATENT.

ticed the machine in operation to be a decided advance in dynamo design. The claim is made that this generator is superior in regulating qualities, in efficiency, and operates at a far lower temperature than generators of the old type. The type of revolving field adopted by the largest manufacturers in America and Europe is simply the multipolar field common to all commutating or direct current machines. Such construction has been the habit for the last fifteen years, during at least this period there have been brought out no designs having novelty or showing a new theory or principal of magnetic design. Aside from Tesla's motor one is practically justified in saying there have been no new distinctive types of electric machines placed on the market during an even greater period, as the patents issued have covered mere details of design such as various devices for regulation, designs for laminating the frame or rotor, etc., but no material or basic invention.

Cut No. 1, gives an end view of this generator, and shows also a short circuited winding which in this instance was used to give the machine self-starting ability when intended for use as a synchronous motor. That is under light load the machine can be directly thrown

any reasonable change in speed of the engine. This digression from the main question i. e., the new field may be excused as this construction readily ad-

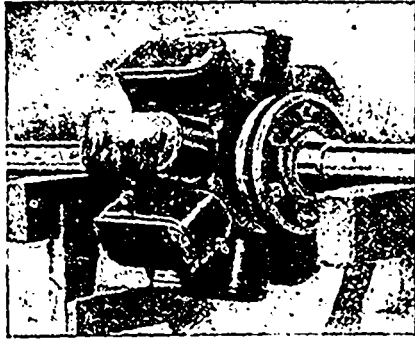


CUT NO. 2—NEW REVOLVING FIELD.

such extra qualities are not so readily to be obtained in the other usual design mentioned in the first part of this article.

The new rotating field is shown in cut No. 2. The field may be mounted on horizontal or vertical shaft to suit the driving power. The radical and novel change in design will be readily seen by examining cut No. 3, which shows the old or usual type or revolving field. It can be readily seen that inasmuch as the function of the rotor (the field or primary) is first, to provide the magnetic field, and second, to vary the position of the mag-flux flowing from the primary as relating to the armature (the secondary) :— that the field electric (the copper winding) and magnetic (the iron) circuits are in a better balanced position as regards the inductive action taking place between field and armature than in any alternator yet designed. The magnet system of any generator controls the generation of the current, in fact, the magnet are the prime and essential features of a generator, and yet the armature has been commonly looked upon as the chief point and so common has been this habit that the armature has hitherto chiefly received the best thought and efforts of electrical people; but there is no getting over the fact, the magnet system in an electric

machine is, and always will be, utterly indespondible and the greater the perfection of its design and the stronger and more constant the flow of the magnetic flux from its polar faces; the more efficient the generator and the more constant the electro-motive force generated, and all this depends upon the definite alignment of the magnetic poles by the establishment of an unchangeable neutral line that is a line of zero potential. Absol-



CUT NO. 3—OLD STYLE FIELD.

ute regulation and a cool and efficient machine are the ends aimed at. The construction herein described achieves these desirable objects.

The regulation obtained is practically as close as in static transformers. Why? Because there is a definitely aligned and unchanging line of zero potential dividing the magnets and their inductive effect upon the armature, as absolutely unchangeable as the inequalities of the iron and the reversal of direction of flow, in the armature circuits will admit of, when using the common type of armature as used in the present construction. (The writer's patent, claims, by the way, cover an armature construction carried out on identical lines to that of the field herein more particularly described.) So perfect is the regulation that the circuits of the armature may be short circuited under full excitation of the field and the armature current not rise more than 10 per cent. above normal or such other rise as may be pre-determined by the designer, whereas in the old type if the armature terminals are short circuited at much above one-half full field, then the result is an overheated machine up to the point of destruction under full field. It immediately becomes apparent that if a generator can be short circuited when generating its rated E. M. F., that is under its normal field excitation, that the testing of the generator under full magnetic saturation will develop the maximum capacity of the generator, that is such a test made at the factory establishes the normal and the overload capacity beyond dispute. Generators built under the writer's patents can be short circuited by means of oil switches under full voltage up to and even beyond 10,000 volts. The above circumstances of regulation indicate that armature reactions against full field need no longer prove a bug bear, that induction motor loads can be handled in connection with lighting load with satisfactory results. By using the same construction in motors as used in the

generator, but with the addition of the short circuited bar winding for self-starting, these machines allow of the highest possible power factor under all load conditions. The generator or motors are interchangeable, i. e. the generator can be used as a commercial synchronous motor or generator at pleasure under the most favorable conditions. Again referring to cut No. 2, it will be noted that the field coil (of which only two are used regardless of the number of poles) are wound concentric with the shaft in the line of mechanical motion, and therefore the mechanical placing of the coils is facilitated. The method of building up the rotor has been much simplified in later construction, than as shown in cut. As now built, the field coils are very easily accessible.

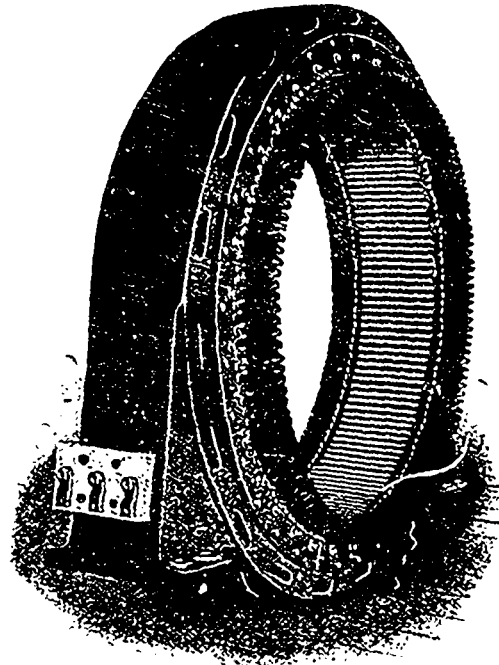
As above stated the armature construction (see cut No. 4) as herein described, is practically identical with other well known makes, and is no better and no worse than theirs in any respect using equally good material and workmanship.

As to temperature. The armature reactions common to the older types which necessarily cause counter action, and again reaction, and so on, in endless confusion between field and armature are herein eliminated as in no other construction, consequently the temperature of the iron is extremely low, not 50 per cent. of the rise under similar conditions

At first thought it may be contended that the copper winding of the field might require to be heavier but this is counterbalanced by the decrease of the air gap and the peculiar qualities of the field which allows a heavier exciting current without corresponding increase in temperature for same capacity in the copper. The good regulating qualities of this machine do not end at the terminals as it is a well known fact that all reactions within the generator are reflected in the circuits, and instead of a smooth current in the line the contrary is the usual case with the old type, and the results are shown in the static discharge and broken down transformers.

The writer feels warranted in making the statement that it seems impossible to build an electric machine with more than two or less than two energizing coils and get the highest results, and as he has designed, built and been granted patents in various countries for inductor alternators, and commutating machines, embodying this same principal he knows that the rule works not only both ways but three ways, that is, in the three commercial machines universally manufactured the revolving field alternator, the inductor alternator and the direct current multipole dynamo.

As regulation means you can use efficient lamps and on account of the economical generation of the current within the generator, the writer is pre-



CUT NO. 4—ARMATURE.

pared to undertake contracts for this construction with a guaranteed saving in operation to the purchaser of from 10 to 15 per cent. on the cost of generating plant. These machines are manufactured in Canada, by The United Electric Co., Ltd., of Toronto; negotiations are under way for their manufacture and sale in the principal countries where patents have been granted to the writer.

of size and output of other types, in fact, the heating of the entire machine inside the limits of carrying capacity of the copper and magnetic saturation and aside from the unavoidable eddy currents of the iron can be considered as negligible. The air gap between polar faces and armature iron may be as short as mechanical clearance may require, and not so excessive as the older type. The efficiency is therefore very high.

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.

It is stated that the mining regulations of the Yukon will be codified and embodied in a statute during the present session of the Dominion Parliament. When this is done the size of the placer mining claims will be increased from 250 feet to 500 feet, and the discovery claims will be increased from 500 to 1,000 feet. It has also been decided to give a remission of the royalty on copper and gold from quartz for ten years. This is to encourage quartz mining. It is understood that the Government will make a survey of Indian and Klondike Rivers with the view of solving the question as to how to get water for mining purposes.

The Leamington-Comber Oil Co., a United States incorporation, have been licensed to manufacture and produce oil in Ontario with a capital of \$40,000. A. R. Bartlett, Windsor, Ont., is their attorney.

The Murphy Iron Works, a United States corporation, have been licensed to manufacture furnaces, boilers, pumps, etc., in Ontario with a capital of \$40,000. M. C. Huyatte, Toronto, is their attorney.

The Parkin Elevator Co., Limited, Hamilton, Ont., have been incorporated with a capital of \$40,000, to acquire the business of the Parkin Elevator Co., and to manufacture elevators, electrical appliances, motors, etc. The provisional directors include John Parkin, Edmund Parkin and Adolph Winckler, Hamilton.

The Crucible Steel Casting Co., Hamilton, Ont., have been incorporated with a capital of \$50,000, to manufacture steel, gray iron castings, etc. The provisional directors include G. E. Husband, B. K. Husband and John Scott, Hamilton.

The Continuous Steel Rail Co., Toronto, have been incorporated with a capital of \$500,000, to manufacture steel rails, car wheels, railroad supplies, etc. The provisional directors include F. B. Allan, Wm. McConnell and A. F. Webster, Toronto.

The Ottawa Cold Stores, Limited, Ottawa, have been incorporated with a capital of \$50,000, to carry on a cold storage business, etc. The provisional directors include W. E. Matthews, A. E. Matthews and J. A. Macpherson, Ottawa.

The Harris Oil Co., Windsor, Ont., have been incorporated with a capital of \$100,000, to carry on a mining, milling and reduction business. The provisional directors include F. C. Harvey, J. Hartenstein and G. R. Harris, Detroit, Mich.

The C. E. Davis Co., Sault Ste. Marie, Ont., have been incorporated with a capital of \$25,000, to carry on a general merchandise business. The provisional directors include C. W. Baldwin, A. B. Standish and C. E. Davis, Sault Ste. Marie.

The Minerva Mfg. Co., Limited, Tor-

onto, have been incorporated with a capital of \$100,000, to manufacture white-wear, mantles, textile fabrics, etc., and to acquire the business of The Minerva Mfg. Co. The provisional directors include Allan McPherson, Longford Mills, Ont., J. H. McKnight and W. R. P. Parker, Toronto.

The Port Burwell Fish Co., Toronto, have been incorporated with a capital of \$10,000, to acquire the business of G. A. Browne & Co., at Port Burwell and to carry on a fish preserving business. The provisional directors include Harry Boyd, Port Burwell, Ont., and Frank Arnoldi, Toronto.

The Lakefield Furniture & Mfg. Co., Toronto, have been incorporated with a capital of \$125,000, to manufacture lumber and to carry on a foundry and machine business. The provisional directors include J. F. Lillierap, Lakefield, Ont., A. A. Dickson and H. W. Evenden, Toronto.

The Farmers Canning Co., Bloomfield, Ont., have been incorporated with a capital of \$40,000, to carry on a general fruit and vegetable canning business. The provisional directors include S. E. Masten, J. W. Talcott and J. W. Hyatt, Hal- lowell, Ont.

The Western Warehouse Co., Toronto, have been incorporated with a capital of \$40,000, to carry on a cold storage and warehouse business. The provisional directors include J. A. Murray, J. P. Murray and G. D. Perry, Toronto.

Colonial Veneer, Limited, Toronto, have been incorporated with a capital of \$40,000, to manufacture glue, cement, paint, etc. The provisional directors include B. D. Cole, T. H. Wilson and A. M. O'Brien, Toronto.

The ratepayers of Perth, Ont., have voted favorably on a by-law granting a bonus of \$20,000, to Messrs. Winn & Co., boot and shoe manufacturers, of Milton, Ont., to erect a two story factory, 150x 50 feet, in that town.

Messrs. McGillivray & Labelle, Ottawa, have been awarded the contract for the erection of the transit house, in connection with the National Observatory, at a cost of \$15,000.

The town hall and Messrs. Taylor & Watson's implement warehouse at Manitowaning, Ont., were destroyed by fire April 10. Loss about \$30,000.

The Hamilton Silicate Brick Co., Hamilton, Ont., have completed their concrete block making plant.

Mr. John Carter's show-case factory at Clinton, Ont., was destroyed by fire April 7.

The Canadian Pacific elevator B, at Fort William, Ont., is completed. The plant has a storage capacity of 500,000 bushels. It will be able to unload approximately 300 cars of wheat per day.

The ratepayers of Lakefield, Ont., have voted favorably on a by-law granting a loan of \$15,000 to the Lakefield Furniture Co.

The Ottawa & New York Railway Co. have moved their shops from Santa Clara, N. Y., to Ottawa. Hereafter all cars and equipment needed to be repaired for the line will be attended to at Ottawa, and a considerable staff is now engaged at that work.

The Toronto City Treasurer has received a check for \$20,761, being the city's share of the receipts of the street railway system during March. This is the largest percentage ever received by the city for the third month of the year. A comparison of months of March for five years is as follows: Receipts 1905, \$207,618.20; 1904, \$184,444.13; 1903, \$161,379.45; 1902, \$141,765; 1901, \$125,192.63.

S. Running, Gananoque, Ont., is applying to the town council for a free site for the erection of a saw mill 70x25 feet and a box factory 50x30 feet, both to be two stories high.

The Heintz Pickling Co., Chicago, Ill., are considering the establishment of a Canadian plant in Brantford, Ont.

The power house of the Brantford Street Railway Co., was damaged by fire April 9. Loss about \$1,000.

A large iron property has been located on Corniscan Lake, about 10 miles from Fort Frances, Ont., by Messrs. McGugan and T. Crowley, of Sault Ste. Marie, Ont. It is a magnetic iron ore without any traces of sulphur or titanium, the assays showing it to run from 56 to 65 per cent. and well within the bessemer limit. There is said to be millions of tons of ore in sight, there being literally a mountain of it, 80 feet high, the ore outcropping on the top and sides. On the same chain of lakes there are said to be several other ranges of iron ores. The presence of these ore deposits will, it is thought, lead to the establishment of smelters at Fort Frances in the near future.

The Grey & Bruce Cement Co., Owen Sound, Ont., have purchased through J. J. Gartshore, Toronto, a tank locomotive to operate their cars from the marl beds to the main line. It belongs to the type known as the dinky or yard engine, with water tank and coal bunkers on top of the boiler.

