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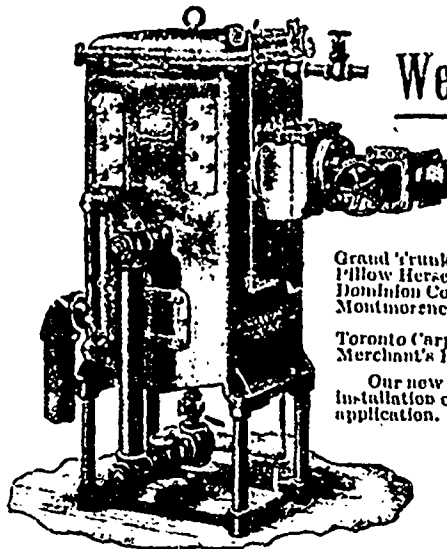
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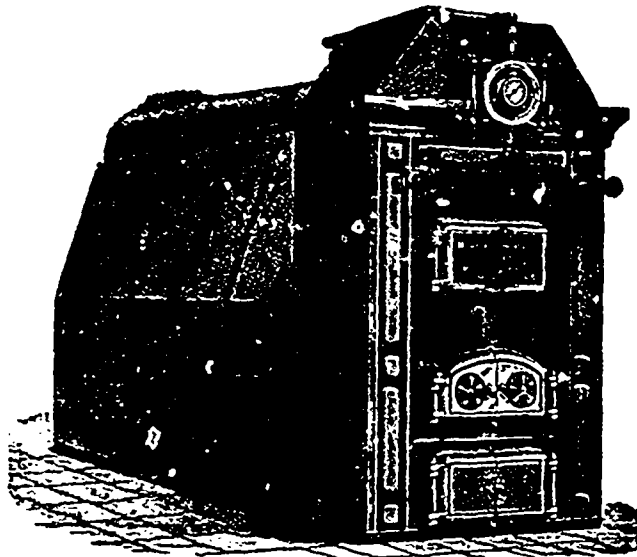
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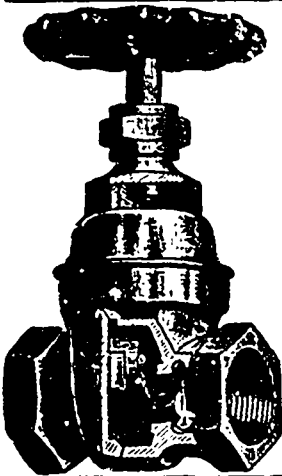


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The Fisher Building, CHICAGO. 150 Nassau St., NEW YORK.  
Represent the Advertising Department of THE CANADIAN  
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## OUR TARIFF EDITION.

The special edition of THE CANADIAN MANUFACTURER of July 6, containing the tariffs in full of Canada, United States, Great Britain and Newfoundland, all accurately indexed, is meeting with a kind and flattering reception at the hands of our friends. In our last issue we quoted from what some of them said to us regarding it. We now repeat what the Collectors of Customs at some of the more important ports in Canada, and what some of our newspaper friends have kindly said regarding it.

John Small, Esq., Collector of Customs, Port of Toronto:—I have to thank you for copy of CANADIAN MANUFACTURER containing reproductions of tariffs of Canada, United States, Great Britain and Newfoundland. It is admirably compiled and cannot fail to be of valuable assistance to the business community.

John E. Cuffe, Esq., Collector of Customs, Port of St. Catharines, Ont.:—I regard it as a very useful publication, unique of its kind. It will be of much value to the business community as a source of information for up-to-date customs reference. The typography, paper and binding are alike creditable. A copy should be in every business house.

Thomas Scott, Esq., Collector of Customs, Port of Winnipeg, Man.:—Without pledging myself to all contained therein, I am of opinion that it will prove useful both to importers and exporters. We are frequently asked as to rates of duty on articles exported to the United States, and to such exporters your work cannot fail to be of valuable assistance. It will be placed in our Long Room for use of the public.

W. D. Harrington, Esq., Collector of Customs, Port of Halifax, N.S.:—I have the pleasure to state that the 1900 tariff edition of THE CANADIAN MANUFACTURER is presented in a handy form for reference, and has my approbation as a useful book in a merchant's office.

Thos. Foster, Esq., Collector of Customs, Port of Brantford, Ont.:—It is a very useful book for those doing business between the countries whose tariffs are given.

N. P. Horton, Esq., Collector of Customs, Port of Owen Sound, Ont.:—I thank you for the copy you sent me of the 1900 tariff edition of THE CANADIAN MANUFACTURER. It is a long felt want supplied.

Thos. Peck, Esq., Collector of Customs, Port of Galt, Ont.:—It is most handy and convenient in every way. It is a great source of information regarding the different tariffs. I will show it to the various customers who do large business with this office.

John A. Cowan, Esq., Chief Clerk in Long Room, Customs House, Port of Toronto:—I have to thank you for the 1900 special edition of THE CANADIAN MANUFACTURER containing the tariffs of Canada, United States, Great Britain and Newfoundland, all thoroughly indexed. I find it of the greatest convenience, not only to myself, but also to those doing business in this office, and as a ready reference it cannot be excelled. It is being made use of constantly in this office.

The Assistant Collector of Customs, Port of St. John's, Newfoundland:—I am in receipt of a copy of the 1900 special tariff edition of THE CANADIAN MANUFACTURER. It will be a most useful publication, and meet a want long felt by commercial men.

We are in receipt of the tariff number of THE CANADIAN MANUFACTURER giving in full the tariffs of Canada, United States, Great Britain and Newfoundland, with an index to the same. This edition has been very carefully prepared, and should furnish to manufacturers throughout Canada valuable information as to the tariff rates in the countries to which they send the greater part of their shipments.—Industrial Canada, issued by the Canadian Manufacturers' Association.

The publishers of THE CANADIAN MANUFACTURER have made their issue of July 6 a very useful and interesting publication by embodying therein the complete tariffs of Canada, United States, Great Britain and Newfoundland. The matter is arranged in a form that is very convenient for reference, and to those who do business with Canada the publication of this information in this form will doubtless be of much value. This issue of THE CANADIAN MANUFACTURER forms a book of 202 pages, and not the least interesting feature is the great volume of advertising of manufacturers and merchants, which forms a very striking illustration of the industrial growth of Canada.—American Trade, Philadelphia, official organ of The National Association of Manufacturers of the United States.

THE CANADIAN MANUFACTURER, Toronto, performed a great feat in its issue of July 6 by giving the full and complete tariffs of Canada, United States, Great Britain and Newfoundland. It is a valuable issue and evinces enterprise not found with many journals.—The Implement Age, Philadelphia.

The July 6 number of THE CANADIAN MANUFACTURER is one of the most valuable issues of a trade publication which we have ever seen. We expect to preserve it in our office for a long time as a valuable reference book.—Editor The American Carpet and Upholstery Journal, Philadelphia.

The publishers of THE CANADIAN MANUFACTURER are to be complimented upon the special tariff number containing the text of the tariff acts now in force in Canada, Great Britain, Newfoundland and the United States. The tariff of each country is fully indexed for ready reference, and the whole work appears to be carefully done. There are about 100 pages of tariff matter, and we are glad to note that the issue is generously patronized by advertisers, Canadian manufacturers being prominent. The issue contains in all 202 pages, and is altogether creditable to Mr. Cassidey's enterprise.—The Canadian Engineer, Toronto.

We have received the tariff number of THE CANADIAN MANUFACTURER, giving the tariffs of Canada, United States, Newfoundland and Great Britain, with an index to each. The compilation implies a deal of careful labor and must prove of much service in giving valuable information to exporters.—The Monetary Times, Toronto.

THE CANADIAN MANUFACTURER has issued a special number in which is embodied the tariffs of Canada, United States, Great Britain and Newfoundland as now in force. These, it is stated, are reproduced with the utmost exactness from official documents obtained from the respective governments, and indexed in the fullest manner as appears in those documents. The book, for such it really is, is printed on good paper in large type, the cover being extra heavy and strong. It will prove an extremely handy book of reference to both exporter and importer, and will no doubt be greatly appreciated.—The Shareholder, Montreal.

The Canadian Manufacturer Publishing Co., Limited, last month issued a special tariff edition of their journal containing the revised tariffs of Canada, the United States, Newfoundland and Great Britain, the four principal countries with which the Dominion does business. In addition to the tariff, it contains a supplementary index in which every article is conveniently tabulated under its proper heading and the page of the tariff quoted where it may be found. This work will be found very convenient to every dealer doing business with any of the above-named countries, and Editor Cassiday is entitled to the thanks of the mercantile community for the pains he has been at to furnish them with such a useful and convenient book of tariff reference.—The Trader, Toronto.

THE CANADIAN MANUFACTURER for July 6 is a superb, special issue, containing in addition to other valuable matter the complete Canadian, British, United States and Newfoundland tariffs. The issue will be preserved by every business man who is fortunate enough to get a copy.—The Galt Reformer, Galt, Ont.

In THE CANADIAN MANUFACTURER of July 6 is embodied the tariffs of Canada, United States, Great Britain and Newfoundland as in force at this time, all reproduced from the official documents obtained from the respective governments, and indexed as appears in those documents. An edition of THE CANADIAN MANUFACTURER of this character was issued in 1894 and another in 1897, both of which were found useful because of the tariff information contained therein. The present edition is printed on good paper in large type, the cover being extra heavy and strong; and it is provided with a twine loop by which it may be hung upon a hook.—Fibre and Fabric, Boston, Mass.

The special issue of THE CANADIAN MANUFACTURER is at hand, containing the full tariff lists to date of Canada, United States, Great Britain and Newfoundland. It is very creditable to the publishers. Similar issues were made in 1894 and 1897, which were found in constant use in business offices from time to time.—The Presto, Chicago, Ill.

The recent issue of THE CANADIAN MANUFACTURER's special number containing indices of the Canadian, United States, British and Newfoundland tariffs is of the greatest importance and benefit to the mercantile community. Even typographically the work is commendable; but when one comes to examine its contents, the intrinsic value of it is at once apparent. It contains a complete record of all dutiable articles in these countries, alphabetically arranged, and so classified as to be at once apprehended. It includes, of course, all exemptions, and contains other information valuable to the business man. Everywhere this "tariff number" has received unstinted and most deserved praise.—The Evening Telegram, Toronto.

#### CANADIAN ELECTRICAL ASSOCIATION CONVENTION.

The Annual Convention of the Canadian Electrical Association will be held in the city of Kingston, Ont., on August 29, 30 and 31. A cordial invitation was extended by the city authorities and also by the electrical companies there, which invitation was accepted with the

approval of the members and friends of the Association in Ottawa, where the convention was to have been held. Owing to the recent big fire in that city, it would not be convenient to hold the convention there this year. The program has not yet been completed, but will include the following papers:—

1. "Utilizing the Available Central Station Capacity." Prof. R. B. Owens, McGill University, Montreal, Que.
2. "Use of Dynamo and Storage Battery in Telegraph Offices." Mr. W. J. Camp, C.P.R. Telegraph Office, Montreal.
3. "Power Factor as Affecting Operation and Investment with Special Reference to Induction Motors and Enclosed Arc Lamps." Mr. F. H. Leonard, Jr., Montreal.
4. "Government Electrical Standards." Mr. O. Higman, Ottawa.
5. "Railway Subject: Giving Several Curves showing the Average Power during a Day and Maximum and Minimum Requirements for Power called for on the Quebec System." Mr. Blair, Quebec Railway and Lighting Co., Quebec.
6. "Rotary Converters." Mr. A. Gordon Grier and Mr. J. C. Hyde, Montreal.
7. "Conditions Affecting the Wave Form of Alternators." Prof. L. A. Herdt, McGill University, Montreal.

The city council of Kingston have made a liberal appropriation for entertainment purposes, and granted the use of the City Council Chamber for the sessions, and have also granted space in the City Hall for exhibits of electrical appliances, while the local electrical companies have agreed to furnish, free of charge, current and labor to exhibitors. Visitors will be given a trip through the Thousand Islands.

#### THE CANADIAN WOOLEN INDUSTRY.

Industrial Canada, the new bulletin of the Canadian Manufacturers' Association, says that the question of the tariff and its relation to manufacturers was again brought into prominence by the increase in the preference on British goods from twenty-five to thirty-three and a third per cent.; that the Tariff Committee of the Association investigated the different complaints brought before it growing out of the increase, and made a number of recommendations to the Government in which it was pointed out that certain industries required further protection in order that they might successfully compete when the new preference came into effect. These recommendations were presented to the Government by a delegation of the Association who were accompanied by a number of representative manufacturers engaged in the woolen industry.

