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**The Classified Index**

Beginning on page 37 of this issue of *The Canadian Manufacturer* will save our readers money, and should be consulted by them before purchasing.

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 AND INDUSTRIAL WORLD  
 DEVOTED TO THE MANUFACTURING INTEREST OF THE DOMINION

*The Most Complete Assurance*  
*The Premier T.T. Co.*  
 MANUFACTURE THAT PROSPERS  
 MANUFACTURES FOR ITSELF

VOL. 52. TORONTO, MAY 4, 1906. No. 9.

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Specially designed for the **RAPID, ECONOMICAL and SAFE** Generation of Steam up to the highest pressures.

Over **5,000,000. H.P.** in use.

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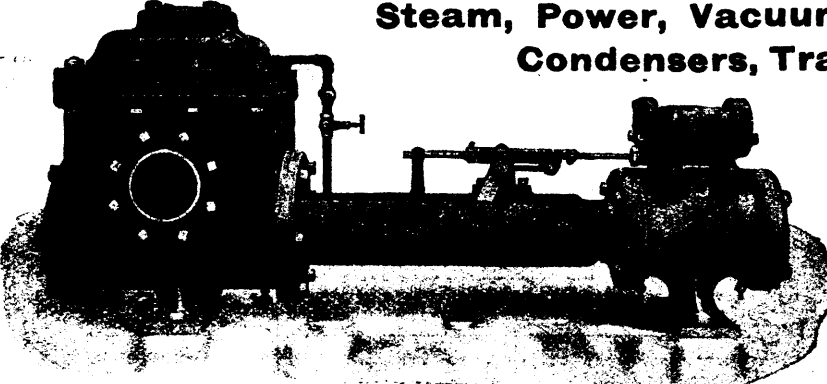
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MAKES PERFECT JOINTS.  
 Does not blow out and requires no following up.  
 Try a sample lot and be convinced of its merits.

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 SHAPES A SPECIALTY  
**LOCK HAVEN, PENN.**

**Steam, Power, Vacuum and Centrifugal Pumps  
 Condensers, Travelling Cranes, Etc.**



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CAPACITY 3,000 TONS

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**MAPLE LEAF STITCHED COTTON DUCK BELTING**

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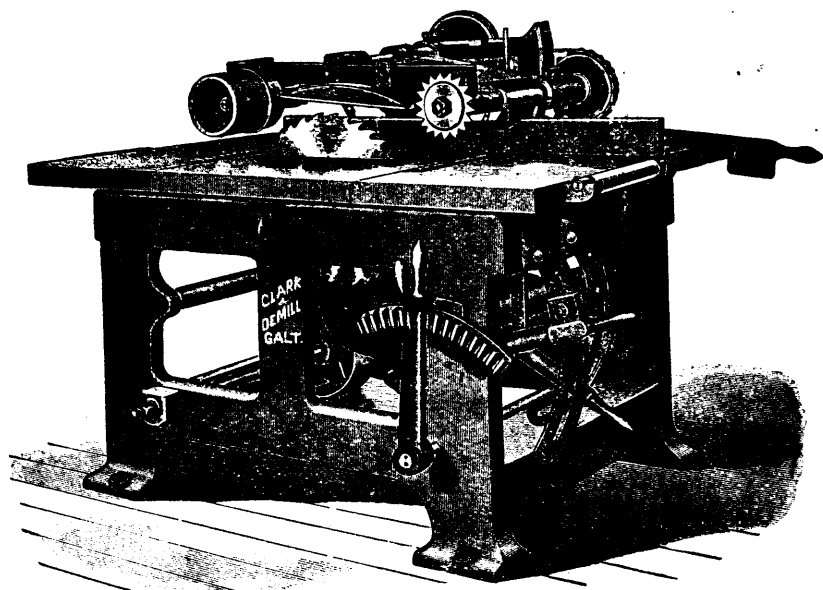
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The World's Standard for Quality

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...Our No. 24 Variable Self-feed Rip Saw. A simple, substantial saw, designed for heavy work in Planing Mills, Furniture and Sash and Door Factories.

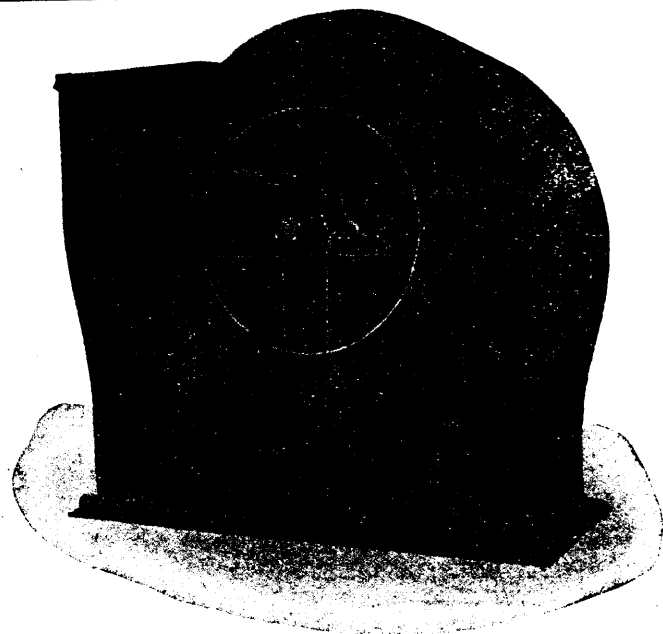
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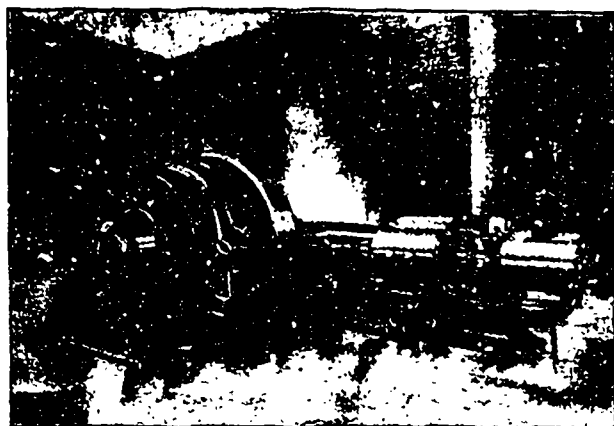
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Perfection in High Speed Engine Design,  
Noiseless Running, Perfect Lubrication,  
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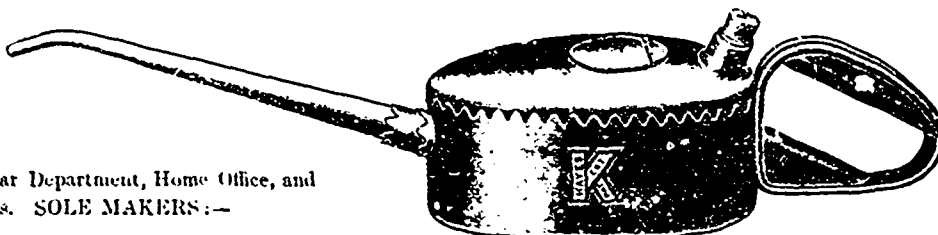
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SEAMLESS SPOUT and SLIDE FEED HOLE

IN COPPER OR  
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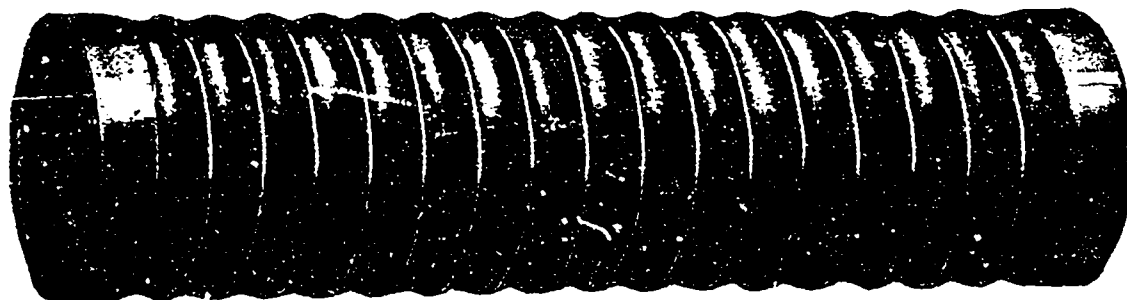
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With Plain Ends or Flanged to any required shape.



Uniform Thickness, Easily Cleaned, Unexcelled for  
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*The universally satisfactory record of "THE MORISON" proclaims it the best furnace made.*



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Tee Rails, 12, 18, 24 and 28 lbs. per yard

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# NICKEL FOR NICKEL STEEL

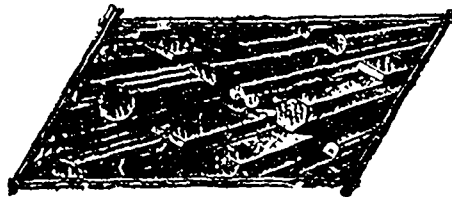
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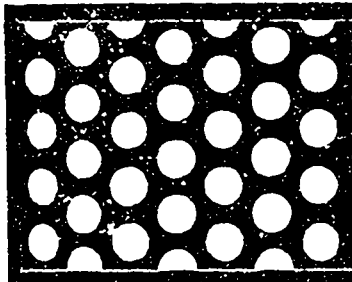
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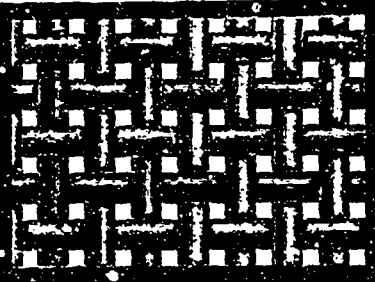
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WIRE MANUFACTURERS  
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**PERFORATED METAL**  
Of Steel, Copper,  
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Special attention  
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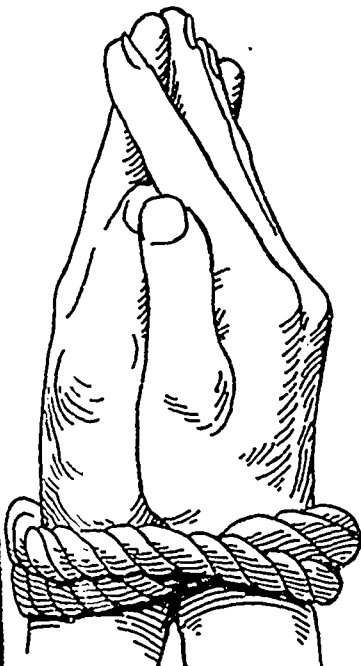
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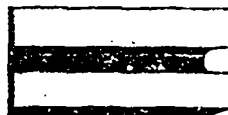


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A Complete Assorted Stock of the above always on hand.

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Oakey's Flexible Twilled Emery Cloth.  
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Prize Medal and Highest  
Award Philadelphia, 1876,  
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HIGH STRENGTH, 35/37% IN  
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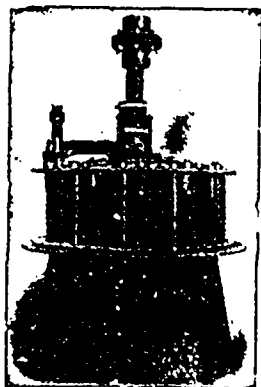
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The Best Bituminous Coal for Steam and Domestic Purposes.

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Smallest percentage of fine coal.  
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Not subject to spontaneous combustion.  
Nothing better for malleable iron works.  
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Special Mixtures for use in Rolling Mills, Malleable Iron Works, Steel Works, Blast Furnaces, Glass Tanks, Cement Kilns Locomotive Blocks, and all High Grade Uses.

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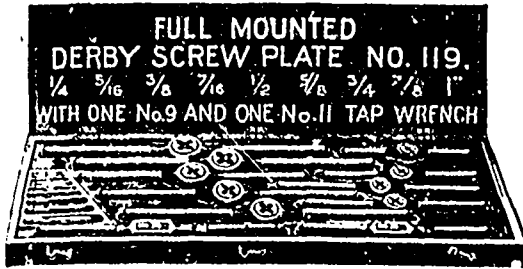
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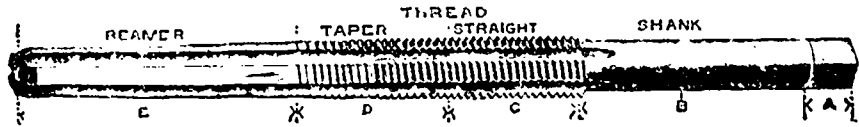
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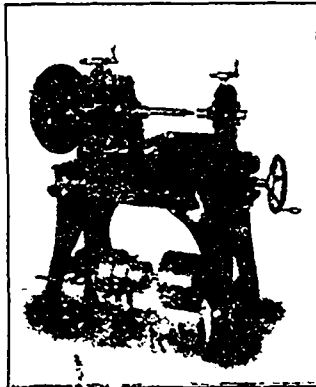
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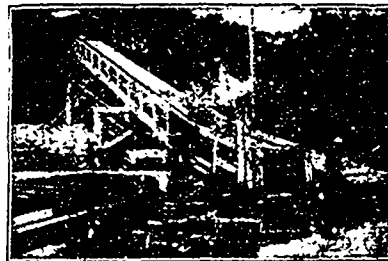
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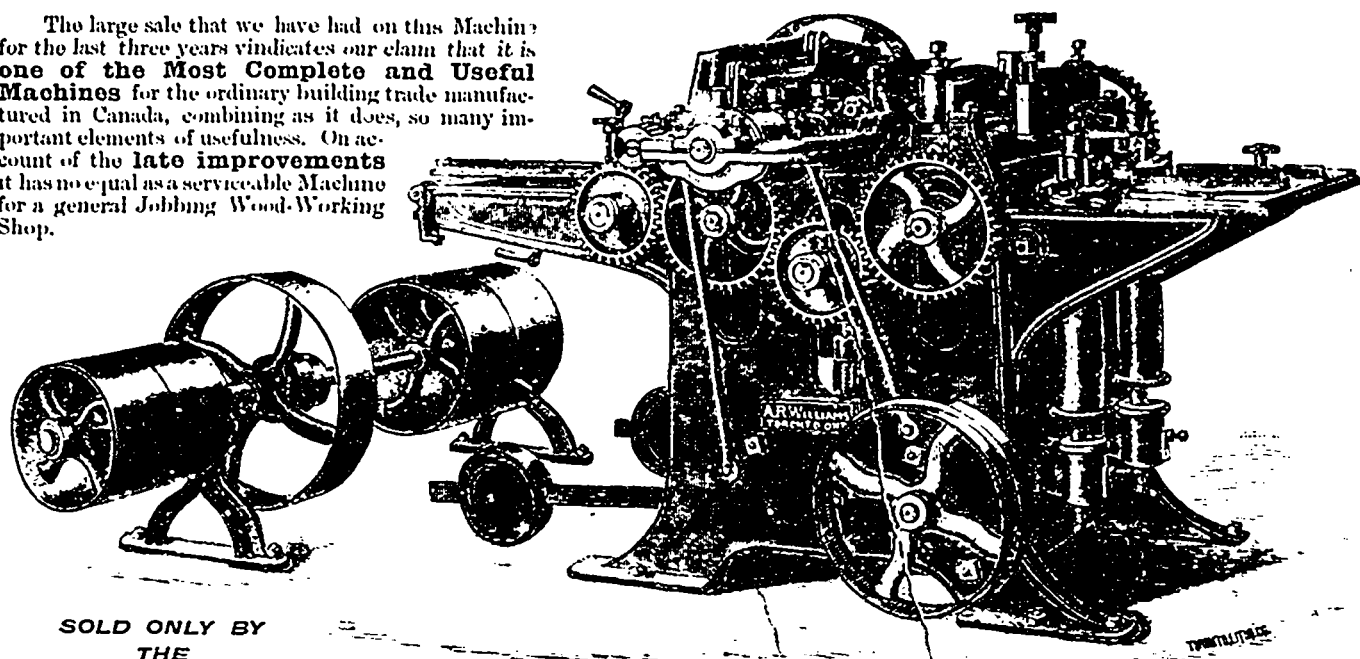
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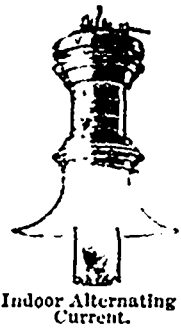
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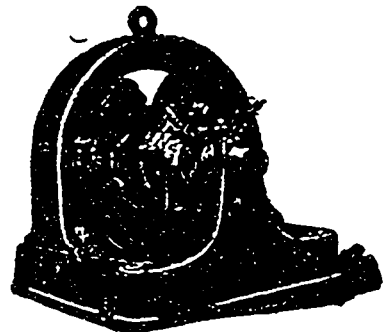
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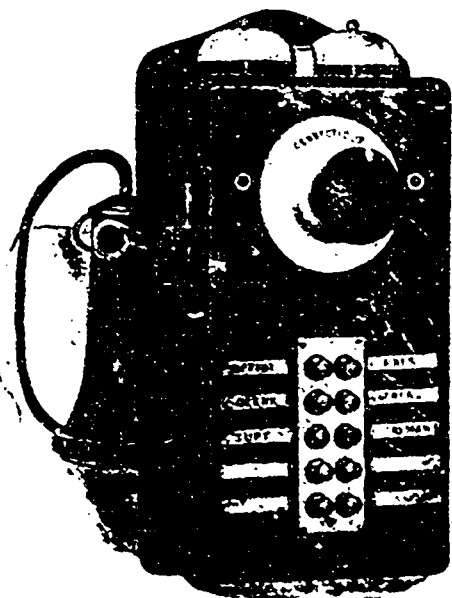


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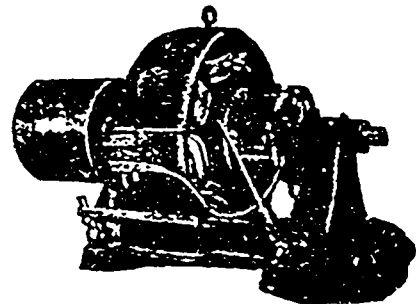
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1.....	400	157	39.2	7.....	40.4	20.7	51.2
2.....	74	57	77	8.....	74.3	40	53.8
3.....	38.6	25.3	65.6	9.....	47.2	24.5	51.8
4.....	59.2	47.9	80.7	10.....	190	108	56.9
5.....	112	64	57	11.....	107	74.5	69.7
6.....	168	91	54.2	12.....	241	114	47.3
Average,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

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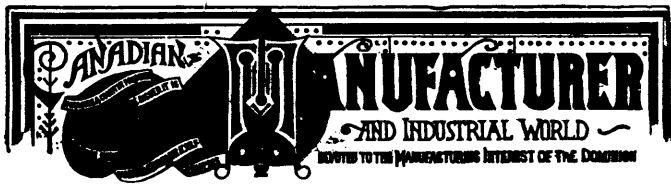
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ESTABLISHED IN 1880.

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 \$1.00 per year. All other Countries in Postal Union ten shillings sterling, including postage.