The Waterous Engine Works Co., Brantford, Ont., are supplying two fire engines for the Toronto Fire Department and two for the Winnipeg, Man., Fire Department.

The Gananoque Bolt Co., Gananoque, Ont., have been incorporated with a capital of \$125,000, to manufacture bolts, nuts, railway hardware, etc. The provisional directors include W. T. Sampson, E. L. Atkinson and David Bain, Gananoque.

The Industrial Securities Co., Hamilton, Ont., have been incorporated with a capital of \$400,000, to assist in the development of any industrial or manufacturing concern incorporated in Canada. The provisional directors include W. D. Long,

C. T. Grantham and P. D. Crerar, Hamilton.

The Stratford Mill Building Co., Stratford, Ont., have received large orders for machinery to increase the capacity of the Ogilvie Mills at Montreal and the Goodrich Mill of the Lake Huron & Manitoba Milling Co.

The William Gray & Sons Co., Chatham, Ont., manufacturers of carriages, etc., will increase their capital from \$150,000, to \$500,000.

The Metallic Roofing Co. of Canada, Toronto, have increased their capital from \$20,000, to \$200,000.

The Ottawa Stone Co., Ottawa, have been incorporated with a capital of \$20,000, to manufacture contractor's supplies, crushed stone, cement, etc. The provisional directors include H. Robillard, B. Robillard and T. G. Brigham, Ottawa.

The Northern Sulphite Mills of Canada, Sturgeon Falls, Ont., have been incorporated with a capital of \$500,000, to manufacture wood pulp, wood alcohol, charcoal, etc. The provisional directors include John Craig, London, England, G. C. Loveys and J. M. Ewing, Toronto.

The Gas & Oil Co., Springvale, Ont., have been incorporated with a capital of \$40,000, to produce petroleum oil, electricity, etc. The provisional directors include S. W. Winger, A. S. Benn, and S. G. Holbrook, Walpole, Ont.

John Agnew, Ltd., Brantford, Ont., have been incorporated with a capital of \$50,000, to manufacture trunks, valises, footwear, etc. The provisional directors include John Agnew, Frank Bauslaugh, Brantford, and John Bauslaugh, Woodstock, Ont.

The Buster Brown Gas & Oil Co., of Ontario, Windsor, Ont., have been incorporated with a capital of \$500,000, to produce gas and oil, etc. The provisional directors include G. S. Brown, J. L. Wentz, Detroit, Mich., and J. W. Hanna, Windsor.

The T. Hockin Co., Dutton, Ont., have been incorporated with a capital of \$50,000, to manufacture small wares, merchandise, etc. The provisional directors include Thos. Hockin, J. T. Hockin, and Wm. Hockin, Dutton.

The Lake Huron Copper Mining Co., Thessalon, Ont., have been incorporated with a capital of \$500,000, to carry on a mining, milling, and reduction business. The provisional directors include J. A. McEachern, Thessalon, B. B. Danziger, and Joseph Danziger, Chicago, Ill.

The Toronto City Architect estimates that the plumbing and heating appliances for the new Kew Beach fire hall, will cost \$3,000; painting and sheet metal work, \$1,000; and grading, \$694. This will make the total cost of the hall, \$27,000.

The Bank of Commerce, Toronto, will erect a new two-story banking building at a cost of about \$25,000.

Messrs. J. Walshaw & Son's woolen mills, at Bolton, Ont., were destroyed by fire April 14. Loss about \$40,000.

J. A. McCunig, late secretary of the Toronto Board of Fire Underwriters, has

accepted the general managership of the Canadian Fire Protection Co., recently organized with a capital of \$100,000, to manufacture fire preventive and extinguishing appliances. The company will probably erect a factory in Toronto.

Mr. G. E. Atwood, Montreal, has purchased a large hall in Peterborough, Ont., which he will have overhauled and machinery installed for the manufacture of gents furnishings, etc.

The Rideout-Gilbert Co., Rat Portage, Ont., have been organized to manufacture mattresses, etc. They have acquired the business of Rideout & Co., at Rat Portage, and the Gibson-McLaughlin Carpet Co., at Winnipeg, Man.

The Backus-Brooks Lumber Co., Minneapolis, Minn., will build a dam across Rainy River, at Fort Francis, Ont.

The Packard Electric Co., St. Catharines, Ont., who are engaged in the manufacture of automobiles have just turned out their first machine, which has proved to be a great success.

The congregation of the Adelaide Street Baptist church at London, Ont., will enlarge and make extensive alterations to their church building, at a cost of about \$16,000.

The American Chicle Co., Toronto, will erect a factory at a cost of about \$30,000, to manufacture chewing gum.

S. C. Young and others, at Fort William, Ont., have purchased three blocks of land in that town at a cost of \$75,000 for factory locations.

The pearl button factory of J. B. Gateman & Co., at Berlin, Ont., was partially destroyed by fire, April 16. Loss about \$4,000.

The American Horseshoe Co., are considering the erection of a plant at Hamilton, Ont.

The Imperial Steel & Wire Co., Collingwood, Ont., have just shipped a consignment of 1,000 tons of wire nails to the North-West.

The Cyclone Wire Fence Co., Toronto, will erect a large factory in Woodstock, Ont.

Wm. Lounsbury, while drilling for water on S. Arbutnot's farm, three miles from St. Catharines, Ont., discovered gas at a depth of 65 feet. It is probable that the Niagara Power & Fuel Co., will resume the work of piping the city of St. Catharines for natural gas this summer.

The Keewatin Flour Mills Co., at a recent meeting held in Ottawa, approved the plans prepared by Allis Chalmers-Bullock, Ltd., Montreal, for the erection at Keewatin, Ont., of a flour-mill, having a daily capacity of 5,000 barrels, and an elevator of 500,000 bushels capacity.

The New York Oil & Gas Co., Leamington, Ont., have discovered another large oil producing well in that vicinity.

The school building in Ottawa East, used for the kindergarten department of the public school, was destroyed by fire April 9. Loss about \$900.

The Rountree bridge over the Humber River, above Weston, Ont., which was

carried away by spring freshets, will be replaced by a new structure. The Scarlett bridge, also near Weston, will likely be torn down and a new one erected.

The passenger steamer Lincoln, which has for several years operated between Windsor, Amherstburg and Pelee Island, was destroyed by fire April 6.

The Goldie & McCulloch Co., Galt, Ont., have recently installed new safes in three town banks, the Sovereign, the Bank of Toronto, and the Bank of Commerce.

An addition will be erected to the Hamilton City Hospital, at a cost of about \$50,000.

At Stratford, Ont., this summer, the sum of \$146,000 will be expended in civic improvements, including sidewalk, sewer, water supply, etc. In addition a new armory will be erected, at a cost of \$60,000. Two new churches, a Catholic church, to cost \$20,000, and an Episcopal church, to cost \$10,000, are to be erected.

The Canadian Pacific Railway Co., will erect a large grain elevator at Fort William, Ont. It will be capable of handling 750,000 bushels in twenty hours.

The Public School Board at Ottawa, will erect a new school building for the central ward at a cost of \$40,000, and an addition to Archibald Street school at a cost of \$20,000.

Messrs. J. McKay & Co., Bowmanville, Ont., are erecting a new flour mill, and will install a complete new plant.

The St. Thomas Brass Co., St. Thomas, Ont., will erect an addition to their foundry, 60x40 feet.

Toronto and London, Ont. capitalists are considering the erection of a large hotel in London, to cost about \$250,000, Mr. L. J. Walker, London, is interested.

A company has been organized at Guelph, Ont., with a capital of \$40,000, to erect a plant for the manufacture of cement, brick, etc., in that town. Mr. A. McCannell, Guelph, is interested.

The Canadian General Electric Co., Peterborough, Ont., will enlarge their works by an addition of 250 feet, and will greatly increase their capacity.

The Eastlake shingle is recommended by the makers—the Metallic Roofing Co., of Toronto—as being fire, lightning and rust proof and as making a roof that will not leak. The company will be pleased to enter into correspondence with anyone desirous of obtaining information about metallic roofing and ceiling, etc.

Messrs. Mackenzie, Mann & Co. will build a blast furnace, roasting plant, coke ovens and coal and ore docks at Port Arthur, Ont., at a cost of \$1,500,000.

The Hamilton Silicate Brick Co., Hamilton, Ont., are arranging for the installation of five carloads of special machinery on their extensive properties at the foot of Macnab Street for making brick composed of sand and lime.

The Standard Paper Box Co.'s factory at Montreal, was damaged by fire April 13.

George Janin, superintendent of the

Water Department, Montreal, has submitted a report of proposed improvements to the water works system. He recommends the following work: Construction of a lateral conduit with a discharge of 50,000,000 gallons daily, \$650,000; excavations, stop gates, etc., \$317,000; wheel-house, new pumping machinery, etc., \$300,000; extending the conduit out into the St. Lawrence by means of two pipes, \$75,000; widening and deepening of tail-race, \$45,000; suction wells for pumps, \$20,000.

The Ogilvie Flour Mills Co., Montreal, have purchased the entire site between Mill Street and the Lachine Canal, which gives them over 1,000 feet Canal frontage. The company will make extensive additions to their plant and additional machinery will be installed.

What is probably the most extensive dust collecting system on this continent is now in successful operation in the planing mill and cabinet shop of the Canadian Pacific Railway Co., at their Angus shops in Montreal. The system which was designed and installed by C. H. Clifford & Co., managers of the Philadelphia House, of B. F. Sturtevant Co., consists of 17 Sturtevant exhaust fans and 6 enormous dust collectors. The chips, shavings, and saw dust are drawn from the machines and forced long distances to the collectors, whence they are in turn drawn to a secondary set of collectors and exhaust fans located above the boiler house. These fans re-handle the refuse and discharge it either direct to the boilers or, when the amount is excessive, to a shaving vault or to railroad cars by means of which it may be carried away. The economy of this modern method of handling wood-working refuse is evident from the fact that enough is thus collected to operate 1,700 h.p. of boilers. Not only does the system thus provide a costless substitute for coal, but it coincidentally avoids the expense which would otherwise be entailed in carrying this refuse to some distant point and dumping it. The system is capable not only of handling the light, thoroughly dry refuse from the cabinet shop, but also that which is made by the heavy machines in the planing mill. This latter is largely of oak, wet, heavy and stringy, and is frequently combined with an inch or more of ice on the outside of the timber. This installation is an excellent illustration of the high efficiency of operation which may be secured by careful and thoughtful design. It has been the custom in many cases in the past to buy the smallest fans and operate them at the highest speed, with consequent excess in the use of power. In this instance the power required to operate the fans is fully one-third less than would have been necessary if the system had been installed along the lines which have heretofore prevailed. The saving in power will probably be enough to annually pay the total first cost of the additional equipment which was necessary to secure the increased efficiency.

Messrs. J. D. Sowerby & Co., Oak Bay Mills, Que., are rebuilding their saw mill, which was burned last year.

They have ordered a 150 h.p. engine, and a heavy rotary saw mill from the Robb Engineering Co., Amherst, N.S.

Jules de Clercy, C.E., Montreal, has installed produce gas plants for motive power, for the following:—Messrs. Dufresne & Locke, boot and shoe manufacturers, Maisonneuve, Que., a 18 h.p. anthracite gas plant; the Mount St. Louis College, Montreal, a 22 h.p. anthracite gas plant for lighting purposes; Hon. Geo. Drummond, Beaconsfield, Que., a 17 h.p. anthracite gas plant for electric lighting; J. Roux, St. Therese, a 65 h.p. sawdust gas plant, for electric lighting purposes; and Montreal Terra Cotta Lumber Co., Maisonneuve, Que., a producer gas plant for Sydney coal, with a 30 h.p. gas engine.

The Canadian Rubber Co., Montreal, held their annual meeting last month, at which it was decided to reconstruct their entire plant to meet the requirements of the Fire Underwriters Association, and to erect a number of additional buildings. The annual report showed that the business of the company had almost doubled within the last two years.

The Universal Motor Manufacturers, Limited, Montreal, have been incorporated with a capital of \$500,000, to acquire the business of the Universal Spring Motor Co., of Toronto, also the business of F. H. Leonard, jr., of Montreal, and to manufacture the Universal Spring Motor, etc. The provisional directors include F. H. Leonard, jr., W. G. Morden, Montreal, and H. R. Harmer, Toronto.

The Dominion Motor Car Co., Montreal, have been incorporated with a capital of \$20,000, to manufacture automobiles, motor boats, etc. The provisional directors include L. S. Bryant, Westmount, Que., F. B. Stockwell, and F. N. Seddall, Montreal.

The Sherbrooke Dairy Co., Sherbrooke, Que., have been incorporated with a capital of \$10,000, to manufacture dairy machinery, utensils and supplies. The provisional directors include Frederick Hovey, P. K. Hovey, and A. L. Parker, Sherbrooke.

C. W. Lindsay, Ltd., Montreal, have prepared plans for the erection of a six story building. A. F. Dunlop, Montreal, is the architect, and the Chas. Thackeray Co., Montreal, contractors.

An apartment house 132x112 feet, six stories high, will be erected in Montreal at a cost of about \$100,000. Roswell Fisher, that city, is the architect.

The La Patrie Publishing Co., Montreal, recently incorporated, will erect a large building at a cost of about \$60,000.

The Victoria Clothing & Overall Co., Victoriaville, Que., have been incorporated with a capital of \$40,000, to manufacture tweeds, cotton goods, etc. The provisional directors include Paul Tourigny, Cyrus Thibault and Thos. Buteau, Victoriaville.

The Ottawa Transportation Co. are building at their Hull, Que., yard, two barges each 120 feet long, 24 feet beam and 9 feet deep. They are intended for the company's trade between Ottawa and

Montreal. Their fleet this year will consist of five tugs and sixty-four barges.

The Montreal Steel Co., Montreal, will enlarge their plant by the addition of another department to manufacture the special kind of steel required by the Canada Car Co., and other industries.

The Laurie Engine Co., Limited; Montreal, have been incorporated with a capital of \$250,000 to acquire the business of the Laurie Engine Co., and to manufacture engines, electrical machinery, etc. The provisional directors include David Yuile, A. E. Madley and J. McQuat Mackie, Montreal.

The Quebec & St. Maurice Industrial Co., LaTuque, Que., are applying for incorporation with a capital of \$2,000,000 to develop water powers and build dams for the operation of pulp and paper mills, etc.