It is the opinion of THE CANADIAN MANUFACTURER that there was no demand whatever, and no necessity whatever of increasing the tariff preference on British goods, and that it should not have been done; and it is somewhat remarkable that no changes were made in the tariff at the recent session of the Dominion Parliament (except to admit sugar-making machinery, duty free) other than the increased preference in British goods here alluded to. It is claimed that this increased preference will be a severe blow at the Canadian woolen industry, particularly that portion of it engaged in the production of the cheaper grades of goods; and if this should prove to be a fact, we fail to see how the Government can be justified before these manufacturers in question. It may mean that the difference between the twenty-five per cent. preference and thirty-three and a third per cent. is the



measure of the difference between a small profit which would enable the manufacturers to keep their mills in operation, and the certainty of inability to keep them going—the difference between remunerative employment and absolute idleness to thousands of Canadian workers.

The Montreal Herald analyzes the situation which we reproduce. It says:—

It is always preferable to believe that public men are sincere in their arguments and that their predictions, for all public men worthy of the name have their prophetic moods, are based upon their best judgment. It sometimes happens, however, that the unknown quantity is the most important of all, and calculations which do not make the necessary allowance for certain variations are quite apt to miscarry to the extent of being ludicrous blunders. It is probably the case, for example, that Mr. Foster believed every word he said when in 1897 he invited the attention of the Canadian people to the approaching ruin of the home woolen industry. And yet so far has the prediction been from fulfilment that nearly every mill in the country has been working overtime at certain seasons ever since. It is now predicted by the Manufacturers' Association, who doubtless but enunciate the views of those engaged in the woolen industry, that when a period of general depression shall return, as it probably will, the woolen industry will be sure to suffer severely. We shall all hope most devoutly that this may not come to pass. Those who are most afraid would probably be best pleased if this new prediction were to fare as badly as Mr. Foster's.

It is possible to get a fairly accurate idea of the condition of the woolen industry in the last few years by taking account of the imports and exports of the raw material. Canada, as is well known, raises a great deal of wool, and at times has had a considerable surplus for sale. It can probably be taken for granted that the amount raised and marketed in Canada was not less, and probably considerably more, in 1899 than in 1895. If the figures for home production can be taken as constant or nearly so in the two years, we may next turn to the figures given in the trade returns as revealing the sales to and purchases from the outside world. It is found that in the fiscal year 1895:

	Pounds.
Wool imports were.....	7,750,050
Wool exports were.....	5,532,821
A net import of .....	2,217,229

Turning now to the year ending June 30, 1899, it is found that there was a marked increase in the imports and a much more remarkable decrease in exports. Thus, in 1899,

	Pounds.
Wool imports were.....	9,413,739
Wool exports were.....	91,991
A net import of.....	9,321,748

Thus it is seen that while in 1895 the Canadian woolen industry consumed the normal home production of wool and an additional 2,217,229 pounds, in 1899, the home production had to be supplemented by no less than 9,321,748 pounds. The prosperous times in Canada meant, therefore, to Canadian woolen mills in 1899 the treatment of an extra 7,105,619 pounds of wool, assuming, as before mentioned, the home production of raw wool was neither more nor less in 1899 than in 1895. It would be decidedly interesting if it could be known what amount of wages and profits were represented in the working up of this seemingly large quantity of material to a state of readiness for the consumer. It must represent a very considerable addition to the sum of earnings as it stood in 1895.

Another reflection not out of place in this connection is that the Canadian people were able to purchase the whole of this additional product. Indeed, the exports of woolen manufactures, never very considerable in amount, fell off quite a little. In the dull times of 1895 as much as \$94,464

of Canadian woollens found their way out of the country, while in 1899 the total was only \$37,255. This is not as it should be. There is no sufficient reason why Canadian woollens should sell in Newfoundland to the value of \$22,137 in a bad year like 1895, and only \$15,090 in a good year like 1899. It can be explained, it is true, but that explanation is not one which contains much to fortify those engaged in the industry against the prospect of another period of hard times at home.

At any rate we have seen that the Canadian people were able, in 1899, to take into their houses or put upon their persons the whole of the product of this extra seven million pounds of wool. They were also able, it is pleasing to note, to purchase from the outside world \$1,741,286 worth of woolen manufactures more than they did in 1895. The total imports were:—

In 1899.....	\$9,674,781
In 1895.....	7,933,495
Increase.....	\$1,741,286

In the woolen schedule, at least, the new tariff has been fairly on trial since 1897. In that time manufacturers have prospered and the people have bought more from at home, more from abroad, and all at prices somewhat lower than they would have been had the rates of duty not been reduced.

EDITORIAL NOTES.

Mr. Robert Glockling, Secretary of recently created Ontario Bureau of Labor, who has been visiting the principle cities of the United States in search of information relating to labor matters, has returned to Toronto. Regarding his mission, Mr. Glockling says:—"My mission in search of data was very successful, and during my trip I obtained much valuable information of how the Labor Bureau system is operated in the United States. Of all the labor bureaus that I visited in the large cities, that in Massachusetts was the largest and most perfect, being conducted on an elaborate and extensive scale. The electric system of tabulation which is used in this particular place is a wonderful invention. Speaking of the progress of the Labor Bureau system in the States, I was informed at every place I visited, that it has been steadily gaining headway, and in each organization the scope of investigation is constantly being extended. This year the New York Bureau has been busily engaged in investigating the factory inspection system in the departmental stores in the State of New York. The labor organizations in the different cities are gradually recognizing the importance of the bureau, and the interest is steadily increasing every year."

Statistics have frequently been published showing that the great exhibition at Toronto, which, this year, will be held from August 27 to September 8, gives more money in prizes for cattle, horses, sheep, swine, poultry, ladies' work, etc., than any other annual exhibition held on this continent, but it is hard to believe that the premiums awarded in the ten days that the Fair is in actual operation aggregate the magnificent sum of \$35,000! Yet such is the fact—that the sums given in the 131 classes, with their thousands of sections, reach that generous figure. In addition some \$30,000 is spent in attractions. And the price charged for admission is only twenty-five cents, with twenty-five cents for the grand stand, for which entertainment is provided that could not be had anywhere in America for half a dozen times that amount.

This year's will be the twenty-second fair held in Toronto in successive years, and the management have decided to close the century with the greatest and most liberal effort they have yet made. As last year, so this, the Exhibition will open with a brilliant Military Tattoo on Tuesday evening, August 28, and after that each night will be presented a gorgeous fireworks spectacle representing the most important of the events in the South African campaign. The same excursions and reduced rates as usual will be obtainable on all lines of travel.

"The Imperial Idea" is the title of a most interesting booklet just published by Messrs. Colin McArthur & Co., wall-paper manufacturers of Montreal, for presentation to their customers as a tribute to the spirit of the most unique event in the history of nations, viz., the remarkable response of the colonies to the Mother Country when the cable simply whispered that the "whelps of the lion" might gather around if they liked to, and show the world that "Britons, the universe over, are patriots still."

The book bears the evidence of careful thought, and the finished product does credit, not only to the brilliant conception of the author, who, we understand, not only planned the pictures but also composed the strong and forcible language of the few brief chapters that place the interesting acts before us in most attractive form; but also to the enterprise of the firm, who, at no small expense, have produced such a fine art souvenir. The book contains twelve page illustrations of scenes connected with the South African war, and illustrating the Imperial Idea; an admirable portrait of the Queen, and portraits of the leading generals. Everything about it, letterpress and pictures, is well done.

The increase in the preferential tariff in favor of Great Britain from 25 to 33½ per cent. went into effect upon July 1 last. As was expected a great volume of British goods were held in bond over June until after July 1, so as to take advantage of the lowered duty, thus making the imports of manufactured goods for the month of July abnormally large. Without doubt, the lowering of the duty upon British goods will be a good thing for British manufacturers, but it remains to be seen whether it will be equally good for the manufacturers of Canada, and ultimately for the Canadian public. Without being alarmists we may say right here and now, that we are almost certain that it will adversely affect several lines of Canadian manufactures, and although this increased competition will not be so apparent so long as the present boom times continue, yet when the reaction sets in some one will have to pay for these concessions. Canadian duties are not high enough to stand any such sweeping reductions to Great Britain or any other country, and while we are strong believers in giving a reasonable preference to the Mother Country, we think our maximum tariff should be raised high enough to enable us to do so and still have the minimum tariff high enough to afford adequate protection to our own Canadian manufacturers. After all is said and done charity begins at home. Britain is free trade, not because it is right in principle, but simply because her people consider that free trade is the best suited for their needs. On the other hand, the people of Canada and the United States are protectionists, because under existing conditions they

could not compete against the products of cheap European labor if their goods were admitted duty free. Trade is essentially as selfish as war. Each country is looking out for itself, and will do just such things as it thinks are going to advance its own interests. While Canadian protectionists are selfish enough to believe in looking out for Canadian interests first, they thoroughly believe in looking after the welfare of the British Empire next to their own, and giving them every possible advantage compatible with the preservation and encouragement of their own domestic manufacturing industries. This is as far as they do go or ought to go, and selfish as it may appear, it certainly goes a great deal further in the direction of giving advantages to our own fellow-subjects than anything that free traders have either advocated or put into practice. Free trade recognizes only one thing; the lowest price. It has no feelings of kinship towards those who dwell beneath the same flag, it knows no country or anything else; save price only. It is essentially selfish, else it would not be free trade.—The Trader.

At a called meeting of the Toronto Industrial Exhibition Board, held July 31, the president, Dr. Andrew Smith, announced the death of Mr. P. G. Close, a member of the Board, whereupon Mr. J. I. Hobson, president of the Canadian Cattle Breeders' Association, was chosen to fill the vacancy, and was made a member of all the committees on which Mr. Close had officiated.

Mr. Aug Dalström, No. 3 Gotgatan, Stockholm, Sweden, according to the New York Journal of Commerce, has written to parties in the latter city saying that in order to secure a share of the available trade in his country for coal and ore conveying machinery and other kinds of labor-saving appliances, especially for hoisting and mining purposes, etc., it is necessary that manufacturers should have agents there. The identical fact applies to Canadian manufacturers with equal force.

The value of the imports of jewelry into Canada for home consumption during the fiscal year ending June 30, 1899, was as follows:—

Country.	Value.	Duty Paid.
Great Britain.....	\$39,338	\$9,537.60
British East Indies .....	29	8.70
Austria .. .. .	10,321	2,906.05
Belgium . . . . .	58	17.40
China.....	9	2.70
France.....	15,423	4,397.70
Germany.....	12,106	3,425.18
Japan.....	596	177.23
Switzerland....	214	67.65
United States.....	393,427	118,028.37
Total.....	\$471,521	\$138,668.48

Mr. Alfred Howett, Toronto, has sent us a copy of The Canadian Year Book for 1900, a very neatly gotten up publication that contains much information regarding Canada that is useful to business and professional men. It should not be confounded with The Statistical Year Book of Canada which has for so many years been compiled by Mr. George Johnson, Dominion Statistician, and published by the Department of Agriculture.

# THE CANADIAN MANUFACTURER

ESTABLISHED IN 1880.

Devoted to the Development of Canadian Trade,  
Foreign and Domestic.

## THE INTERNATIONAL BUREAU OF COMMERCE

... OF CANADA ...

In connection with The Canadian Manufacturer, works to attain this end.

Any inquiry addressed to THE CANADIAN MANUFACTURER will result in placing the writer, if he so desires, in communication with Manufacturers, Buyers or Sellers of any sort of merchandise in Canada or any other country.

Merchants, Importers, Exporters, Boards of Trade, Chambers of Commerce and Commercial Organizations in any part of the world are invited to make full use of the facilities afforded by THE CANADIAN MANUFACTURER whenever they may desire information about any article produced in Canada, Tariff Law, Customs Regulations, Routes of Transportation, etc.

We especially request Canadian manufacturers to send us lists of the different lines of goods produced by them so that we may address to them special letters of inquiry as soon as information is received by us.

We have information, principally from buyers, that is valuable to manufacturers who desire to increase their trade in the British and foreign markets, that will be furnished on application. If you find any item in this list (which is changed every issue) that you are interested in, write to us if you see any item that does not interest you but would be of value to some friend, kindly inform him or us.

We are in receipt of enquiries of names and addresses of makers of soft metal tubes, such as are used in putting up artists' paints and colors.

Names and addresses of makers of glass or sand paper.

Names and addresses of makers of hickory handles for picks and sledges hammers.

Names and addresses of Canadian makers of mower sections, or mowing machine knives.

Names and addresses of makers of celluloid combs for toilet and ladies' use.