J. J. CASSIDEY, - - - Editor.  
D. O. McKINNON, - - - Business Manager.

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Index to Advertisers .....Page 45

**WITH A VIEW TO IMPROVEMENT.**

Many grave problems have grown out of the remarkable expansion of manufacturing throughout Canada in recent years, and no class is more interested in the solution of these problems than the manufacturers themselves.

Consequently we have desired to give more time and attention to study and discussion of such matters, as well as to make other material improvements in this journal.

To this end the services of Mr. D. O. McKinnon, as business manager of the paper, have been secured. Mr. McKinnon has been engaged in newspaper work for fifteen years, the last nine of which have been with the MacLean Publishing Co., some years as editor of "Hardware and Metal," and later as managing director of "Canadian Machinery."

By being relieved of the business cares of the paper, the editor, Mr. Cassidey, will have more time to devote to the discussion of the many questions now receiving the attention of manufacturers, and to such questions as may arise from time to time.

In fact we feel free to promise that, with the co-operation of our readers and advertisers, we will be able to make THE CANADIAN MANUFACTURER even more useful to its readers than it has been in the past.

**THE METRIC SYSTEM.—4.**

Prof. McLennan, in advocating the compulsory adoption of the metric system in Canada, urges that the greatest advantage of all others to the country would be the stimulus the system would be to foreign trade. Forty three countries have adopted it; in fact, he points out,

it is in use by all the civilized countries in the world but Great Britain, United States and Russia. "It would serve as a kind of Lingua Franca," he says, "understood by everybody. It might be, of course, that experts, who could speak for the countries that have made the transition, might point out difficulties, but until they come forward, advocates of the metric system have all the better of the argument."

That the metric system is not in universal use in the so-called metric countries is susceptible of proof. In a special consular report issued by the Bureau of Foreign Commerce of the United States, is a table of equivalents of domestic and foreign weights and measures as established by law or custom in all countries, there being a list of about 500 places named where non-metric units are used in metric countries. The list was compiled by the Department of State, at Washington, and to illustrate our argument we give a few examples, the equivalents being expressed in American standards:

Denominations.	Where used.	Equivalents.
Aam—wine.....	Amsterdam.....	41 gallons.
" —oil.....	Amsterdam.....	37.73 "
" .....	Antwerp.....	57.5635 "
" .....	Rotterdam.....	40.559 "
Aroba.....	Argentina.....	25.32 pounds.
" .....	Bolivia.....	25.3537 "
" .....	Brazil.....	32.38 "
" .....	Buenos Ayres...	25.36 "
" .....	Cuba.....	25.4375 "
" .....	Mexico.....	25.365 "
" .....	Portugal.....	32.38 "
" .....	Spain.....	25.36 "
Box of raisins.....	Malaga.....	44. "
" .....	Valencia.....	56. "
Centner.....	Bremen.....	127.5 "
" .....	Norway.....	110.11 "
" .....	Nurnburg.....	112.43 "
" .....	Prussia.....	113.44 "
" .....	Sweden.....	112.512 "
" .....	Vienna.....	123.4677 "

Regarding the use of the large number of units expressed in the table, the Chief of the Bureau of Foreign Commerce says that it is in daily use in his Bureau in the reduction of foreign weights and measures to United States equivalents.

It is undoubtedly true that forty-three countries have adopted the metric system, and that even a larger number of them, including Canada, Great Britain and the United States have legalized it, but it is also true that no country enforces the observation of it to the exclusion of their local denominations. Wine and oil are bought and sold in Amsterdam by the aam as well as by the litre, and in Argentina and other South American States and other countries, sugar and coffee are trafficked for by the aroba as well as by the kilogramme; and in none of the metric countries does it appear that because there are different denominations in common use they are preventive of trade. It does not therefore follow, as Prof. McLennan suggests, that the adoption of the metric system by Canada, Great Britain and the United States would find it to be a Lingua Franca which would be of any specially great value.



Prof. McLennan urges that the greatest advantage the adoption of the metric system would be to Canada would be in stimulating our foreign trade. Perhaps so; but it is admitted that the transition from the existing system to the metric would, for an untold period of time, be very costly and depressing to trade, and that is not what Canada desires or would knowingly and approvingly consent to. It would be a task of great difficulty to change our system of weights and measures, attended, as it would be, by wide-spread confusion; and that the prosperity of our foreign trade requires the adoption of the system is not true. It would be exceedingly unfortunate to Canadian manufacturers who desire to engage in export trade were it enforced. It is calculated that it would cost a thousand million dollars to the American manufacturers to make the change—how much the cost would be to Canada is a question which Canadian manufacturers should consider.

Why should Canada change from the very gratifying certainty of trade that we now enjoy under our present system to the very disagreeable uncertainty, if not the certainty of financial disaster that would inevitably follow a change to the metric system? We show why the change should not be made. We remember the fable of the dog crossing the bridge with a bone in his mouth which saw his reflection in the water. Mr. McLennan tells us that the adoption of the metric system would stimulate our foreign trade with the forty three countries which have adopted it.

During the fiscal year 1905 Canada exported domestic produce to the value of \$190,854,946, of which \$108,579,770 went to different parts of the British Empire, and \$73,359,264 to other non-metric countries, and only \$8,915,912 to metric countries. In other words our export trade with non-metric countries amounted to 95.85 per cent. of the whole, and to metric countries, 4.15 per cent. It would be a foolish thing for the dog to sacrifice the certainty of the big thing to obtain the shadow of the little thing.

Our import trade in the same year makes a similar showing. Our entire imports, dutiable and free, entered for consumption, were valued at \$261,925,554, of which \$72,430,750 came from countries of the British Empire and \$237,335,695 from other non-metric countries, and only \$24,589,859 from metric countries. In other words our imports from non-metric countries amounted to 91 per cent. of the whole, and from metric countries only 9 per cent. The reality is obvious, and the shadow very shadowy indeed.

Our entire trade during the year, both export and import was valued at \$452,780,500, of which 92.6 per cent. was with non-metric, and only 7.4 per cent. with metric countries. Canada will not sacrifice the certainty for the shadow.

#### GERMAN SURTAX vs. BRITISH PREFERENCE.

Quite a commotion was raised in the Dominion House of Commons last week over a motion made by a member for copies of correspondence had since 1896 on the respective tariffs of Germany and Canada in relation to each

other. The attention of the member had been directed to the matter because, in his opinion, the Government had been careless and indifferent towards the farming industry of the Dominion in not encouraging trade with Germany. The German Empire was the second largest importer of agricultural products in the world, only a small proportion of which was supplied by Canada.

The Canadian surtax of 33 $\frac{1}{3}$  per cent. on German goods above the general tariff rate was an incident resulting from the Canadian preference of 33 $\frac{1}{3}$  per cent. on British goods entering the Canadian market. Under present circumstances the duty on German goods is 50 per cent. higher than the duty on British goods of similar character. Existing treaties between Great Britain and Germany provide that any commercial arrangements between the two countries shall be on the most favored nation basis—that no arrangement shall be made by either that shall discriminate unfavorably against the other. Canada saw proper to give a preference to Great Britain, and Germany immediately claimed that under the favored nation clause of her treaty with Great Britain she was entitled to the benefit of the preference in the Canadian market, Canada being a part of the British Empire and under the political influence of Great Britain. This claim was and is resisted by Canada, in retaliation for which Germany imposes a higher duty on Canadian imports than she does upon the goods of other countries. Observing the rule of tit for tat, Canada has placed a surtax of duty on German goods, and it is this condition of things that discriminates so unfavorably against trade between Germany and Canada. If it were not for the unnecessary tariff preference Canada shows to Great Britain, Germany would not have discriminated against Canada, and Canada against Germany.

If it could be shown that any material and lasting advantage results to either Canada or Great Britain because of the preferential tariff, even to the extent of compensating Canada for the sacrifice of the German trade, the preference would be more enduring. But there is no compensatory results. Great Britain has never shown any inclination to reciprocate the favor, but treats her dutiful but impulsive daughter with no more commercial consideration than she does Germany. Canada gets nothing substantial out of the transaction. Our import trade from Great Britain, even under the preference, does not increase in proportion to the trade with the United States, which fact would also apply to our trade with Germany were it not for the unfortunate tariff hostility displayed each to the other. Surely the Canadian textile manufacturing industry has been most woefully injured by British competition under the preference.

Is it desirable that Canada cultivate closer and more favorable trade relations with Germany? If yes, how is it to be effected? Up to the time of the going into effect of the preferential tariff, trade with Germany was a valuable feature of Canadian foreign trade. In 1902 the value of Canadian produce exported to Germany was \$2,692,578, but in 1905 it was but \$1,146,654, a decrease of \$1,545,924, the loss affecting Canadian agricultural industries more unfavorably than any other. Canada has

been and would again be a large consumer of German goods were the conditions as favorable now as then. The value of German goods entered for consumption into Canada in 1903 was \$12,282,637, but the primary effect of the British preference caused that trade to decline to \$6,695,414 in 1905, a decrease of \$5,587,223. The duty collected on imports of German goods in 1903 was \$3,255,121, and in 1905 only \$1,826,789, a decrease of \$1,428,332. Canada is sacrificing a market of 60,000,000 consumers for a chimerical and sentimental idea that is not appreciated.

#### OUR ENTANGLING ALLIANCES.

The Toronto Evening Telegram, in an editorial entitled, "Canada Should Not Cringe to Germany," says:

Canada either had to "crawl" to Germany or else impose a surtax on goods imported from Germany.

The United States, with its 75 per cent. tariff against German goods was given "the most favored nation treatment" at German ports.

And the discriminating clauses of the German tariff were applied to goods from Canada with her tariff of 35 per cent. against German goods.

Canada's discrimination in favor of goods of British origin was emphatically none of Germany's business.

Germany was insolent and absurd in her attempt to punish Canada for treating Britain better than foreign nations are treated, while at the same time treating Germany as every other foreign nation is treated.

Whether the British preference is wise or unwise; whether it should go or stay, is not the question.

It is bad politics and worse patriotism for the Ottawa Opposition to argue that Canada should drop the preference as a peace offering to Emperor William.

The surtax on German goods is Canada's dignified, appropriate and effective answer to Germany's unprovoked discrimination against Canadian goods.

The surtax will stay where it is, and the Ottawa Opposition will stay where it is, if its members have nothing better to do than stiffen the obstinacy of Germany with assurances that her paltry market is necessary to the life and prosperity of Canadian agriculture.

Our esteemed contemporary does not seem to understand the situation which hinges on whether or not Canada is a nation politically independent of Great Britain—whether or not Great Britain is over-lord of Canada—whether or not Canada is a nation, and as such possesses a right to make treaties with other nations. It does not seem that Canada, being a dependency of Great Britain, and acknowledging the political supremacy of the British Crown, has such right; and it is in such light Germany views the question. Canada has no right to make a treaty with Germany, nor would Germany consider for a moment the making of a treaty with Canada, knowing that Canada is a dependency of the British Crown. Therefore, Canada acknowledging the supremacy of the British Crown, has no right to violate any stipulation or agreement entered into by treaty between Great Britain and Germany. Canada may concede a trade favor to Great Britain, the provisions of which may be observed by both parties to it, but when another country, Germany in this instance, feels itself aggrieved by it, because Canada, a dependency of Great Britain, violates the spirit of the treaty between Great Britain and Germany, this latter

country believes itself justified in retaliating in kind. If Canada had not violated the spirit of the British-German treaty by granting a political favor to one country that was not granted to the other, Germany would have treated Canadian goods entering her ports precisely the same as she treats British goods. This is the view Germany takes of the matter. Under the British-German treaty Canadian goods entering German ports would be entitled to the most favored nations treatment, and would now be receiving it were it not for Canada's own action in the matter of the preferential tariff. British selfishness allows that country to reap the benefit of Canadian folly, but has never induced a protest to Germany against her tariff hostility to Canada; and there need be no hope that any resentment will ever be demonstrated by Great Britain against Germany in behalf of Canada.

What, then is Canada to do to restore the previous status? She can withdraw the preference, and, automatically, the previous status would restore itself. Instead of doing this, one misstep is supplemented by another, and a surtax is imposed on German goods, a result of which Canadian produce when entering Germany is met by a much higher tariff wall than is raised against British goods. To meet this condition Canada retaliates by increasing her tariff wall against German goods, resulting in great loss of trade to Canada.

If Canada were a de-facto nation she might negotiate a treaty with Germany which might put us in the most favored nations class, but this she cannot do, being a dependency of the British Crown. Canada has had frequent cause to lament and regret this dependency. Great Britain is in a constant condition of diplomatic warfare with other nations; and it is not her policy to antagonize Germany, or the United States, or any other powerful nation because of anything that may concern Canada. The present tariff embroglio with Germany is a case in point; and the Alaska boundary question, in the absence of our power to make a treaty with the United States, was submitted to an arbitrament under which Great Britain, at the demand of the United States, gave us Alverstoneism instead of justice.

What do Canadian advocates of Imperialism think of the situation? Is Canada to be forever hovering under the petticoats of Great Britain? Could we possibly be any worse off if we were rid of such entangling alliances as now confront us? Why not dispense with that which does not increase our trade with the Mother Country, and which has created a situation as affecting our trade relations with Germany not at all favorable to our interests.

#### SAN FRANCISCO.

Speaking of the rebuilding of San Francisco, already begun, and of the demand of the sufferers and others who are handicapped by the scarcity of building materials, particularly of structural steel, for some tariff concessions on imports of such as cannot be supplied by domestic mills, the New York Commercial says:

"On the third and fourth days following the incidence of her terrible earthquake and the most disastrous fire

in all history—that is, on Saturday and Sunday—San Francisco had already resumed an important part of her street car service through pressing old horse-cars into commission, several couples had slightly-delayed marriage ceremonies performed by the city clerk, and the hopeful owner of an ash-heaped lot on Market street indignantly refused \$400,000 cash for it, although less than four days previous its estimated value, with all the improvements standing and paying a large revenue, had been only slightly above that figure.

“A people that has the nerve to hold on to ruined property instead of sacrificing it, that insists on being hauled about town before the streets have been laid bare of their debris and has, here and there, men and women who are eager to get married while the desolate waste of their city is still smoking, cannot be kept down—have not been put down, in fact. These three incidents, each comparatively insignificant in itself, are still tremendously impressive as demonstrating the natural inclination of San Franciscans to force normal conditions there at the earliest moment possible. Only give them an even chance, and they will have the New San Francisco in attractive, imposing and admiration-compelling evidence long before the census man calls around in 1910.

“They will, however, have a lot of knotty problems to solve meantime, and for months to come they must face extraordinary and adverse conditions in their industrial and commercial affairs. Of money, the supply will unquestionably be plentiful; for within a few days or as soon as the local financial institutions can secure temporary business accommodations there will begin an inflow of insurance indemnity cash that can hardly stop before it has reached close up to \$200,000,000 in volume. Of labor, both skilled and unskilled, there should shortly be an abundance, too. It will be in the securing of building and other materials with adequate promptness that San Francisco has early and many embarrassments in store for her. On the top of a bounding activity in structural steel and iron, stone, brick, lumber and other material, is coming this new and entirely unanticipated demand for the rebuilding of a great American city, whose property valuation a week ago was fully \$800,000,000 and whose improved realty housed 400,000 people. How can it be met?

“Take the matter of steel alone. The news from San Francisco instantly induced voluminous buying at Pittsburgh last week, and almost numberless orders were placed there strictly with a view to supplying this San Francisco demand; but the mills were already filled with orders eight months ahead of possible delivery. Fully 75,000 tons of pig iron alone were sold in Chicago last week, the market being more active than at any time since the early fall of 1905. Eighty-five per cent. of the pig iron smelters in the Chicago district, according to careful cavass, have purchased no iron for delivery after June. Some have sufficient supplies to last through August and September. And this is the story from practically all centers in the iron and steel industry. It means that no structural material for San Francisco from American sources could probably be laid down there before mid-January, and

not in any considerable volume before spring, if precedence in orders is to be maintained.

“There must be concessions in deliveries in favor of the re-builders of the Pacific metropolis. Ordinary construction ought to wait a bit on the necessities of that city—to stand back and give these people the slight advantage to which their calamities, their courage and their enterprise will entitle them. This is a strictly sentimental view, of course; but it is not incompatible with the spirit of a people who are at the moment delving so deeply into their pockets for the relief of San Francisco's distress. The whole country—and the West especially—is going to share somewhat in San Francisco's coming boom, and it ought to let nothing stand in the way of the rebuilding process. The silver lining is already being unfolded from the cloud of the great disaster.

“And it may be that Congress, too, will feel impelled to lift a bit of the tariff burden now imposed on imports of iron and steel in order that San Francisco may be permitted to buy in the British and German markets, if necessary. Will the law-makers, who appropriated \$1,000,000 for relief continue to “stand pat” when San Francisco is begging for steel?”

#### FALSE IDEAS OF ECONOMY.

Ordering advertising space is not a question of how little a merchant needs to spend to obtain mere representation in the advertising columns, but of how prosperous and important he wishes to appear before his trade. The purpose of advertising is to advertise, and the best advertising of all is the well displayed appearance of prosperity and importance. Whatever may be the amount of a firm's advertising appropriation, it should be so spent as to create an impression of success and self-confidence. The business world at large estimates a business house, first of all, by the seriousness with which it regards itself, and unless a firm attaches importance to its own station in the mercantile community, it need not expect others to do so, says the New York Commercial.

The old saying that “nothing succeeds like success” is as true to-day as ever, but it may be added as a corollary that in the absence of actual success, and during the struggle to achieve it, nothing succeeds like the appearance of success. In the presence of success, nothing is more effective than advertising to make the success known. No justification can be found for failing to keep one's business achievements constantly before the buying public, or for placing one's outward manifestations of internal progress in the foreground. No explanation of such a policy is possible, except a false idea of economy.

If the advertiser places his contracts without other considerations in mind than that of using each advertisement to convey the best possible impression about his house, he is likely to split up his appropriation too minutely, or to make the appropriation too small, and the result is that he nowhere obtains representation in the advertising columns which is in proportion to the dimensions of his business and the place he desires to hold in the estimation of his trade. A small space in a good medium

is infinitely better than nothing, but does it not defeat its own purposes?

The advertiser wishes his prospective customer to look upon him as one of the big fellows in the business, and, provided only he can fulfill his promises to customers and sell them goods fully up to requirements, he is entitled to have them do this. But when he only uses a small space, while around or near him in the advertising pages are other firms of no greater responsibility and consequence than his own, does he not in reality place his own house on record as of less importance than his competitors and thus nullify the effects of the advertising for which he is paying out his good money?

This question, applicable to all forms of magazine, newspaper or trade journal publicity, is particularly applicable to advertising in new fields among total strangers, as, for instance, in the case of export trade, where a very small percentage of the firms reached are acquainted with the advertiser, even by hearsay. As "style is the man," so advertising is the advertiser. The advertisement conveys to the new customer his first impression of the advertiser, and if by using a small space, where a larger one would cost very little more, the man with the goods to sell permits his prospective customer to place a low estimate upon his importance, he is doing himself the greatest possible injustice.