The Canada Piano Music Co., Montreal, have been incorporated with a capital of \$20,000, to manufacture pianos, musical instruments, etc., and to publish music. The provisional directors include J. A. Hurteau, R. M. J. Beaudouin and Emile Rimbart, Montreal.

The John Cowan Co., Montreal, have been incorporated with a capital of \$45,000, to manufacture chemicals, dye stuffs, cements, etc. The provisional directors include R. L. Gaunt, Westmount, Que., G. L. Laffoley, Montreal, and Chas. Adams, St. Lambert, Que.

Messrs. Edward Morgan & Co.'s carriage works at Fredericton, N.B., were destroyed by fire April 1. Loss about \$15,000.

Messrs. Geo. E. Ford & Sons, Sackville, Que., have been incorporated with a capital of \$30,000, to acquire the business of Geo. E. Ford, and to manufacture farming implements, machinery etc. The provisional directors include Geo. E. Ford, F. L. Ford and T. Ford, Sackville.

The McDiarmid Drug & Chemical Co., St. John, N.B. have been incorporated with a capital of \$35,000, to acquire the business of the McDiarmid Drug Co., and to manufacture medicines, chemicals, etc. The provisional directors include Silas McDiarmid, H. L. Ganter and R. E. Coupe.

Messrs. McIntyre & Comeau, Ltd., St. John, N. B., have been incorporated with a capital of \$90,000, to acquire the business of McIntyre & Comeau, and to manufacture wines, spirits, cigars, etc. The provisional directors include W. E. McIntyre, Louis Comeau, and H. I. Sheehan, St. John.

The Canadian Marine Fisheries Department have now twelve stations installed with the Marconi system from Fame Point, off Straits of Belle Isle, around the coast of Newfoundland and around the southeast coast of Nova Scotia, and the Bay of Fundy to St. John, N.B., with stations at Sable Island. The latest six new stations installed are at Point Rich, Cape Whittle, Halifax, Sable Island, Cape Sable Island, and Partridge Island, N.B.

Messrs. Donald Fraser & Sons, Fredericton, N.B., have completed their new

shingle mill and will now erect a large saw mill at the mouth of Baker Brook.

The American Furniture Co.'s factory at Oxford, N.S., was destroyed by fire April 12. Loss about \$20,000.

The steamer Hannah from Glasgow, Scotland, has arrived at North Sydney with 2,000 tons of firebrick and construction material for the Nova Scotia Steel & Coal Co.

A company has been organized at Sydney, N.S., with a capital of \$200,000, for the establishment of nail works in that town. Mr. Jas. Pender, of the Pender Nail Works, St. John, N.B., is interested.

The Harbinger Steamship Co., River Hebert, N.S., have been incorporated with a capital of \$9,000, to carry on a general shipping business, etc. The provisional directors include A. M. Rockwell, John Rutherford and Howard Kelly, River Hebert.

The ratepayers of North Sydney, N.S., have voted a bonus of \$3,000, and exemption from taxes for ten years to the new company being formed to renovate and operate the marine railway. A. S. Rendall, St. John's, Nfld., is interested.

The Wobun Steamship Co., New Glasgow, N.S., have been incorporated with a capital of \$48,000, to build vessels, tugs, barges, etc., and to carry on a general shipping business. The provisional directors include George Stairs, Halifax, N.S., J. D. McGregor and Thomas Cantley, New Glasgow.

The Wasie Steamship Co., New Glasgow, N.S., have been incorporated with a capital of \$18,000, to carry on a shipbuilding and forwarding business. The provisional directors include Geo. Stairs, Halifax, N.S., J. C. McGregor and J. D. McGregor, New Glasgow.

The Consolidated Meat Co., Winnipeg, Man., have been incorporated with a capital of \$5,000, to preserve meats, and carry on a packing business. The provisional directors include Henry Hansford, W. H. Smith and T. G. Mathers, Winnipeg.

The Manitoba Iron Works, Winnipeg, Man., are extending their forge shop to double its present size to provide space for heavy bolt forging and threading machines.

The Rosthern Milling Co., and the Union Supply Co., both of Rosthern, Sask., have been amalgamated.

Work is now under way on the new elevator at St. Boniface, Man., which is being erected by the Colonial Elevator Co. and Andrews-Gage Grain Co., both of Winnipeg, Man. It will be known as the International Elevator Co.

The Ninga Milling Co., Ninga, Man., recently incorporated with a capital of \$40,000 will build a flour mill with a capacity of 100 barrels, and a grain elevator will also be erected.

The People's Peat Fuel Co., Winnipeg, Man., have been incorporated with a capital of \$750,000, to manufacture peat, fuels, machinery, implements, etc. The provisional directors include H. W. Holts J W Stewart, and A. H. Middleton, Winnipeg.

Messrs. Hicks Brothers & Co., Winnipeg, Man., have been incorporated with a capital of \$100,000, to carry on a general merchandise business, etc. The provisional directors include Angus Polson, Duncan Sinclair and A. J. Andrews, Winnipeg.

The Dominion Pressed Brick Co., Winnipeg, Man., have been incorporated with a capital of \$60,000, to manufacture stone, brick, mortar, cement, etc. The provisional directors include Hon. R. P. Roblin, Geo. Leary, and W. L. Roblin, Winnipeg.

The Balgonie hotel at Balgonie, N.W.T., was destroyed by fire April 7.

The new three-story hotel under construction by the Humboldt Hotel Co., at Humboldt, Sask., was destroyed by fire April 9.

The Norris Implement Co., Winnipeg, Man., recently incorporated with a capital of \$100,000, will erect a factory building and will install an up-to-date plant for the manufacture of agricultural implements.

Charles Manning is building a saw and planing mill at Cartwright, Man. Two circular saws, band saw, mortising machine, planer and turning lathe, will be installed.

The Eureka Coal & Brick Co., Estevan, Man., are erecting five new kilns, each of which will have a capacity of 250,000 brick.

The Emporium Hotel building at Winnipeg, Man., was partially destroyed by fire April 15.

The Telford Lumber Co.'s sawmills at Prince Albert, N.W.T., were destroyed by fire April 13. Loss about \$100,000.

Mr. N. Bawlf, President of the Northern Elevator Co., states that the company will erect a flour mill in Winnipeg, Man., this year, at a cost of about \$250,000. It will have a capacity of 3,000 barrels daily.

Messrs. Clare Bros. & Co., manufacturers of stoves, furnaces, etc., Preston, Ont., have purchased a five acre site in Winnipeg, Man., upon which they will erect a two story foundry building.

The National Supply Co., Pittsburg, Pa., are erecting a large warehouse and planing mill in Winnipeg, Man.

The Winnipeg Lodging & Coffee House, Winnipeg, Man., will build a new coffee house four stories high.

C. K. Berry, representing Boston, Mass., capitalists, has approached the British Columbia Government, seeking half a million acres of agricultural land on which it is proposed to establish 3,500 families in farming communities. The capitalists agree to improve the land, build and maintain roads, trails and bridges, and sell it to settlers.

The Victoria hotel at Grand Forks, B. C., was destroyed by fire April 4. Loss about \$5,000.

The Vancouver, B.C., City Council has been asked to guarantee 3 per cent. bonds to the extent of \$500,000 to the Vancouver Shipbuilding Co., who propose erecting a drydock at that city. The Govern-

ment has given a subsidy of 3 per cent. on an expenditure up to a million dollars for twenty years.

The Cranbrook Sash & Door Co., Cranbrook, B.C., have changed their name to the Kimberly Milling & Mfg. Co.

The city council of New Westminster, B.C., have granted a lease of Dock Square to the Small & Bucklin Co., for the erection of a large saw mill.

The McKinley Mines, Ltd., have been incorporated at Victoria, B.C., with a capital of \$2,000,000, to carry on a mining, milling, and development business.

Messrs. Martin & Robertson, Ltd., have been incorporated at Victoria, B.C., with a capital of \$30,000, to acquire the business of Martin & Robertson, and to manufacture small wares, etc.

Messrs. E. H. Heaps & Co., Vancouver, B.C., are rebuilding the dry kilns at the Ruskin Mill, which was destroyed by fire recently.

The Edward Baillie Syndicate, Ltd., have been incorporated at Victoria, B.C., with a capital of \$40,000, to carry a general mining business.

The North Pacific Steamship Co., have been incorporated at Victoria, B.C., with a capital of \$50,000, to carry on general shipping business, etc.

The Gazette Printing Co., have been incorporated at Victoria, B.C., with a capital of \$5,000, to carry on a printing and publishing business.

Messrs. R. Cunningham & Son, Port Essington, B.C., have been incorporated with a capital of \$250,000, to acquire the business of R. Cunningham & Son, and to carry on a fish packing and canning business, etc.

The Malahat Lime Co., Malahat District, Vancouver, B.C., have been incorporated with a capital of \$15,000, to manufacture cement, lime, concrete, bricks, etc.

ELECTRICITY.

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

A party of capitalists recently visited Glenora, Ont., with Mr. H. C. Kennedy, of Warton, Ont., who has secured an option on the famous Lake of the Mountain at that point. It is proposed to make an electrical development of considerable magnitude, power being transmitted to towns within a radius of fifteen or twenty miles, and electric railways installed to interconnect the various towns and villages in the neighborhood. The available head is approximately 180 feet, and a test to ascertain the amount of water which the lake will furnish will be made in the near future. Mr. K. L. Aitkin, Toronto, is consulting engineer.

Sir Oliver Lodge, principal of the University of Birmingham, England, the well known electrical authority, lectured on what he described as a pertinacious electrical current. Stripped of technicalities, he said it could be described as a per-

sistent current which would overcome great obstacles and go in any direction regardless of what stood in the way. He had been looking for such a current since 1884, and had only recently encountered it. He had applied it successfully in his prolonged experiments for dispersing fogs. He paid a tribute to Profs. Crookes and Aitken in connection with the discovery.

On October 1, 1903, the municipality of Coaticook, Que., having a population of about 3,500, came into possession of the electric-light plant there, previously operated by a private company. The sum paid was \$36,000, the corporation issuing 4 per cent. debentures to that amount. The power used is derived from two dams a short distance apart, on the Coaticook River. The horse power thus developed is about 400, capable of carrying over 4,000 16-candle power lights. The full capacity has not thus far been utilized, but an additional dynamo is to be installed, so that all the power can be used to meet the growing demand. With the plant in operation to its full capacity, and under ordinary conditions, it is expected that the municipality will have an annual income of over \$5,000 above expenses with which to meet repairs, pay interest on the debentures, and add to the surplus. There was great opposition to the purchase of the plant by the municipality, but it has been overcome by the quality of the service rendered and the excellent showing made for the first year's operation. Quite a revenue is derived from the use of electric power for motive purposes in stores, shops, and mills.

The Sarnia Street Railway Co., Sarnia, Ont., have ordered two large double-truck cars from the Ottawa Car Co., Ottawa; two sets of double-trucks from the Taylor Electric Truck Co., Troy, N.Y., and electric equipment from the Canadian General Electric Co., Toronto. The company will also erect a pavilion in Lake Huron Park, that city, at a cost of \$5,500.

The new lighting plant for the town of Westmount, Que., will be erected shortly and the most modern machinery will be installed.

The Edison Sault Electric Co., will erect a large power plant on St. Mary's Rapids, near Sault Ste. Marie, on the Canadian side, which will have an original capacity of 3,000 h.p. It is proposed to expend about \$120,000 on the project this summer.

The largest electric motor ever built is now being installed at the plant of the Shawinigan Water & Power Co., Shawinigan Falls, Que. It is a synchronous alternating-current motor of 8,000 h.p. driven by a generator which is rated at 5,750 kilowatts. The combined set, which is keyed to the same shaft, runs at a speed of 300 revolutions per minute.

The Haileybury & Cobalt Telephone Co., Haileybury, Ont., have been incorporated with a capital of \$5,000 to carry on the business of a telephone company in the district of Nipissing, Ont. The provisional directors include Hector McQuarrie, T. J. Gorman, and P. A. Cobbold, Haileybury.

Rapid progress is being made with the new electric power house, being erected in East Toronto. The boilers are already in position, while the foundations are almost completed for the engine.

The electric lighting plant at Oxford, N.S., was destroyed by fire April 12.

The Temiskaming Telephone Co., New Liskeard, Ont., have been incorporated with a capital of \$25,000, to install a telephone system in the district of Nipissing. The provisional directors include Thos. McCamis, F. S. Brickenden and W. J. Middleton, New Liskeard.

The Lethbridge Electric Co., are enlarging their plant, and have ordered a 350 h. p. engine, and two 125 h.p. boilers from the Robb Engineering Co., Amherst, N.S.

The Eugenia Falls Water Power & Electric Co., Eugenia, Ont., will change their name to the Georgian Bay Power Co.

The Kingsbury Footwear Co., Maison neuve, Que., have ordered from Jules de Clercy, C. E., Montreal, two producer gas plants, for anthracite coal, with two 30 h.p. gas engines for power and electric lighting purposes.

The Robb Engineering Co., Amherst, N.S., have received an order from the city of Calgary, N.W.T., for a 350 h.p. Cross Compound Corliss engine, for use in the city's electric lighting plant.

The West Coast Power & Light Co., have been incorporated at Victoria, B.C. with a capital of \$50,000, to erect and operate electric works, power houses, etc.

Messrs. Sims Bros., Massey, Ont., who are installing new machinery in their lumber mill, are also considering the installation of an electric plant to light the mill and town.

A proposal to run the Temiskaming & Northern Ontario Railway by electricity has been discussed by the commissioners of the railway, and will soon be taken into serious consideration by the Government. Waterpower for the generating of the electricity needed to run the road exists in abundance along the entire length of the 200 miles built or under construction. On the Montreal and Blanche Rivers and at the outlet of the Abitibi Lake into the river of that name there are in proximity to the line splendid waterpowers. If the line should be extended eventually to James Bay, which would make it about 400 miles in length, it is said that the same conditions regarding waterpowers would be found to hold good.

The Canadian Northern Railway Co. will proceed with the following construction works this year: Completion of the main line to Edmonton, N.W.T.; extension of the Prince Albert line from Melfort to Prince Albert; completion of the Rosburn line to Rosburn, completion of the Carberry-Brandon, Man. section; completion of the Springfield branch, a distance of twenty miles from Winnipeg, Man.; completion of the Thunder Hill branch from Swan River to a point just beyond the western boundary of the Province near Thunder Hill.

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.

Messrs. Thos. Myles' Sons, Limited, Hamilton, Ont., have been incorporated with a capital of \$170,000, to acquire the coal business of Thos. Myles' Sons and to manufacture stone, lime, etc. The provisional directors include C. J. Myles, W. H. Myles and E. W. Myles, Hamilton.