### AUSTRALIA.

Paints, Varnishes and Oils (2).  
Rope and Twine.  
Games and Toys (3).  
Camping Outfits.  
Window Shades and Fixtures (2).  
Lamps (3).  
Stoves and Ranges (2).  
Wooden and Willow Ware (2).  
Refrigerators.  
Silverware.  
Table Cutlery (2).  
Fishing Tackle.  
Manila Rope.  
Double Cylinder Oil Engines.  
Lubricating Oils.  
Steam Boilers and Engines.  
Steam Winches.  
Shafting, Hangers and Pulleys.  
Boiler Fittings.  
Mowers and Reapers.  
Cream Separators.  
Plasters and Seeders.  
Bairny Supplies.  
Canadian Useful Novelty Notions.  
Electrical Machinery.  
Telephone and Telegraph Materials.  
Wire for Electrical Purposes.  
Electric Light Fixtures.  
Telegraph Poles and Line Wire.  
Electrical Medical Apparatus.

Electrical Instruments.  
Electrical Supplies.  
Pumping and Hydraulic Machinery.  
Tool.  
Fence Wire.  
Wire Rope.  
Pipes, Valves and Meters.  
Leather and Rubber Belting.  
Asbestos Goods.  
Silicate Cotton or Slag Wool.  
Rubber Packings.  
Cotton Linings.  
Silks.  
Sewing Silks.  
Tailors' Novelties.  
Buttons.  
Fasteners.  
Buckles.  
Builders' and Household Hardware (3).  
Carpenters' (2) and Machinists' (2) Tools.  
Kitchen Utensils (2).  
Cutlery (3).  
Carpets and Rugs.  
Oil Cloths and Linoleums.  
Upholstered } Furniture.  
Hardwood }  
Rattan }  
Draperies and Upholsteries.

### AUSTRALIA Continued.

Printing and Wrapping Paper.  
Bags and Twine.  
Druggists' Sundries.  
Bottles.  
Baby Carriages and parts thereof.  
Window Furniture and Fittings.  
Books.  
Suspenders.  
Collars, Cuffs and Shirt Bosoms.

Gloves, Hosiery and Underwear.  
Perfumes.  
Handkerchiefs.  
Trunks and Umbrellas.  
Sportsmen's Clothing.  
Prints and Gingham.  
Sheetings and Shirtings.  
Canvas.  
Hats and Caps.

### CUBA.

Drugs.  
Folding Beds.

Furniture.

### FRANCE.

Machinists' and Blacksmiths' Tools.  
Cutlery.  
Bar Iron and Steel.

Metal-working Machinery.  
Wood-working Machinery.  
Contractors' Tools.

### GREAT BRITAIN.

Tomato Ketchup.  
Macaroni.  
Potted Meats.  
Bolts and Nuts (2).  
Horseshoe Nails.  
Cone Screws.  
Wire Nails.  
Chairs, Desks and Furniture (2).

Builders' Hardware.  
Stoves and Ranges.  
Steam and Gas-fitting Materials.  
Wrought Iron Pipe.  
Boiler Tubes.  
Stationers' Sundries.  
Paper Bags.  
Wood Skewers.

### SOUTH AFRICA.

Machines for Peeling Fruit.  
Stoves and Ranges.  
Chests and Drawers.  
Wooden and Willow Ware.  
Kitchen Utensils.  
Upholstered } Furniture.  
Hardwood }  
Rattan }  
Wash Stands.  
Trunks and Travellers' Requisites.  
Jewelry (2) and Silverware.  
Table Cutlery.  
Meat Scales.  
Mattresses and Pillows.  
Pianos (2) and Organs.  
Toys and Games (2).  
Dried and Canned Fruits.  
Food Products.  
Canned Meats.  
Confectionery.  
Harness and Saddlery.  
Window Glass.  
Glassware.

Padlocks.  
Patent Medicines.  
Cigars, Cigarettes and Tobacco.  
Builders' and General Hardware.  
Carpenters' Tools.  
Household Hardware.  
Cutlery (2).  
Bicycles (2) and Sundries.  
Paints, Varnishes (2) and Oils.  
Window Glass.  
Pumping Machinery.  
Wagon and Carriage Parts.  
Carriage Hardware.  
Axles and Springs.  
Horse and Mule Shoes.  
Bar Iron and Steel.  
Lumber.  
Sashes, Doors and Blinds.  
Mantels and Stair Work.  
Building Papers.  
Window Shades and Fixtures.  
Lamps (2).

### WEST INDIES.

Boots and Shoes.

Preserve this Bulletin for Reference—it will not be Duplicated.

**If You want Information, Ask for It.**

Address,

THE CANADIAN MANUFACTURER, Toronto, Canada.

THE CANADIAN MANUFACTURER is in receipt of an enquiry from Europe through an American house, for the names and addresses of Canadian manufacturers of mower sections, or mowing machines knives, the demand being for 100,000 pieces. Who manufactures the article?

The boot and shoe manufacturers of the province of Quebec are applying for incorporation as the Quebec Boot and Shoe Manufacturers' Association, the object being to promote that industry in that province. It should affiliate with and become a guild of the Canadian Manufacturers' Association.

Protection, Prosperity and Progress, these three, but the first of these is the father of the others. No Protection, no Prosperity, no Progress. The Prosperity and Progress of Canada depends entirely upon Tariff Protection to our Manufacturing Industries.

Messrs. W. & L. E. Gurley, Troy, N.Y., have sent us their 1900 Manual of the Principal Instruments used in American Engineering and Surveying, as manufactured by them. The preface to the edition states that more than fifty years ago the manufacture of such instruments was begun in that city, one of the founders being Mr. William Gurley, who later associated Mr. L. E. Gurley with him, and under the present firm name the business has been ever since conducted. We are told that the revised and enlarged manual of this concern is used as a text book in many schools and colleges, and is freely quoted in technical publications. The capacity of their factory is such that, they say, they are now the most extensive manufacturers of civil engineers' and surveyors' instruments in the world.

The Packard Electric Co., St. Catharines, Ont., have seemingly added a publication department to their other business, judging from an advance copy of *The Sheol Siftings*, the motto of which is "Is it Hot Enough for You?" It has always been understood that in spite of its name, St. Catharines was a hot town, but friend Cary, if he is really the editor of *The Sheol Siftings*, as well as manager of the Packard concern, has either changed the name of his place of sojourn, or has adjourned to Styx River, Hades, Ontario. *Siftings* talks irreverently of that celebrated Doctor of Divinity, Rev. Robert J. Ingersoll, late of Peoria, Illinois, and later still of that hotter place, New York, and tells of the old-time

friends who meander along the banks of the Styx, which is almost as uncomfortable a place to be on this 17th day of August, 1900, as on the canal bank near lock No. 2 of the Welland Canal. And thus the hand of retributive justice is laid heavily upon the shoulders of the ungodly.

The Knight of the Grip is a reprint of a series of articles which were originally published in *The Iron Age* and attracted much attention. The book treats the travelling man, as a class, on a broad basis, bringing out his condition, character and conduct, with incidents based on actual experiences, and description of the methods pursued with buyers of the various types with whom he has to do. It is thus not only a readable book, but contains also much that is suggestive to those who are looking for the secret of success on the road. While it is written from the viewpoint of a hardwareman, and has throughout a hardware atmosphere, there is no reason why it should not be interesting and useful to merchants or Knights of the Grip in other lines of business.

The Marine Review Publishing Company, Cleveland, Ohio, have just issued their Blue Book of American Shipping and Marine and Naval Directory of the United States. This volume, with its 485 pages and many illustrations, is now in its fifth year and has well proved its importance and value to American shipping interests. It is a complete directory of vessels of all kinds owned in the United States and Canada, giving particulars of the vessels, names and addresses of owners, lists of ship and engine builders, naval architects, marine engineers, and of shipmasters and members of various organizations. It also contains full statistics of water commerce and of steamship lines, both coastwise and foreign. In short it is a compendium of maritime information, and of great value to all in any way interested in shipping.

Industries, our esteemed contemporary published at Durban, South Africa, tells of a remarkable discovery—oil bearing shale in the Wakkerstroom District, S.A., which when fully developed, cannot but be of the greatest value to that country. Mr. J. W. Carr, manager of the Johannesburg Gas Works, reports that his test of the shale for gas yielded 13,250 feet of thirty candle power gas per 2,000 pounds, with 46.8 per cent. of carbon, his test for oil yielding twenty ounces of oil from five pounds of shale. There is a strong demand in South Africa for all the commercial products contained in this bituminous shale, and the large importations of illuminating and lubricating oils and paraffine candles indicate the splendid results the industry should yield.

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CHAS. H. JAGGAR, Buffalo, N.Y.

Largest Makers in the World Guaranteed Decalcomania Transfers.

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## 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.

If a new manufacturing enterprise of any kind is being started, or an electric lighting plant instituted, or an electric railroad, or a telephone, or a telegraph line is being constructed; or a saw mill, a woolen, cotton, or knitting mill; or if any industrial establishment has been destroyed by fire with a probability of its being rebuilt, our friends should understand that possibly there may be something in the event for them. Do you catch on to the idea?

The starting of any such concern means a demand for some sort of machines, machinery, or supplies, such as steam engines and boilers, shafting, pulleys, belting, lubricants, machinery supplies, wood or iron working machinery, ventilating and drying apparatus; pumps, valves, packing, dynamos, motors, wire, arc and incandescent lamps, and an infinite variety of electrical supplies, chemicals, acids, alkalies, etc. It is well worth the while of every reader of the Canadian Manufacturer to closely inspect all items under the head of Captains of Industry.

The number of passengers carried by the Toronto Street Railway Co., on Civic holiday, August 6, exclusive of transfers, was 155,000, or 11,000 in excess of last year. Of this number 50,000 were carried on the King street route. The enormous crowd was handled without accident and with scarcely a hitch of any description.

The Department of Inland Revenue has issued a circular setting forth that in accordance with the decision of the British courts baking powders come within the definition of "food," and therefore any prosecution for the sale of "alum" baking powders in Canada would be followed by convictions. Since the sale of such powders has been permitted for some years in Canada, the Department of Inland Revenue thought it desirable to notify dealers of the intention of the department in this matter, and to fix a time limit after which the act would be enforced. The next systematic collection of baking powders will be made in December, and proceedings will be instituted against all vendors of baking powders that contain alum.

Viewed from the standpoint of economic results to be obtained by the introduction of air heaters, and the substitution of a blower for a chimney, the late J. C. Hoadley stated that "there can be no doubt that the heat to be returned to the furnace would several times exceed that necessary to make the power required to drive the exhausting fan, to the operation of which the final temperature of the gases presents no objection."

Messrs. Marion & Marion, patent solicitors, Montreal, writing us regarding the prices paid for some recent inventions, say

that a one-four interest in a patent for a car ventilator was sold a few days ago for \$12,500—the right to manufacture a washing machine in Washington and Oregon for \$1,000; an entire right to a patent for a wall paper manufacturing machine for \$10,000, a patent for a folding ladder, \$25,000, and a patent for an ore pulverizer, \$1,600.

A press telegram from Winton, Ont., says that over 600 acres of land in that neighborhood are planted to sugar beets this season, and that a beet sugar factory is to be erected there at a cost of \$20,000. If a sugar beet factory is to be erected, to be a profitable investment the enterprise should not cost less than ten times the sum named.

J. Briggs & Son's sash and door factory at Brockville, Ont., was destroyed by fire August 9, loss about \$2,000.

Bowman & Zinkan's tannery at Southampton, Ont., was destroyed by fire August 1, loss about \$140,000.

Two large shipments of Cross oil filters were made by The Burt Mfg. Co., of Akron, Ohio, to France during the month of July, as the direct result of their exhibit at the Paris Exposition.

Mr. William Kynoch, of Galt, Ont., who went to Cuba in 1856 and engaged in business there, was in Galt a few days ago with a quantity of machinery which he brought from that island to be repaired by the Goldie & McCulloch Co. "It pays," Mr. Kynoch says, "to bring this machinery to Galt to be repaired rather than to New York." Last year he took with him to Cuba a Wheelock steam engine and other machinery built for him by the Goldie & McCulloch Co.

In contracting to raise the sunken steamer Oconto, the Donnelly Salvage & Wrecking Co. of Kingston, Ont., has undertaken quite a difficult task. The wreck lies in 105 feet of water, opposite the Thousand Islands park on the St. Lawrence river. At the time she was lost the Oconto was laden with general merchandise. She struck a shoal and then slid off into the deepest part of the river. That was ten years ago, and this is the first move to recover the steamer and cargo. The insurance was held by Smith, Davis & Co. of Buffalo, who have just awarded the contract to the Donnelly company. Wrecks have several times been raised on the lakes from depths of more than 100 feet, but always from rivers or connecting channels where the water was still and divers had opportunity to work continuously. The Donnelly company is an old concern and has done many good pieces of wrecking work.

John McDonald's wood-working factory at Chatham, N.B., was destroyed by fire August 1, loss about \$15,000.