Look through the advertising pages of any trade or export publication, and see for yourself if you do not unconsciously give the greater consideration to the most liberal advertisers regardless of the arguments presented or the influence loaned by the type, both of which are only means to an end. The thing that counts is the general impression you carry away after you have looked over the advertising. Advertising's greatest influence is in the impression it leaves on the reader's mind, and this impression is usually gained by the reader unconsciously. The accumulative effect of generously displayed, persistently repeated advertising is the thing that brings the business sooner or later, and whatever makes for the accomplishment of this purpose is always to be desired at any reasonable cost.

The advertiser who ignores the powerful effect of well displayed announcements, and who tries to save money by cutting down the amount of his advertising expenditures, or by trying to pass it around among all the mediums that present themselves for his patronage, may therefore well wonder and ask himself what it means when he wakes up some morning to discover that other people do not regard him as seriously as he regards himself.

#### INTERNATIONAL SYSTEM OF COINAGE.

Among the subjects presented for discussion at the International Congress of Commercial and Industrial Corporations, held at Liege, Belgium, recently, was that of an international system of coinage. The leading paper on the subject was by Dr. W. J. Holland, formerly professor of political economy and chancellor of the Western University of Pennsylvania. Dr. Holland attended the Liege conference as the representative of the Pittsburgh Chamber of Commerce. He argued

earnestly for the desirability of securing, by concerted action on the part of the more enlightened nations of the earth, the adoption of some form or kind of currency which would afford throughout the world a universal measure of values and medium of exchange. He said in part:

"The great commercial nations of the earth have adopted the grain of gold as a measure of value. It is important to call attention to the fact that with the sole exception of Great Britain the standard of fineness in gold required for coinage purposes is the same. Nine parts of fine gold and one part of copper are accepted to-day in all the mints of the world as forming the best alloy for the purposes of gold coinage. The British government alone maintains in the coinage of the sovereign the ratio of 11-12th of fine gold to 1-12th part of copper. The adoption of the ratio used by all the other nations of the earth in the coinage of gold has been under consideration by the English government for some time and has much to commend it on economic grounds. That England will ultimately come to adopt the same ratio of the two metals in gold coinage appears to the writer to be highly probable inasmuch as the adoption of this alloy would, in addition to bringing about accord with other nations, undoubtedly yield a profit in recoinage.

"Not only is there practical unanimity among the nations of the earth, in the adoption of the grain of gold as a standard of values, and, with one exception, the adoption among the various nations of a uniform ratio of metals in forming the alloy used in gold coinage, but, and this is most interesting and most pertinent to the question, the standard coins themselves in use among the great nations so closely approximate each other in value that it would require but a very small relative change in the amount of the precious metals employed in their fabrication to make them, or their divisos and multiples, as the case may be, intrinsically commensurable with each other. Without in any way interfering with the nomenclature either of the larger or of the smaller coins of any one of the nations who are to-day most largely concerned in the world's commerce, a slight adjustment of the relative proportions of gold in the coins accepted as basic measures of value would create uniformity.

"If England, Germany, France and other nations using the franc as a measure of value, and the United States, were to unite upon a system of coinage in which a trade unit consisting of 25 grains of gold (nine hundred thousandths fine) should be adopted as the standard of value, a simplification of the whole matter would be easily reached. Such a standard of value would differ in intrinsic value from the gold dollar of the United States as at present represented in the half-eagle by only approximately three cents, from a French five-franc piece (which has never been coined, but the value of the franc in which is determined by the 20-franc piece) by approximately two-fifths of a cent only; it would differ from the German four-mark piece by two cents, and from the English four shillings by one-half cent only.

"It will be seen that the question of bringing the coinage of the great commercial nations into substantial accord

is simply a question of regulating by proper legislation the amount of gold which shall enter into the composition of the coins, and the actual change would be comparatively a small one. The relation of the silver and copper coins which are used as subsidiary to the gold coins and which are redeemable in gold would be of so small moment that for all practical purposes these coins might continue to be minted as they are. In few cases does the amount of silver in any subsidiary coins which are used as divisors or equivalents in exchange of the gold unit equal at present much more than half of the intrinsic bullion value of the gold unit. The silver quarter of a dollar, the English shilling, the German mark contain only about half of the amount of silver which would be necessary to make them in bullion value equal to the amount of gold for which, under existing legislation, they are exchangeable; and the same thing is true of all the other subsidiary silver coins, while the coins made of copper and nickel only represent the merest fraction of the intrinsic value of the gold for which they are made in current use exchangeable and in which they are redeemable.

"The foregoing statement of the possibilities of the case is worthy of serious attention, and I believe that it would be eminently practical, without seriously disarranging financial transactions, if England were to unite with the nations of Europe and of America which have adopted a uniform grade of fineness in the minting of their gold coins, and that then these nations should simultaneously enact laws providing that, after the lapse of a number of years which might be mutually agreed upon, say, five years after the adoption of a convention to carry their purposes into effect, the mints of these countries should coin gold upon the basis which is herein suggested. Under this arrangement the napoleon would be made of one hundred grains nine hundred thousandths fine, the sovereign of Great Britain, the half-eagle of the United States and the 20-mark piece of Germany would each be made to consist of 125 grains of gold nine hundred thousandths fine.

"The necessity for a harmonization of the monetary systems of the world is greater to-day than it ever was. The volume of trade between the United States and Great Britain alone exceeds in value and bulk to-day the entire trade of the nations of Europe with the world a hundred years ago. And as population grows, and men come nearer to each other and understand each other better, and old animosities and jealousies die out from among them, it becomes more and more desirable that substantial accord in matters of this sort be secured. At the time of the formation of the German Empire, an event which is within the memory of all men of middle age, there were a number of discordant and varying systems of coinage prevailing throughout the domain covered by that great empire.

"With that wisdom which has characterized the German people they swept aside all of these difficulties and established a uniform system of coinage for their great domain. If it was feasible for an empire springing up out of the union of a multitude of kingdoms and principalities

to bring about a uniform system by act of legislation in the way that it was done, why should it be difficult for the nations of the earth to accomplish the same end? It surely will be accomplished, and I trust that the congress at Liege may adopt resolutions which will have a potent effect in influencing legislation in the parliaments and senate houses of the world, leading those, whose province it is to make the laws for the nations, to perpetuate the spirit of modern progress which international comity demands."

**MEETING OF THE SHAREHOLDERS  
OF THE  
CANADIAN MANUFACTURER PUBLISHING CO., Limited**

The Shareholders of the Canadian Manufacturer Publishing Co., Limited, are hereby notified that a General Meeting of the Company will be held on Monday, the 4th day of June, 1906, at the hour of 11 o'clock in the forenoon, at the Head Office of the Company, Room 408 McKinnon Building, corner Jordan and Melinda Streets, Toronto, for the purpose of receiving and considering a report from the Directors upon the affairs of the Company, to elect a Board of Directors for the ensuing year, and to consider, generally, such business of the Company as may be presented.

ARTA CASSIDEY,  
Secretary.

Dated at Toronto this 4th day of May, A.D., 1906.

**EDITORIAL NOTES.**

When Great Britain a few years ago, denounced and terminated her treaties with Germany and Belgium it was at the request of Canada. It was essential to the granting of Canada's tariff preference to Great Britain. It was an unfortunate entrance into the world's politics, a result of which is the snarl in which we now find ourselves with Germany. In the last two or three years we have reduced our exports of Canadian products to Germany to the extent of \$1,545,924; our imports of German products to the extent of \$5,587,223, and our revenue on decreased German trade to the extent of \$1,428,332. Quite a sacrifice to the sentiment of Imperialism which is not appreciated by Great Britain.

The trade dispute with Germany into which the Laurier Government has led this country, on the theory that it is politically profitable to be in an attitude of hostility to the Germans, is absolute folly. Under men of sense it would not have been brought on. It is against Canada in two ways. First, our surtax upon German goods coming to Canada is paid by our own people. Secondly, the retaliatory duties levied by Germany upon the products of Canada exclude us from a country to which our rivals next door have access on better terms. The thing hits us in both directions. It taxes our consumers, and it excludes our producers from a promising market—The Mail and Empire.

It is absolute folly for a so-called protectionist paper to rant about a matter of which it seemingly knows nothing. The tariff preference given to Great Britain unasked for and unnecessary as it was, was the cause of the row, and our dear Mother Country is a mean old thing for not having resented the action of Germany, or at least to have requested Canada to withdraw it.

The Mail and Empire sometimes argues that a high tariff on foreign goods is a good thing—the higher the better, as the other fellow has to pay the duty anyhow, not the Canadian consumer.

Representative Madden, of Illinois, offered a resolution last week to suspend for one year the duty on structural steel and other necessary building material intended for use in the reconstruction of buildings in California, which suffered from the recent earthquake and fire. The resolution states in its preamble that there is a shortage of structural steel and other building material in the country. Mr. Madden is evidently not a stand-patter.

Mr. Henderson, member for Halton county, is so intense a protectionist that he would "vote to wipe the present preferential tariff off the statute book." The great merit of the preference is not the benefit it confers on the people of Britain, but the benefit it confers on the people of Canada.—Toronto Globe.

The Globe would confer a favor on a waiting and anxious public if it would explain the connection between tariff protection and the preferential tariff. As explained by the Canadian Manufacturer's Association, a protective tariff is a tariff the rates of which are high enough to keep all foreign and British goods out of the Canadian market; and the preferential tariff, which they so earnestly advocate as a concession to Great Britain, amounts to the same thing. If the preference is not to benefit the people of Great Britain why continue it? If it is intended to benefit the people of Canada, pray how is the trick done? Mr. Henderson expressed the views and desires of thousands of Canadians when he expressed a willingness to wipe it off the statute book.

One of the things, says Cassier's Magazine, of which all advocates of the use of the metric system fail to appreciate the importance of, is that it is relatively easy to introduce any new system of units, but almost impossible to wipe out the old ones. Bringing in the metric units would simply saddle the English-speaking world with an additional system; the present one would remain. There is every needed evidence to prove this. The transition period, if it might so be termed, would be an all but permanent one. The complications which it would entail are incalculable, and the money cost of the readjustments would be far beyond their value.

J. Henniker Heaton, the well known champion in the British Parliament of cheap postage, is now seeking to provide a telephone for every householder at a cost not greater than 24 cents a week. The Australian Postmaster General regards 24-cent telephones as practicable. In Great Britain the post-office department comes fully into control of the telephones in 1911, but Mr. Heaton thinks that cheap telephones, with underground wires, should be provided before 1911, as it would mean an annual saving of "millions of dollars."

A novel use of windmills was made on board the exploring ship Arctic, says the Export Implement Age. To save fuel, all of which must be carried, a set of windmills was erected when the ship became ice-bound. The power was employed in compressing air which was used to run a generator and charge storage batteries for lighting the ship. The system was sufficiently successful to warrant the American Shipbuilder in recommending the adoption of windmills on board the lightships which serve as floating lighthouses along our coast. These vessels are where they are subject to almost continuous winds from some direction, and it is believed would make enough current not only to light their signal lamps, but sufficient to cook with and possibly warm the ship in winter. The suggestion is made that the experiment be given a thorough trial, not only on the lightships, but with lighthouses also, which are usually in exposed locations.

The total immigrant arrivals from the United States into Canada for the nine months ending March 31, were 30,971, an increase of 5,731 over the same period of the previous fiscal year. From Great Britain and the continent the arrivals were 54,778, a gain of 3,898. The increase in arrivals for the nine months was, therefore, 9,629. For March alone the arrivals by ocean ports were 14,241, showing an increase of 6,299.

That a trade paper can be of great worth to the line of business it represents goes without comment, and its worth can be measured in proportion to its use. By this is not meant the total issue printed and circulated altogether, but the total number of its interested readers. This information cannot be easily obtained, but it is a well-known fact that a trade paper has vastly more readers than subscribers. There are several reasons for this. One reason is that a tradesman who thinks that he cannot afford to subscribe for one of his trade papers will borrow his neighbor's. He is like the man with the watch. He wants to know the time, and to learn it he must consult the watch of another man. Another method by which extra readers are gained is through the proprietors or managers of establishments. They realize the worth of a paper akin to their business, and will often pass their trade papers around among their employees. Some firms go further and will subscribe for a dozen or more of these papers and distribute them among their employees. They do this because they want keen, bright, well-read men behind their line of business, and the trade reviews sharpen these virtues. The public libraries also realize their value, and are among the great patronizers of the trade press issues, and supply their shelves liberally with them. There they are read and re-read by a large number of trade people. Many expert tradesmen, who have risen from the ranks will admit that they owe their success, in a large measure, to the keen interest with which for years they have followed the progress and policy outlined by the leading papers of the trade of which they were a part.—Trade Press List.



## CAPTAINS OF INDUSTRY.

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

The Canada Process Co., manufacturing and importing chemists, whose office and works are at Queen's Wharf, Bathurst Street, Toronto, appear for the first time this month as an advertiser in THE CANADIAN MANUFACTURER. This company handle heavy chemicals for the manufacturing trade, such as sulphuric, muriatic and nitric acid, also Glaubers salt, hypo-sulphite of soda, washing soda, carbonic acid gas, etc. They have an extensive works and bid fair to do a good business. We welcome them in the family of "Captains of Industry."

The Canadian Westinghouse Co., Hamilton, Ont., will increase their capital from \$2,500,000 to \$5,000,000.

The Macgregor-Gourlay Co., Galt, Ont. will erect an addition to their factory.

A company will be formed at Galt, Ont., which will be known as the Galt Malleable Iron Works. Ald. Fryer, Galt, is interested.

A public library building will be erected at Burlington, Ont. at a cost of about \$5,000.

The Grand Trunk Railway Co. will erect a roundhouse at Lindsay, Ont.

A Baptist church will be erected at Fenelon Falls, Ont. at a cost of about \$6,000.

A large sash and door factory will be erected at Fort William, Ont. Mr. Seaman, Meaford, Ont., is interested.

The Department of Education, Woodstock, Ont., will erect an addition to the Collegiate Institute at that place.

A Collegiate Institute will be erected at Picton, Ont. at a cost of about \$30,000.

The Canadian Shipbuilding Co., Bridgeburg, Ont., will build a 10,000 ton steel freight steamer for the Chicago & St. Lawrence Transportation Co. and a palace steamer for the Canadian Pacific Railway.

The Hamilton, Caledonia & Lake Erie Railway Co., Hamilton, Ont., have struck a gas well in the Selkirk district, having a flow of about a million feet per day.

The Canadian General Electric Co., Toronto, are building two generators for the Kaministiquia Power Co., Kakabeka Falls, Ont.

The Canadian Fairbanks-Morse Co. are equipping their large works in Toronto throughout with Chapman double ball bearings.

The Bothwell Locomotive Co., Owen Sound, Ont., have been incorporated with a capital of \$100,000, to manufacture locomotives, etc. The provisional directors include J. G. Hay, G. A. Bothwell and F. W. Harrison, Owen Sound.

Messrs. Telfer Bros., Collingwood, Ont., have been incorporated with a capital of \$150,000, to manufacture biscuits, confectionery, etc. The provisional directors include F. F. Telfer, A. H. Cuttle, and H. A. Telfer, Collingwood, Ont.

The Peterson Lake Silver Cobalt Mining Co., Toronto, have been incorporated with a capital of \$3,000,000, to carry on a mining, milling and reduction business. The pro-

visional directors include J. Montgomery, J. G. Strong and W. R. Williams, Toronto.

The Semmens & Evel Casket Co., Hamilton, Ont., have been incorporated with a capital of \$250,000, to manufacture caskets, coffins, hearses, etc. The provisional directors include A. W. Semmens, J. J. Evel, Hamilton, and W. G. Evel, Winnipeg, Man.

Universal Systems, Limited, Toronto, have been incorporated with a capital of \$50,000, to manufacture office furniture, recording clocks, etc. The provisional directors include F. A. Hall, C. H. McArthur and J. J. Wright, Toronto.

The Hoidge Marble Co., Toronto, have been incorporated with a capital of \$40,000, to manufacture marble, granite, etc. The provisional directors include J. R. Hoidge, W. Cowan and J. E. Curtis, Toronto.

The Star Silver Cobalt Mining Co., Toronto, have been incorporated with a capital of \$2,000,000, to carry on a mining, milling and reduction business. The provisional directors include J. Meen, J. A. Shaw and B. E. Bull, Toronto.

The factory of the Spramotor Co., London, Ont., was damaged by fire April 16 to the extent of about \$4,000.

The Chapman Double Ball Bearing Co. have recently received an order for the complete equipment of the London Machine Tool Co.'s new plant at Hamilton, Ont.

A new hospital, stables and gymnasium will be erected in connection with the Batteries, Kingston, Ont. at a cost of about \$150,000.

The grain warehouse of Messrs. Barron, Bailey & Bailey, Amherstburg, Ont., was destroyed by fire April 14. Loss about \$5,000.

A boat building company will be formed at Kenora, Ont., with a capital of \$25,000. John Stone, Kenora, is interested.

The ore cars of the Canadian Copper Co., Copper Cliff, Ont., and the mail cars of the Hanover Portland Cement Co., Hanover, Ont., are being equipped with Chapman Double Ball Bearings.

The saw and grist mill of Alba Root, Greenbush, Ont., was destroyed by fire recently.

The Marthaville Hotel, Marthaville, Ont., was destroyed by fire April 19. Loss about \$2,000.

The grain elevator of Messrs. G. T. Somers & Co., Beeton, Ont., was destroyed by fire April 22.

The premises of the power house, Hamilton, Ont., were destroyed by fire April 24. Loss about \$12,000.

The Krug Furniture Co., Berlin, Ont., will erect an addition to their factory.

The Wade Mfg. Co., Dundas, Ont., will apply for incorporation to manufacture silver plated novelties, etc. Geo. V. Wade, Dundas, is one of the incorporators.

The Oshawa Steam & Gas Fitting Co., Oshawa, Ont., are erecting an addition to their plant in Oshawa. About a year and a half

ago they equipped their factory throughout with Chapman Double Ball Bearings, and have recently given an order for the equipment of their new addition.

The Canadian Pin Co., Toronto, have been incorporated with a capital of \$100,000, to manufacture toys, fancy goods, etc. The provisional directors include H. E. Redman, H. A. Clark, and F. Lane, Toronto.

The Dominion Office & Store Fitting Co., London, Ont., have been incorporated with a capital of \$40,000, to manufacture office and store fittings, etc. The provisional directors include D. H. Gillies, C. R. Somerville and J. H. Weldon, London, Ont.

The Canadian Westinghouse Co. are furnishing the T. Eaton Co., Toronto, a 300 k.w., direct current, 550 volt, engine type generator, to be used as part of their present large power plant, which is considered one of the most up-to-date direct current plants in Canada, and which is equipped throughout with Westinghouse apparatus.

The Hamilton Cotton Co. are installing Chapman double ball bearings on the line shafting in the addition to their plant, which they have recently completed in Hamilton, Ont.

The Dinorwic & Gold Mines Telephone Co., Toronto, have been incorporated with a capital of \$40,000, to carry on the business of a telephone company. The provisional directors include A. Campbell, Detroit, Mich.; J. G. Shaw and J. Montgomery, Toronto.

The Gillies Silver Mining Co., Haileybury, Ont., have been incorporated with a capital of \$500,000, to carry on a mining, milling and reduction business. The provisional directors include J. F. Gillies, Haileybury Ont.; D. Stewart, New Liskeard, Ont., and O. Enright, Douglas, Ont.