The Dominion Iron & Steel Co., have notified the Dominion Coal Co., Glace Bay, N.S., of their intention to operate three blast furnaces as soon as their coke ovens are completed, in order to ensure an adequate supply of coal.

The contract for supplying fuel coal for use on the boats of the Niagara Navigation Co., plying between Lewiston, N.Y., and Toronto, was awarded to C. M. Underhill & Co., Buffalo, N.Y.

The Caledonia Colliery of the Dominion Coal Co., at Glace Bay, N. S., has increased its capacity from 1,800 tons to 2,500 tons daily with two shifts. Extensive repairs are being made to the different collieries.

George McKenzie, Vancouver, B.C. reports the discovery of a rich coal area in the Northern part of British Columbia, within a convenient distance of where the Grand Trunk Railway will run.

The contract of Holden & Sons to handle the coal business of the Lackawanna Railroad in the Oswego district will expire on April 30 and will not be renewed. On May 1 the railroad company will assume the entire management of their own coal business in Oswego, Syracuse and other places, establishing sales offices for that purpose. The Lackawanna coal has been handled in a large part of New York state by the Holdens exclusively for thirty-five years. At present this agency delivers Lackawanna coal as far east as Worcester, Mass., as far west as Niagara Falls and north into the Dominion of Canada, many thousand tons being shipped from Oswego every year.

The Western Ontario Coal Dealers Union, met in London Ont., this week. Resolutions were adopted looking to legislation to compel railways to correct certain alleged abuses of which coal merchants have complained for years past. The Ontario Legislature and the Railway Commission will both be appealed to in the matter. Nothing was done in the matter of the coal rates to be charged consumers, though it was originally intended to take up the equalization of rates throughout the West. It was felt to be unwise to discuss price in any shape when seeking legislation. It is stated another meeting may be held to take up prices. The following officers were elected.—President, J. C. Hay, Listowel, Ont. (re-elected), vice president, William Heaman, London (re-

elected); secretary-treasurer, left to executive; executive Board, F. Mann, Brantford, Ont., John Garroch, Sarnia, Ont., A. J. McIntosh, Woodstock, Ont., J. K. McLaughlin, Owen Sound, Ont., and F. M. Griffin, St. Thomas, Ont.

THE OIL FIELDS OF ALBERTA.

Parties arriving from Egg Lake and Oil City, Alberta, give further details of the marvelous oil wells discovered there. An oil well expert who was sent there from the Pennsylvania oil district, while en route for home, said that this is the greatest oil find the world has ever known. Not half of the country has been prospected, but it is known that it covers a territory over one hundred square miles. Oil of high quality is now gushing from the earth in the Canadian North-West. Practically the country to the north of Montana is one vast oil well.

In the extreme south-western section of Alberta, five miles from the American boundary line, a thriving town has sprung within the past few weeks, populated almost entirely by oil prospectors and those interested in the development of recent discoveries. The valley in which these wells lie is described by geologists as an enormous crevice caused by a volcanic eruption cross cutting the formation of the Rocky Mountains and forming a basin into which the oil has seeped until it has formed enormous lakes underlying the rock formation at a depth of a thousand feet. The oil is said to have been made by the distillation of the large coal bodies lying to the north, as surface indications of oil in large quantities have been seen throughout Alberta for a number of years.

Several years ago a farmer named William Aldrich used to gather the oil in barrels from the surface seepages and sell it to his Mormon neighbors for lighting and lubricating purposes, often gathering as much as a dozen barrels a day. In 1901 John Linham, a wealthy lumberman of Okotoks, Alberta, heard of Aldrich gathering oil in this crude way, and determined to investigate. He went up the valley and looked the ground over. So satisfied was he with what he saw that he went East and engaged the best oil expert he could get to make a report on the district. So flattering was the report that Mr. Linham at once formed a company of his friends which he called the Rocky Mountain Development Co., and they purchased this valuable tract of oil land in the mountains. All the latest oil appliances were purchased and operations were commenced in the spring of 1902. Almost at the start a 300-barrel well was struck at a depth of 1,020 feet, but the "bore hole" was plugged and the find kept as quiet as possible. More wells were struck, and before the outside world knew what was going on, the company had secured practically all the land likely to produce oil in that section.

Owing to the extreme difficulty in having the land surveyed, on account of the roughness of the country and the fact that the surveyors had to go to the

monuments on the international boundary to get their bearings, and the delay in getting the title of the land from the Government, it took some time for the work of development to commence; but suddenly the people of Alberta were aware that their country was producing something more valuable than wheat in the great North-West. Roads were being built, machinery brought in, bridges built over the mountain streams, while houses and shanties were going up in all directions. The country was oil crazy. Men were working night and day on the wells, and now this company has two wells, each of which will produce over five hundred barrels of the best illuminating oil a day, and during the past few weeks another large drill has been taken in which is capable of boring a twelve-inch hole to a depth of three thousand feet if necessary. This machine has already bored to a depth of over seven hundred feet, and oil has been struck, but the company are going deeper, in the hopes of striking a gusher. The commercial value of this oil is said to be greater than the best grade of Pennsylvania oil, and can be distilled without the use of sulphuric acid, thereby saving from forty to fifty cents a barrel. These oil fields are of such great promise that both the Canadian Pacific and the Great Northern Railways are building branches to Oil City.

Further north it is the same story. Everywhere oil and gas are gushing from the ground. Town after town reports the discovery of oil or gas, and it is expected that within a few months Egg City will be the centre of the largest oil fields the world has ever known. To the north of Oil City for a distance of fully a thousand miles oil exists in vast quantities, and for the past year or so prospectors have covered the country, boring and striking oil, and then plugging the "bore-holes" to keep the matter as quiet as possible. J. S. Williams, an oil expert, from Summerlands, Cal., has been employed by a local syndicate to prospect for oil, and he reports that he has located the richest subterranean lake of fuel oil he has ever seen. It stretches for a thousand miles to the north, and everywhere he has bored rich wells have been opened. Different from the oil to the south, this oil is suitable for fuel. Companies are being formed, and land is commanding an enormous price all through the oil belt. Capitalists are rushing in to get there at the bottom of the market, and the railways are hurriedly preparing plans for extensions to run into the new fields, looking in all directions for the immense traffic which will result from these gushers.

The advertising representatives of a large number of American concerns engaged in the manufacture of machinery and allied industries have formed an organization to be known as the Technical Publicity Association. The first Annual Meeting, and Election of Officers will be held in the rooms of the Hardware Club in the Postal Telegraph Building, New York City, on the Evening of April 27.

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 Dominion Government at Ottawa, are inviting tenders for 25,000 tons more of steel rails for the improvement of the Intercolonial Railway.

A. G. McLean, Sec.-Treas. building committee at Sydney, N.S., will receive tenders for the erection of Falmouth Street church.

The Canadian Bank of Commerce, Toronto, are inviting tenders for the erection of a new banking building in London, Ont.

The Department of Public Works, Ottawa, are inviting tenders for dredging in the Harbor of Port Arthur, Ont.

The Department of Marine and Fisheries, Ottawa, are inviting tenders for the supply and delivery at Sorel, Que., of 10,000 tons of bituminous and screened steam coal.

D. M. Ure, Sec.-Treas., Morris, Man., is inviting tenders for grading in the municipality for 1905. Two New Era Graders will be supplied. About \$6,000 is to be expended.

The Department of Railways and Canals, Ottawa, are inviting tenders for the supply of certain machinery to be delivered at Peterborough, Ont., for a dredge on the Trent Canal.

J. Rigby, Sec.-Treas., Regina Public School District, will receive tenders for the erection of a twelve room brick school building in the city of Regina.

E. E. Armstrong, Town Clerk, Parry Sound, Ont., is inviting tenders for the laying of about 55,000 square feet of granolithic sidewalk.

F. W. Harmer, clerk, Township of Nepean, Ont., will receive tenders for a steel superstructure 128x16 feet to be erected over the River Jock, near Fallowfield, Westboro, Ont. Tenders will also be received for the masonry of two abutments; estimated cost, \$6,000.

Owing to the continued dry seasons in South Africa, which have caused the destruction of large droves of cattle, a large demand for pumps and windmills has sprung up. The sinking of wells has become a pronounced necessity. Even the government boring machines have been called into use to supply cattle with the necessary quantity of water to sustain life. Two kinds of motors are salable, a light one for pumping water for cattle and a heavier one to pump for irrigation purposes. Of the first kind there is a great variety on the market at Cape Town. The main points considered in purchasing such motors are lightness combined with great capacity, facility of

removal from one place to another, and ability to be set in motion by the lightest breeze. It behooves manufacturers, therefore, to give strict attention to this market. Care should be given to the packing and shipment of goods. Duplicate parts must be at hand so that broken machinery can be repaired at short notice.

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 Stovel Co., Winnipeg, Man., engravers, lithographers and printers, have sent us a novelty in Canadian maps. It is a handy little map of Manitoba—vest pocket size which a commercial traveller may have use for a dozen times a day. These publishers we understand are the first in Canada to introduce the wax process of engraving maps—a method used in the making of most of the fine, modern atlas maps. Printed in eight handsome colors, indexed and folded and enclosed in a handy, durable cover, this little convenience should meet with a ready sale at the small price at which it is offered—15 cents.

The Cassella Color Co., 182 Front St., New York City, have sent us supplement No. 5 to their book on Cotton Dyeing, which contains dyeing instructions of Immedial Indogene B. Conc.

Messrs. Sheldon & Sheldon, Galt, Ont., have issued catalogue No. 19, which describes and illustrates steel plate planing mill exhausters, shavings, separators, blast gates, etc., also heaters and fans, manufactured by them.

"Sturtevant Generating Sets," is the title of a neat brochure published by the B. F. Sturtevant Co., Hyde Park, Mass. It contains some valuable information relating to generating sets.

The N. L. C., Central Station Bulletin for April, published monthly, by the Nernst Lamp Co., Pittsburg, Pa., relates to the Glover Nernst Lamps manufactured by them.

The Dominion Geological Survey have published a summary of the mineral production of Canada for 1904. The value of the total metallic production is given as \$31,222,525, and the non-metallic as \$28,820,640. The estimated value of mineral products not returned is \$300,000, making a total for the year of \$60,343,165. This shows a decrease as compared with the last few years. The mineral production reached high water mark in 1901, when it was valued at \$66,339,158. It stood at \$63,885,999 in 1902 and \$62,600,434 in 1903. The decrease as compared with 1903 is almost entirely in the metallic class, the largest item being that of gold, which was produced in the Yukon to the value of \$10,337,000—a decrease of \$1,913,000, the gold output of other provinces being \$6,063,000, or a decrease of \$530,590. Exports of iron ore were 168,328 tons,

valued at \$401,738, an increase in value of \$16,811. In addition to the ore exported 180,932 tons, value \$489,687, were mined for the production of pig iron in Canadian blast furnaces. Of the total production of pig iron in Canada in 1904 from both Canadian and imported ores, it is estimated that 68,297 tons valued at \$901,880 should be attributed to Canadian ore—an increase in value of \$194,042. The pig iron was made by three establishments in Nova Scotia, two in Quebec and four in Ontario.

The McEachren Heating & Ventilating Co., Galt, Ont., have prepared a very unique catalogue which should be of great value to those interested in heating, ventilating, drying, etc. The illustrations are small but sufficiently clear to be understood by practical men. The descriptions are brief to suit busy men. This catalogue will be mailed free to anyone applying to the McEachren Co. Parties interested should write for the McEachren Engine catalogue.

PERSONALS.

Mr. Arthur Harvey, F.R.S.C., died at his residence in Toronto on April 7. Deceased was one of the most noted statisticians in Canada. He was born at Suffolk, England, and came to Canada in 1856, and engaged in newspaper work for several years. In 1862 he became chief statistician in the Auditor-General's Office. In 1867 he founded the Year Book and Almanac of British North America, and edited it until 1870. He was President of the Canadian Institute and of the Royal Astronomical Society of Toronto, and a Fellow of the Royal Statistical Society.

At the recent annual meeting of the Canadian section of the Society of Chemical Industry, held in Toronto, a discussion took place on smoke prevention and fuel economy. A set of questions had been sent to a number of manufacturers employing mechanical stokers and the answers were read. Dr. Smale gave an account of experiments instituted by the Wm. Davies Co., with a view to determining the efficiency of various smoke-consuming devices. The following also took part in the discussion:—Messrs. Storer of the Union Station, Potter of the City Dairy Co., Crean of the Ontario Straw Works, Burton of the Merchants' Dyeing & Finishing Co., Wikens of the Boiler Insurance Co., Galbraith of the School of Practical Science, Davis of the Liquid Carbonate Co., and J. Russell Duncan, consulting engineer.

Messrs. Fetherstonhaugh & Co., Patent Solicitors, with head office in Toronto, have opened an office in New York City. Business will be carried on in the New York branch the same as is done in Montreal, Ottawa, and Washington. Mr. A. F. Nathan, Sc.B., LL.B., a graduate of technology, Boston, will have charge of the New York office. Mr. Nathan is a counsellor-at-law, as well as a scientist, and inventors will thus have a double advantage in consulting him. Mr. Nathan was in charge of the Montreal branch of Fetherstonhaugh & Co., and in

that capacity made many friends. His place will be taken by C. W. Taylor, Ottawa. Mr. Taylor is a B.Sc., and graduate of McGill University, and was formerly examiner in the Canadian Patent Office. The Ottawa business will still be in charge of Mr. R. S. Smart, a graduate of the School of Practical Science, Toronto, in mechanical and electrical engineering. The Washington branch will not be effected by the changes. Mr. F. B. Fetherstonhaugh, the head of the firm, is a mechanical engineer and a barrister and solicitor, having been admitted 15 years ago. He has an experience of nearly 25 years in patent matters. It will thus be seen that this firm includes men of the highest technical and legal qualifications.

The Keystone Engineering Co., have removed from 94 Adelaide St. W., to 118 Bay St. Toronto.

An Order-in-Council has been passed creating the Temiskaming mining division, and appointing G. T. Smith, Mattawa, Ont., as inspector at the Haileybury head office.

John Argue, Carp, Ont., has been appointed Ontario factory inspector, in succession to O. A. Rocque.

Col. E. N. Gunsaulus, United States Consul at Toronto, who is leaving in a few weeks to take up his duties at his new post at Cork, Ireland, was the recipient of an engrossed and illuminated address last week from comrades of James S. Knowlton Post, No. 532, Grand Army of the Republic, Toronto.