The steamship Ottawa, constructed by the Bertram Engine Works Co., Toronto, made her trial trip last week. Captain Alexander Birnie, an experienced mariner who has sailed on the upper lakes for a number of years, was at the wheel, and among those present on board were Messrs. John Bertram, President of the Bertram Engine Works; A. Angstrom, General Manager; C. Stalker, Secretary; John Moore, Director; Robt. Bertram; J. S. Donaldson, General Superintendent of the Canada Atlantic Railway Co.; E. H. Keating, of the Toronto Street Railway Co., and others. The trip was most successful, the running of the engines being perfect during the four hours' sail around the lake. When completed the Ottawa will be the largest freighter of its kind ever built in Canada. She is a package freight steamer of the type best suited to take advantage of the extra depth in the new Canadian canal system. She is 257 feet long over all, 43 feet beam, 25 feet 6 inches deep and will carry over 70,000 bushels of wheat on the canal draught of fourteen feet. The machinery consists of triple expansion engine, 17 inches, 28 inches and 46 inches in diameter, of cylinders, 32 inches stroke and intended to develop about 800 indicated horsepower. The boiler is 13 feet 6 inches diameter and 12 feet long, and is provided with Howden hot draught arrangement. She has also a donkey boiler 7 feet 6 inches diameter, provided for the running of the electric lights. The steamer is fitted with water ballast

## INGERSOLL-SERGEANT Rock Drills

FOR MINES, TUNNELS AND QUARRIES

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STRAIGHT LINE  
 DUPLEX and  
 COMPOUND.

FOR ALL DUTIES.

... COMPLETE MINE EQUIPMENT ...

JAMES COOPER MANUF'G CO., Limited, - 299 St. James St., Montreal.

Other Offices - - - ROSSLAND, B.C. RAT PORTAGE, ONT. HALIFAX, N.S.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

tanks extending the whole length of the boat, and with a depth of four feet. The vessel is fitted throughout with the latest modern improvements.

F. H. Clergue, Esq., of Sault Ste. Marie, Ont., President of the Algoma Central Railway, which has a charter from the Canadian Government for a road between the Soo and Misanabie and the connecting branch from Michipicoten to Dalton, has secured the local stock in the old Hudson Bay & Sault Ste. Marie Railway Company, acquiring its charter and privileges. The charter gives the company the right to construct a road from Misanabie to Moose Factory, located on Hudson Bay, and carries with it a subsidy of \$500,000 and 1,250,000 acres of land along the proposed route. The length of this division is about 250 miles. The road will be an extension of the Algoma Central Railway, and work on it will begin as soon as the main line to Misanabie is completed. During the last year or so explorers have been at work in the section which such a road would open up, and several important discoveries in minerals have been made. The mineral wealth of the country, together with the fisheries of Hudson Bay, the vast area of agricultural and timber lands, the fur trade, etc., which the railway will develop and enlarge, would beyond question, make it a profitable investment. It is well known that Mr. Clergue has for a long time had the project for a railroad to Hudson Bay under consideration.

H. S. Hall has established a cornmeal mill at Bridgewater, N.S.

J. B. McLean has established a flour mill at Moulinette, Man.

John Martin is erecting a grain elevator at Hintonburg, Ont.

W. J. Martin's flour mill at Dixville, Que., was destroyed by fire a few days ago. It is now being rebuilt.

Stewart Bros. of Exeter, Ont., have bought the Ogilvie Mill at Saxforth, Ont., and will run it under the name of the Saxforth Milling Co.

The Burt Mfg. Co., of Akron, Ohio, manufacturers of Cross Oil Filters and Burt Exhaust Heads, have been compelled to enlarge their capacity just at a time when a good many manufacturers are speculating on the probability of a slump in business. They are just finishing a new factory 140x56 feet, two stories high, and equipped with

the very latest labor-saving machinery for making every part of their filters and exhaust heads with the exception of the castings. The capacity of the new plant is more than double that of the old works which will be appreciated as they are two months behind on exhaust head orders.

A press despatch from Bay City, Mich., states that the Eddy Bros. & Co's., immense lumber mills at that place are to be dismantled and the plant removed to Canada. The concern own large tracts of pine timber in Canada, and have kept their mill in Bay City partially supplied with logs towed across the lakes. The embargo placed on logs by the Canadian Government, prohibiting them being towed to the United States, has effectually closed the mills, and its owners have been forced to engage in the manufacture of lumber in Canadian territory, in order to utilize their timber holdings. Work on the construction of the new mill at Blind river, Georgian Bay, has been begun.

The Canadian General Electric Co., has started an action against the Toronto Street Railway Co., on account of the manufacture by the latter of certain machinery for which the former claim to hold the patent. The plaintiffs ask for unstated damage, and in addition an injunction restraining the defendants from the further use of the patents in question.

The Burt Mfg. Co., of Akron, Ohio, have made some important shipments of their Cross oil filters on export orders in the past month. These orders come from Denmark, Sweden, Spain, France, England and Mexico. Notwithstanding the unsettled condition of Europe, their export business is steadily increasing.

It appears that our enterprising fellow-citizen, Mr. J. B. Laliberte, in his capacity of chairman of the Quebec Harbor Commission, is just now considering a project which may exercise the most important influence upon the industrial and commercial future of this city. This is nothing less than a scheme to harness the enormous power of the tides in the harbor and to utilize it for the purpose of operating the grain elevators, saw, pulp and rolling mills, factories and many other industries. The idea is not a new one. It has frequently been talked of in scientific circles, but we are not aware that any successful attempt has yet been made anywhere to give it

practical effect. Its feasibility, however, is admitted, we believe, by the best authorities on such subjects, and the beneficial results would be so great that the public will heartily approve of Mr. Laliberte's proposal that eminent engineers should be invited to study the question and to submit plans for its solution. Except St. John, N.B., no other Canadian city is so favored by nature as Quebec in the rise and fall of the tides, and that, in this natural phenomenon, an immensity of power lies bottled up is unquestionable.—Quebec Telegraph.

A Sault Ste. Marie despatch describes the ore docks of the Algoma Central Railway at the harbor in Michipicoten bay on the north shore of Lake Superior. They are 750 feet long, twenty-seven feet wide at the bottom and eighteen feet at the top, and sixty-four feet high, running full length out into the bay parallel to the commercial dock. They support twelve ore pockets, and each pocket holds fifty tons. About 1,500,000 feet of pine and spruce timber have been used in their construction. The commercial dock is 300 feet long, forty feet wide, and on either side vessels with a twenty-foot draught can tie up and be unloaded into the cars, which run from a switch out upon the pier. Mitchell & Powell have the contract from the Lake Superior Power Co. to remove, crush and load iron ore from the Helen mine on to the cars. They will use the Gates ore crusher No 8, the largest size made. It crushes the ore into pieces from three to four inches in size, and will have a capacity of 200 tons an hour. The crusher will be driven by an engine of 250 h.p., deriving its force from two large boilers. The railroad track runs right alongside the crusher, so that the crushed ore can be loaded in cars ready to be shipped to the docks. About half a mile from the harbor are the Algoma Central switchyards, which, when finished, will hold 1,000 cars, repair shops, roundhouse, coal sheds, etc. The conditions governing the building of the Michipicoten section of the Algoma Central Railway have rendered it one of the most difficult works of the kind, and its construction is a notable feat of engineering, when it is taken into consideration that it is only one year since the work was commenced.

The Burt Mfg. Co., of Akron, Ohio, have just equipped the Elgin National Watch Co., of Elgin, Ill., with Cross oil filters.



A belt never runs off the pulley until it starts to slip.  
Cling-Surface will prevent any belt from slipping—we guarantee it.  
Cling-Surface also preserves the belt and increases its power at least 15%.  
Write for a trial can. It costs nothing if it doesn't do as we say. Cling-Surface will earn the cost of a sample can in a fair-sized plant in one month.

CLING-SURFACE  
MFG. CO.,  
123-125 Virginia St.,  
Buffalo, N.Y.



Messrs. F. E. Atteaux & Co., Boston, Mass., with Canadian branch offices at Toronto and Montreal, have sent us a circular having reference to "Colonial Black," for dyeing cotton direct, which, they say, is the fastest one-dip black in the market. Instructions are given, and correspondence regarding it is invited.

Logan & Sutherland's lumber mills at Muzquodoboit Harbor, N.S., were destroyed by fire August 12.

The motor equipment for the new building of the Mail Job Printing Co., Toronto, will consist of six slow speed multipolar motors with variable speed controllers and with direct belt connection to presses. After very careful tests the contract for the supply and installation of these motors was let to Messrs. R. A. L. Gray & Co., Toronto.

The Canadian Oiled Clothing Co., Toronto, manufacturers of oiled clothing, oiled hats, slickers, knee wraps, horse and wagon covers, etc., have sent us their descriptive price list having reference to these goods. The cover shows a perspective view of their large factory just beyond the King street subway.

Messrs. R. A. L. Gray & Co., electrical contractors, Toronto, inform us that they have just closed a contract with the Canadian Colored Cotton Mills Co., Montreal, to make extensive changes in the lighting plant of their Ontario mill at Hamilton.

The Garfield Oil Co., Cleveland, Ohio, with Canadian branch at Windsor, Ont., are drawing attention to their business in a most attractive insert in this issue. In it they announce that their Zanzibar paint is particularly adapted for all sorts of roofs, including those of many of the buildings in the Toronto Fair Grounds, which fully substantiate their claims. They point out that some of their Canadian patrons include the Michigan Central Railway Co., many of whose stations and other buildings in Canada are protected by this paint; also the Sydenham Glass Co., of Wallaceburg, Ont., the Riordon Paper Mills, of St. Catharines, Ont., Toronto Railway Co., Wm. Barber & Bros. Georgetown, Ont., the Grand Trunk Railway System, the Hamilton, Ont., Cotton

Co., the school buildings, at Windsor, Ont., the steamers of the Richelieu and Ontario Navigation Co., the Owen Sound, Ont., Gas, Light & Fuel Co., the Gananoque, Ont., Spring & Axle Co., and others. Many others. See the exhibit at the fairs at Toronto, London and Ottawa.

#### DEVELOPMENT AT THE "SOO."

There has recently come into notice a group of companies at work about Sault Ste. Marie as a centre, developing the mineral and timber resources of the Algoma district of the province of Ontario, in Canada. Four of these, the Lake Superior Power Co., the Michigan Lake Superior Power Co., the Sault Ste. Marie Pulp & Paper Co., and the Tagona Water & Light Co., have been combined under one management, with the head offices in Philadelphia. The name of the combination is the Consolidated Lake Superior Co. This company was recently incorporated under the laws of the State of Connecticut, and it has an authorized capital of \$20,000,000.

As this corporation is going into the manufacturing business on a large scale, and is already well advanced with its enterprise it is a matter of interest especially for Philadelphia, says The Manufacturer, of that city, the capital of whose citizens is largely invested in the undertaking to know what its position and prospects really are. The company has holdings of land and water rights both in Canada and the United States, in Michigan and in Ontario. Its property is in the main of three classes, waterpower, timber and ore, with the various concomitants in the way of canals, railroads, factories and shops necessary for making the best use of its different resources. The power is secured from the St. Mary's Rapids, which are just below the International Railway Bridge, where the waters of Lake Superior enter St. Mary's River on the way to Lake Huron, Lake Michigan and the lower lakes. To circumvent these rapids, which in their way are as much of an obstacle to lake navigation as are the Falls of Niagara, the American and Canadian Governments have in late years expended

millions of dollars. The holdings of this company about upon these Government ship canals in Sault Ste. Marie, Mich., and Sault Ste. Marie, Ont., the growing towns on either side of the Rapids, which both bear the same name.

It may not be generally known what a highway of traffic these canals have become. It is stated that in 1899, 25,250,000 tons of freight passed to and from Lake Superior, through the two "Soo" Canals, this being four times as much as passed through there in 1883, or twelve years ago. In five years the freight tonnage has been almost doubled, as the figure for 1894 was only 13,195,850 tons. These totals are very considerably beyond the traffic totals for the Suez Canal in late years, and the business at the "Soo" is concentrated within a few months when the lakes are free of ice, while in the Suez navigation goes on during the full twelve months of the year. The Canadian canal shared to the extent of only about twelve per cent. in the record of twenty-five million tons moved during 1899.

It is on such a highway of trade as this that this Philadelphia company has acquired large rights to power created by the fall of the waters of Lake Superior, through the St. Mary's River into Lake Huron. The power, as at other places, is made ready for utilization, of course, through power canals, one of which has already been cut on the Canadian side. A second is being dug out on the American side, much greater in length and more costly in construction. It is quite probable that the United States Government has never had in its river and harbor works a project of greater magnitude than the canal and power house for water power development that is being hurried to completion through the town of Sault Ste. Marie, Mich. It is the greatest hydraulic development ever undertaken in the world—a canal two miles long, carrying 30,000 cubic feet of water per second (nearly half to flow from Lake Superior) and furnishing 40,000 h.p.