The Cross Lake Consolidated Mining & Milling Co., Toronto, have been incorporated with a capital of \$1,000,000, to carry on a mining, milling and reduction business. The provisional directors include F. Rielly, J. B. Bartram and H. M. Murton, Toronto.

The Nelson Hardware Co., Windsor, Ont., have been incorporated with a capital of \$40,000, to manufacture hardware, etc. The provisional directors include A. J. Lech, W. J. Moore, Windsor, and H. Bunning, Sarnia, Ont.

The Beaver Shoe Co., Ottawa, have been incorporated with a capital of \$40,000, to manufacture boots, shoes, rubbers, etc. The provisional directors include W. Bardsley, D. H. Youngusband, Ottawa, and J. T. Curtiss, Montreal.

Messrs. Hunter Bros., Barrie, Ont., have been incorporated with a capital of \$10,000, to manufacture boots, shoes, clothing, etc. The provisional directors include W. C. Hunter, Barrie, Ont.; B. W. Hunter, Newmarket, Ont., and J. H. Hunter, Bracebridge, Ont.

The premises of the Toronto & Hamilton Sewer Pipe Works, Hamilton, Ont. were destroyed by fire April 30. Loss about \$50,000.

A waterworks, sewerage and electric light system will be installed at Fort Frances, Ont.

The Hamilton Bridge Works, Hamilton, Ont., have been awarded the contract for the construction of the new bridges across the Indian River at Keene and Evans, Ont.

The barracks at Kingston, Ont., will be re-modeled and a stone garrison building erected.

A hotel will be erected at Flesherton, Ont., to cost about \$150,000.

A waterworks system will be installed at Kenora, Ont.

Messrs. Gooderham & Worts, Toronto, will erect new cooorage and barrel storage shops there.

The congregation of the Baptist Church, Welland, Ont., will erect a new church at that place.

Messrs. M. Beatty & Son, Welland, Ont., will erect large plants at that place to manufacture dredges, steam shovels, etc.

The Cordage Co., Welland, Ont., will erect an addition to their factory at a cost of about \$1,000,000.

J. W. Wardrope, Ottawa, has purchased the rolling mills, Belleville, Ont., and new machinery will be installed.

The Canadian Pacific Railway Co. have acquired the use of the falls at Rat Portage and the Kennebec Falls at Fort William Ont., and will use the water power to supply electricity on their line between Winnipeg, Man., and Fort William.

The Hamilton Steel & Iron Co., Hamilton, Ont., will erect a second blast furnace with a capacity of 400 tons per day.

The restaurant of Harry Webb, and the grocery store of Messrs. Michie & Co., Toronto, were damaged by fire April 28 to the extent of about \$15,000.

The Bradburn House, Omemee, Ont., was destroyed by fire April 29. Loss about \$6,000.

One of the grain warehouses of Messrs. Levett & Rollins, Exeter, Ont., was destroyed by fire April 19. Loss about \$1,000.

The sawmill of J. Radford, Ingersoll, Ont., was destroyed by fire April 19. Loss about \$1,000.

The premises of Messrs. Chadwick Bros., Hamilton, Ont., brass manufacturers, were damaged by fire April 19 to the extent of about \$1,200.

It is stated anthracite coal has been discovered in the neighborhood of the Albany River, New Ontario.

The post office building at Toronto was gutted by fire April 29. Loss about \$30,000.

The ratepayers of Owen Sound, Ont., have voted favorably on two by-laws, one to authorize the issue of debentures for \$45,000 to extend the gas plant, and the other to authorize the issue of debentures for \$45,000 for the extension of the electric light plant.

The dry kilns of the Seaman Kent woodenware factory, Meaford, Ont., were destroyed by fire April 26.

The ratepayers of Gravenhurst, Ont., have voted favorably to raise \$5,000 for the construction of cement sidewalks there.

The Toronto Railway Co., Toronto, will increase their capital to \$1,000,000.

The Toronto Dwellings, Limited, Toronto, and the Canadian Northern Railway Co., have purchased real estate in eastern central Toronto at a cost of about \$325,000. The railway company will erect large freight sheds on their share of the site.

The Turbine Steamship Co., Toronto, have been reorganized, Mr. J. C. Eaton, of the T.

Eaton Co., being elected president; Mr. J. Moddie, jr., Hamilton, Ont., vice-president; Mr. J. Vaughan, of the T. Eaton Co., secretary-treasurer, and Mr. H. Magee, being appointed to the Board of Directors.

A Methodist church will be erected at North Bay, Ont., at a cost of about \$26,000.

The factory of Messrs. J. M. Rose & Co., Toronto, was damaged by fire April 26. Loss about \$5,000.

Messrs. Russell & Dougherty, Brantford, Ont., will establish a factory for the manufacture of metallic packing at that place.

The reduction works of the Dominion Gold Mining & Reduction Co., Kenora, Ont., were destroyed by fire April 26. Loss about \$30,000.

The Warren Church Organ Co., Woodstock, Ont., have been organized to manufacture pipe organs. Those interested include Jas. Hay and Chas. Warren, Woodstock. A large factory will be erected.

A five inch vein of silver has been discovered near Cobalt, Ont., on property owned by J. H. E. Barnett, Renfrew, Ont.

The Electrical Construction Co., London, Ont., have been reorganized and will apply for incorporation with a capital of \$100,000, to manufacture electrical signs, etc. An addition will be erected to the plant.

The Department of Lands & Mines, Ottawa, have extended to May 18, the time for receiving tenders for the pulpwood concessions in the Rainy River and Nipissing districts.

The Dominion Government are considering the construction of a second canal at Sault Ste. Marie, Ont., which will be 1,400 feet long and 80 feet wide.

The Grand Trunk Pacific Railway Co. have placed an order with the Lake Superior Corporation, Sault Ste. Marie, Ont., for 50,000 tons of steel rails.

J. R. Gillis, Arnprior, Ont., has placed an order with the Robb Engineerin Co., Amherst, N. S., for a 150 h.p. engine.

A postal station for the convenience of persons in the strictly business section of Toronto will be opened by the Postoffice Department at 6 Adelaide Street East, premises formerly occupied by the Aikenhead Hardware Co. This station will be used until the General Postoffice repairs are completed. The removal of the postal staffs to the corner of Front and Lorne Streets, as a consequence of the fire, leaves the district formerly served by the general office without ready service, and it is to meet the requirements of this part of the city that the Dominion Government has leased an office on Adelaide Street.

The sash and door factory of D. Hague, Montreal, was destroyed by fire April 29. Loss about \$40,000.

The wood-working factory of Messrs. W. W. Scott & Co., St. Louis, Que., was destroyed by fire April 29. Loss about \$20,000.

A. W. Royan, manager of H. W. Petrie's Montreal branch, is making a strong connection for his firm there. Among the new agencies for Quebec he has secured are:—The American Tool Works Co., the R. K. Le Blond Machine Tool Co., and the John Steptoe Shaper Co., all of Cincinnati, Ohio.

The Canadian Westinghouse Co. have been awarded a contract by the Montreal Street Railway Co. for a large amount of electrical apparatus. This was necessitated by the rapidly growing traffic of the company. The order includes 20 quadruple equipments of 101-B railway motors complete with controllers and details; also a 1,000 k.w. 600 volt, direct current engine type generator for installation in their main power house, and three 500 k.w., three-bearing, motor-generator sets consisting of type C motors and 550 volt direct current generators. These latter are similar in capacity to those now installed in the various sub-stations of the Street Railway Co., which feed directly into the trolley circuits.

The Laurentian Mfg. Co., Montreal, have been incorporated with a capital of \$20,000, to manufacture woodenware of all kinds, etc. The charter members include B. Sawyer, Westmount, Que., W. F. Sawyer, and G. Pearson, Montreal.

The Canadian Municipal Journal Co., Montreal, have been incorporated with a capital of \$25,000, to carry on the business of a printing and publishing company. The charter members include G. S. Wilson, S. B. Wilson and C. A. Harwood, Montreal.

A steam saw mill of the Lotbiniere Lumber Co., Lyster, Que., was destroyed by fire recently. Loss about \$15,000.

The premises of Messrs. Daoust, Lalonde & Co., Montreal, were damaged by fire April 18 to the extent of about \$10,000.

The American Tobacco Co., Montreal, will erect a new factory, 180x124 feet, at a cost of about \$250,000.

It is stated that the Canadian Pacific Railway Co. have decided to make Quebec, Que., the terminus of their steamship service.

Coppers, Limited, Montreal, have been incorporated with a capital of \$2,000,000, to manufacture machinery, furnaces, etc. The charter members include G. Boulter, F. H. Markey, Montreal, and W. Inglis, Toronto.

Messrs. John Millen & Son, Montreal, have been incorporated with a capital of \$100,000, to manufacture automobiles, bicycles, engines, gasoline, oil, etc. The charter members include J. Millen, W. Strachan and F. W. Sharp, Montreal.

The premises of the Chicoutimi Pulp Co., Chicoutimi, Que., were destroyed by fire April 20. Loss about \$50,000.

The Montreal Crockery Co., Montreal, have been incorporated with a capital of \$20,000, to manufacture glassware, crockery-ware, etc. The charter members include A. R. Oughtred, M. A. Phelan and E. G. Place, Montreal.

The St. Lawrence Steamship Co., Quebec, Que., have been incorporated with a capital of \$20,000, to manufacture steamers, barges etc. The charter members include L. C. Webster, W. G. McConnell and T. L. Brodie, Quebec, Que.

An electric light plant will be installed at Rigaud, Que.

The new elevator of the Grand Trunk Railway Co., which will be operated by the Montreal Warehousing Co., Montreal, was formally opened April 28.

The Quebec Jacques Cartier Power & Light Co. have purchased the charter rights



of the Standard Light & Power Co., Quebec City, and will commence immediately laying pipes and erecting a large plant.

The Pooly Patent Shirt Co., Sorel, Que., have been incorporated with a capital of \$100,000, to manufacture shirts, clothing, etc. The charter members include G. F. Pooly, Montreal; J. L. B. Leclaire and S. M. Pearson, Sorel, Que.

La Manufacture de Conserves de Ste. Dorothee, St. Dorothee, Que., have been incorporated with a capital of \$10,000, to manufacture pickles, preserves, etc. The charter members include L. J. Lorrain, P. Gravel and D. Pesant, Ste. Dorothee, Que.

Three floors in the wholesale stationery building of Granger Freres, Montreal, collapsed April 27 causing damage to the amount of about \$200,000.

An addition will be erected to the Windsor Hotel, Montreal at a cost of about \$1,000,000.

The Northern Electric & Mfg. Co., who have recently completed one of the largest and best equipped manufacturing plants in Montreal, ordered 79 Chapman double ball bearings sixteen months ago, for their cabinet shop. These showed such substantial savings in power, lubrication and attention, that they have recently ordered 140 more for the shafting in their new shops.

The Chapman Double Ball Bearing Co. are equipping the venerable mill of the Singer Mfg. Co., St. John's, Que., with their bearings.

The Intercolonial shops, Moncton, N.B., which were destroyed by fire recently will be rebuilt at a cost of about \$1,000,000.

The Breton Coal Co. have ordered a 120 h.p. Robb-Mumford boiler for their new mine at Port Malcolm, C.B., from the Robb Engineering Co., Amherst, N.S.

The Dominion Iron & Steel Co., Sydney, N.S., are erecting two bloom heating furnaces at their works at that place. The new furnaces will be much superior in many ways to those which are in operation at the present time. The maximum number of blooms which can be heated in the old furnaces, filled to their capacity is eight, while the new ones will hold 28.

New machinery has been installed at the works of the Sydney Cement Co., Sydney, N.S., increasing the present capacity of the works to an output of 500 barrels in twenty-four hours.

The McLeod Hardware Co., Sydney, N.S., have been incorporated with a capital of \$50,000. The incorporators include A. McLeod, A. M. McLeod, and P. B. McLean, Sydney.

The Halifax Industries, Limited, Halifax, N.S. will apply for incorporation with a capital of \$250,000, for the purpose of investigating new industrial propositions.

The Standard Engineering Co., Amherst, N.S., have been incorporated with a capital of \$500,000. The incorporators include H. Hunter, Westchester Station, N.S.; S. Jenks and C. A. McQueen, Amherst.

The Canadian Mining & Development Co., Halifax, N.S., have been incorporated with a capital of \$500,000. The incorporators include N. Ferguson, F. P. Ronnan and J. W. Regan, Halifax.

The Bryan Cap Co., Halifax, N.S., have been incorporated with a capital of \$5,000.

The incorporators include J. P. Connors, H. Glube and I. Bryan, Halifax.

The Eastern Consolidated Mines Co., Halifax, N.S., have been incorporated with a capital of \$2,000,000. The incorporators include F. O. Beal, Bangor, Me.; A. F. Gerald, Fairfield, Me., and F. J. Tremaine, Halifax.

The Amherst Foundry Co., Amherst, N.S., have been incorporated with a capital of \$325,000. The incorporators include C. A. Lusby, T. S. Rogers, Amherst, and W. B. Ross, Halifax.

The Midland Electric Co., Truro, N.S., have been incorporated with a capital of \$100,000. The incorporators include L. Spencer, W. F. Linton, and R. T. Cragg, Truro.

The Charlottetown Electric & Transit Power Co., Charlottetown, P.E.I., have applied for incorporation with a capital of \$50,000.

The warehouse of the Prairie City Oil Co., Winnipeg, Man., was destroyed by fire April 20. Loss about \$15,000.

A lighting plant and waterworks system will be installed at Carman, Man. at a cost of about \$58,000.

The Mitchell Electric Co., Winnipeg, Man., and the Hudson Electric Supply Co., have amalgamated.

The Imperial Oil Co., Petrolia, Ont., will erect a warehouse at Portage la Prairie, Man.

The Kemp Mfg. Co., Toronto, will erect a six story factory at Winnipeg, Man.

Messrs. Thomas Ryan & Co., wholesale boot and shoe dealers, Winnipeg, Man., will erect a seven story warehouse building.

The Canada Paint Co., Winnipeg, Man., propose erecting an elevator at that place.

The corporate name of the McDonald-Simpson Co., Calgary, Alta., has been changed to that of the McDonald-Dunlop Co.

Mr. E. F. Hutchings, of the Great West Saddlery Co., Winnipeg, Man., will erect a factory at Saskatoon, Sask.

A Methodist church will be erected at Grenfell, Sask., at a cost of about \$12,000.

Messrs. McCormick & Ludlow, Winnipeg, Man., will erect an apartment block there.

Messrs. McDonald, McMillan & Co., Winnipeg, Man., have been awarded the contract for the construction of the Grand Trunk Pacific from Portage la Prairie to Winnipeg, Man.

The Manitoba Sand & Dredging Co., Winnipeg, Man., have been incorporated with a capital of \$10,000, to manufacture dredges, steamboats, etc., and to carry on a warehousing and dredging business. The provisional directors include C. A. Allen, J. W. Stewart and C. W. St. John, Winnipeg, Man.

The Lewis Carriage Works, Winnipeg, Man., have been incorporated with a capital of \$75,000, to manufacture automobiles, carriages, bicycles, tools, etc. The provisional directors include E. Lewis, H. G. Banner and J. W. Bruce, Winnipeg, Man.

Oil has been discovered in Mariposa, Man., by Hugh Wray, Windsor, N.S.

Messrs. White & Co., and Messrs. Foley Bros. have been awarded the contract for the construction of 200 miles of the new line of the Grand Trunk Pacific west of Edmonton.

J. D. MacArthur, Winnipeg, Man., has been awarded the contract for the construction of 370 miles for the Canadian Pacific Railroad in various parts of the West.

Mr. Thos. Fyshe, ex-president of the Lake of the Woods Milling Co., will form another large Canadian milling company, which will include nineteen of the smaller milling companies of Manitoba with a capital of \$1,500,000.

The Robb Engineering Co., Amherst, N.S., have received an order from the Brandon Electric Light Co., Brandon, Man., for two 375 h.p. compound Corliss engines.

Messrs. Moodie & Co., Calgary, Alta., will erect a hotel at a cost of about \$35,000.

Messrs. Alanson, Gulley & Co., Vegreville, Alta., will erect a hotel at that place.

The Alberta Railway & Irrigation Co., Lethbridge, Alta., have placed an order with the Robb Engineering Co., Amherst, N.S., for two 175 h.p. Robb-Mumford boilers.

The Hamilton Powder Works Co., Nanaimo, B.C., will double the capacity of their plant at that place.

The North Star Lumber Co., Cranbrook, B.C., will erect a mill at Jaffray, B.C.

The premises of the Yale Hotel, Grand Forks, B.C., were damaged by fire April 15 to the extent of about \$5,000.

Messrs. P. Burns & Co., Fernie, B.C., will erect a cold storage plant at that place.

## ELECTRICITY.

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

### ELECTRIC POWER IN ONTARIO.

The second report of the Hydro-Electric Power Commission dealing with the Trent district was laid on the table of the Legislature a few days ago. It indicates the existence of 65,675 h.p. estimated on the Moira River and its tributaries and on the upper and lower Trent, of which 17,015 h.p. have already been developed. On the lower Trent there are five powers worthy of full development for long-distance transmission. These are Healey's Falls, 8,000 h.p.; Middle Falls, 5,200 h.p.; Rauney's Falls, 6,100 h.p.; rapids above Glen Millar and rapids above Trenton, 3,200 h.p. each, a total dry-weather capacity of 25,600 h.p. The commission is strongly of the opinion that to insure economy a combined development is necessary, the saving in management expenses alone by this method being material. From these five powers energy might be transmitted from Healey's Falls to Brighton and to Whitby on the west and Kingston on the east. Oshawa and Kingston are selected as typical points, and the charges and costs figured out for these municipalities. Oshawa drawing from Healey's Falls with a full load of 1,825 h.p., at a power house cost of \$13.35, would pay \$21.52 at substation and \$26.30 at customers'. At half load of 912 h.p. the costs are figured at \$12.87, \$27.29 and \$37.06 respectively. At Kingston, for which the stepdown and sub-station losses are slightly higher, the rate at sub-station for full load of 2,750 h.p. is \$21.43 and \$26.15 at customers'. The half load rates are \$26.85 and \$36.29.

These figures include all necessary construction, transmission lines, rights of way charges and other expenses. The existing rates for horsepower are shown to be from \$20 to \$40 in several municipalities which generate their own power. The saving to Oshawa, again selected as a typical point, is estimated at \$11,919 a year, besides giving cheap power for lighting and pumping; while for Kingston on a larger installation the saving to power users is estimated at \$29,100.