D. K. McLaren, Montreal, manufacturer of oak tanned leather belting, has opened a branch in St John, N.B. under the management of W. F. McLaren.

The Universal Spring Motor Co., recently organized at Montreal with a capital of \$500,000, will undertake the manufacture of the Universal spring motor, as well as electric, water, and steam motors. The Universal spring motor is a new device for driving household sewing machines entirely independent of any outside power, requiring no attachments to electric wires or other connections. These motors, with which any make of machine can be fitted, will do away with the necessity of the operator working the treadle, in this way effecting a saving of labor, while at the same time permitting the work to be done in about half the time taken on machines not fitted with it. The motor is operated by a stout spring, which can be wound by hand, and which, once wound up, will work for a long time without any further attention, aside from the regulation of the machine.

THE PROVINCIAL ESTIMATES.

The estimates of provincial expenditures for the current year, and a comparison with those of last year have been presented to the Ontario legislature, and are in part as follows:

The estimates total \$5,079,789.50, divided as follows:

Civil government.....	\$351,980 00
Legislation....	187,950 00
Administration of justice..	488,850 75

Education.....	\$1,198,340	51
Public institutions maintenance.....	931,327	00
Agriculture.....	333,443	00
Colonization and immigration.....	24,275	00
Hospitals and charities.....	291,642	19
Maintenance and repairs. Government and department buildings.....	74,030	00
Public buildings, repairs...	50,816	00
Public buildings, capital account.....	312,044	27
Public Works, repairs.....	30,700	00
Public Works, capital account.....	55,600	00
Colonization and mining roads.....	166,300	00
Charges on Crown lands...	282,375	00
Refund account.....	40,415	80
Miscellaneous expenditure.	\$209,700	00
Unforeseen and unprovided.	50,000	00
	\$5,079,789	50

The total expenditure of the Province last year was \$4,954,302, of which \$307,796 was covered in the supplementary estimates.

The following table gives the original estimates last year and the expenditure:

	Estimated.	Expended.
Civil government....	\$337,350	\$344,006
Legislation.....	185,450	200,011
Administration of justice.....	478,297	483,460
Education.....	989,154	949,806
Public institutions maintenance.....	941,642	950,434
Colonization and immigration.....	19,325	19,889
Agriculture.....	337,496	446,481
Hospitals and charities.....	282,126	236,592
Government buildings, repairs and maintenance.....	60,320	71,836
Government buildings, capital acct..	400,450	425,833
Public Works.....	105,050	102,282

	Estimated.	Expended.
Colonization and mining roads.....	\$149,300	\$175,620
Charges on Crown lands.....	256,793	286,844
Refund account.....	22,054	18,651
Miscellaneous.....	93,100	242,557
Unforeseen.....	50,000

One of the largest increases this year is for education. Last year the expenditure on this account was \$949,806, and the estimated expenditure this year is \$1,198,340. Other items which have caused the increase this year are the new Science building for the University, the Woodstock Hospital, increased expenditure at the hospital at Penetanguishene, a grant of \$15,000 to the Muskoka Hospital, and the cost of the election, which amounted to \$80,000.

THE CANADIAN SHIPBUILDING CO.

Speaking as president of the Canadian Shipbuilding Co., Mr. Frederic Nicholls denies the statement published a few days ago to the effect that the Canada Foundry Co. were negotiating for the purchase of the Bertram Engine Works Co. The consolidation is between the Canadian Shipbuilding Co. and the Bertram Co. Mr. Nicholls said:

"The statement that has already appeared in the press regarding the alleged purchase of the Bertram Engine Works Co. by the Canada Foundry Co. or Canadian General Electric Co. is erroneous, as neither of these companies will have one dollar of investment in the shipbuilding enterprise, but it is quite true that the Shipbuilding Co. may become an important customer of the Canada Foundry Co., as the latter company is equipped for the manufacture of much larger machinery than the Bertram shops.

"The facts of the proposed consolidation are, that the Canadian Shipbuilding Co. have equipped a modern shipyard on the Niagara River, near Buffalo, capable of constructing, at one time, four

upper lake vessels of the largest class. The company own about 111 acres of land and has about 1,400 feet of water frontage on the Niagara River. The Welland Canal intervening between Lake Ontario and our yard on the Niagara River, it would be inconvenient to build such a steamer as the one we have recently contracted to build for the Niagara Navigation Co. at our upper lake yards, and negotiations were entered into with the Bertram Engine Works Co. for the acquirement of their property in Toronto, which would give the Canadian Shipbuilding Co. a yard on Lake Erie and on Lake Ontario also.

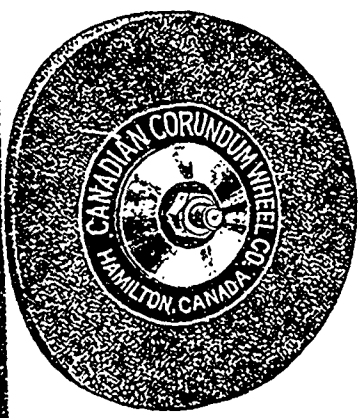
"The Bertram Co. have well equipped machine shops for the construction of marine machinery of a certain class, and the probability is that for the larger equipments arrangements will be made to have such manufactured at the Canada Foundry Co.'s Works, as they have well equipped shops for the largest types of all classes of heavy work."

LUBRICATING PIPE THREADS.

The old-fashioned idea of making a pipe joint was to smear the thread with red or white lead, which plugged up and cemented all the cracks and crannies blameable to imperfect shop work.

No one can deny that red and white lead makes pretty tight connections. It surely does, and so tight are these joints after the paint has had a chance to "set," that generally the fittings have to be smashed if changes in the piping become necessary. Sometimes ambitious steam and gas fitters will attempt to unscrew a red-lead joint, and the usual result is broken tools, wrenched piping, strained muscles, and profanity.

Another way of making pipe joints is "metal to metal," prominent in architect's and engineer's specifications, but not popular among practical men. The reasons for this are plain. If a joint is



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LATHES

9 inch and 11 inch .
Lathes with Foot Power
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screwed up with simply a little lubricating oil on the threads, and stands pressure without leaking, it's a sure sign that the threads are accurately cut. That's why this method is dear to the heart of the architect and engineer—it requires the best possible workmanship. But there is nothing to prevent rust from working in between the threads of such a joint, and that is what always happens, and practical men know that a "rust-joint" is just as impossible to unmake without damage as a red or white lead one.

Incidentally, this method often results in screwing up joints so tightly at first to prevent leakage, that the fittings are strained to the breaking point.



The modern method—if we can conscientiously apply the word modern to a material over twenty-five years on the market—is to lubricate pipe threads with Dixon's Ticonderoga Flake Graphite.

Some engineers and pipe fitters use simply flake graphite and oil, and though this is excellent, Dixon's Graphite Pipe Joint Compound is better—a true lubricant for the threads of pipe bolts, nuts,

etc., making it easy to screw things up tight and protecting the threads indefinitely long from rust or corrosion. Enough of the graphite always remains on the threads to lubricate them, so that—be the time five, ten or twenty-five years after—a reasonable grip with a wrench will open a joint.

The Joseph Dixon Crucible Co. speaking of this lubricant, say:

"We have used this material for close upon three decades in our own great factories and mills, and no matter how long a steam pipe has been up, there's never any trouble getting a joint open, and the threads are as clean and bright as the day they came from the die. It is a very useful substance, not alone for pipe work but for bolts, nuts, cylinder-head studs, boiler hand and man-hole plates, gaskets, flanges and faced connections."

Any who may be interested in this subject, and who would care to receive samples of this excellent production for examination and trial of its good qualities, will be supplied on request to the Joseph Dixon Crucible Co., Jersey City, N.J.

THE NIAGARA-WELLAND POWER CO.

More power still is to come from the Niagara River, and particulars of another enterprise of large proportions about to be established to generate and transmit power over the Province, are soon to be given. The company is known as the Niagara-Welland Power

Co., with an authorized capital of \$5,000,000, of which Mr. Harry Symons, K.C., is president, and Mr. R. J. Parke, both of Toronto, the consulting electrical engineer.

The purpose of the company, is to utilize the waters of the Niagara and Welland Rivers, and bring them by means of a canal, about seven miles in length, to the escarpment just east of St. Catharines, where a fall of 210 feet is to be had, and the water will then escape by an almost natural raceway to Lake Ontario. Below the escarpment the company will also be able to use the waste water at other power stations, where falls of 40 and 60 feet are to be had.

The project has been thoroughly examined into, and reported upon by eminent engineers, and the feasibility has been demonstrated, going to show that power can be developed by this company at a cost enabling them to compete with any existing company operating at the Niagara River.

Survey parties have been sent out to locate the proposed routes of transmission, involving a total distance of over 200 miles. The lines will serve St. Catharines, Thorold, Merriton, and other towns in the Niagara Peninsula, and westward Brantford, Ingersoll, Woodstock, London and St. Thomas, with a branch line from Brantford running in a northerly direction through Galt to Preston, Berlin and Stratford. Another branch will originate at Preston and run to Guelph via Hespeler.

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

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The company have also practically completed the final surveys of the power canal, and is now making preparations for receiving tenders for the construction of the canal and power houses and transmission lines. It is intended to develop 100,000 h.p. at the outset, and to install hydraulic and electrical machinery for 50,000 h.p. capacity. The ultimate capacity of the power plant, however, will depend upon the demand, as the amount of power available is practically unlimited.

The power will not come direct from the falls, but will be taken from the wide part of the Niagara River some four miles above the falls, so will in no way affect the grandeur of the Niagara Falls. Preparations of plans and specifications are now in progress, and contracts will be let for the construction work as soon as the tenders can be got. Preliminary tenders have been received guaranteeing to have the power works completed within two years.

Municipal service will be a special feature, and in laying out the transmission lines care is being taken to

meet local requirements, the company being prepared to submit tenders for the service whenever called for by the Government, or by the Municipal Electrical Power Commission, or by the municipality themselves, or any probable customer.

The company have obtained permission under its charter to expropriate land for a power canal and transmission lines. General plans of the proposed routes have been filed at Ottawa, and have been approved of by the Minister of Railways and Canals, and the Governor-in-Council, so that the company are now in a position to actively proceed with the construction works, and expect to have the entire system completed in about two years.

CALIFORNIA EXCURSIONS.

The Chicago, Union Pacific and North Western Line runs through first-class Pullman and Tourist sleeping cars to points in California and Oregon. Personally conducted excursions from Chicago every week. Lowest rates. Choice of routes. Finest scenery. Special attention given to family parties. For

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FACTORY LOCATIONS.

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

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

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and dripping of water and oil from the exhaust pipe that rots, rusts and does all manner of damage to the roofs and walls of your plant, by equipping your exhaust pipes with—



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It will save its cost many times over in repairs.

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THE BURT MFG. CO.,
LARGEST MFRS. OF OIL FILTERS IN THE WORLD,
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Also supplied by Engine Builders, Dealers and Power Contractors.

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Sturtevant Portable Forges, are, of course, equipped with Sturtevant Blowers.

Sturtevant Tuyeres do not handicap the Blower; they are free and open, and consequently give the full value of the blast. They never fill up with clinkers and are built low enough to prevent any possibility of burning out.

All parts of the forge itself have been redesigned, All bearings are babbitted and reamed. The pulley is turned on the shaft. The pulley, gear and pinion are made as perfect as a moulding machine can make them. The fire plate is strong and heavy and provided with ribs to prevent cracking. The legs are of one inch pipe, screwed in and braced with heavy angles.

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Designers and Builders of Heating, Ventilating, Drying and Mechanical Draft Apparatus; Fans, Blowers and Exhausters; Steam Engines, Electric Motors and Generating Sets; Fuel Economizers, Forges, Exhaust Heads, Steam Traps, etc.

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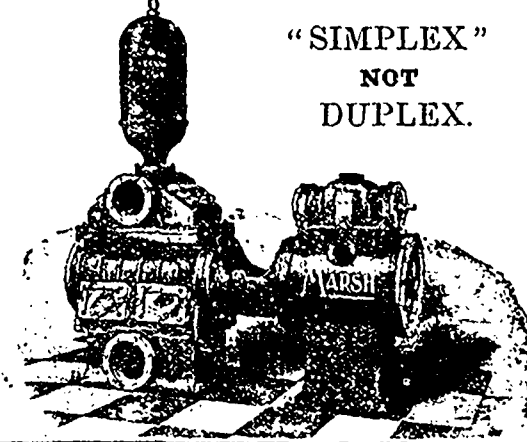
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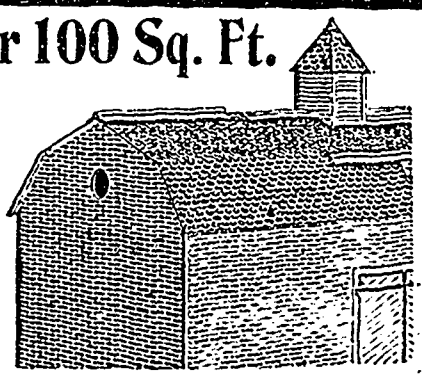
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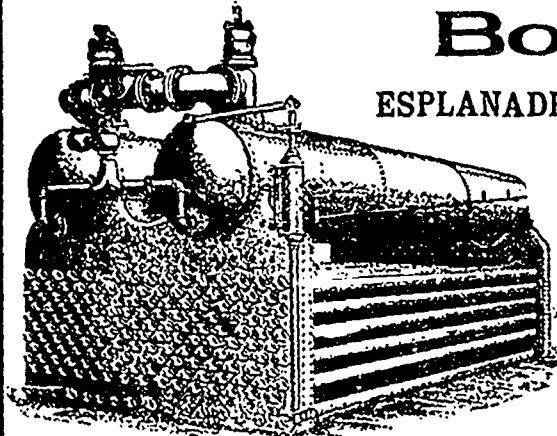
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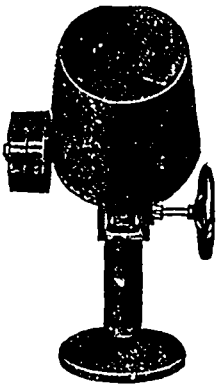
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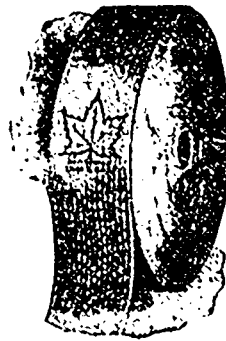