A third canal is in prospect for the Canadian side. The total amount of water power available at Sault Ste. Marie is said to be about 200,000 h.p., which is regarded

# CRUSHERS--ROLLS

Roll Jaw Fine Crushers Reduce Large Rocks at once to Gravel and Sand. Centrifugal Rolls. Cost half and do three times as much as Common Rolls of equal dimensions, and do finer work.

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STURTEVANT MILL CO., 104 Clayton St., BOSTON, MASS.

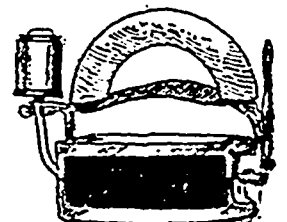
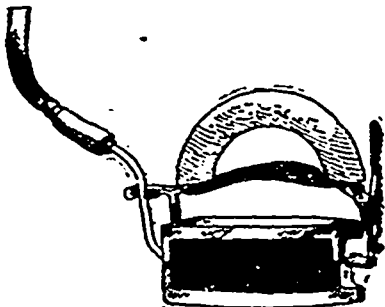
## ONE AGENT ONLY IN EACH TOWN WANTED

WRITE US FOR PARTICULARS ABOUT

"PERFECTION"

Self-Heating Sad Iron

Something New. Sells Well.



The EDWARDS SAD IRON CO., Confederation Life Building, Toronto, Canada.

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as an enormously valuable asset. There is said to be 60,000 h.p. on the American side. The rest is on the Canadian side, and 20,000 h.p. has been developed there by the canal already built.

The second important asset of the company is its timber. This is comprised in a tract of 1,000 square miles of virgin forest already acquired from the Canadian government. This land is contiguous to Sault Ste. Marie, in Canada, and much of it is covered with excellent spruce, now in great demand among paper makers. These timber rights have been secured by contract with the province of Ontario, and it is understood that more of the same kind of land is to be had merely by building a railroad into it. There is an unbroken stretch of wood north to Hudson Bay. The land laws of Canada are such that the builders of a railroad secure alternate sections in return for their service in opening up the country.

The third important natural asset of the company is its ore deposits. The chief of these are iron and nickel. The iron lands are located a considerable distance west of the "Soo," on the Canadian side, in the Michipicoten district. There are said to be very abundant deposits of the mineral of excellent quality. The mines, it is predicted, may some day rival those which are now of so much importance on the American side in

the iron ranges of Michigan. The ore is exposed so that there is little uncertainty about this feature of the company's property. The deposits are situated only a few miles from the lake shore. The ore is scraped down or scooped up into cars, hauled on a short railroad, which has already been built and is then to be shipped by boat down Lake Superior to the "Soo," or to any other market. The nickel deposits of the company are located in the famous Sudbury range of nickel mines east of the "Soo."

Having electric power and these abundant stores of raw materials the company has turned its attention to manufacturing on a large scale, so that the "Soo" is likely soon to become a very busy industrial centre, as one of the officers of the company says, the "Sheffield of Canada." The owners of the power may either use it themselves in their own plants or sell it to others. They are doing both, a considerable number of industries having been induced to settle at this point because of the excellent facilities for cheap and reliable power. The level of Lake Superior being constantly the same there is an even head at all seasons and through the power canals the water runs so swiftly that there is never risk of it freezing.

The most important manufacturing enterprise in which the company is now engaged is paper making. The pulp mills are said to

be among the largest of their kind in the world. The large mechanical wood pulp mill has been in operation for some time and a sulphite mill for making chemical pulp is in process of construction. A peculiarity about this mill is that the pulp is sent to market dry. The product is said to be of an excellent quality and the amount of wood which can be secured and ground up is practically inexhaustible.

The company is operating on a large scale. It has a large chemical laboratory with modern equipment and it is employing the best and newest processes. In the pulp mills, the power is split up into small units so that in case of breakage in the machinery, the whole plant does not have to shut down, but only that part of it which is immediately affected. With this arrangement, too, the liability of any kind of disorder is said to be very much reduced. The company seems to be very advantageously placed for marketing either its raw materials or its manufactured products. It can ship east or west or south. It is on the ship highway to Europe and can get advantageous rates on exports through the St. Lawrence. By water or rail, or both, it can reach almost any domestic market in competition with rival companies.

The pulp mills are now employed on an order from France that will take up the entire capacity for the next two months. It

FOR  
**THE CUMMER DRYERS.** Mechanically Drying Everything  
THE F. D. CUMMER & SON CO.,  
HUNDREDS IN OPERATION. CLEVELAND, OHIO.

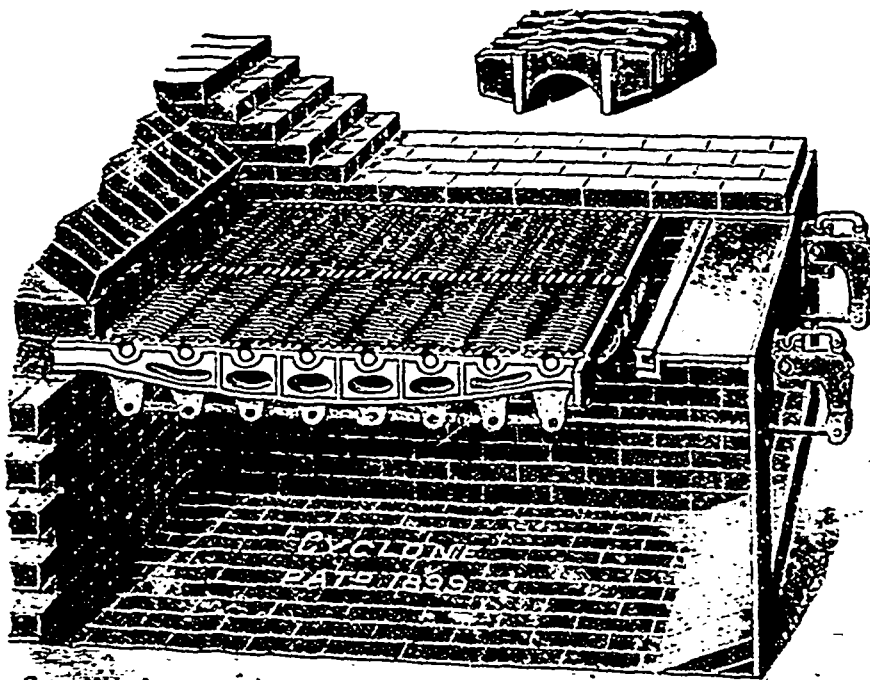
John R. Barber, President.

Geo. E. Chaffes, Sec.-Treas.

Henry Truesdell, Bus. Man.

# THE CYCLONE GRATE BAR

Economy of Fuel and Increased Boiler Efficiency Guaranteed.  
Cut shows construction of the Grate. No alteration of Plant necessary.



**Simplicity,  
Durability,  
Economy.**

Burns the Cheapest Fuel with the Best Results.

**A BOY CAN OPERATE IT.**

Send for Descriptive Circulars and Testimonials.

COPY OF TESTIMONIALS.

TORONTO, Jan. 19, 1900.

THE CYCLONE GRATE BAR CO., (Limited), Toronto.

DEAR SIRS.—We deem it only fair to you to express the appreciation and satisfaction which we have in using your Grate Bar.

As a fuel saver we think it is the only Grate with any merits in this respect, and for operating it is perfect.

Wishing your Company every success,

We are, yours truly,  
"SEAMAN, KENT & Co.

**W. G. BLACKGROVE,**  
Gen'l Agent for Ontario,  
Office, 10 KING ST. WEST,  
TORONTO, CAN.

Manufactured by... **Cyclone Grate Bar Co. Limited,**

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is said that the large quantity of pulp involved in this order—capacity of the mills is 125 to 150 tons a day—goes into paper for one publication that is to be issued in connection with the Paris Exposition. The mills have been engaged on Japanese and other foreign orders almost entirely of late.

The directing spirit of this group of enterprises about which so much has been lately published in the newspapers is Francis J. Clergue. He is regarded as a man of enormous capacity and resources. He is probably not more than thirty-eight or forty years of age, originally from Maine and trained for the practice of law, but brought into big industrial affairs through peculiar qualifications as an organizer and master of the details of such undertakings. From the outset he has enjoyed the confidence of the Canadian government, from the premier down, having just recently secured fresh grants of great value from the authorities.

**A CANADA IRON FURNACE.**

The Canadian Mining Review publishes the following description of the new plant of

the Canada Iron Furnace Company at Midland, Ont. :—

The Canada Iron Furnace Company's new blast furnace plant at Midland, Ont., is situated on the shore of Midland Bay, immediately opposite the town, with a perfectly sheltered harbor, safe at all seasons of the year. The property upon which the furnace is built is about 100 acres in extent, with a splendid water front on the bay, the works being erected in immediate proximity to the water. The furnace water front will be available for vessels of large size, and will be about 450 feet long, with a depth of water alongside (when dredging operations new in progress are completed) of 21 ft. 6 in. The wood wharf in front of the charcoal kilns will have a length of from 800 to 1,200 ft. The docks will be fitted with Brown elevators of modern type that will unload the ore and other necessary material from the vessels and deliver into the stockhouse.

**Furnace.**—The furnace is 65 ft. x 12 ft., and capable of producing from 100 to 150 gross tons of iron per day. The furnace, with hoist, water jackets, and all fittings, is modern in every respect.

**Hot Blast Stoves.**—There are three stoves, 16 ft. diameter x 65 ft. high, known as two-pass stoves. They are first-class in every respect, including fittings, the whole resting upon a large and substantial stone foundation, laid in cement.

**Furnace Cast House.**—40 ft. wide x 150 ft. long, the floor of which is 5 ft. above yard level. Walls entirely of brick (heavily built) 20 ft. high, with roof of steel.

**Steam Hoist.**—The usual crane pattern elevator engine.

**Boilers.**—Eight 50 h. p. flue boilers supply steam for all requirements.

**Boiler House.**—Consists of iron columns, with steel roof. Between columns is built in with brick work, and boiler house is erected immediately adjoining the engine room, so that the engineer on duty can at all times have two boilers under his eye.

**Engine House.**—Brick structure, with fire-proof roofing. Building is provided with steel I beams for the purpose of handling any portion of the engines or machinery situated in the building.

**Blowing Engines.**—Made by the Ragor Machine Co., of Columbus, Ohio, are first-



**B**UTTING YOUR HEAD AGAINST A ROCK

Is a poor way to make gravel, but it's on a par with the principle of wasting the energy of good steam by allowing it to pound against water in the engine cylinder.

Wet steam is more than a nuisance—it's dangerous.

**AUSTIN SEPARATORS**

Deliver dry steam, increase the efficiency of your engine and save money. We have demonstrated this in a thousand prominent power plants all over America.

Send for our Catalogue, containing testimonials.

**Austin Separator Co.,**

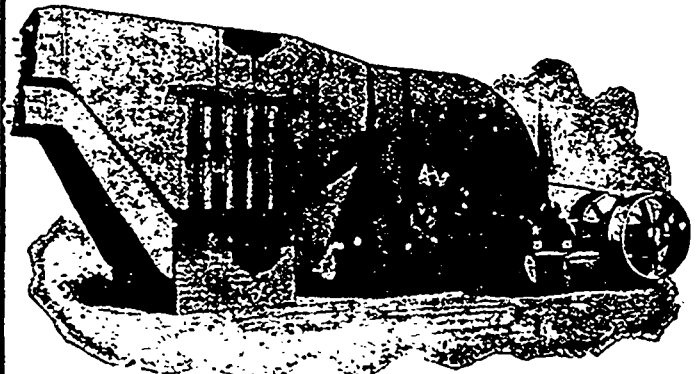
38-40 Woodbridge St.  
DETROIT, MICH., U.S.A.

**THE BUFFALO FAN SYSTEM**

OF

**HEATING and VENTILATION**

For PUBLIC and INDUSTRIAL BUILDINGS



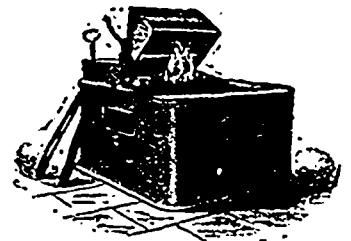
Type of Apparatus for Double Duet Installation.

**Buffalo Forge Co.,**  
BUFFALO, N.Y.

Canadian Representative,

**E. A. WALLBERG,**

410 Temple Bldg.,  
TORONTO



Buffalo Down-Draft Forge.

**The B. GREENING WIRE CO., Limited**



MANUFACTURERS OF



Lang's Patent Wire Ropes  
For Colliery and Mining Use.