#### THE HEAVENLY TWINS.

It was an exceedingly pleasant occasion afforded by the Boards of Trade of the twin cities of Niagara Falls last week at which a large number of manufacturers from different parts of the United States and Canada were present. These representative industrial centres of the two countries are really on the "boom" and the object of the gathering was to show to the visitors the excellent opportunities on both sides of the dividing line for the establishment of new manufacturing industries, the great inducements being the low cost of electrical power and the unequalled railroad facilities for transportation. The affair was under the joint management of an executive committee composed of Messrs. O. D. Glasgow, president, and D. B. White, W. H. Arison and F. E. Dalton, of the Niagara Falls, Ontario, Board of Trade, and Geo. W. Knox, president, and J. E. Montague, Geo. F. Nye and John C. Level, of the Niagara Falls, New York, Board of Trade, Mr. E. H. Taylor, being chairman of the joint committee. The events of the day were begun at a breakfast tendered by the Natural Food Co., at their unique works, "The Home of Shredded Wheat," followed in due course by luncheon at the works of the Ramapo Iron Works. Inspection was made of the works of the Hydraulic Power and Mfg. Co.; the Niagara Falls Power Co.; the Ramapo Iron Works and other industrial concerns and a trolley car trip in and about the American city a trolley ride down the Great Gorge route to Lewiston, and return on the Canadian side via Queenston and Brock's Monument, and inspections of the work of the Ontario Power Co., the Toronto and Niagara Power Co., the Canadian Niagara Power Co., and the power house and transformer building of the Ontario Power Co. Later there was a reception and banquet at "The Hospice" where a feast and a flow of many good things were enjoyed which was continued until XII. p.m. The banquet was presided over by Mr. W. M. German, M.P., and addresses were made on "Technical Education," by Mr. Harold W. Buck, electrical director of the Niagara Falls Power Co., and on "The Possible Uses of Electricity in a Modern Plant," by Messrs. Calvin W. Rice, of the General Electric Co., and Paul M. Lincoln, of the Westinghouse Electric & Mfg. Co.; Mr. Edward Gurney, of the Gurney Foundry Co., Toronto, was in one of his happiest strains in speaking of "Manufacturing in Canada."

The day's entertainment was arranged by the Boards of Trade to show the visiting manufacturers the advantages of Niagara Falls, on both sides as a location for all kinds of manufacturing purposes and this object was carried out with the most complete success.

## 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.**

Cassier's Magazine of Illustrated Engineering has in its May number the following interesting articles:—Motor Omnibuses for Public Passenger Service, with fourteen illustrations, by R. G. L. Markham, M. Inst., M.E.; Exploiting an Invention, by George Wetmore Colles; The Electrochemical and Electrometallurgical Industries in 1906, with nine illustrations, by John B. C. Kershaw, F.I.C.; The Metric System Fallacy, by Frederick A. Halsey; Why Compulsory Metric System Legislation Should be Defeated, opinions from leading engineers and manufacturers, James M. Dodge, Henry B. Binsse, Charles E. Billings, Charles S. Gingrich, E. V. Cresson, Wm. Lodge, Gould & Eberhardt, Spencer Miller, E. D. Meier; New Business for Electric Central Stations: How to Get It, by Fred. M. Kimball; The Advantages of Direct-Current Transmission, by A. D. Adams. The usual department of "Current Topics" deals with Opposition to Compulsory Metric System Legislation; Metric System Not in Use in British and American Ships; Cost of Introducing the Metric System in Mechanical Work; Patent Systems and Industrial Wealth; Chemical Laboratories for Large Industrial Plants; A Simple System of Determining Lightning Danger Points on an Electric Railway; Municipal Insurance Against Unemployment.

Evidence taken before the Tariff Commission, consisting of nine volumes, containing 8,000 odd pages of typewriting was presented to the House of Commons a few days ago.

The Rockwell Engineering Co., 26 Cortlandt Street, New York, have sent us a new brochure having reference to the Rockwell pot furnaces for lead and cyanide hardening, and for melting soft metals. These furnaces are designed to operate with either fuel, oil or gas. The apparatus illustrated, shown in large variety and adapted to many purposes, can be furnished with hoods if desired, for the removal of noxious fumes. Catalogues will be sent on application.

The American Shoemaking Directory, revised to April 1, is at hand. It has been entirely reconstructed, showing a great improvement over former issues, and the information is put together in a way to read as a story of the American and Canadian shoemaking industry. The directory covers both the United States and Canada, and is a handy little volume for desk or pocket, being 7x4 inches. Published by the Deming & Rogers Publishing Co., Boston, Mass.

The Canadian General Electric Co. and the Canada Foundry Co., Toronto, both of which are under the same management, have sent us a brochure No. 432, which contains bird's eye views of the Canada Foundry's Davenport Works, comprising 60 acres, and including six acres of operative floor space, divided among structural steel shop, bridge shop, blacksmith shop, machine shop, boiler shop, foundry, pattern vault, power house, pump house, storage and pattern shop,

offices, stores, warehouse, stables, etc., of their ornamental iron department, comprising machine and erecting shop, plating shop, smith shop, foundry, pattern shop, drawing office, power house, etc., and a general view is also given of the Peterborough Works of the Canadian General Electric Co., comprising upwards of 45 acres, and including machine and erecting shop, armature shop, lamp works, wire works, porcelain works, blacksmith shop, brass foundry, pattern shop, boiler house, office, warehouse, stores, etc. Motive power is obtained from the company's hydro-electric plant at Nassau, six miles distant.

The Cassella Color Co., 182-184 Front Street, New York, have sent us two of their illustrated supplements having reference to two of their new dyes, just placed on the market. Supplement No. 13 has reference to their "Crystal Violet 10 B," and Supplement No. 14 to "Diamine Fast Scarlet G.B., B.B., 4 B." Both these pamphlets are supplements to their book of "Cotton Dyeing," which can be had of the company.

The 1906 Year Book of the Merchants' Association of New York has reached us. This association, of which Clarence Whitman is president for the current year, is composed of merchants, manufacturers and allied branches, and includes several hundred of the most energetic business men of New York city and vicinity. It not only takes notice of the different affairs of that city, but much effective work has been done by it in regard to trade and commercial relations. It also takes an active part in the movement for reciprocity treaties and minimum and maximum tariffs. Mr. F. B. DeBerard is editor and statistician of the publications of the association, whose offices are at 66-72 Lafayette Street, New York City.

The Hancock Inspirator Co., Boston, Mass., have sent us a booklet illustrating and describing the factory where the Hancock inspirator is manufactured, also information regarding same.

Allis-Chalmers-Bullock, Limited, Montreal, have issued a series of 50-multi-chrome cards, giving views of Swiss scenery. These cards are used as an advertisement of the Schindler bolting cloth.

The New Era Gas Engine Co., Dayton, Ohio, are distributing a catalogue describing "Little Giant" gas and gasoline engines. The engines listed range from 3 to 20 h.p., and are built both vertical and horizontal. The catalogue describes the construction of the engine, and gives directions for erection and operation.

The Federal Refractories Co., Cleveland, Ohio, and Alexandria, Pa., are distributing a handsome catalogue describing the silica magnesia and chrome brick. Various shapes of brick are listed, and a number of tables, relating to brick work are incorporated in the book. Other useful information is also presented.

The Wellman-Seaver-Morgan Co., Cleveland, Ohio, have sent us their illustrative descriptive catalogue of electric hoists, manufactured by them, of which they say:—In addition to our line of Webster, Camp & Lane steam-operated hoists and haulages, of which we are sole manufacturers, we also build electrically driven hoists, equipped with motors of various types, and in a variety of styles and sizes. We have built such hoists

up to 800 h.p. and are prepared to submit proposals on either standard or special equipment to meet the requirements and work to be done. These hoists may be equipped with single or double drums, or with reels, as may be specified. We also build steel head frames and tipples; cages, skips, and ore cars, etc.; in fact, are prepared to design and equip complete hoisting plants throughout.

Gas, Gasoline and Oil Engines, fifteenth edition, by Gardner D. Hiscox, M.E., New York, Norman W. Henley Publishing Co. While this is the fifteenth edition of this book it is really a new book, as it has been entirely rewritten and brought up-to-date, including the treatment of producer gas plants. The book is illustrated by over 350 illustrations, many of which are intricate line drawings showing the different parts of engines or their action.

The Gas Engine Magazine, published by the Gas Engine Publishing Co., Cincinnati, Ohio, have sent us a copy of a new book, published by them entitled "Gasoline Engine Ignition." This book, by E. J. Williams, treats of the electric ignition of gas and gasoline engines, whether for stationary, marine or automobile service. It is written especially for the user of an engine, and explains the various features of make and break, and jump spark system, batteries, magnetos, dynamos, coils, spark plugs, etc. There are also numerous illustrations, including wiring diagrams, as well as "kinks" in installing, etc. A chapter is added on horsepower. The price of this book is \$1.00.

## PERSONALS.

The Toronto office of the Eugene F. Phillips Electrical Works has been removed from 54 Adelaide Street West, to 67 Adelaide Street East. Mr. J. P. Thomson is agent in charge.

Mr. R. A. Baines, of Baines & Peckover, Toronto, leaves next week on a trip to Great Britain. While there he will look into some business prospects on behalf of his firm.

Bennett H. Brough, secretary of the Iron Steel Institute, 23 Victoria Street, London, England, announces:—Arrangements have been made to hold a joint meeting of members of the American Institute of Mining Engineers and of the Iron & Steel Institute in London, during the week commencing July 23, 1906. After the meeting in London, a tour will be arranged for the American visitors to York, Middlesbrough, Newcastle-on-Tyne, Glasgow, and Edinburgh. As an alternative excursion a number of the American visitors have been invited by the local reception committee for the summer meeting of the Institution of Mechanical Engineers to take part in Cardiff meeting of that society.

The McGraw Publishing Co., publishers of the Engineering Record, Street Railway Journal, Electric World, and Engineer, and other periodicals, have just placed a contract with Frank B. Gilbreth, New York, for the erection of a new building to be erected at Thirty-ninth Street between Seventh and Eighth avenues.

A 42 inch blow-off for 7 foot Penstock, designed by Ross & Holgate, engineers, Montreal, and built by the Jenckes Machine Co., Sherbrooke, Que., was recently shipped to the West India Electric Co., Kingston, Jamaica.

## EUGENE N. FOSS IN EUROPE.

Hon. Eugene N. Foss, the New England manufacturer and leader in the cause of reciprocity and tariff revision, is yet in Europe. He went abroad partly for rest, but particularly to meet some of the leading statesmen and merchants of England and the continent, in connection with his studies of certain economic questions in their relation to the foreign trade of the United States. Mr. Foss is no stranger in Europe, but this is the first time he has crossed the water upon a semi-formal errand; and especial interest attaches to his movements because of the current impression that he will again make commercial reciprocity a political issue in Massachusetts upon his return.

Mr. Foss is not a politician and certainly is not charged with a desire to run for public office merely for the sake of holding office. He is one of the largest and most progressive business men of New England; and his entrance into the political field was due originally to his conviction that the United States customs tariff, whatever virtues it may have possessed when enacted in 1897, has become, in many of its features, a hindrance rather than an aid to industrial development and to commerce. Since his candidacy for Congress in 1902, upon his own platform of "free iron, free coal, free hides and reciprocity with Canada," and his insistent demand for general tariff reduction he has made himself the head and front of the tariff revision movement in the eastern part of the country, and his speeches and writings have been widely quoted.

Mr. Foss is a larger man in the field of finance and commercial endeavor than many realize who have known of him only as a tariff revisionist. Although tireless in his efforts at publicity as far as his position on the tariff is concerned, he never advertises his own business connections. These are, however, not only numerous, but very strong and important. He is most generally known as treasurer and general manager of the B. F. Sturtevant Co., probably the largest concern of its kind in the world; and he is also the head of two other great machinery concerns, the Becker-Brainard Milling Machine Co., and the Mead-Morrison Mfg. Co. His holdings in steam and street railway properties represent an even larger investment. He is director of the Brooklyn Rapid Transit, Mexican Central and Massachusetts Electric Companies, and he is said to be among the largest and in some cases the largest stockholder in several other great transportation systems. He has long been a Stock Yards director, and recently he has gone into the boards of Greene Consolidated, United States Mining (re-organized) and American Pneumatic Service. His total directorships number seventeen.

It is a puzzle to his friends how a man of such enormous interests can find the time and inclination to conduct so persistent a campaign for the reciprocity principle and a lower tariff. The reason is hardly to be found in any narrow personal interest, for his investments are so important and varied that, if the great investors of the country have anything to fear from "tinkering with the tariff," Mr. Foss certainly has as much at stake as anyone. Mr. Foss is, however, a very loyal New Englander as well as a broad-minded American citizen. He sees clearly on the one hand the vital necessity of return-

ing to the eastern states their oldtime supremacy of the seas, and to the country generally that predominance in commerce which necessarily attended this primacy. He believes profoundly in the paramount interest of foreign trade to the future prosperity of the United States; and that this depends, in point of permanence and progress, upon our freer access to the markets of the world, both for the purposes of sale and of purchase.

It may be a matter of controversy whether the prevailing prosperity of the United States, great as it is, has permeated the rank and file of New England. Mr. Foss, however, does not urge his fiscal reforms upon sectional grounds, but says that the whole country will benefit by a change from excessive protection. Mr. Foss is a bitter critic of what he regards as the stupid treatment of Canada by the tariff-makers of the United States, and it is understood that some of his most interesting interviews will be held in England.

## THE AMERICAN IRON TRADE IN 1905.

The year 1905 was not only the most productive and the most prosperous year in the history of the American iron trade but it was the most uniformly prosperous year. From January to December the demand for all leading forms of iron and steel and for the raw materials of their manufacture was continuous and persistent. There was no "dull season," no overloading of the markets, no slump in prices. Upon the other hand there was no great scarcity of iron and steel at any time, the markets in the main were well supplied, and consequently there were no "famine" prices. The orders that were sent abroad entirely lacked sensational features, because we had the capacity to meet our own wants for pig iron and finished iron and steel. Nor was our export trade neglected, as will presently be seen. Production was abnormally and phenomenally great, but best of all prices were wisely kept within reasonable bounds. We have heard of no complaints that prices were too high.

The increase in the production of iron and steel in 1905 as compared with 1904 was simply marvelous. Pig iron jumped from 16,497,033 tons in 1904 to 22,992,380 tons in 1905; Bessemer steel from 7,859,140 tons in 1904 to 10,941,375 tons in 1905; open-hearth steel from 5,908,166 tons in 1904 to 8,971,376 tons in 1905; and all kinds of rails from 2,284,711 tons in 1904 to 3,373,929 tons in 1905. The total production of steel in 1904 was 13,859,887 tons, but in 1905 it exceeded 20,000,000 tons. The total shipments of iron ore from the Lake Superior region increased from 21,822,839 tons in 1904 to 34,353,456 tons in 1905. It is freely predicted that even the above extraordinary figures of production in 1905 may be exceeded in 1906.

The prices of iron and steel which prevailed in 1905 were not only kept within reasonable bounds, as above stated, but the advances that occurred over the exceedingly low prices of 1904 were really smaller than the extraordinary demand would have justified, while the forbearance of the steel rail manufacturers in keeping the price of rails all through 1905 at the same figure that prevailed all through 1904 is worthy of special mention. The railroads were helped greatly by this low price, \$28, but if the critics of the so-called trusts in the iron trade could

have had their way and suppressed all of them the price would have probably soared 50 per cent. higher, at least for a short time.

The extraordinary demand for iron and steel in 1905 was primarily due to the continued prosperity of the country, notwithstanding the reaction of the stock market in 1903 and 1904, which unfavorably affected all business. The reaction having spent its force in the summer of 1904 the pendulum swung in the opposite direction in the last quarter of that year and in 1905. With re-established confidence in the business world, good crops, an abundance of good money, continued tariff protection against foreign competition, a large increase in our population, and the steadily increasing use of iron and steel for engineering purposes and in the construction of buildings and railway cars, the great demand for iron and steel in 1905 was naturally to be expected, and it was encouraged and promoted by the good sense of the manufacturers in keeping down prices.

As in other years the railroads were the best customers of our iron and steel manufacturers in 1905. Their increased prosperity in that year, in harmony with that of the country generally, called for larger expenditures for rails, cars, locomotives, bridges, etc., than in 1904. There was in 1905 an increase in the mileage of new railroad track and the betterment of track already built, and in the same year more cars and locomotives were built in this country than in any former year. The Baldwin Locomotive Works built 2,250 locomotives in 1905, but in 1904 they built only 1,453. Thus far in 1906 there has been no abatement of the demand for railway equipment.

One of the interesting features of the iron trade of this country in 1905 was the great increase that took place in that year in our exports of iron and steel, notwithstanding the active home demand for these products. In 1904, when this demand was far from being satisfactory to our manufacturers, when prices were low, and customers, whether at home or abroad, were badly wanted and diligently sought for, we exported iron and steel products of the value of \$128,455,613, greatly exceeding the exports of any previous year, but in 1905 we exported iron and steel products valued at \$142,928,513, an increase over 1904 of \$14,472,900. Much of this increase was due to the systematic activity of the United States Steel Corporation in pushing its wares into foreign markets. Our imports of iron and steel in 1905 also showed an increase over 1904, amounting in 1905 to \$26,392,728, against \$21,621,970 in 1904.

#### THE EFFECT ON STEEL PRICES.

The demand for steel and other kinds of building materials growing out of the earthquake disaster in California cannot but have a marked effect on structural steel. For some time the United States have been enjoying most remarkable prosperity, a strong feature of which has been and is the requirement of steel for structural purposes; and about every mill in the country has been taxed to its utmost capacity to meet the demand. The rehabilitation of San Francisco has been begun, and it is probable that if they are not able to produce the material British and German mills will be asked to assist. A

Pittsburg correspondent of a New York paper sizes up the situation as follows:

"The Pittsburgh steel manufacturers have been quite upset by the demand for material. It seems that other concerns, knowing that there will be a rush from San Francisco for material, are also sending in their orders and specifications.

"The Carnegie Steel Co. has practically filled its order books for structural shapes for the next eight months. The Jones & Laughlin Co. has recently started a new structural mill, but orders had been booked far ahead on the strength of the additional tonnage. The Cambria Steel Co. is practically out of the market. The Pennsylvania and Lackawanna Steel companies may be able to take on some more work, as may the Chicago mills, but in the main, somebody is going to get left. The Pittsburgh concerns are willing to make some sacrifices to help the stricken city of the Pacific Coast.

"Engineers in Pittsburgh are now saying 'I told you so.' It is a fact that the earthquake on the Pacific slope has demonstrated that steel structures will stand up under seismic disturbances where other buildings will fall. Hence it is taken for granted that nearly all the business houses of the future to be erected in San Francisco will be built of steel frame.

"Owing to the high freight rates to the Pacific Coast from the East, and the busy times in the eastern mills, it looks as if the San Francisco people will have to turn toward Germany and Great Britain for its supply of steel. The German mills are said to be fairly busy, but the British mills can afford to take on additional orders. Hence Pittsburgh contractors who have been called on to bid on San Francisco work are figuring on buying their shapes in Europe. It is a fact, however, that the latest steel buildings erected in Los Angeles and San Francisco were built of Pittsburgh steel, and nearly all the metal entering into the buildings came from the eastern states. The deliveries from Europe via sailing vessels and steamers, being too slow, it may be that the railroads will make concessions in carrying building material to the new city so as to aid it in rebuilding rapidly and strong enough to withstand future shocks.

"There has been a decided increase in buying in many lines, especially pig iron. Foundry grades, which were dropping to \$16 per ton, has been supported by large buying, and it looks as if \$17 per ton will be the next quotation. The sales recently made have been at \$16.75 at the furnaces. Bessemer pig iron is selling at \$17.25. It looks as if the whole market is going to be advanced slightly, and the whole outfit of Bessemer pig will be taken up by the large consumers. Basic iron is also in better demand, and is selling around \$17 at the furnaces. Forge iron is very slow at \$16.