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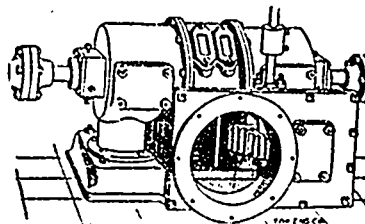


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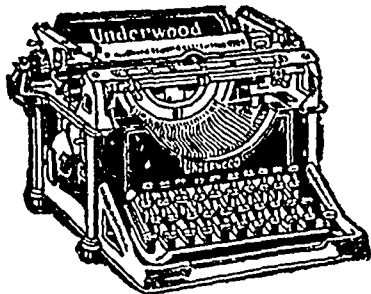
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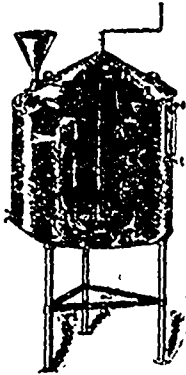
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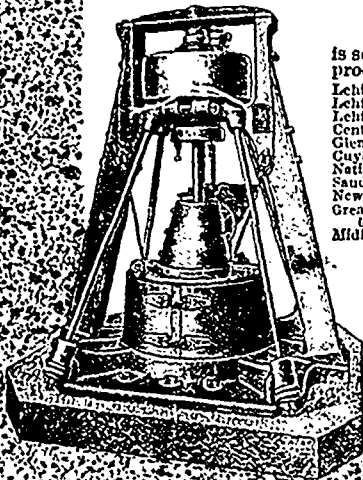
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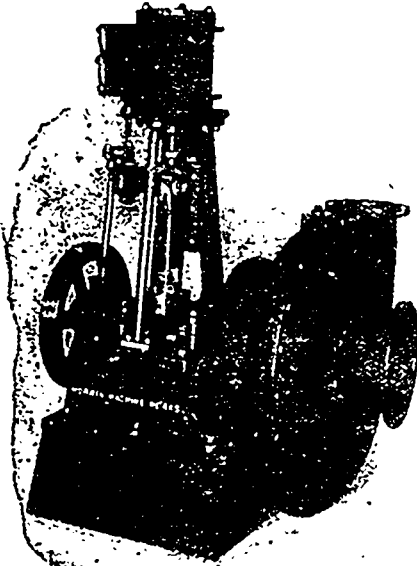
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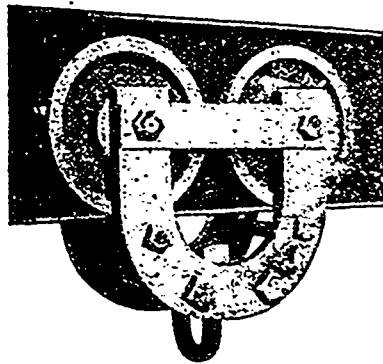
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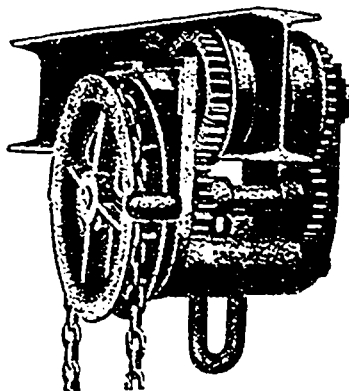
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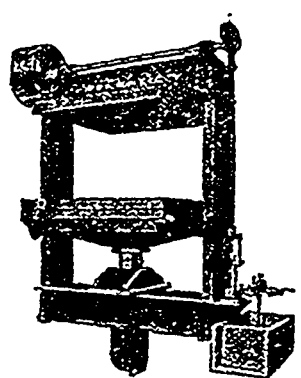
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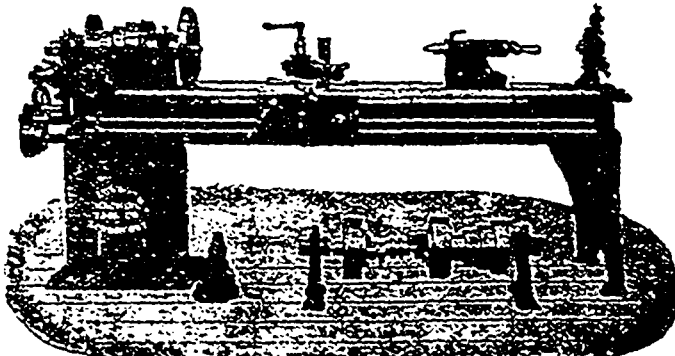
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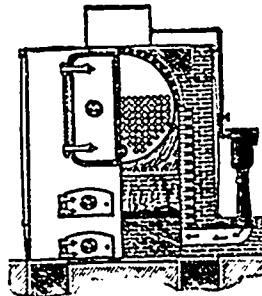
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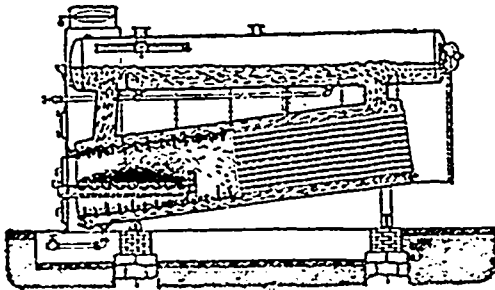
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Benson, W. T. & Co., Montreal.
Brunner, Mond & Co., Northwich, England.
Canada Chemical Mfg. Co., London, Ont.
Casella Color Co., New York City.
Geigy Aniline & Extract Co., New York City.
McArthur, Cornelio & Co., Montreal.
Nichols Chemical Co. of Canada, Montreal
Winn & Holland, Montreal.

Annealing Muffles and Furnaces

(Wire)

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

Antimony

Syracuse Smelting Works, Montreal.

Anvils and Vises

Hopkins, F. H. & Co., Montreal.
Leslie, A. C. & Co., Montreal.
Rice Lewis & Son, Toronto.

Architects

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

Automatic Gear Cutting Machines

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

Automobiles

Ford Motor Co. of Canada, Walkerville, Ont.

Axles

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

Babbitt Metal

Petrie, H. W., Toronto.
Pittsburgh Shafting Co., Detroit, Mich.
Syracuse Smelting Works, Montreal.

Banks

Bank of Hamilton, Hamilton, Ont.

Bar Iron and Steel

Bourne-Fuller Co., Cleveland, Ohio.
Hopkins, F. H. & Co., Montreal.
Leslie, A. C. & Co., Montreal.
London Rolling Mills, London, Ont.
Rice Lewis & Son, Toronto.

Belt Dressing

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

Belt Fasteners

Bristol Co., Waterbury, Conn.
McLaren, D. K., Montreal and Toronto.
McLaren, J. C. Belting Co., Montreal and Toronto.
Petrie, H. W., Toronto.
Rosedale Belting Co., Toronto.
Sadler & Haworth, Montreal and Toronto.
Williams, A. R. Machinery Co., Toronto.

Belting (Cotton)

Dominion Belting Co., Hamilton, Ont.
Fleming, W. A. & Co., Montreal.
Greay, Wm. & J. G., Toronto.
McLaren, D. K., Montreal and Toronto.
McLaren, J. C. Belting Co., Montreal and Toronto.
Petrie, H. W., Toronto.
Rosedale Belting Co., Toronto.
Sadler & Haworth, Montreal and Toronto.
Williams, A. R. Machinery Co., Toronto.

Belting (Leather)

Fleming, W. A. & Co., Montreal.
Greay, Wm. & J. G., Toronto.
McLaren, D. K., Montreal and Toronto.
McLaren, J. C. Belting Co., Montreal and Toronto.
Petrie, H. W., Toronto.
Pittsburgh Shafting Co., Detroit, Mich.
Rosedale Belting Co., Toronto.
Sadler & Haworth, Montreal and Toronto.
Williams, A. R. Machinery Co., Toronto.

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(CONTINUED).

Belting (Rubber)

Greer Wm. & J. G., Toronto.
Gutta Percha & Rubber Mfg. Co., Toronto.
McLaren, D. K., Montreal and Toronto.
McLaren, J. C., Belting Co., Montreal.
Petrie, H. W., Toronto.
Pittsburg Shafting Co., Detroit, Mich.
Sadler & Haworth, Montreal and Toronto.

Belting and Supplies

Bristol Co., Waterbury, Conn.
Dominion Belting Co., Hamilton, Ont.
Fleming, W. A. & Co., Montreal.
Greer, Wm. & J. G., Toronto.
Gutta Percha & Rubber Mfg. Co., Toronto.
Jeffrey Mfg. Co., Columbus, Ohio.
McLaren, D. K., Montreal and Toronto.
McLaren, J. C., Belting Co., Montreal and Toronto.
Petrie, H. W., Toronto.
Pittsburgh Shafting Co., Detroit, Mich.
Reddaway, F. & Co., Manchester, England.
Rice Lewis & Son, Toronto.
Rosendale Belting Co., Toronto.
Sadler & Haworth, Montreal and Toronto.
Williams A. R. Machinery Co., Toronto.

Blast Furnace Brick

Dover Fire Brick Co., Cleveland, Ohio.
Dunbar Fire Brick Co., Pittsburgh, Pa.
Hamilton Facing Mill Co., Hamilton, Ont.
Pennsylvania Fire Brick Co., Lock Haven, Pa.
Queen's Run Fire Brick Co., Lock Haven, Pa.
Reese-Hammond Fire Brick Co., Boliver, Pa.
Savage Mountain Fire Brick Co., Frostburg, Md.
Stowe-Fuller Co., Cleveland, Ohio.

Blowers

McEachron Heating & Ventilating Co., Galt, Ont.
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 Bolders)

Bolts and Nuts

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

Brass Founders

Hamilton Brass Mfg. Co., Hamilton, Ont.
Meadows, Geo. B. Wire, Iron & Brass Works Co., Toronto.
Penberthy Injector Co., Windsor, Ont.

Brick and Bricklaying Machinery

Allis-Chalmers-Bullock, Limited, Montreal.

Building and Paving Brick

Dover Fire Brick Co., Cleveland, Ohio.
Dunbar Fire Brick Co., Pittsburgh, Pa.
Hamilton Facing Mill Co., Hamilton, Ont.
Pennsylvania Fire Brick Co., Lock Haven, Pa.
Queen's Run Fire Brick Co., Lock Haven, Pa.
Reese-Hammond Fire Brick Co., Boliver, Pa.
Savage Mountain Fire Brick Co., Frostburg, Md.
Stowe-Fuller Co., Cleveland, Ohio.

Building Iron and Steel

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

Bullders' Materials

Albert Mfg. Co., Hillsboro, Ont.
Canada Foundry Co., Toronto.
Expanded Metal & Fireproofing Co., Toronto.
Gartshore, John J., Toronto.
Hopkins, F. H. & Co., Montreal.
Meadows, Geo. B. Wire, Iron & Brass Works, Toronto.
Metallic Roofing Co., Toronto.
Ota-Fensom Elevator Co., Toronto.
Owen Sound Portland Cement Co., Owen Sound, Ont.
Pedlar People, Oshawa, Ont.
Pittsburgh Shafting Co., Detroit, Mich.
Rice Lewis & Son, Toronto.
Sheldon & Sheldon, Galt, Ont.

Cables

Dominion Wire Rope Co., Montreal.
Greening, B. Wire Co., Hamilton, Ont.
Phillip Eugene F. Electrical Works, Montreal.
Wire & Cable Co., Montreal.

Canada Plates

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

Candies

Peterborough Canoe Co., Peterborough, Ont.

Caps

McCullough-Dalsell Crucible Co., Pittsburg, Pa.

Card Clothing

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

Cast Iron Pipe

Canada Foundry Co., Toronto.
Rice Lewis & Son, Toronto.
Montreal Pipe Foundry Co., Montreal.
McDougall, John, Caledonian Iron Works Co., Montreal.

Castings (Grey Iron, Malleable Iron and Brass)

Canada Machinery Co., Sarnia, Ont.
Greer, Wm. & J. G., Toronto.
International Harvester Co., Hamilton, Ont.
Kerr Engine Co., Walkerville, Ont.
McDougall, John, Caledonian Iron Works Co., Montreal.

Cement Machinery

Allis-Chalmers-Bullock, Limited, Montreal
Bradley Pulverizer Co., Boston, Mass.
Greer, Wm. & J. G., Toronto.
McDougall, John, Caledonian Iron Works Co., Montreal.

Centrifugal Pumping Machinery

Morris Machine Works, Baldwinsville, N. Y.

Chain Making Machinery

(Welded Coll 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.
Boynton, F. M., Inc., Buffalo, N.Y. and Pittsburgh, Pa.
Brownlee, J., Galt, Ont.
Ferguson, J. D., Hamilton, Ont.
Hoffman, Jules G., Detroit, Mich.
Milnes, James H. & Co., Toronto.
Myles' Thos. Sons, Hamilton, Ont.
Pittsburgh Coal Co., Pittsburgh, Pa.
Shawmut Coal & Coke Co., St. Mary's, Pa.
Sawyer, Edward T., Columbus, Ohio.
Shepard, Charles G., Buffalo, N.Y.
Shipman, O. W. Co., Detroit, Mich.
Skag, E. A., Detroit, Mich.
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.

Coll Chains

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

Coke Oven Brick

Dover Fire Brick Co., Cleveland, Ohio.
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

Contractors' Machinery

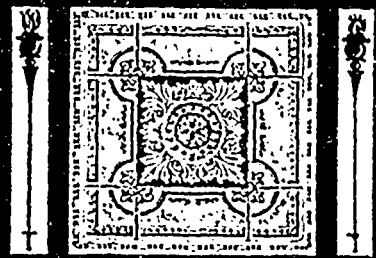
Allis-Chalmers-Bullock, Limited, Montreal.
Gartshore, John J., Toronto.
Hopkins, F. H. & Co., Montreal.
McDougall, John, Caledonian Iron Works Co., Montreal.
Schutte & Koerting Co., Philadelphia, Pa.

Contractor's Plants

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

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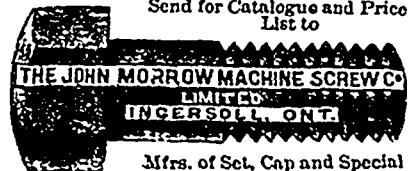


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Envelope and Lithographic Papers, etc.

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Conveying Machinery

Allis-Chalmers-Bullock, Limited, Montreal
 Babcock & Wilcox, Limited, Montreal.
 Borden & Selleck Co., Chicago, Ill.
 Canada Foundry Co., Toronto.
 Greer, Wm. & J. G., 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.
 Pittsburg Shafting Co., Detroit, Mich.
 Rosendale Belting Co., Toronto.