**WIRE ROPE** of every Description  
and for all purposes.

HAMILTON, ONT.  
and MONTREAL, QUE.

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# ZANZIBAR ANTI-RUST PAINT

FOR

TIN ROOFS, STEEL ROOFS, IRON ROOFS,  
CANVAS ROOFS,  
FELT ROOFS, SHINGLE ROOFS

AND

... SIDINGS ...

For **STRUCTURAL IRON WORK** of all kinds.

NEVER BLISTERS  
NEVER CRACKS  
NEVER PEELS OFF

**Guaranteed  
5 years.**

RUST PROOF  
WATER PROOF  
SPARK PROOF

The **BEST** Paint made for these purposes, being **ELASTIC, INDESTRUCTIBLE** and **ABSOLUTELY FREE** from any injurious acids.

### SOME OF OUR CANADIAN PATRONS :

The Michigan Central R. R. Co.  
The Sydenham Glass Co.  
The Riordan Paper Mills.  
Toronto Street Railway Co.  
Wm. Barber & Bros.  
Campbell Bros. (Cornwall, Ont.)

The Grand Trunk Railway System.  
The Hamilton Cotton Co.  
The Windsor School Board.  
The Richelieu and Ontario Nav. Co.  
Owen Sound Gas Light and Fuel Co.  
Gananoque Spring and Axle Co.  
Thos. Riddle & Sons (St. Thomas)

### TORONTO INDUSTRIAL EXHIBITION BUILDINGS.

We will be glad to see you at our Exhibits in Main Buildings, Toronto, London and Ottawa Exhibitions. Come and we will interest you.

BRANCHES:—Windsor, Ont., Can.  
Bethlehem, Pa., U.S.A.  
San Francisco, Cal., U.S.A.  
Columbia, S.C., U.S.A.

## GARFIELD OIL CO.

CLEVELAND, OHIO,

U. S. A.

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# GARFIELD OIL CO.

Sole  
Manufacturers of

***Black Zanzibar***

# ANTI-RUST PAINT

— F O R —

Tin Roofs, Iron Roofs, Canvas Roofs,  
Felt Roofs, Shingle Roofs and Sidings.

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HEAD OFFICE:

**CLEVELAND,**  
**OHIO.**

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BRANCHES:

**Windsor, Ont., Can.**

**San Francisco, Cal.**

**Bethlehem, Pa.**

**Columbia, S.C.**

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class in every respect, each one being capable of supplying in itself sufficient blast to the furnace. They are thoroughly well finished and fitted out with all requirements, including patent water heaters for boiler feed.

**Pumps.**—There are two large duplex pumps for circulation and fire purposes. One duplex for boiler feed purposes. All pumps are more than ample for requirements.

**Chimney.**—Is built of steel 10 ft. diameter, 170 ft. high. The foundation is built of stone 20 ft. high, and is exceptionally strong. Chimney is first class in every respect, and is lined with fire-brick. Inside diameter, 8 ft. 6 in.

**Workshop.**—A brick building 30 ft. x 60 ft. One end contains blacksmith's shop, separated from the machine and carpenter shops by an eight inch brick partition wall. In the blacksmith shop is situated a locomotive-type boiler, with engine attached, for the purpose of providing power for the shops, also for heating same in winter if furnace should be shut down. The remainder of building will be used for machine shop and carpenter shop, and in the latter is situated necessary wood-working machines, such as saw table, jig saw, and buzz planer. Machine shop is also equipped with the usual tools required for furnace use, such as pipe cutting and screwing machines, lathes and drilling machines, iron sawing machines for cutting samples, etc.

**Office.**—Is situated immediately above the works on the hill-top, where a complete view can be had of the total plant. In this building are situated all the offices, as well as chemical laboratory, etc.

**Water Tank.**—Steel tank 12 ft. diameter, 40 ft. high, situated immediately above the

office on the highest point of the adjacent hill and about 70 ft. above the water level. The present intention is to pump all water for requirements to this tank, and supply furnace and buildings generally directly from the tank, the total water supply for plant being taken from the bay immediately in front of the works.

**Charcoal Kilns.**—Consists of sixty-five cord kilns, and are built in a double row, parallel and in close proximity to the water front. Each kiln is built on a solid stone foundation. Between two rows of kilns will run a wooden trestle, with railway, for the purpose of delivering loaded cars to the kilns.

**Scales.**—The yard is provided with modern railway scales, of full capacity. Stock-house is equipped with the usual six beam scale.

**Stock Shed for Ore.**—This building is about 80 ft. x 200 ft., and is provided with trestle-work for railway cars, also an over-hanging roof facing water front for the purpose of permitting the Brown elevator to deliver ore underneath the roof. The foundation is of stone, with suitable super-structure.

**Railway.**—The Company's railway, which connects with the line of the Grand Trunk Railway at the edge of the furnace property, extends from one end of same to the other, and is owned and controlled by the company.

Midland as a location for the furnace is unsurpassed, being in very close touch, by direct water route, with the iron mines of Lake Superior, and the furnace can draw its supplies with equal facility from either the Canadian or American mines. Vessels plying from Lake Superior to Midland can do almost double service, as compared with boats plying to Lake Erie and Lake Ontario

ports. Midland is also splendidly situated for serving the Ontario and Eastern markets with iron products. The following table will show how well placed Midland is (in comparison with other Georgian Bay ports) with regard to serving Eastern points:—

Distance from Midland to Montreal via Grand Trunk Railway, 383 miles.

Distance from Owen Sound to Montreal by Canadian Pacific Railway, 460 miles.

**INCREASE OF CANADIAN TRADE.**

In the Dominion House of Commons on the closing day of the session, Hon. William Paterson, Minister of Customs, speaking of the increase of Canadian trade during the past fiscal year, said that the full returns for the year have not yet been received, but those at hand enabled him to deal with approximate figures that would be found correct when the full returns were in. It would be a source of pleasure to the House to learn the great bounds by which the trade of the country had gone forward during the past few years. There has been an increase last year over the year that preceded it, which was the largest year in our history, in the total trade of the country of something like \$50,000,000. The total value of goods entered for consumption and Canadian products exported, which deals wholly with the goods consumed in this country and the goods we have exported that are the products of this country, and not taking in the total imports and exports, for 1900 the total amounted to \$336,028,190, and in the year 1899, the year previous, the total was \$286,852,855. Hon. gentlemen would see there had been an increase of about \$50,000,000 during the

**THE BEST PIPE THREADING and CUTTING-OFF MACHINES**

Are Made by the **ARMSTRONG MFG. CO., BRIDGEPORT, CONN.**

Also Manufacturers of a FULL LINE of **ADJUSTABLE STOCKS and DIES** and Water, Gas and Steam Fitters' Tools.

Send for Catalogue 27. Factory: BRIDGEPORT, CONN. New York Office: 139 CENTRE STREET.

**THE Electrical Construction Co. of London, Limited.**



**MULTIPOLAR MOTORS & DYNAMOS**

And Direct Connected Plants for Isolated Lighting. Repair Work a Special.

HEAD OFFICE AND FACTORY:

90 YORK STREET, London, Canada.

760 Main St., Winnipeg.

42 York St., Toronto. 134 Granville St., Halifax.

**RICE LEWIS & SON, LIMITED**

**HARDWARE and METAL**

Bar Iron, Steel, Boiler Plate Tubes.

**MACHINIST TOOLS, PIPE FITTINGS.**

A COMPLETE STOCK OF

**STOCKS and DIES. PIPE VICES.**

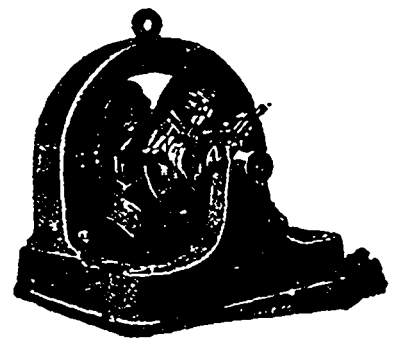
STILLSON & TRIMO

**WRENCHES.**

**STEAM PIPE.**

Cor. King and Victoria, TORONTO

**Toronto and Hamilton ELECTRIC CO.**



**Motors and Dynamos**

COMMUTATORS REFILLED.

99-103 McNab St. N., Hamilton

'Phone 958.

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year in trade in the articles he had mentioned over the preceding year. If they went back to 1896, when this Government took office, they found the total for the same articles was \$216,966,232, so that there would be an increase of something like \$130,000,000 in the last four years in this way. Taking in the larger scope of the total imports for consumption and the total exports, exclusive of short returns for 1900, the total was \$358,866,220, and in 1899, \$308,388,968, an increase over 1899 of \$50,477,252, or sixteen per cent. In 1896 the total was \$228,272,279, so that the increase in four years has been \$130,593,941, or fifty-seven per cent. He had also the figures for the total trade imports and exports, and while they might be more particularly concerned in the goods entered for home consumption and goods exported, the produce of Canada, no one would deny the country derived a benefit from handling this trade. For the year 1899 the total was \$321,661,213, and for the year 1900 he estimated the total trade at \$372,000,000, an increase of \$50,000,000 over last year, which was the largest by far for Canadian trade.

In 1896 the figures were \$239,925,360 an increase of \$130,000,000 in four years. In order to grasp the extent of the progress that Canada had made during the past four years, Mr. Paterson gave the figures for the period from 1878 to 1896. In 1878 the total trade was \$172,405,454, and during the eighteen years there was an increase of \$66,619,906, or an average during the period of \$3,750,000 per annum, while during the four years from 1896 to 1900, it was \$130,000,000, or an average of \$32,500,000. Such a result must be very gratifying indeed.

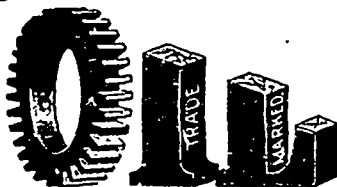
Taking the exports of the produce of Canada in 1877-1878 they amounted to \$65,740,134; in 1896 they amounted to \$106,378,752, and in 1900 they are \$152,818,917, so that while the increase in eighteen years was \$40,638,618, in the four years from 1896 to 1900 the increase has been \$46,440,165 or \$6,000,000 greater increase in the last four than in the last eighteen previous years. He would not detain the House long upon these figures, which must be very pleasing and interesting, but it was not improper when voting Her

Majesty the necessary supplies to carry on the government during the coming year. There had been some criticism by the Opposition of the expenditure, but they had challenged by vote only one or two items. It had been said that the Liberal party was in a very peculiar position by reason of the declarations of certain members in 1894-1895, when the expenditure was \$38,000,000, that it was not warranted under the circumstances. Now the charge was made that the expenditure was greater than in 1895, and his answer to that was that when the public accounts in 1894-1895 showed an expenditure of over \$38,000,000 there was a total revenue of less than \$34,000,000, and the Government of the day had, in order to carry on the ordinary affairs of the country, to go into debt to the extent of over \$4,000,000. If that state of affairs were to continue, and the expenditures on ordinary account were to run the country into debt at the rate of over \$4,000,000 a year, it was perfectly justifiable to criticize and say that while that condition of affairs existed there ought to be an attempt made to bring the expenditure within the revenue. Was that condition of affairs at all parallel with

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LIMITED

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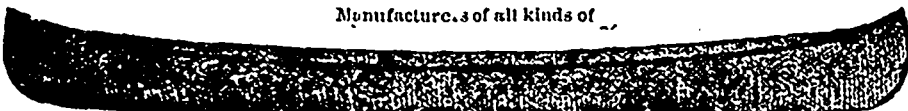
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At the Paris Exposition and the fact that the

Cross Oil Filters are used in the power plant of the U.S. Machinery Exhibit there. have already brought several French orders. We guarantee them to save 50 per cent. of oil bills, and we send them on approval at our expense. Catalogue 26. The Burt Mfg. Co. Akron Ohio, U.S.

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Manufacturers of....

OIL-CLOTHS of Every Description

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the circumstances under which we are now? The Opposition said that the Liberal Government had increased the expenditure by \$12,000,000. Was that anything to be ashamed of? Was it not something to which they could point with pride, that when the figures were compiled the expenditures on capital and ordinary account, and such expenditures as were incurred for the contingents for South Africa, would all be met out of this year's revenue, without increasing the public debt at all? Under these circumstances was it not folly to talk of utterances made under conditions when, in order to meet ordinary expenditure, it was necessary to add \$4,000,000 to the public debt and another \$2,000,000 on capital account, making a total of \$6,000,000, when instead of that this year a surplus of \$7,500,000 was anticipated, and the development of the waterways, the improvements of our railway system and immense public works are being carried on from the Atlantic to the Pacific on the rivers and harbors to give facilities to trade and commerce, without adding to the public debt?