"Although no speculation has been made as to the demand for pipes along the Pacific Coast, it can be taken for granted that a large quantity will be used to take the place of the ruined water and gas mains in San Francisco, and other cities. Large quantities of electrical machinery will also be needed, and the electrical goods manufacturers here are receiving hints as to what will be expected of them. They, too, are sorely busy with orders that are undelivered."

"The plate market is getting better, and the United States Steel Corporation will have an additional plate mill erected in Chicago. The price is stationary at \$1.60, with no prospect of any deviation during the remainder of the year.

"Bar iron is selling some better at \$1.60; Pittsburgh steel bars are quoted at \$1.50. The orders that had been going to the steel bar makers are said to be falling off some since the price of wrought iron bars was reduced. Muck bar has poor sale at \$28 per ton. There might be some scalping done at this price on good orders.

"There has been a decided increase in the demand for sheets. The Steel Corporation has absolute control of the market, having compelled the independents to come to its prices. This was done by decreasing the output of bars and billets and holding the price firmly at \$27 for billets and \$28 for sheet bars. Some of the sheet mills cannot get a sufficient supply of bars, and may be forced to close down soon. The tin plate makers are in the same boat and are demanding deliveries of bars. The Republic Iron & Steel Co. has turned its big Youngstown mill on billets and has dismantled the part of the plant used for straightening rails. This indicates that rails will not be made by the Republic company in the future.

"The tube and pipe trade is not attracting attention. It looks as if the leading producer is intent on shutting out future competition by maintaining the price at such a reasonable low figure that it will be impossible for new concerns to break into the trade and gain a foothold because of the great profits.

"The scarcity of Bessemer ore at some of the valley and Pittsburgh furnaces will be relieved soon. The ore shipments will begin to arrive here next week. The coal shipments to the lake have started earlier this year than any period since 1897, and the demand is good, with prices far ahead of last year's offerings."

#### PATENTS.

Messrs. Marion & Marion, patent attorneys, Montreal and Washington, D.C., have obtained the following Canadian patents:—Peter Lord, Montreal, Que., nut lock; Anton Kirner, Admont, Austria, process of and apparatus for the manufacture of half-stuff from peat; A. A. Crepeau, Drummondville, Que., steam engine; J. E. Saucier, Montreal, trolley; Messrs. Lentz & Bellens, Berlin, Germany, steam distribution for locomotives; Adrien Gacon, Montreal, par Harly-le-Roy, France, manufacture of artificial emery; T. P. Lessard, Bromptonville, Que., sap bucket cover fastenings; W. J. Swain, Grandview, Man., plow attachment; Messrs. Aube & Tremblay, Montreal, smoke consumer; Horatio N. Bray, Montreal, firelighting briquettes; Vladamir Petroff, Montreal, Que., building block; Dan. H. McLeod, Glace Bay, N.S., railway rail joint; Charles LeMoine, Pembroke, Ont., concrete mixing machine.

Messrs. Fetherstonhaugh & Co., patent solicitors, Toronto, Ottawa and Washington, D.C., send us the following list of patents recently granted Canadian inventors:—E. J. Perry, Curtieville, Ont., snow ploughs; J. L. Goffette, Montreal, concrete structures; A. A. Lundy, Fenwick, Ont., plow skinnets; H. H. Vaughan, Montreal, car structures and bolsters for railway cars; O. Higgel, Toronto, metal



piano action flanges; C. H. Vogel, Ottawa, digesters; W. A. Parkinson, Toronto, fenders; E. G. Overholt, Hamilton, Ont., wire fence locks; J. E. Saucier, Montreal, trolleys; I. P. Doolittle, Toronto, cut off valves; W. W. Marsh, C. H. Hackett, Waterloo, Ont., liners for centrifugal liquid; E. W. Evans, Marysville, B.C., rock drills; I. Deutsh, Montreal, power transmitting devices; R. A. Dalrymple & R. Burnside, Montreal, lubricators; J. Layfield, A. V. Crisp, Vancouver, B.C., cement building blocks; L. C. Labelle, Joliette, Que., record making and apparatus for weighing scales; E. A. Mason, Montreal, wheel guards for railway cars; R. F. Woodburn, Montreal, bill files; J. A. Manning, Toronto, excelsior making machines; R. Sylvester, Lindsay, Ont., riding plows; J. Brouse, Rapides des Joachims, Que., chain hooks; R. MacGregor, Alexandria, Ont., steam turbines; J. M. Ross, Kincairdine, mower knife and tool grinder; D. H. McLeod, Glace Bay, N.S.; railway rail ties; J. Flynn, London, Ont., car replacers; H. R. Lamb, London, Ont., wire fence structures; C. R. Salmon, Montreal, fire lighting apparatus; D. Maxwell, St. Mary's, Ont., lawn mower ball bearings; C. Johnson, Toronto, loose leaf binders; W. G. Jones & J. W. Johnston, Toronto, steam heaters and ventilators; J. P. Currie, Port Hope, Ont., stop devices for windmills; M. Bouchard, Tongue Points, Que., braking mechanisms; J. G. Clark, Vancouver, B.C., fire pots for inter-alia furnaces; G. A. Maynard, Toronto, water heaters; I. H. & J. Hatherley, New Westminster, B.C., adjusters for electric light cords; R. R. Wiley, St. Catharines, Ont., electrical signs; B. F. Lloyd, Wawanessa, Man., wagon seats; J. W. Stanley, Ottawa, vehicle axles; H. E. Moffat, Woodstock, Ont., oil extractors; C. W. Moodie, Hamilton, Ont., radiators; J. A. Robinson, Belleville, Ont., T-squares.

#### SPRING PAINTING.

The dead grays and brown of the winter months of rain, ice and snow, give place each spring, by wise provision of nature, to the bright and refreshing dress of green, so in harmony with bright sunshine and smiling skies.

Man's work has erected on the earth varied and costly structures of materials subject to rapid decay from the great heat of the sun, the moisture of rains and snows, combined with the gases of combustion incident to manufacturing and transportation enterprises. Of the materials of construction, metal and wood deteriorate most rapidly, but their lives are prolonged permanently by the intelligent use of a preservative consisting of nature's pigments and oils.

When this preservative coating has been neglected, as it too often is, the structure takes on that air of decay which is as much out of keeping in its surroundings as the dead tree in the forest. Wisely emulate nature this spring and renew the faded and broken coatings on your metal and wood work.

Among the marvelous provisions of nature for the benefit of mankind, none is more wonderful than a silvery gray ore found in the earth at Ticonderoga, N.Y. This graphite ore is a form of carbon, of which diamonds are a class, and like unto them, practically indifferent to chemical influences.

The Joseph Dixon Crucible Co. are exclusive owners of this Ticonderoga graphite mine. They discovered some forty years ago the superior advantages of the flake graphite as a pigment for a protective paint film. The laminated, crystalline form of this ore, refined to a remarkable degree of fineness, adapts itself perfectly, under the sweeping pressure of a paint brush, into a shield protecting and prolonging the life of linseed oil, the unrivalled binding material of all standard protective coatings.

This flake graphite is inert, exerting on the oil none of the harmful chemical influences found in many pigments used for paint purposes, and which reduce the natural life of the linseed oil vehicle. The silica is a component part of the flake graphite pigment, and of like formation, being unchangeable by the gases and atmospheric conditions encountered.

Nature's own product, silica-graphite paint, has been successfully used in all climates for over forty years in resisting the destructive chemical action between metal and oxygen. For the protection of specifiers and users, the pigment is never sold dry, as best results are produced by thoroughly grinding and mixing this smooth pigment and guaranteed best linseed oil into a uniform paint consistency, by specially adapted machinery.

Dixon's silica-graphite paint is manufactured in but one quality—the highest standard. No lighter shades are made than Dixon's olive green, natural, dark red and black, as the natural graphite pigment is a silvery gray.

The natural smoothness of the Ticonderoga flake graphite permits of the use of the greatest possible volume of pigment, and a material saving in cost of labor and brushes in application. Under average conditions for good coatings on metal surfaces, one gallon covers about 500 square feet for first coat, and about 550 square feet for second coat. Ease of application, good covering power and effective protection for a long period of time, indicate Dixon's silica-graphite paint as one of the most desirable and economical preservative coating for metal and wood that has ever been produced.

If you contemplate painting, or are interested in good paint and good painting, please enquire of the Joseph Dixon Crucible Co., Jersey City, N.J.

#### CANADIAN ACTIVITIES.

A recent Daily Consular and Trade Report issued by the American Government, in which the reports of different consuls in different countries are published, contains the reports of several consuls in Canada. We reproduce some of them as follows:

Consular Agent Murphy sends notice from St. Catharines, Ont., that the streets of that Canadian city are to be paved and advertisements will soon appear calling for bids, probably for concrete. Mr. Murphy also advises that an electric double-track express is proposed between Buffalo and Toronto via Niagara Falls, and that a new toll bridge is planned across the Niagara River.

Consul Worman, of Three Rivers, Que., writes that the province of Quebec has made the following grants to new railway enterprises:—2,000 acres of land per mile to the St. Maurice Valley Railway, which will run from Three Rivers 30 miles back toward

the National Transcontinental; 4,000 acres per mile for 50 miles to the Atlantic, Quebec and Western Railway now building; 2,000 acres per mile for 30 miles to the Lotbiniere and Megantic Railway; 3,000 acres per mile to the Northern Colonization Railway for 32 miles from Nominique to L'Original Rapids. Mines and minerals, including coal and petroleum, in the lands granted are reserved in favor of the Crown.

Consul Worman states that the immense gain in the deposits of the banks of Canada is the most convincing evidence of the Dominion's prosperity. Last year the deposits were \$512,600,000. The total has now grown to \$520,000,000. In 1898 they were \$223,000,000, less than half that amount.

Consul Worman advises publishers of American periodicals to make special efforts to push their publications in the Dominion, as a cheaper post to Canada for second-class matter may soon be adopted by the British Parliament. A systematically organized effort for subscriptions to American periodicals in Canada would give fine results. It should be an energetic canvass, largely under control of Americans familiar with the peculiar tendencies of the people in the Dominion where they are to canvass. This is especially true of lower Canada, where a knowledge of French might help the canvasser, as parents are anxious that their children shall learn to read English.

Consul Van Sant, of Kingston, Ont., reports that the mineral production of Canada for 1905 amounted to \$68,574,707, an increase of 14 per cent. over that of the previous year. The Yukon gold production fell off over \$2,000,000, but copper and lead of British Columbia, silver from the Cobalt district, at newer gold-bearing territory west of Thunder Bay gave altogether an increase of \$8,331,542. The principal mining shipments from the Kingston district are mica and feldspar. Some new mining companies have been projected at Kingston, and watered-stocked concerns have recently been formed in New York without solid basis of assets to exploit Kingston mines. Such schemes should be avoided by investors. The valuable metal molybdenite has been discovered and mined to some extent, but not yet in paying quantities.

Consul Wakefield writes from Orillia, Ont., that the total production of pig iron last year in Canada was 527,932 short tons, valued at \$6,492,972. Of this, 70,550 tons were of Canadian ores.

Consul Seyfert, of Stratford, Ont., writes that cobalt ore shipments from the 17 mines aggregated 2,144 tons, the resultant values being:—Silver, 2,441,421 ounces, valued at \$1,355,306; cobalt, 118 tons, valued at \$100,000; nickel, 75 tons, valued at \$10,525; arsenic, 549 tons, valued at \$2,693. The consul sounds a timely warning to American fortune hunters, saying that the independent prospector has no longer any chance in cobalt mining against the mining syndicates.

Messrs. Hinchcliffe, Groom & Co., Aire Street, Leeds, England, manufacturers of gun-metal steam cocks and valves, injectors, steam and water gauges, baths, lavatories and closets, fire-clay sinks, electric fittings, lamps, bells, and cables, desire to extend their business in Canada, and invite correspondence from parties interested.

# A REVIEW OF THE MARKET

A Synopsis of the conditions affecting the raw materials used by the manufacturers of Canada.

Toronto, May 4, 1906.

Generally speaking the raw material market is in an excellent condition. Consumption of practically every line, especially of metals, continues to increase, showing that the weakness of the stock material is absolutely no criterion of the condition of industry throughout the country at the moment. For instance the steel mills and the coal mining companies of Canada are turning out pig iron and coal in record quantities though the stocks of the companies have been affected by the general slump and are quoted lower on the stock exchanges.

In fact, while the stock markets have been feeling a reaction from the inflation of stock quotations during recent months, both in Canada and the United States, manufacturing has not been curtailed in any way by lack of orders or by an unfavorable prospect. Judging from present conditions it seems reasonable to anticipate a healthy demand for raw materials throughout the year.

**Iron and Steel.**—The Canadian pig iron market continues to evidence the strength and activity which has characterized it for some months. The rolling mills are turning out iron to the limit of their capacity and are, in all cases, sold out for months in advance. Prices continue firm on this market, partly as a result of the above conditions and partly owing to the fact that the United States market is so well sold up and at such good prices that there is no disposition there to come into the Canadian market at any sacrifice. Midland and Hamilton No. 1 pig iron are quoted at \$20 to \$20.50 per ton. Bar iron does not exhibit as much strength as pig, this being due in some degree to a weakness in bar iron prices in the United States. There has not been any appreciable reduction in prices however, the quotations still ranging from \$2.05 to \$2.10 f.o.b. Toronto. In steel there is a firmness fully as marked as in pig iron. The one complaint heard is to the effect that the tariff is working detrimentally to the interests of manufacturers of cold drawn steel shafting, rods, etc. These interests unite in a protest that while they have to pay over 30 cents per pound duty to import iron bars, their raw material, they are compelled to withstand the competition of United States firms who are charged less than 15 cents per pound duty. Despite this, however, there seems to be no shortage of business offering the Canadian makers.

**Ingot and Sheet Metals.**—The consumption of all metals in Canada at present is beating all records. This expansion of demand is, too, well distributed, no metals being neglected, showing the evidences of widespread extension of the metal industries throughout the country. This condition exists, too, in spite of the fact that prices are at a high level all around and, in some cases, are at an exceptional basis. For instance antimony, while a year or so ago was but 9 cents a pound is now "kiting" at 24 cents. Tin has been steadily soaring until it has reached the unprecedented price of 40 cents

per pound at New York, which means least 43 cents per pound f.o.b. Toronto. Tin plates are bound to be affected by the situation in tin and while prices show no change at the moment the next movement will probably be upward. Galvanized sheets are also stiff, this being due in some measure to the fact that British and American makers have reached an agreement, both as to price for standards and for extras. The most important result is an advance of 40 cents in 10 feet lengths, an advance of about 10 per cent. Other metals are firm, but exhibit no special features.

**Coal and Coke.**—The conditions affecting the soft coal and the coke markets at the moment are exceptional. On the one hand the shutting down of mines by soft coal operations has resulted in a material reduction in the output of both coal and coke during the past fortnight, with the result that there has been a curtailment of stocks held by both miners, operators and dealers. On the other hand Canadian manufacturers, in order to ensure themselves against shortage, bought heavily recently and now have on hand generous supplies of both soft coal and coke. It is anticipated that by the time these stocks have been reduced to normal proportions the mining disputes will have been settled and the supply of coal and coke for all purposes will be sufficient to meet the requirements.

**Leather and Hides.**—Owing to the firmness in the hide market, not only in Canada but throughout the world the leather market continues to manifest a decided stiffness. The consumption of standard leathers throughout Canada shows steady expansion and is absorbing the local supplies of raw material.

**Linseed Oil.**—The market is fairly strong at the moment, though there is no change in quotations and none are anticipated. The local and Western Ontario market is taking Canadian oil principally, while in Eastern Ontario the competition of British oils is quite a factor. There is no disposition to cut, however, prices remaining at from 57 to 58c. f.o.b. Toronto, Hamilton, Guelph and London.

**Turpentine.**—The local market is somewhat weaker at the moment than it has been for some days. This is due to weakness in the Savannah market, which weakness is attributed to the fact that many buyers are holding off for concessions. As, however, there is a shortage of output compared with a few years ago, it is questionable whether such concessions will be made and it will be necessary to wait a few days, if not weeks, before the trend of prices can be anticipated with any certainty. Quotations range from 94c. to 95c. for two barrel lots or over, f.o.b. point of shipment.

**Rubber.**—No business in crude rubber was reported on Saturday and, aside from a slight activity in the earlier part of the week, similar conditions prevailed throughout. The same prices were quoted, but it is evident that confidence is still lacking in the conditions that govern the market. It is thought,

however, that the San Francisco demand will tend to increase business soon, as \$2,000,000, worth of rubber goods were destroyed.—N. Y. Commercial.

**Cotton.**—There is not much activity in raw cotton in Canada at the moment. The majority of the mills are well supplied with stocks and the market is none too strong, in sympathy with the situation in New York and elsewhere. The problem as to futures is attracting attention, however. No definite opinion can be advanced at the moment but the following epitome of the situation seems to be near the mark:—"The total visible of American cotton is to-day 142,000 bales less than at the same time last year, and at the present rate of decrease the next four weeks will show a still further difference, and the statistical position should then become a factor in the market. Mr. Ellison's figures are given in detail up to April 1. One interesting feature in his statement is worthy of notice. Up to the present time he has estimated the weekly consumption in Europe at 171,000 of 500 pounds each, but now raises this figure to 173,000 of 500 pounds each, the increase being principally made up of Egyptian cotton.

"Together the movement and the consumption make a bullish showing, and indicate a strong bullish statistical position during the coming summer."

The tenth annual meeting of the American Manufacturers' Association will convene at Asheville, N.C., on May 16, and will continue for two days. An attractive programme has been arranged, and several good speakers have been secured to address the convention.

From all accounts, the automobile played a most important part in minimizing the arduous work heaped on those engaged in the relief of San Francisco sufferers. Dispatches repeatedly give credit to the motor for the saving of life and property. The Red Cross doctors converted large automobiles into ambulances and used runabouts for visiting various parts of the city. Those who owned large touring cars used them for conveying the injured to hospitals and the people to places of safety. The fire department was especially benefited by the use of motors and the executive orders were executed by orderlies driven from place to place in the machines lent to the city by the local agents. Perhaps the best use made was the transportation of women and children from the danger zone to the parks and other places of safety.

The Westinghouse Machine Co., East Pittsburg, Pa., have recently contracted with the Olean Street Railway Co. to install in their power-house at Ceres, N.Y., two gas engines for supplying current to the Olean Street Railway, serving Olean, Ceres, Boliva, etc. In the near future power will also be supplied to an interurban railway system between Olean and Salamanca, N.Y., a distance of 15 miles. The engines are to be of the Westinghouse horizontal heavy duty double acting type, with single cranks, and cylinders 22 inches in diameter by 30-inch stroke. Each unit will have a normal capacity of 500 brake h.p., running at 150 revolutions per minute. They will operate on natural gas having a calorific value of approximately 1,000 B.T.U., which fuel is very plentiful in that territory.