Copper Materials

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

Corundum Wheels

Canadian Corundum Wheel Co., Hamilton, Ont.
 Rice Lewis & Son, Toronto.

Cotton Banding and Rope

McLaren, J. C., Bolting Co., Montreal.

Covers

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

Crayons

Lowell Crayon Co., Lowell, Mass.

Crucibles

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

Crucible Caps

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

Crucible Covers

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

Cutter Grinding Machines

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

Decalcomania

Meyercord Co., Chicago, Ill.

Deep Well Engines

American Steam Pump Co., Battle Creek, Mich.

Detective Agency

Dewar Detective Agency, St. Louis, Mo.

Dies (Socket, Sewer Pipe and Tile)

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

Directories

Kelly's Directories, Limited, Toronto.

Draw Benches (Wire)

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

Drills

Allis-Chalmers-Bullock, Limited, Montreal.
 Barnes, B. F. Co., Rockford, Ill.
 Canada Machinery Co., Sarnia, Ont.
 Canadian Westinghouse Co., Ltd., Hamilton, Ont.
 London Machine Tool Co., London, Ont.
 Petrie, H. W., Toronto.
 Pittsburgh Shafting Co., Detroit, Mich.

Drills (Pneumatic and Rock)

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

Drills (Twist)

Pittsburg Shafting Co., Detroit, Mich.

Drop Forgings

Globe Machine & Stamping Co., Cleveland, Ohio.

Drop Forging Dies

Canada Machinery Co., Sarnia, Ont.
 Globe Machine & Stamping Co., Cleveland, Ohio.

Dry Kiln Apparatus

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

Dust and Shavings Separators

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

Dye Stuffs and Chemicals

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

DYNAMOS (See Motors and Dynamos) Electric Meters and Transformers

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

Electric Mine Locomotives

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

Electrical Repairs

Keystone Engineering Co., Toronto.
 Volta Electric Repair Works, Toronto.

Electrical Supplies

Allis-Chalmers-Bullock, Limited, Montreal.
 Bristol Co., Waterbury, Conn.
 Canadian General Electric Co., Toronto.
 Canadian Westinghouse Co., Ltd., Hamilton, Ont.
 Electrical Construction Co., London, Ont.
 Forman, John, Montreal.
 Jones & Moore Electric Co., Toronto.
 Keystone Engineering Co., Toronto.
 Packard Electric Co., St. Catharines, Ont.
 Toronto & Hamilton Electric Co., Hamilton, Ont.
 United Electric Co., Toronto.
 Worth & Martin, Toronto.

Elevators and Conveyors

Allis-Chalmers-Bullock, Limited, Montreal.
 Darling Bros., Montreal.
 Greer, Wm. & J. G., Toronto.
 Jeffrey Mfg. Co., Columbus, Ohio.
 Link-Belt Engineering Co., Philadelphia, Pa.
 Otis-Fensom Elevator Co., Toronto.

Elevator Insurance

Canadian Casualty & Boiler Insurance Co., Toronto.

Emery and Emery Wheels

Canadian Corundum Wheel Co., Hamilton, Ont.
 Forman, John, Montreal.
 Petrie, H. W., Toronto.

Engineers (Chemical)

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

Engineers (Civil)

DeLano-Osborn Engineering Co., Toronto.
 Parke, R. J., Toronto.
 Vogel, C. H., Ottawa.

Engineers (Consulting)

Aitken, K. L., Toronto.
 DeLano-Osborn Engineering Co., Toronto.
 Electrical Construction Co., London, Ont.
 Hunt, Robert W. & Co., Chicago, Ill.
 Keystone Engineering Co., Toronto, Ont.
 Marion & Marion, Montreal.
 Parke, R. J., Toronto.
 Perrin, William R. & Co., Limited, Toronto.
 Simpson, T. T., Deschenes, Que.
 Vogel, C. H., Ottawa.
 Volta Electric Repair Works, Toronto.
 Von der Osten, E. & Co., Toronto.

Engineers (Contracting)

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

Engineers (Electrical)

Aitken, K. L., Toronto.
 Allis-Chalmers-Bullock, Limited, Montreal.
 Canadian General Electric Co., Toronto.
 Canadian Westinghouse Co., Ltd., Hamilton, Ont.
 Crocker-Wheeler Co., St. Catharines, Ont.
 DeLano-Osborn Engineering Co., Toronto.
 Electric Engineering & Supply Co., Montreal.
 Electrical Construction Co., London, Ont.
 Jones & Moore Electric Co., Toronto.
 Keystone Engineering Co., Toronto, Ont.
 Marion & Marion, Montreal.
 Toronto & Hamilton Electric Co., Hamilton, Ont.
 United Electric Co., Toronto.
 Volta Electric Repair Works, Toronto.
 Worth & Martin, Toronto.

Engineers (Mechanical)

Allis-Chalmers-Bullock, Limited, Montreal.
 Babcock & Wilcox, Limited, Montreal.
 Borden & Selleck Co., Chicago, Ill.
 Darling Bros., Montreal.
 DeLano-Osborn Engineering Co., Toronto.
 Electrical Construction Co., London, Ont.
 Greer, Wm. & J. G., Toronto.
 McDougall, John, Caledonian Iron Works Co., Montreal.
 Hunt, Robert W. & Co., Chicago, Ill.
 Kerr Engine Co., Waukesha, Wis.
 Marion & Marion, Montreal.
 Robb Engineering Co., Amherst, N.S.
 Sheldon & Sheldon, Galt, Ont.

Engineers (Mill and Hydraulic)

DeLano-Osborn Engineering Co., Toronto.
 Hawksworth, Alfred, Montreal.
 Vogel, C. H., Ottawa.

Engineers (Mining)

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

Engineers (Municipal)

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

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Engineers and Contractors
 Jeffrey Mfg. Co., Columbus, Ohio.

Engines and Boilers
 Allis-Chalmers-Bullock, Limited, Montreal.
 Babcock & Wilcox, Limited, Montreal.
 Bertram Engine Works Co., Toronto.
 Canada Foundry Co., Toronto.
 Canadian Heine Safety Boiler Co., Toronto.
 Cortitt, R. B., Brooklyn, N.Y.
 Goldie & McCulloch Co., Galt, Ont.
 Hamilton, Wm. Mfg. Co., Peterborough, Ont.
 Hopkins, F. H. & Co., Montreal.
 Jencks Machine Co., Sherbrooke, Que.
 Norris Machine Works, Baldwinville, N.Y.
 McDougall, John, Caledonian Iron Works Co., Montreal.
 McEachren Heating & Ventilating Co., Galt, Ont.
 Oil Well Supply Co., Pittsburgh, Pa.
 Petrie, H. W., Toronto.
 Pittsburgh Shafting Co., Detroit, Mich.
 Rebb 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
 Burt Mfg. Co., Akron, Ohio.
 Darling Bros., Montreal.
 Sheldon & Sheldon, Galt, Ont.

Exhausters
 Schutte & Koerting Co., Philadelphia, Pa.

Explorer and Geologist
 Evans, Horace F., Ashcroft, B.C.

Factory Sites
 See Factory Locations, page 35).
 Central Ontario Power Co., Peterboro, Ont.
 Hutcheson, S. M., Paisley, Ont.
 Richard, Chas. F., St. Catharines, Ont.

Feed Water Heaters
 Babcock & Wilcox, Limited, Montreal.
 Darling Bros., Montreal.
 McDougall, John, Caledonian Iron Works Co., Montreal.
 Schutte & Koerting Co., Philadelphia, Pa.

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

Fillet (Pattern)
 McLaren, J. C. Belling Co., Montreal.
 Sadler & Haworth, Montreal and Toronto.

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

Filters and Filtering Systems (Water)
 Babcock & Wilcox, Limited, Montreal.
 McDougall, John, Caledonian Iron Works Co., Montreal.

Financial
 Endstreet's, New York City.
 Dm. R. G. & Co., Toronto.
 Hill & Postlethwaite, Toronto.
 Petrie H. D. Hamilton Ont.

Fire Brick and Clay
 Dwyer Fire Brick Co., Cleveland, Ohio.
 Dwyer Fire Brick Co., Pittsburgh, Pa.
 Hamilton Facing Mill Co., Hamilton, Ont.
 Pennsylvania Fire Brick Co., Lock Haven, Pa.
 Peck's Run Fire Brick Co., Lock Haven, Pa.
 Sear-Hammond Fire Brick Co., Bolivar, Pa.
 Spruce Mountain Fire Brick Co., Frostburg, Md.
 Wray-Fuller Co., Cleveland, Ohio.

Fire Escapes
 Darling Bros., Montreal.
 McDougall, Geo. B., Wire, Iron and Brass Works, Toronto.

Flour Mill Machinery
 Goldie & McCulloch Co., Galt, Ont.
 Grey, Wm. & J. G., Toronto

Forges and Blowers
 Canada Foundry Co., Toronto.
 McEachren Heating & Ventilating Co., Galt, Ont.
 Sheldon & Sheldon, Galt, Ont.
 Sturtevant B. F. Co., Boston, Mass.

Founders
 Canada Foundry Co., Toronto.
 Canada Machinery Co., Sarnia, Ont.
 Green & Co., Galt, Ont.
 Goldie & McCulloch Co., Galt, Ont.
 Grey, Wm. & J. G., Toronto.
 Hamilton, Wm. Mfg. Co., Peterborough, Ont.
 McDougall, John, Caledonian Iron Works Co., Montreal.

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

Fuel Economizers
 Babcock & 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.

Galvanizing
 Ontario Wind Engine & Pump Co., Toronto.

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

Gas and Gasoline Engines
 Goldie & McCulloch Co., Galt, Ont.
 Morrison, T. A. & Co. Montreal.

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

Gauges (Steam)
 Penberthy Injector Co., Windsor, Ont
 Petrie, H. W., Toronto.
 Williams, A. R. Machinery Co., Toronto.

Gauges (Water)
 Babcock & Wilcox, Limited, Montreal.
 Penberthy Injector Co., Windsor, Ont.

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

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

Glue Heaters
 Advance Machinery Co., Toledo, Ohio.
 Greay, Wm. & J. G., Toronto.

Glue Room Equipment
 Advance Machinery Co., Toledo, Ohio.

Government Notices
 Factory Inspectors.
 Minister of Agriculture.

Graphite
 Dixon, Jos., Crucible Co., Jersey City, N.J.
 McCullough-Dalzell Crucible Co., Pittsburg, Pa
 Pittsburg Crucible Works, Pittsburg, Pa.

Grease Cups
 Penberthy Injector Co., Windsor, Ont.

Grinding Machinery
 Canadian Corundum Wheel Co., Hamilton, Ont.
 Greay, Wm. & J. G. Toronto.

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

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

Holsting Engines
 Bertram Engine Works Co., Toronto.

Holsts (Chain and Pneumatic)
 Allis-Chalmers-Bullock, Limited, Montreal.
 Canadian Rand Drill Co., Sherbrooke, Que.
 Hopkins, F. H. & Co., Montreal.

Hose (Fire and Pneumatic)
 Gutta Percha & Rubber Mfg. Co., Toronto.
 McLaren, J. C., Belling Co., Montreal and Toronto.
 Sadler & Haworth, Montreal and Toronto.

Hydrants
 Kerr Engine Co., Walkerville, Ont.
 McDougall, John, Caledonian Iron Works Co. Montreal.

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

Hydraulic Leather
 McLaren, J. C., Belling Co., Montreal.
 Sadler & Haworth, Montreal and Toronto.

Hydraulic Machinery
 Canada Foundry Co., Toronto.
 Darling Bros., Montreal.
 Hamilton, Wm. Mfg. Co., Peterborough, Ont.
 McDougall, John, Caledonian Iron Works Co., Montreal.

Hydraulic
 Perrin, William R. & Co., Limited, Toronto.
 Petrie, H. W., Toronto.
 Wilson, J. C. & Co., Glenora, Ont.

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

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DEPOSIT, N. Y.

CLASSIFIED INDEX.

(CONTINUED).

Insulated Wires and Cables

Phillips, Eugene F., Electrical Works, Montreal.
Wire & Cable Co., Montreal.

Iron and Steel Specialties

Armstrong Mfg. Co., Bridgeport, Conn.
Bourne-Fuller Co., Cleveland, Ohio.
Canada Foundry Co., Toronto.
Leslie, A. C. & Co., Montreal.
London Rolling Mill Co., London, Ont.
Lysaght, John, Limited, Bristol, England and Mont-
real.
Meadows, Geo. B., Wire, Iron & Brass Works Co.,
Toronto.
Nova Scotia Steel & Coal Co., New Glasgow, N.S.
Petrie, H. W., Toronto.
Pittsburgh Shalting Co., Detroit, Mich.
Rice Lewis & Son, Toronto.

Injectors

Canada Foundry Co., Toronto.
Hamilton Brass Mfg. Co., Hamilton, Ont.
Penberthy Injector Co., Windsor, Ont.
Schutte & Koerting Co., Philadelphia, Pa.
Williams, A. R. Machinery Co., Toronto.

Iron and Steel Inspection

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

Lamps—Electric

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

Lathes

Barnes, B. F. Co., Rockford, Ill.
Canada Machinery Co., Sarnia, Ont.
Cowdrey, C. H. Machine Works, Fitchburg, Mass.
London Machine Tool Co., London, Ont.
Petrie, H. W., Toronto.
Williams, A. R. & Co., Toronto.

Lathes (Wood-working)

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

Loom Beeds.

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

Lubricators

Penberthy Injector Co., Windsor, Ont.

Machinists

Bertram Engine Works Co., Toronto.
Canada Machinery Co., Sarnia, Ont.
Goldie & McCulloch Co., Galt, Ont.
Greecy, Wm. & J. G., Toronto.
London Machine Tool Co., London, Ont.
Worth & Martin, Toronto.

Machinists' Supplies

Armstrong Mfg. Co., Bridgeport, Conn.
Butterfield & Co., Rock Island, Que.
Canada Machinery Co., Sarnia, Ont.
Goldie & McCulloch Co., Galt, Ont.
Gutta Percha & Rubber Mfg. Co., Toronto.
Hopkins, F. H. & Co., Montreal.
Jeffrey Mfg. Co., Columbus, Ohio.
London Machine Tool Co., London, Ont.
Morrow, John, Machine Screw Co., Ingersoll, Ont.
Petrie, H. W., Toronto.
Pittsburgh Shalting Co., Detroit, Mich.
Worth & Martin, Toronto.