Notwithstanding the increased expenditure for needed improvements, the Government were able to pay not only the ordinary expenditure but the expenditure on capital account as well out of the year's revenue.

But the Conservatives say the Government has increased the debt. Notwithstanding the great expenditure on public works, the debt had increased by only \$2,500,000 a year since the present Government came in, against \$6,000,000 a year under the late Government. But the Opposition would say the Government had taken \$8,000,000 more in taxation from the people. It was true that the volume of the revenue from import duties was greater than that under the late Government, but the Government did not control the volume of goods imported by the people. All they could do was to regulate the rate of taxation, the number of cents on the dollar of imports to be taken for the cost of governing the country. This the Government had reduced materially. In 1900 the goods dutiable and entered for consumption were \$183,209,273, the duty collected on these was \$28,866,980, or an average rate of taxation of 15.76 per cent. In 1898 the goods entered were \$110,587,480, the duty collected on these was \$20,219,037, or an average rate of 18.28 per cent. This was a decrease in the rate of 2.52 per cent., or a reduction in the rate of taxation of nearly fourteen per cent. If the rate in force in 1896 had been imposed on the imports of 1900, the revenue from would have been \$33,490,655, so there was a reduction of \$4,623,669. The Conserva-

tives said the Liberals pledged themselves to reduce the public debt. He did not know that they had made such a pledge. The platform of 1893 said that they viewed with alarm the increase in the public debt, and well they might, with deficit after deficit and debt being added at the rate of \$6,000,000 a year. In the four years the Liberals had been in power they had added only \$2,500,000 a year, but there had been an adulation of at least half a million to the population in that time. Virtually there had been a reduction in the public debt, for the only basis on which such an estimate should be made was the percentage of public debt per capita. Virtually there was a

# THE BEST ROOF and IRON PAINT



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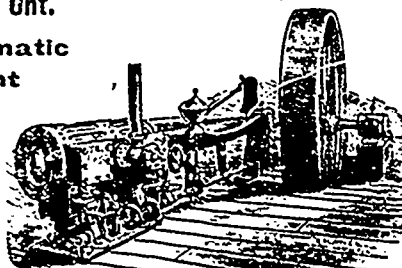
**WINDSOR, ONT.**

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High Speed Engines, Brown Automatic Engines, Boilers, Rogers' Patent Shaking and Dumping Grate Bars, Pumping Machinery, Electric and Hand Power Travelling Cranes, Shafting, Pulleys, General Machinery, Etc.

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We offer for sale, together or in part, the following machinery:

- One 18 in. Iron Frame (G & McC.) Picker
- One set (D. & F.) Iron Frame.
- 1st and 2nd Brinker 18 in. Five Workers.
- One Condenser, 40 in., 20 Rings, 7 Rubs.
- One 20 Spindle Jack, 2 in. gauge.
- One Yarn Reel, 20 Spindles.
- One Yarn Twister, 20 Spindles.
- One 18 in. Card Grinder, Wood Frame.
- One Spooler and Stand (D. & F.) Iron Frame, 43 Spindles.
- One Warper, Frame Spools.
- One Single Gear Beamer.
- Two Crompton Looms, Pump Motion, 3 x Box, 21 Hammers.
- One Crompton Loom Bow Jack, 4 x 4 Box, 24 Hammers.
- One Cam Loom (D. & F.), 2 x 1 Box, 4 Hammers.
- One 108 in. Cam Loom (D. & F.), 2 x 1 Box, 4 Hammers.
- One Cloth Washer.
- One Fulling Mill, Crank.
- One Hand Press and Plates.
- One Up and Down 90 in. Gig (D. & F.)
- One Drum Shear 36 in., 22 (Curtis & Marble).
- One 24 in. Double Roll Card, Iron Frame (G. & McC.)
- One Boiler, 20 H.P.
- One Engine, 16 H.P.
- Shafting, Pulleys, Hangers, Steam Piping, Belting, etc.
- One Set Yarn Mill, complete.

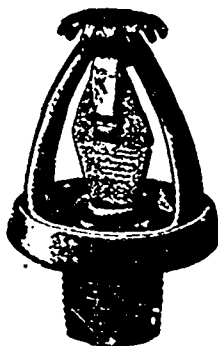
We also are Builders of the **EMPIRE BALING PRESS** for baling paper, rags, shoddy or wool.

**TORONTO WOOLEN MACHINERY CO.**  
118 DUKE ST., TORONTO.

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Apart from the protection it affords, it pays as an investment to use the

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From 40 to 70 per cent. of cost of insurance saved by putting in a

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Over 3,990 Fires—**NO FAILURES**

No charge for estimating

Endorsed by Insurance Companies

"THE GRINNELL"

**The General Fire Equipment Co.**  
72 Queen Street East,  
TORONTO.

reduction of \$3 per head, or \$15 per family. He felt certain that the only question the people of the country would ask the Government about the expenditure, when they were told that there was all this revenue, would be:—"Have you spent the money wisely?" and he was sure they would be satisfied, as even the Opposition members were satisfied, because they had not gone on record against any of the expenditure.

**STREET RAILWAYS IN SOUTH AFRICA.**

The street railways of Cape Town have a track mileage of twenty-five miles; the employees number 300 men, and fifteen single deck motor cars, thirty-two double-deck, and eight trailer cars are in use. The lines run to the suburbs and are to be extended to the docks. The cars are all made in America; the single-deckers have large platforms in front and rear, with roomy seats for the accommodation of smokers. "Trailers" (open cars), with seats running crosswise, are attached to the double-deckers morning and evening to accommodate the increased traffic. All the cars, except the trailers, have a middle aisle, with seats on each side holding two persons. The upholstery of the seats is in cane and is al-

ways neat, and the color of the cars (yellow) is kept bright and fresh. As the English people are kind to the blacks, no distinction is made on the cars. New cars have been lately ordered from the United States to serve the increasing population caused by the exodus of the refugees from the Transvaal and the large numbers of soldiers in the city, who, at half price, are good patrons when off duty or riding to and from the various camps. As most of the merchants, clerks, and government officials live out of the city proper, the tram lines are well patronized. No passes or free tickets are furnished.

The charges are high, six cents being the regular rate for a distance of from two to three miles. Eight miles, the extent of the longest line, costs thirty-six cents.

The lines in Cape Town and Port Elizabeth were built by American mechanics, are managed by Americans, and are a source of revenue to American manufacturers, as supplies for them come from the United States. There are no better built lines in the world. The very superior iron posts for the conveyance of the wires came from England.

The Port Elizabeth system consists of eleven miles of track, the employees number 100, and there are in use twelve single-deck, six double-deck, and two trailer cars. Permission has been granted by the Cape

government to a company to construct a line of electric road from Cape Town to Kamp's Bay. It will pass along the sea road, a fine drive.

In Kimberley, one-horse cars still run, and the distance covered by the line is about eight miles. After the war, the power will undoubtedly be changed to electricity.

At Johannesburg, the same style of cars is used as at Kimberley, the late Government having refused to grant concessions for the building of the electric line, for the reason "that the farmers would lose the sale of forage (oat straw)." Even the bicycle is objected to for the same reason.

In East London, there have recently been constructed about five miles of electric tram lines. Only three cars are in use at present; but the number will be increased. The line was constructed by Johannesburg parties, the motor cars and plant by English and American builders. The substitution of electric cars for the horse cars used in Durban is soon expected.

**PATENTS, TRADE MARKS, CAVEATS, ETC.**  
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 Registered Solicitor of Patents. Notary Public.  
 TEMPLE BUILDING, - TORONTO, ONT.

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**FAIRBANKS STANDARD SCALES**

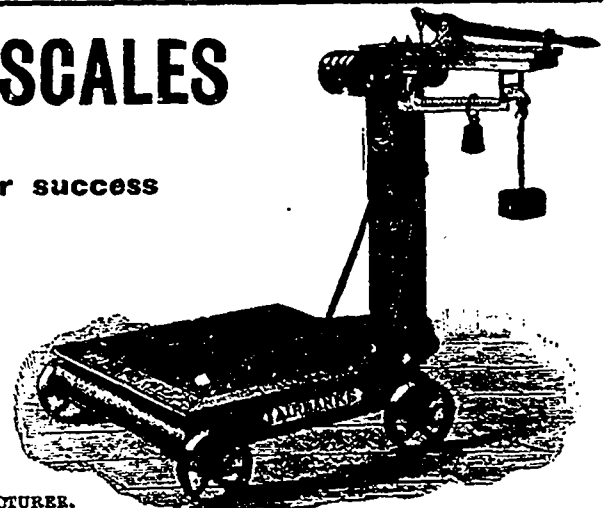
Good Scales are as essential to your success as accurate Bookkeeping.

Our Montreal Stock is Complete.

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**POSTAL REFORM IN TORONTO.**

Postmaster-General Mulock's plans of postal reform at the large commercial centre, contemplate some very important developments at Toronto. In place of bringing mail matter from the outlying parts of the city to the General Postoffice, there to be sorted and prepared for transmission, the Postmaster-General will establish collecting stations in different sections of Toronto. One will be opened in the west end, a second in the northern district, and a third in the centre, probably at York Street. At these points letters will be received up to a short time before the departure of each train. They will then be rapidly sorted, placed on automobiles and swiftly carried to the main station. These arrangements have to some extent been already made known, but the procedure after the mail matter reaches the station is now disclosed for the first time. Mr. Mulock proposes to build an elevator at the eastern end of the Union Station on the north side, between the present building and the York Street bridge. The upper entrance to the elevator will be from York Street bridge, with which the elevator will

be connected by a gangway of wood. The elevator will be sufficiently large to accommodate two trucks, on which mail matter will be elevated from the station platform to the floor above or lowered from above to the platform below. In the case of incoming mail matter, which will already have been sorted in the trains, it will on arrival be placed on a truck, rushed to the elevator, hoisted to the upper floor, then wheeled out to the York Street bridge, transferred to automobiles in waiting and rapidly conveyed to the head office or collecting stations, whence it will be distributed to all parts of the city. The same process reversed will be employed in the case of outgoing letters, newspapers, etc. It will readily be seen what an enormous gain of time will be

effected by these arrangements, and what an immense boon will be conferred not only upon commercial men but citizens generally. Under the antiquated system which has been so long in vogue, but is now being discarded, all out-of-town letters at branch offices were collected and brought to the central postoffice; they were there sorted and sent in vans to the station. This meant that letters intended for night trains had to be posted early in the day, and if they were mailed after six o'clock anywhere but at the general office, could not be forwarded to their destination until the following morning. Moreover, the roundabout way of getting mail matter into the Union Station and aboard the trains involved considerable delay and necessitated the mail vans leaving

**The WILLIAM C. WILSON CO. Limited,**  
**24 Front Street East, Toronto,**

WHO ARE AGENTS FOR THE LARGEST INDEPENDENT OIL REFINERS IN AMERICA, ARE IN RECEIPT OF NUMEROUS LETTERS WITH REFERENCE TO THEIR "SEMPER IDEM" VALVE CYLINDER OIL, OF ONE OF WHICH THE FOLLOWING IS A FACSIMILE:



*Mullock, Montreal, 11/2/1900*

*W. C. Wilson & Co.  
 Toronto*

*Dear Sir*

*Re the cylinders  
 oil we got from you. I have  
 your good satisfaction &  
 Council of fine results*

*Yours truly  
 J. H. Taylor*

**Lighting, Heating**  
 and **Motive Power**  
**.. BY GAS ..**

**GAS FROM WOOD**—A rich permanent Gas almost equal to that of Coal Gas, can be made by using the

**RICHE GAS GENERATOR,**

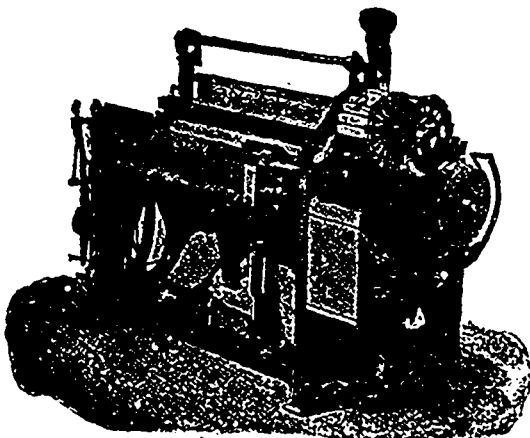
at a mere nominal cost per thousand cubic feet.

The Generator is simple in construction, and does not require skilled labor to work it. No purifiers required. Products being a rich permanent Gas and Charcoal.

These Generators are extensively used in Europe, and are on exhibit at the Paris Exposition.