# MACHINERY AND ENGINEERING.

## "BRISTOL" PORTABLE RECORDING GAUGES.

The value of recording pressure gauges as a powerful factor in promoting safety and economy has long been recognized, and their adoption has been quite general in mills, factories, water and gas works, electric light

pressures as low as one-twentieth inch head of water.

Connection is readily made by means of a rubber hose to nipple, which projects through the side of case.

A simple clamping device is employed to hold the pressure tube rigidly, when gauge is being transported.

screws to facilitate adjustment of the instrument. Provision is also made for carrying a supply of charts and ink with each gauge.

### TO REDUCE WASTE OF POWER.

Few questions are of more importance to the manufacturer than the reduction of power costs. To this end every factor contributing to the reduction of waste in transmission is worthy of close attention.

The invention and perfecting of ball bearings has contributed to such a saving that manufacturers and other power users the world over are taking more and more interest in their use.

The value of the double ball bearing has been demonstrated so well in Canada that today manufacturers in all parts of the country have installed them.

In general terms, the main difference between the double ball bearing and the plain journal is the two kinds of friction represented. In the journal bearing we have sliding or rubbing friction, while with the ball bearing we have rolling friction. In other words, we have a dependent and a non-dependent bearing. For example, in the journal bearing lubricant must be applied to overcome the friction between the sliding parts; in the ball bearing, however, lubricant is applied as a precaution against foreign matter, and rust rather than for lubrication purposes. With the above distinctive features before us, it is not difficult to see that any increase of load on a journal bearing must necessarily become a dependent load, that is, the more the load is increased, the more the load becomes dependent upon some lubricant to overcome the sliding friction, while in the case of the ball bearing we have a non-dependent friction, hence as the load is increased, the power to do the work is increased only in proportion to the weight of the load, and not the weight of the load plus the increased

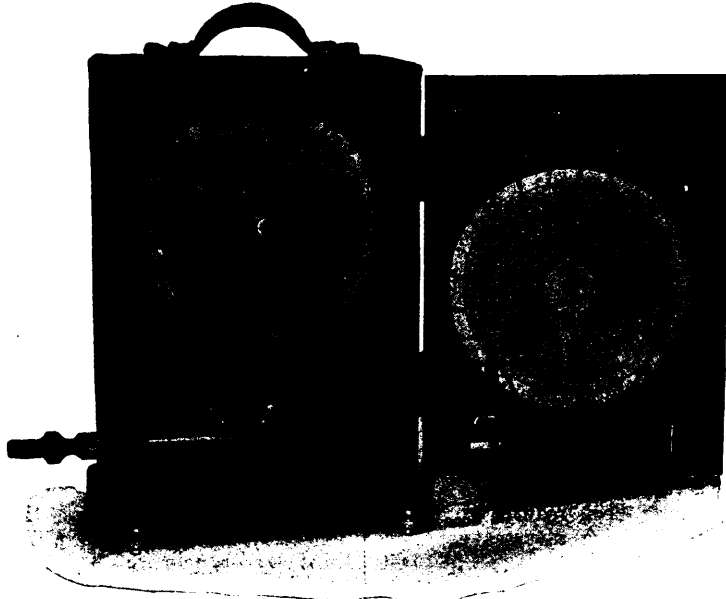


Figure 1.

plants, power stations, public buildings, blast furnaces, mines, etc., both in this country and abroad.

Many users have, however, felt the need of a light, compact, portable recording pressure gauge, and particularly an instrument which is so well made and free from delicate mechanism that an ordinary workman can manipulate it successfully with reasonable care.

To cover these requirements, the Bristol Company, of Waterbury, Conn., have placed upon the market a modification of their well-known recording gauge.

In these portable gauges, the metal case has been omitted; the pressure tube and clock for driving the chart being mounted on a light aluminum back which is in turn mounted in a handsome wooden carrying-case designed with special reference to ease in handling and making connections to the source of pressure.

For recording pressures which may exceed five pounds per square inch, the type of gauge illustrated by Fig. 1 is employed.

A special flexible connection with unions is supplied to facilitate connecting to piping at various angles.

When a permanent installation is unnecessary, this instrument could be used to advantage, as, for example, on boiler tests, water mains or fire protective systems where a few accurate and continuous records would settle disputes or lead to better service.

For gas pressures in outlying districts, mine ventilating pressures, draft or light vacuum, the gauge illustrated by Fig. 2, is adapted, since it is capable of recording

Those who are interested in the distribution of gas will be particularly pleased to note the production of an instrument which will be of such great assistance in solving their problems.

The portable gauges above described weigh about one-third as much as the standard form gauges mounted in a carrying-case, which has been used heretofore, as a substitute. Both forms are furnished with leveling



Figure 2.

frictional resistance as in the first instance.

Since the inception of the Chapman bearing three distinct features have been held constantly in mind; first, to design a bearing that would produce tangible results; second, to produce a durable bearing; third, to produce a bearing of simple construction. The remarkable results that have been attained in the power transmission field have been gained by bearing in mind these three laws in the design of this anti-friction bearing. In case any of the above features are lacking in an anti-friction bearing, the result is inevitably failure, as past experience has shown.

In the first instance, for example, it is not enough to say to the average manufacturer that he can make a large saving by the application of certain bearings, for he will

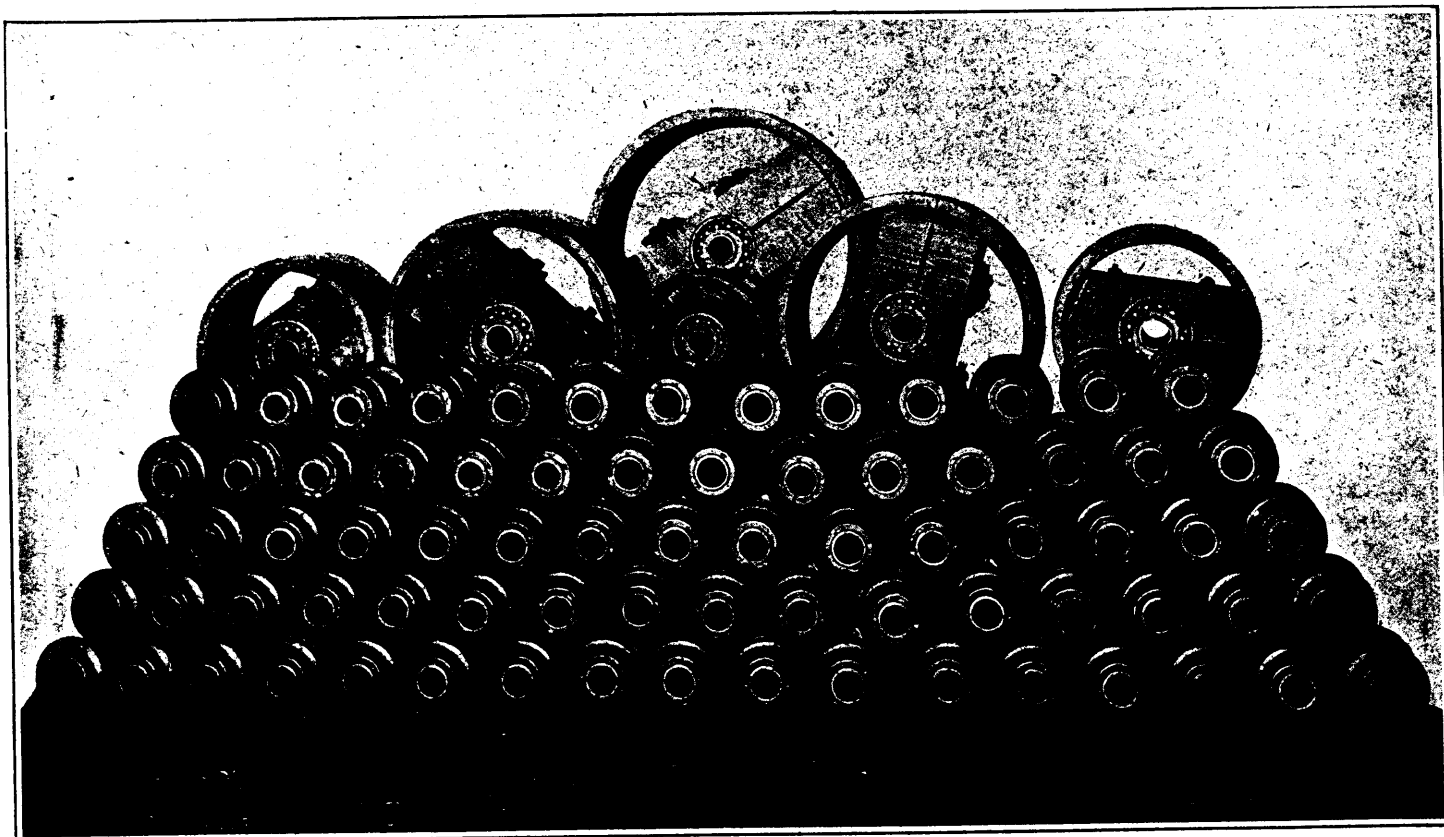
is aware, a complicated machine in the hands of unskilled labor must prove of short life, while on the other hand, a bearing constructed with the fewest parts has the least liability to get out of order.

One of the strong points that commends the Chapman double ball bearing to power users is the fact that it is adaptable to all classes of standard hangers, that is, the bearing is so designed as to fit with practically no alteration any make of hanger that is now on the market, hence the manufacturer, in contemplating a change, does not find it necessary to go to the expense of buying new hangers. The feature of lubrication in most manufacturing plants is quite an item, but with the installation of the Chapman bearing this is reduced by 95 per cent.

In the power transmission field, besides

once decided to use the Chapman bearings throughout.

Brittania is the name selected for the new steamer now building at Wyandotte for the Detroit, Belle Isle & Windsor Ferry Co. This new steamer is 180 feet long over all, 164 feet between perpendiculars, 45 feet breadth of hull, 42 feet on the water line and 56 feet over guards, 17 feet 6 inches depth and 12 feet draught. Her engines are of the triple expansion type, 20, 32 and 50 inch cylinder diameters by 36 inch stroke, supplied with steam from two Scotch boilers, 13 feet 2 inches diameter and 12 feet long. Her passenger capacity will be about 2,700 persons. She will have a water bottom and her hull will be divided into six water-



One Shipment of Chapman Double Ball Bearings.

doubtless meet your argument, as one large manufacturer recently did, by stating, "Were I to adopt all the economic devices that were presented to me during the year, I should be able to run my plant without the use of my engine, and still have power to burn." It is necessary to effect a saving in his cost of operation that will net him a large profit by making this change. Again, an anti-friction bearing may be able to make a large saving, and yet under difficult service prove itself unable to do the work. This feature has been carefully studied by the manufacturers of the Chapman bearing, and every point in its construction has been so designed as to produce a bearing with the life that is practically indeterminate under normal conditions. Simplicity in construction in a ball bearing, as in any other machine, must be always counted on as an important factor for, as every manufacturer

the application of ball bearings to all classes of shafting, the field of loose pulleys is one of great importance, as the loose pulley, regardless of design, with journal bearings, has proved itself one of the most troublesome features in power transmission, and last, but not least, the mule stand may be classed with the loose pulley. The Chapman bearing, in both of the above applications, has shown itself to be one of the greatest devices ever introduced for eliminating the difficulties attendant upon loose pulleys and loose drives.

The final argument, the one upon which the decision generally hinges, however, is the practical test. The accompanying illustration shows a shipment of Chapman bearings sent to the Northern Electric Co., Montreal, slightly over a year ago. These bearings stood the test of service so well that when the Northern Electric Co. decided a few weeks ago to materially enlarge their works they at

tight compartments. Her main deck and deck houses will be constructed of steel. Mr. J. G. Mullen, Detroit River representative of the Pittsburg Coal Co., secured the prize offered by the steamship company for naming the steamer. The name is especially appropriate and is intended as a compliment to the Canadian patrons of the line.

It is calculated that it would cost the United States a thousand million dollars to make the changes necessary to the adoption of the metric system of weights and measures. A like consideration no doubt influenced Sir Henry Campbell-Bannerman when he announced that the cost of the change was so great that he could not recommend it at present to the Imperial House. There can be little doubt that a great deal of the mechanism of industry would have to be altered were the plan adopted.



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To facilitate work is the prime object of the new science of business. Labor-saving devices, modern appliances of various sorts, increase the efficiency of an office force beyond computation. Never in the history of the world has there been as much interest shown in office appliances as in the last few years, says the Manufacturer. Invention has been at work contriving mechanical aids in office work until their number is legion. Not all of them, of course, are of practical benefit, but so many are really useful in general office work that it seems almost impossible to enumerate them.

The typewriter has now become an indispensable adjunct of an office which has any pretensions of being up-to-date. The benefits of the book typewriter are becoming equally well-known. The adding machine,

the listing machine, and the computing machine (which is an adding machine that does not provide a list), are beginning to be widely used by those business men who realize how much these mechanical devices add to the speed of their operatives, and how they provide a test of accuracy which cannot be questioned. The machine which makes percentages, for example, saves fully two-thirds of the time of a bookkeeper who has many averages to figure out.

One of the greatest advances in systematizing an office has been made in recent years in fitting devices and card systems, the latter now being employed for thousands of purposes where a few years ago it would have seemed impossible. The vertical filing system, which has advanced so rapidly of late is worthy of an explanation.

After filing letters flat for a number of years, and taking copies of manuscripts in

a tissue book by a boy who spoiled both letter and copy in many cases, requiring the additional labor of indexing, it suddenly dawned upon some bright mind that more time could be gained, greater precision derived, and a more exact arrangement effected by taking carbon copies of answers to the letters, attaching these copies to the letters, or making the copy on the back of the letter itself, and filing this correspondence on edge instead of flat. By the use of a pasteboard folder for each correspondent, which properly indexed, the unit idea is preserved and the entire correspondence is placed in this folder consecutively, to be found all in one place when sought for. In order to produce tissue copying devices which would meet this requirement, rotary copiers have been invented which would meet this requirement, rotary copiers have been invented which copy on continuous sheets, cutting apart the dupli-

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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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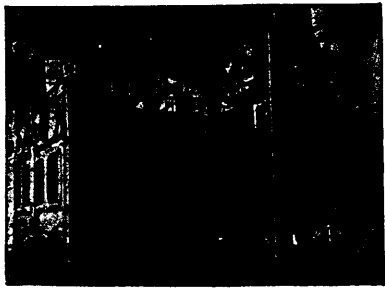
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cates as required so that the tissue can be attached to the letter instead of the carbon copy. Some business men are much in favor of this plan on account of the fact that a carbon copy does not necessarily show changes which are made after the letter has been written, and it also lacks the signature of the party responsible for the correspondence—often a very important matter.

Of late years, the practice of billing on the typewriter has become so common that a special billing machine has been invented for this purpose, which adds to the neatness of the work, and which, it is claimed, will save the cost in a very short time.

In the offices of factories which employ a number of travelling salesmen, routing map cabinets are used. These cabinets cover

the territory occupied by the salesmen, and by an ingenious arrangement of tacks and string, the route of a man can readily be determined, the town where he is stopping shown plainly from day to day, and the succeeding towns on his trip laid out so that there can be no possibility of mistake. This is the modern commercial application of the system devised by Napoleon, for locating his



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armies. On his table there always appeared, during a campaign, a map of the territory covered, with red headed pins to represent the French forces, and black ones for the enemy. In the same way, the largest American business houses are organized in military fashion, the sales manager watching the moves of the enemy, as the nearest competitor is termed, and shifting his forces to meet them. A leading typewriter firm has the whole country thus charted, yellow tacks thus representing the salesman, green tacks the users of that particular make of machine, white tacks the stopping places of the agent, black tacks rival machines, etc. In this way the condition of the market in each state is shown by a glance at the map.

Among other inventions calculated to improve office work is the check protector, which has met with very ready favor, for the reason that a check cannot be raised if a protector is used. Duplicating machines of various characters are found to be of great benefit, as form letters are frequently required at very short notice, and these machines are always ready to perform the work. In this connection, there are addressing machines which address envelopes so rapidly that one machine can do the work of several persons; and stamping and sealing devices, worked either by hand or electricity, at a speed which is almost marvellous.

The Westinghouse Machine Co., East Pittsburg, Pa., during the months of February and March, received orders for 35 steam turbines, aggregating approximately 50,000 brake horse power capacity. The most important equipments were those ordered by the Transit Development Co., Brooklyn, N.Y., 7,500 k.w.; Toledo Gas & Electric Co., 3,000 k.w.; Los Angeles Pacific Railway Co., 2,750 k.w.; Detroit United Railways, 1,200 k.w.; Columbia (S.C.) Electric Street Railway Co., 3,000 k.w.; St. Paul Gas Light Co., 1,500 k.w.; Grand Trunk Railway Co., for St. Clair Tunnel, 3,000 k.w.; Detroit, Monroe & T.S.L. Railway, 1,200 k.w.; Northern Heating & Electric Co., St. Paul, 1,000 k.w.; and Griffin Wheel Co., Chicago, 1,000 k.w.

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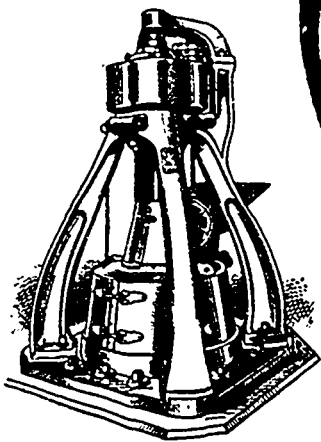
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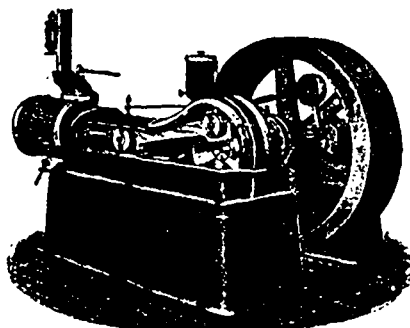
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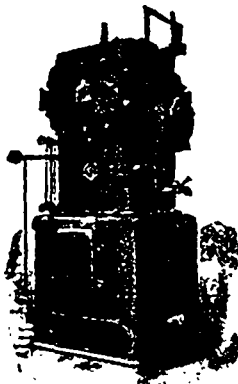
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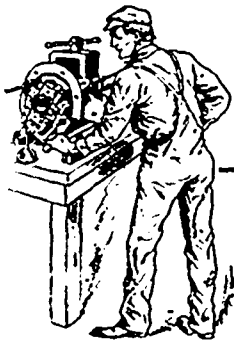
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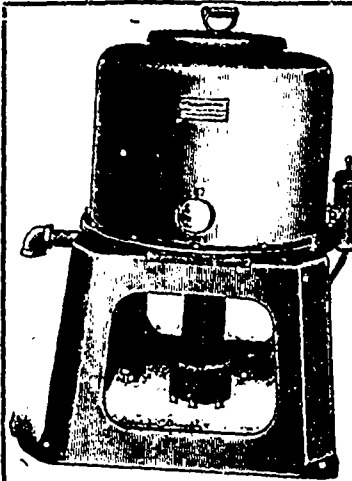
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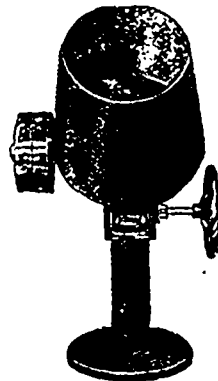
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(CONTINUED).