Machine Tools

Barnes, B. F. Co., Rockford, Ill.
Becker-Brainard Milling Machine Co., Hyde Park,
Mass.
Canada Machinery Co., Sarnia, Ont.
Cowdrey, C. H. Machine Works, Fitchburg, Mass.
Darling Bros., Montreal.
London Machine Tool Co., London, Ont.
Petrie, H. W., Toronto.

Machinery Repairs

Bertram Engine Works Co., Toronto
Canada Machinery Co., Sarnia, Ont.
Greecy, Wm. & J. G., Toronto.

Malleable Castings

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

Marine and Stationary Engines and Boilers

Allis-Chalmers-Bullock, Limited, Montreal.
Bertram Engine Works Co., Toronto.

Mechanical Draft

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

Metal Gates

Page Wire Fence Co., Walkerville, Ont.

Metal Stamping

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

Metallurgists

Mills, S. D., Toronto.

Mill Machinery and Supplies

Allis-Chalmers-Bullock, Limited, Montreal.
Armstrong Mfg. Co., Bridgeport, Conn.
Becker-Brainard Milling Machine Co., Hyde Park,
Mass.
Darling Bros., Montreal.
Fleming, W. A. & Co., Montreal.
Gartshore, John J., Toronto.
Goldie & McCulloch Co., Galt, Ont.
Grooy, Wm. & J. G., Toronto.
Gutta Percha & Rubber Mfg. Co., Toronto.
Hamilton Brass Mfg. Co., Hamilton, Ont.
Hamilton, Wm. Mfg. Co., Peterborough, Ont.
Hawksworth, Alfred, Montreal.
Hay, Peter Knife Co., Galt, Ont.
Hopkins, F. H. & Co., Montreal.
Jeffrey Mfg. Co., Columbus, Ohio.
London Machine Tool Co., London, Ont.
Morrow, John, Machine Screw Co., Ingersoll, Ont.
McDougall, John, Caledonian Iron Works Co., Mont-
real.
McLaren, D. K., Montreal and Toronto.
Penberthy Injector Co., Windsor, Ont.
Petrie, H. W., Toronto.
Pittsburgh Shalting Co., Detroit, Mich.
Reddaway, F. & Co., Manchester, England.
Rice Lewis & Son, Toronto.
Robb Engineering Co., Amherst, N.S.
Spence, R. & Co., Hamilton, Ont.
Wilson, J. C. & Co., Glenora, Ont.

Milling Cutters and Machines

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

Miners' Lamps

Allis-Chalmers-Bullock, Limited, Montreal.
Anton, John & Son, Monongahela, Pa.

Mining Machinery

Allis-Chalmers-Bullock, Limited, Montreal.
Canadian Rand Drill Co., Sherbrooke, Que.
Corbett, R. B., Brooklyn, N.Y.
Gartshore, John J., Toronto.
Hamilton, Wm. Mfg. Co., Peterborough, Ont.
Hopkins, F. H. & Co., Montreal.
Jeffrey Mfg. Co., Columbus, Ohio.
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.

Motors and Dynamos

Allis-Chalmers-Bullock, Limited, Montreal.
Canadian General Electric Co., Toronto.
Canadian Westinghouse Co., Ltd., Hamilton, Ont.
Corbett, R. B., Brooklyn, N.Y.
Electrical Construction Co., London, Ont.
Forman, John, Montreal.
Jeffrey Mfg. Co., Columbus, Ohio.
Jones & Moore Electric Co., Toronto.
Keystone Engineering Co., Toronto.
Petrie, H. W., Toronto.
Toronto & Hamilton Electric Co., Hamilton, Ont.
United Electric Co., Toronto.
Volta Electric Repair Works, Toronto.

Moulding Sand

Hamilton Facing Mills Co., Hamilton, Ont.

Nickel.

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

Novelty Manufacturers

Worth & Martin, Toronto.

Nozzles

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

Office and Bank Fittings

Canadian Office & School Furniture Co., Preston,
Ont.
Meadows, Geo. B., Wire, Iron & Brass Works Co., To-
ronto.

Oils and Lubricants

Dixon, Jos. Crucible Co., Jersey City, N.J.
Fleming, W. A. & Co., Montreal.
Imperial Oil Co., Petrolia, Ont.
Queen City Oil Co., Toronto.

Oil Cloth

Dominion Oil Cloth Co., Montreal.

Oil Cups

Penberthy Injector Co., Windsor, Ont.

Paints and Colors

Bellhouse, Dillon & Co., Montreal.
Berry Bros., Walkerville, Ont.
Fleming, W. A. & Co., Montreal.
Golsy, Aniline & Extract Co., New York City.
McArthur, Cornelio & Co., Montreal.

CLASSIFIED INDEX.

(CONTINUED).

Paper Manufacturers

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

Patents

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

Perforated Metals

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

Personal Accident

Canadian Casualty & Boiler Insurance Co., Toronto.

Phosphorizers

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

Pig Iron

Bourne-Fuller Co., Cleveland, Ohio.
Canada Iron Furnace Co., Montreal.
Nova Scotia Steel & Coal Co., New Glasgow, N.S.
Stepard, Charles G., Buffalo, N.Y.
Erycause Smelting Works, Montreal.

Pipe (Riveted, Iron and Steel)

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

Pipe Threading Machines

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

Pipes and Tubes

Bourne-Fuller Co., Cleveland, Ohio.
Canada Foundry Co., Toronto.
Corbett, R. B., Brooklyn, N.Y.
Montreal Pipe Foundry Co., Montreal.
Ees Lewis & Son, Toronto.

Plaster

Best Mfg. Co., Hillsborough, N.B.

Plates

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

Plumbago

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

Pneumatic Tools

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

Painter Rolls (For Rods and Wire)

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

Portland Cement

Ore Sound Portland Cement Co., Owen Sound, Ont.

Power Plants—Equipments

Allis-Chalmers-Bullock, Limited, Montreal.
Babcock & Wilcox, Limited, Montreal.
Canadian General Electric Co., Toronto.
Canadian Westinghouse Co., Ltd., Hamilton, Ont.
Corbett, R. B., Brooklyn, N.Y.
Darling Bros., Montreal.
Dilsap-Osborn Engineering Co., Toronto.
Electrical Construction Co., London, Ont.
Goldie & McCulloch, Galt, Ont.
Gutta Percha & Rubber Mfg. Co., Toronto.
Hamilton, Wm. Mfg. Co., Peterborough, Ont.
McEay Mfg. Co., Columbus, Ohio.
Jones & Moore Electric Co., Toronto.
Leptone Engineering Co., Toronto, Ont.
McDougall, John, Caledonian Iron Works Co., Montreal.
Canadian Electric Co., St. Catharines, Ont.
Fenn, William R. & Co., Limited, Toronto.
Petrie, H. W., Toronto.
Phillips, Eugene F., Electrical Works, Montreal.
Pittsburgh Shafting Co., Detroit, Mich.
Robt Engineering Co., Amherst, N.S.
Seymour, B. F. Co., Boston, Mass.
Toronto & Hamilton Electric Co., Hamilton, Ont.
United Electric Co., Toronto.
Waco, J. C. & Co., Glenora, Ont.

Presses (Tile, Sewer Pipe, Nozzles and Sieves)

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

Pulleys

Waco, J. C. & Co., Montreal.
Goldie & McCulloch Co., Galt, Ont.
Greene, Wm. & J. G., Toronto.
Hamilton, Wm. Mfg. Co., Peterborough, Ont.
McEay Mfg. Co., Columbus, Ohio.
McDougall, John, Caledonian Iron Works Co., Montreal.
Waco, J. C., Belting Co., Montreal and Toronto.
Petrie, H. W., Toronto.
Pittsburgh Shafting Co., Detroit, Mich.
Waco, J. C. & Co., Glenora, Ont.

Pumps and Pumping Machinery

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

Punches and Shears

Canada Machinery Co., Sarnia, Ont.
Globe Machine & Stamping Co., Cleveland, Ohio.
Petrie, H. W., Toronto.

Purifiers

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

Purifying and Softening Systems (Water)

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

Railroads

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

Railway Supplies

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

Reamers

Butterfield & Co., Rock Island, Que.

Rivets

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

Rock and Ore Crushers

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

Roller Bearings

Pittsburg Shafting Co., Detroit, Mich.

Rolling Mill Engineers

Bourne-Fuller Co., Cleveland, Ohio.

Roofing

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

Rubber Goods

Gutta Percha & Rubber Mfg. Co., Toronto.
Pittsburg Shafting Co., Detroit, Mich.

Rubber Packing

Gutta Percha & Rubber Mfg. Co., Toronto.

Rubber Washing Tubs

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

Rural Mail Boxes

Globe Machine & Stamping Co., Cleveland, Ohio.

Safes and Vaults

Goldie & McCulloch Co., Galt, Ont.

Screws

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

Screw Plates

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

Shafting

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

Shapers and Carvers

Advance Machinery Co., Toledo, Ohio.

Shear Knives

Hay, Peter Knife Co., Galt, Ont.

Sheets (Iron and Steel)

Bourne-Fuller Co., Cleveland, Ohio.
Leslie, A. C. & Co., Montreal.
Lysaght, John, Limited, Bristol, England and Montreal.

Sheet Metal Goods

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

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

Ship Builders
Bortram Engine Works Co., Toronto.

Smoke Stacks
Hamilton, Wm. Mfg. Co., Peterborough, Ont.
McDougall, John, Caledonian Iron Works Co., Montreal.

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

Special Machinery
Allis-Chalmers-Bullock, Limited, Montreal.
Canada Machinery Co., Sarnia, Ont.
Globe Machine & Stamping Co., Cleveland, Ohio.

Speed Recorders
Bristol Co., Waterbury, Conn.

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

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

Steam Pumps
Allis-Chalmers-Bullock, Limited, Montreal.
American Steam Pump Co., Battle Creek, Mich.
Canada Foundry Co., Toronto.
Darling Bros., Montreal.
Goldie & McCulloch Co., Galt, Ont.
McDougall, John, Caledonian Iron Works Co., Montreal.
Petrie, H. W., Toronto.
Pittsburgh Shafting Co., Detroit, Mich.
Williams, A. R. Machinery Co., Toronto.

Steam Separators
Babcock & Wilcox, Limited, Montreal.
Darling Bros., Montreal.
McEachren Heating & Ventilating Co., Galt, Ont.
Sheldon & Sheldon, Galt, Ont.

Steam Specialties
Darling Bros., Montreal.
McEachren Heating & Ventilating Co., Galt, Ont.
Penberthy Injector Co., Windsor, Ont.
Schutte & Koerting Co., Philadelphia, Pa.
Sheldon & Sheldon, Galt, Ont.

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

Steel and Composite Ships
Bertram Engine Works Co., Toronto.

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

Steel Shafting
Darling Bros., Montreal.
Goldie & McCulloch Co., Galt, Ont.
Gray, Wm. & J. G., Toronto.
Hamilton, Wm. Mfg. Co., Peterborough, Ont.
Leslie, A. C. & Co., Montreal.
McDougall, John, Caledonian Iron Works Co., Montreal.

Nova Scotia Steel & Coal Co., New Glasgow, N.S.
Pittsburgh Shafting Co., Detroit, Mich.
Wilson, J. C. & Co., Glenora, Ont.

Stocks and Dies
Armstrong Mfg. Co., Bridgeport, Conn.
Butterfield & Co., Rock Island, Que.
Petrie, H. W., Toronto.
Rice Lewis & Son, Toronto.
Worth & Martin, Toronto.

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

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

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

Sulphur Furnace
Schutte & Koerting Co., Philadelphia, Pa.

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

Tanks (Oil and Water)
Canada Foundry Co., Toronto.
Corbett, R. B., Brooklyn, N.Y.
Goldie & McCulloch Co., Galt, Ont.
Hamilton, Wm. Mfg. Co., Peterborough, Ont.
McDougall, John, Caledonian Iron Works Co., Montreal.
Ontario Wind Engine & Pump Co., Toronto.

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

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

Textile Manufacturers
Dominion Oil Cloth Co., Montreal.
Smith Mfg. Co., Toronto.
Storoy, W. H. & Sons, Aton, Ont.

Textile Supplies
Grey, Wm. & J. G., Toronto.
McLaren, J. O. Belting Co., Montreal and Toronto.

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

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

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

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

Transfer Ornaments
Meyerord Co., Chicago, Ill.

Trucks
Corbett, R. B., Brooklyn, N.Y.
Grey, Wm. & J. G., Toronto.
Hopkins, F. H. & Co., Montreal.
McDougall, John, Caledonian Iron Works Co., Montreal.
Sheldon & Sheldon, Galt, Ont.

Trucks (Railway)
Canada Foundry Co., Toronto.

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

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

Tugs
Bertram Engine Works Co., Toronto.

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

Turbines
Canada Foundry Co., Toronto.
Grey, Wm. & J. G., Toronto.
Hamilton, Wm. Mfg. Co., Peterborough, Ont.
Wilson, J. C. & Co., Glenora, Ont.

Typewriters and Supplies
United Typewriter Co., Toronto.

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

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

Varnishes
Berry Bros., Walkerville, Ont.

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

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

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

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

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

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

Windmills
Ontario Wind Engine & Pump Co., Toronto.

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

Wire and Wire Rope
Dominion Wire Rope Co., Montreal.
Greening, B. Wire Co., Hamilton, Ont.
Leslie, A. C. & Co., Montreal.
Phillips, Eugene F. Electrical Works, Montreal.
Pittsburgh Shafting Co., Detroit, Mich.
Wire & Cable Co., Montreal.

Wire Rope Fixings
Dominion Wire Rope Co., Montreal.

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

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

Wire Fencing and Netting
Page Wire Fence Co., Walkerville, Ont.

Wire Specialties
Meadows, Geo. B. Wire, Iron & Brass Works Co., Toronto.
Page Wire Fence Co., Walkerville, Ont.

Wood-Working Machinery
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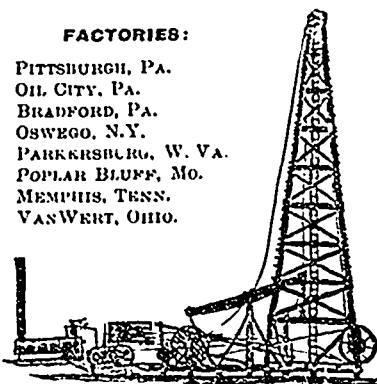
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