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Gutta Percha & Rubber Mfg. Co., Toronto.  
Jeffrey Mfg. Co., Columbus, Ohio.  
Montreal Beltling Co., Montreal.  
McLaren, D. K., Montreal and Toronto.  
McLaren, J. C., Beltling Co., Montreal and Toronto.  
Petrie, H. W., Toronto.  
Williams, A. R. Machinery Co., Toronto.

### Blast Furnace Brick

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

### Blowers

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

### Boiler Compounds

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

### Boiler Inspection

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

### BOILERS (See Engines and Rollers)

#### Bolts and Nuts

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

#### Brass Founders

Hamilton Brass Mfg. Co., Hamilton, Ont.

#### Building and Paving Brick

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

#### Building Iron and Steel

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

#### Builders' Materials

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

#### Cables

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

#### Canada Plates

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

#### Canoes

Peterborough Canoe Co., Peterborough, Ont.

#### Caps

McCullough-Dalsell Crucible Co., Pittsburg, Pa.

#### Card Clothing

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

#### Cast Iron Pipe

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

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

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

### Cement Machinery

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

### Centrifugal Pumping Machinery

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

### Chain Making Machinery

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

### Chemists

Heys, Thomas & Son, Toronto.

### Clay Working Machinery

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

### Coal, Coke and Charcoal.

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

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

### Coll Chains

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

### Coke Oven Brick

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

### Collection Agency

Petrie, H. D., Hamilton, Ont.

### Concrete Mixers

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

### Condensers

Smart-Turner Machine Co., Hamilton, Ont.

### Conduits (Interior)

Conduits Company, Limited, Toronto.

### Contractors' Machinery

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

### Contractors' Plants

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

### Conveying Machinery

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

Perrin, William R. & Co., Limited, Toronto  
Smart-Turner Machine Co., Hamilton, Ont.

### Copper Materials

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

# CLASSIFIED INDEX.

(CONTINUED).

## Corrugated Iron

Metallic Roofing Co., Toronto.  
 Pedlar People, Oshawa, Ont.  
**Cotton Banding and Rope**  
 McLaren, J. C. Bolting Co., Montreal.

## Covers

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

## Cranes (Electric and Hand Power)

Smart-Turner Machine Co., Hamilton, Ont.

## Crayons

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

## Crucibles

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

## Crucible Caps

Hamilton Facing Mill Co., Hamilton, Ont.  
 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.

## Dashes

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

## Deep Well Engines

American Steam Pump Co., Battle Creek, Mich.

## Dies (Socket, Sewer Pipe and Tile)

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

## Directories

Kelly's Directories, Limited, Toronto

## Draw Benches (Wire)

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

## Dredges

Allis-Chalmers-Bullock, Limited, Montreal.

## Drills

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

## Drills (Pneumatic and Rock)

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

## Drop Forgings

Globe Machine & Stamping Co., Cleveland, Ohio.

## Drop Forging Dies

Globe Machine & Stamping Co., Cleveland, Ohio.

## Dry Kiln Apparatus

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

## Dust and Shavings Separators

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

## Dye Stuffs and Chemicals

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

## DYNAMOS (See Motors and Dynamos)

### Electric Meters and Transformers

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

### Electric Mine Locomotives

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

### Electrical Repairs

Keystone Engineering Co., Toronto.

### Electrical Supplies

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

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

### Elevators and Conveyors

Allis-Chalmers-Bullock, Limited, Montreal.  
 Darling Bros., Montreal.  
 Jeffrey Mfg. Co., Columbus, Ohio.  
 Jenokes Machine Co., Sherbrooke, Que.

### Elevator Insurance

Canadian Casualty & Boiler Insurance Co., Toronto.

### Emery and Emery Wheels

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

### Engineers (Chemical)

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

### Engineers (Civil)

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

### Engineers (Consulting)

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

### Engineers (Contracting)

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

### Engineers (Electrical)

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

### Engineers (Mechanical)

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

### Engineers (Mill and Hydraulic)

Fensom, C. J., Toronto.  
 Smart-Turner Machine Co., Hamilton, Ont.  
 Vogel, C. H., Ottawa.

### Engineers (Mining)

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

### Engineers and Contractors

Canadian White Co., Montreal.  
 Jeffrey Mfg. Co., Columbus Ohio.  
 Jenokes Machine Co., Sherbrooke, Que.  
 Smart-Turner Machine Co., Hamilton, Ont.

### Engines and Boilers

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

## 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.**  
**Hamilton, Ont.**  
**Peterborough, Ont.**  
**Regina, N.W.T.**  
**Sherbrooke, Que.**  
**Toronto, Ont.**

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## CLASSIFIED INDEX.

(CONTINUED).

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

### Engravers

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

### Exhaust Fans

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

### Exhaust Heads

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

### Exhausters

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

### Factory Sites

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

### Feed Water Heaters

Babcock & Wilcox, Limited, Montreal.  
Darling Bros., Montreal.  
McDougall, John, Caledonian Iron Works Co., Montreal.  
Robb Engineering Co., Amherst, N.S.  
Smart-Turner Machine Co., Hamilton, Ont.

### Files

Spence, R. & Co., Hamilton, Ont.  
Fillet (Pattern)  
Hamilton Facing Mill Co., Hamilton, Ont.  
McLaren, J. C. Belting Co., Montreal.  
Sadler & Haworth, Montreal and Toronto.

### Filters (Oil)

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

### Filters and Filtering Systems (Water)

Babcock & Wilcox, Limited, Montreal.  
Jenckes Machine Co., Sherbrooke, Que.  
McDougall, John, Caledonian Iron Works Co., Montreal.

### Financial

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

### Finials

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

### Fire Brick and Clay

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

### Fire Escapes

Darling Bros., Montreal.

### Fireproof Partitions

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

### Flour Mill Machinery

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

### Forges and Blowers

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

### Founders

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

### Foundry Facings and Supplies

Hamilton Facing Mill Co., Hamilton, Ont.

### Fuel Economizers

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

### Furniture (Lodge, Opera and School)

Canadian Office & School Furniture Co., P. ston, Ont.

### Galvanizing

Ontario Wind Engine & Pump Co., Toro to

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

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

### Gas and Gasoline Engines

Morrison, T. A. & Co., Montreal.  
Smart-Turner Machine Co., Hamilton, Ont.

### Gauges (Recording Pressure)

Bristol Co., Waterbury, Conn.

### Gauges (Steam)

Penberthy Injector Co., Windsor, Ont.  
Petrie, H. W., Toronto.  
Williams, A. R. Machinery Co., Toronto

### Gauges (Water)

Babcock & Wilcox, Limited, Montreal.  
Penberthy Injector Co., Windsor, Ont.

### Generating Sets

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

### Generators

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

### Gloves, Mittens and Moccasins

Storey, W. H. & Son, Acton, Ont.

### Government Notices

Factory Inspectors.  
Minister of Agriculture.

### Graphite

Dixon, Jos. Crucible Co., Jersey City, N.J.  
Hamilton Facing Mill Co., Hamilton, Ont.  
McCullough-Dalzell Crucible Co., Pittsburgh, Pa.  
Pittsburg Crucible Works, Pittsburgh, Pa.

### Hames

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

### Hardware

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

### Heating and Ventilating Apparatus

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

### Holting Engines

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

### Holts (Chain and Pneumatic)

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

### Hose (Fire and Pneumatic)

Gutta Percha & Rubber Mfg. Co., Toronto.  
McLaren, J. C. Belting Co., Montreal and Toronto.  
Sadler & Haworth, Montreal and Toronto.

### Hotel

Gallatin Hotel, New York City.

### Hydrants

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

### Hydraulic Accumulators

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

### Hydraulic Leather

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

### Hydraulic Machinery

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

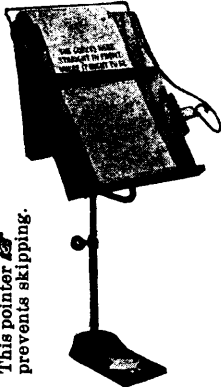
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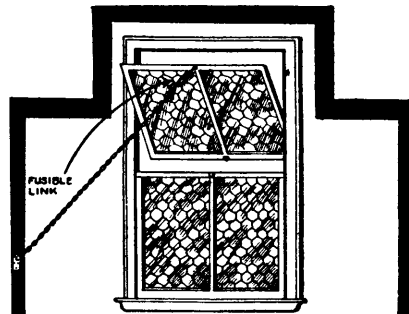
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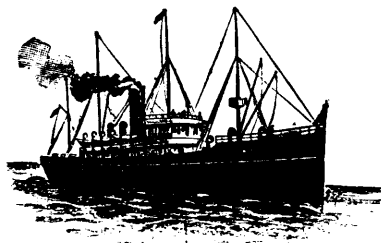
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Date of Publication of 1906 Edition.

FEBRUARY 28th.

London:

**THE CARTER PUBLISHING CO., 8, NEW BRIDGE STREET, E.C.**

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Lysaght, John, Limited, Bristol, England and Montreal.  
Metallic Roofing Co., Toronto.  
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Pedlar People, Oshawa, Ont.

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Allis-Chalmers-Bullock, Limited, Montreal.  
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Jenckes Machine Co., Sherbrooke, Que.  
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McDougall, John, Caledonian Iron Works Co., Montreal.  
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## Miners' Lamps

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## Moulding Sand

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## Moulders Supplies.

Hamilton Facing Mill Co., Hamilton, Ont.

## Nickel

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## Nozzles

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## Office and Bank Fittings

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## Oils and Lubricants

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Hamilton Facing Mill Co., Hamilton, Ont.  
Imperial Oil Co., Petrolia, Ont.  
Queen City Oil Co., Toronto.

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## Paints and Colors

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McArthur, Corneille & Co., Montreal.

## Paper Manufacturers

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## Patents

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Fetherstonhaugh & Co., Toronto.  
Marion & Marion, Montreal.

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## Perforated Metals

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

## Personal Accident

Canadian Casualty &amp; Boiler Insurance Co., Toronto.

## Phosphorizers

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## Piano Action and Key Machinery

H. Gearing, Toronto.

## Pig Iron

Bourne-Fuller Co., Cleveland, Ohio.  
Canada Iron Furnace Co., Montreal.  
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Syracuse Smelting Works Montreal.

## Pipe (Riveted, Iron and Steel)

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## Pipes and Tubes

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Montreal Pipe Foundry Co., Montreal.

## Plaster

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## Plates

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Nova Scotia Steel & Coal Co., New Glasgow, N.S.

## Plumbago

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

## Pneumatic Tools

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## Power Plants—Equipments

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Keystone Engineering Co., Toronto.  
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Toronto & Hamilton Electric Co., Hamilton, Ont.

## Presses (Tile, Sewer Pipe, Nozzles and Sleeves)

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## Pulleys

Darling Bros., Montreal.  
Goldie & McCulloch Co., Galt, Ont.  
Hamilton, Wm. Mfg. Co., Peterborough, Ont.  
Jeffrey Mfg. Co., Columbus, Ohio.  
McDougall, John, Caledonian Iron Works Co., Montreal.  
McLaren, J. C., Belting Co., Montreal and Toronto.  
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 Morris Machine Works, Baldwinsville, N.Y.  
 McDougall, John, Caledonian Iron Works Co., Montreal.  
 Ontario Wind Engine & Pump Co., Toronto.  
 Petrie, H. W., Toronto.  
 Smart-Turner Machine Co., Hamilton, Ont.

**Punches and Shears**  
 Globe Machine & Stamping Co., Cleveland, Ohio.  
 Petrie, H. W., Toronto.

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

**Purifying and Softening Systems (Water)**  
 Babcock & Wilcox, Limited, Montreal.  
 Darling Bros., Montreal.  
 McDougall, John, Caledonian Iron Works Co., Montreal.

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

**Railway Supplies**  
 Algoma Steel Co., Sault Ste. Marie, Ont.  
 Allis-Chalmers-Bullock, Limited, Montreal.  
 Garsshore, 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**  
 Betterfield & Co., Rock Island, Que.

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

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

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

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

**Rubber Goods**  
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**Rubber Packing**  
 Gutta Percha & Rubber Mfg. Co., Toronto.

**Rubber Washing Tubs**  
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**Rural Mail Boxes**  
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 McKinnon Dash & Metal Works Co., St. Catharines, Ont.

**Safes and Vaults**  
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**Saw Mill Machinery**  
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**Screws**  
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**Screw Plates**  
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**Shafting**  
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 Petrie, H. W., Toronto.  
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**Shear Knives**  
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**Sheets (Iron and Steel)**  
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 Lyght, John, Limited, Bristol, England, and Montreal.  
 Metallic Roofing Co., Toronto.  
 Pedlar People, Oshawa, Ont.

**Sheet Metal Goods**  
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 Metallic Roofing Co., Toronto.  
 Pedlar People, Oshawa, Ont.

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

**Shovels**  
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**Smoke Stacks**  
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**Special Machinery**  
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 Smart-Turner Machine Co., Hamilton, Ont.

**Speed Recorders**  
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**Sprinkler Insurance**  
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**Stamps and Stencils**  
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**Steam Pumps**  
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 Canada Foundry Co., Toronto.  
 Darling Bros., Montreal.  
 Goldie & McCulloch Co., Galt, Ont.  
 McDougall, John, Caledonian Iron Works Co., Montreal.  
 Petrie, H. W., Toronto.  
 Smart-Turner Machine Co., Hamilton, Ont.  
 Williams, A. R. Machinery Co., Toronto.

**Steam Separators**  
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 Darling Bros., Montreal.  
 Robb Engineering Co., Amherst, N.S.  
 Sheldon & Sheldon, Galt, Ont.  
 Smart-Turner Machine Co., Hamilton, Ont.

**Steam Shovels**  
 Allis-Chalmers-Bullock, Limited, Montreal.

**Steam Specialties**  
 Darling Bros., Montreal.  
 Penberthy Injector Co., Windsor, Ont.  
 Sheldon & Sheldon, Galt, Ont.  
 Sturtevant, B. F. Co., Hyde Park, Mass.

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

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

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

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

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

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

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

**Suspension Furnaces**  
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**Tanks (Oil and Water)**  
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 Jencks Machine Co., Sherbrooke, Que.  
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**Ontario Wind Engine & Pump Co., Toronto.**

**Taps and Dies**  
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 Globe Machine & Stamping Co., Cleveland, Ohio.

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

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

**Textile Supplies**  
 McLaren, J. C. Belting Co., Montreal and Toronto.  
**Thermometers (Recording)**  
 Bristol Co., Waterbury, Conn.

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

**Tool Steel**  
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 Leslie, A. C. & Co., Montreal.

**Trucks**  
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**Trucks (Railway)**  
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**Trucks (Wire Mill Supplies)**  
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**Tubs (Cleaning and Coating Wire)**  
 Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio.

**Tumbling Barrels**  
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 Smart-Turner Machine Co., Hamilton, Ont.

**Turbines**  
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 Hamilton, Wm. Mfg. Co., Peterborough, Ont.  
 Jencks Machine Co., Sherbrooke, Que.

**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.  
 Smart-Turner Machine Co., Hamilton, Ont.  
 Williams, A. R. Machinery Co., Toronto.

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**Varnishes**  
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**Ventilators**  
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 Metallic Roofing Co., Toronto.  
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 Sheldon & Sheldon, Galt, Ont.  
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**Washers or Hollinders (Cleaning Rubber)**  
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**Water Power Development**  
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**Water Purifying Chemicals**  
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 Canada Process Co., Toronto.

**Wheelbarrows**  
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**Windmills**  
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**Wire Mill Supplies**  
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**Wire and Wire Rope**  
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 Greening, B. Wire Co., Hamilton, Ont.  
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 Phillips, Eugene F., Electrical Works, Montreal.

**Wire Rope Fittings**  
 Dominion Wire Rope Co., Montreal.

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

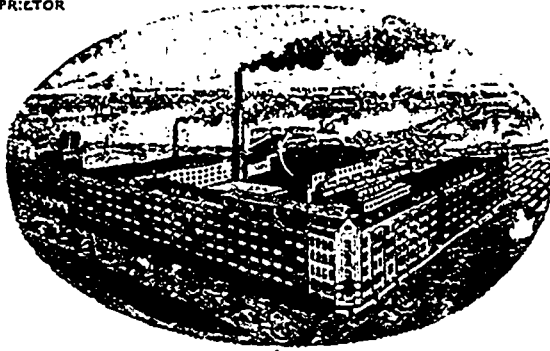
**Wire Drawing Machinery**  
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**Wood-Working Machinery**  
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Toronto, Ont., Canada. Feb 5 1906

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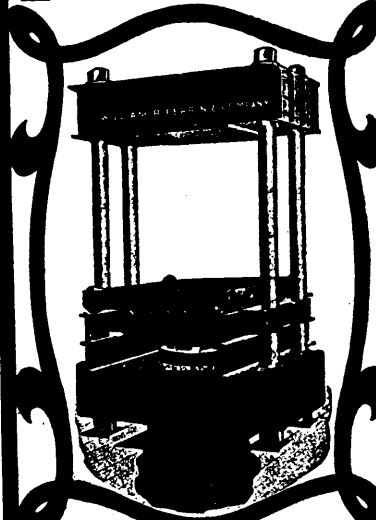
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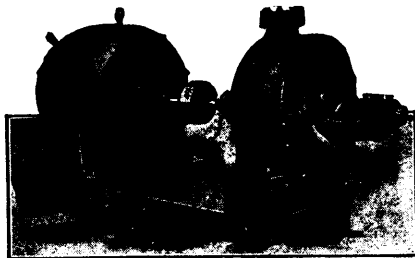
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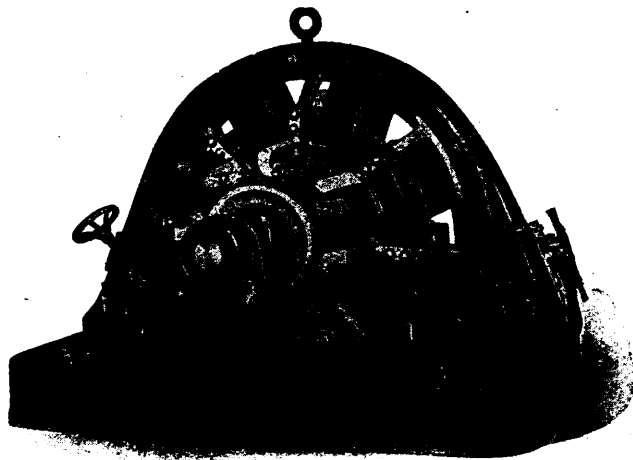
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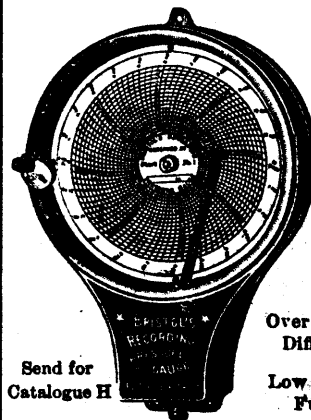
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