Particulars by applying to

**JAMES MILLAR NEIL**  
**GAS EXPERT,**  
**7 Beaver Hall Square,**  
**MONTREAL.**



**THE NORTHROP LOOM.**

**There is only one Profitable Plan—BUY NORTHROP LOOMS**

**With them the Future is Assured.**  
**They are no Experiment.**

Thousands have been running in the United States, and a large number are now in Canada. Sales steadily on the increase.

**"The Mills that refuse their opportunities will find their future utility serving as picturesque ruins in the landscape."**

**We also Manufacture the Best Warper at present Known—also Spoolers.**

Write for particulars and quotations. Address

**The NORTHROP LOOM CO. OF CANADA, Ltd.**

**VALLEYFIELD, P.Q.**

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the central office at a much earlier hour than was necessary had better machinery existed. The reform which Mr. Mulock intends to inaugurate is simplicity itself. It will provide all parts of the city with a modern, up-to-date mail service, and will enable mail matter to be conveyed to and from the trains without the loss of an instant's time. When the new mail service is in operation a late delivery will be inaugurated. This will provide for the mailing of letters up to even a later period before departure of trains on payment of an extra copper. The Postmaster-General has just signed the lease of the necessary ground for the proposed elevator from the railway companies, and is advertising for tenders for the erection of the structure. He expects to have it built and in working order by October 1. At the present time there is at the end of the Union Station a small brick building, which is used for despatching the big parcels sent off each morning by the Toronto newspapers. It is thought that this building will be considerably enlarged in connection with the improvements that are soon to be begun. The total cost of these improvements at the Union Station will not, it is expected, exceed from \$6,000 to \$8,000.

The Diamond Machine & Screw Co., Toronto, have just added four automatic screw machines to their equipment.

## Paper Mills and Pulp Mills

And all Users of ENDLESS FELTS get the Best Value by ordering from

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LACHUTE MILLS, QUE.

We are now prepared to make all grades, from the finest Bristol Board to the coarsest Sulphide Fibre. With our 24 looms, and all other machinery to match, we are in a position to fill all orders promptly.

When ordering state kind of Paper or Board made, and speed of machine.

You will not be asked to pay for Felts that are not satisfactory. Every Felt is tested in our factory, and is shipped with our guarantee.

CAPACITY 1,000 SQUARE YARDS DAILY.

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Capital and Surplus, \$1,500,000

Offices Throughout the Civilized World.

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THOMAS C. IRVING, Gen'l Manager Western Canada,  
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F. W. Hore's Sons, HAMILTON, ONT.  
Manufacturers of  
Wheels, Wheel Materials, Shafts, etc.

## The Underwood Typewriter



Visible Writing from start to finish.

The descriptive pamphlet, or any stenographer using the Underwood Typewriter, will explain why 1,000 of these machines have been sold in Canada in one year—more than all others put together.—Visible writing and the tabulator are winners.

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C. B. THISTLETHWAYTE,  
Manufacturers' Agent,  
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Will be pleased to communicate with Manufacturers seeking the extension of their trade to Australia.

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HANDSOME ILLUSTRATED CATALOGUE ON APPLICATION.

DODGE MANUFACTURING CO. OF TORONTO, Limited, - - TORONTO.

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Preston out-claims the distinction of having the first linen factory ever started in Canada. This was during the time of the American Civil War, when the advance in cotton made it an object to manufacture linen. But when the war closed, the fall in cotton made it impossible to manufacture linen with profit.

The factory building used is now a part of Mr. Pattinson's Woolen Mills. The names, James Hunt, Calvin Clafin and Andrew Elliott, members of the company, are well known and respected in Preston, although they have passed from the sphere of human action.

The formation of the company took place in 1864. The principal promoters were Messrs. Andrew Elliott, James Hunt and Calvin Clafin, of Preston, and George Stephen, of Montreal, now Lord Mount-Stephen. They began operations in the fall of the same year after the mill was rebuilt, after the wooden mill had been destroyed by fire on January 18, 1864. The mill was in operation three and a half years. The machinery was purchased in the United States and England. After the mill closed the machinery was sold, when it was in first-class running order at less than half its cost price. Most of the linen machinery was sold to parties from the United States. The linseed oil machinery was taken to Montreal and sold to James Livingston, of Baden, Ont. The capacity of the oil mill was about

ten barrels per day. About twenty-six looms were in operation and six spinning frames. Two wet spinning frames were bought at \$550 each, which were of no use and were sold as old iron. Water power was used to run the mill. The raw material was obtained in the surrounding country, Plattsville, Berlin, Preston and Waterloo townships and other places. The fabrics produced were seamless bags, towling and canvass for large sacks, ropes, twine, etc. The cause leading to the decline of the industry was: After the American War, when everything in the Southern States was in order again, and cotton plantations were again attended to, the price of cotton caused the flax business to decline. The reason of

the flax business starting here was: The promoters thought that through the war cotton would be too expensive and that linen would take its place, which it did as long as the war lasted. The oil department paid well, but the linen department did not pay, in fact, was a big loss. The flax factory in Doon, Ont., was in operation before the one in Preston; it was carried on by M. B. Perine.

The growth of flax was first introduced into Canada by the early settlers from Pennsylvania, who came to Waterloo township along in 1794, and the early part of this century. They made the flax into clothing, doing the scrubbing, spinning, dyeing and weaving in their own homes.

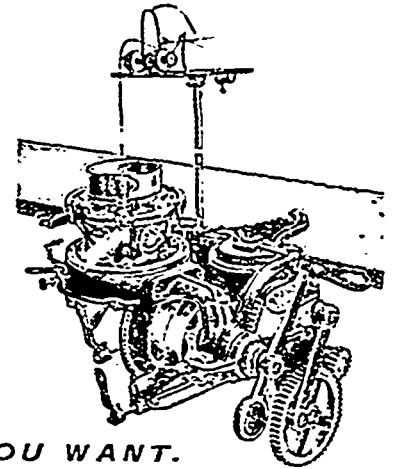
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TORONTO**

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AUTOMATIC"

**KNITTING MACHINES**

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Hosiery and Underwear **MACHINERY**

ASK US FOR WHAT YOU WANT.



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**TORONTO**  
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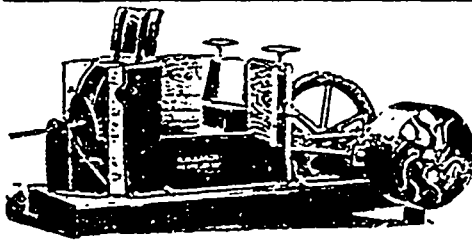
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and all information,  
address the Manager.

H. J. HILL, *Manager, Toronto.*  
ANDREW SMITH, Jr., F.R.C.V.S.,  
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*Reduced Rates on all Lines of Travel.*

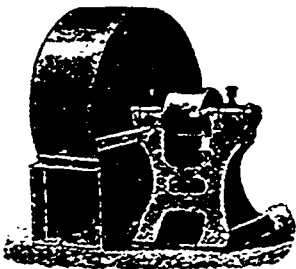
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 94 ADELAIDE ST. WEST. TORONTO  
**MAKE** Gas or Gasoline Engines from 1 h.p. to 6 h.p.  
 Stationary or Marine and Electric Motors from ½ h.p. up.  
 Motor Carriages for Pleasure or Business. One cent spent for a postal  
 will bring you any information you wish.



**H. W. KARCH**  
 HESPELER, ONT.  
**IRON FOUNDER and MACHINIST**  
 Manufacturer of  
**WOOLEN MACHINERY,**

Rotary Fulling Mills, Kicker Fulling Mills, Soaping Machines,  
 Cloth Washers, Wool and Waste Dusters, Rag Dusters, Drum Spool Winders  
 Reels, Spooling and Doubling Machines, Ring Twisters, Card Creels,  
 Dead Spindle Spooler for Warp or Dresser Spools,  
 Patent Double-Acting Gig Dyeing Machines.



**PLANING MILL** STEEL PLATE  
**EXHAUST FANS**

For removal of refuse from Wood-Working Machinery.

**CYCLONE DUST SEPARATORS**

Made of Galvanized Steel. All Sizes for Fans from 30 inches and up.

Estimates cheerfully given for Complete Installations of Fans,  
 Piping, Gates, Hoods and Separators, with or without  
 Shavings Feed Attachment to Boiler Fires.

**McEACHREN HEATING AND VENTILATING CO.,**  
 GALT, - ONT.

WE MAKE ———  
 Forge, Cupola and Disc Fans, Electric Fans, Heaters and Fans for  
 Lumber and Wool Drying, etc., and for Heating of Factories.  
 STEAM TRAPS, OIL SEPARATORS, ETC.

The material was woven into small checks, using butternut bark and indigo mostly for colors. The garment was durable, all right in summer, but unsuitable for winter, but in those days (sixty to eighty years ago), we had no Canadian tweeds.

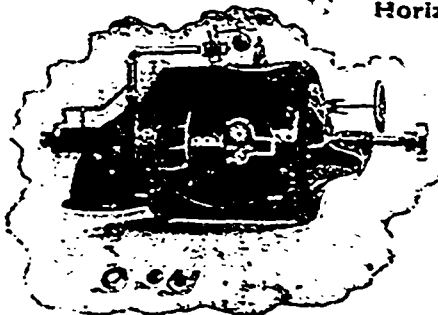
**THE AUSTRALIAN PAPER MARKET.**

A manufacturing stationer of Sydney, New South Wales, sends the following information to an English paper:—  
 American imports in Sydney have increased from £59,671 to £120,261 in three years, while the British have receded from £79,202 to £45,781 during the same period. In Victoria the figures are also expressive, the period under discussion showing a decrease in British trade of £48,976 from £99,825 to £50,849, while the Americans increased by £21,465 from £42,826 to £63,512. The reduction in the value of Victorian imports, as a whole, may be accounted for by the fact that several new paper mills have sprung into existence under the protective policy of that colony. In a previous communication I ascribed the improvement in American trade to the readiness of makers to manufacture lines for special local requirements, and (to a very large extent) to the careful packing in strong wood cases of all flat, news and printings. Certainly the British makers are improving their style of shipping, but the old system of canvas-covered, iron-hooped bales still exists in many directions, undoubtedly to the detriment of the sale of their contents. What the home conditions are under which the British and American makers compete for Australian trade (I mean so far as methods of production and cost of raw materials are concerned) I am not in a position to judge, but the fact remains that the British makers are being shouldered out of the market.  
 Why Canadian paper makers do not go in for a share of this trade is remarkable. The Information Bureau of this journal is constantly pointing out the demands for paper in Australian and other markets.

The repeat orders for Cross oil filters, manufactured by The Burt Mfg. Co., of Akron, Ohio, were as large and numerous in July as their best month in 1899, and the increase over the midsummer months of a year ago is quite extraordinary.

THE  
**Crocker Patent Turbine**

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Where the nature of the location will permit its use this type has many advantages. It is very suitable for direct connection to dynamos, and many are in operation in this class of service.

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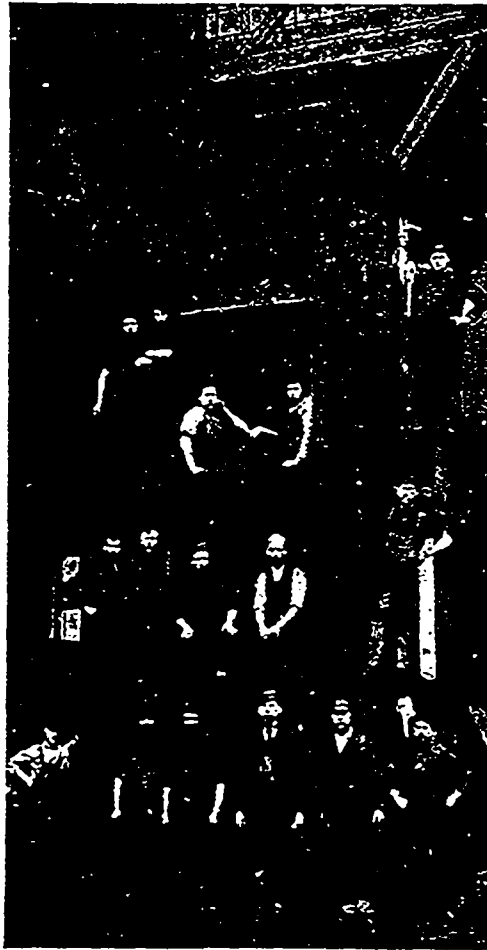
Head Office: 78 QUEEN ST. EAST, TORONTO. Docks: Esplanade, Foot of Yonge.

## DETERMINATION OF HEATING CAPACITY REQUIRED.

The following discussion of the subject is from the comprehensive Treatise on Ventilation and Heating, published by the B. F. Sturtevant Co., of Boston, Mass.

The amount of heat required to comfortably warm a given space is dependent upon many variables. Most important of all is the difference in temperature between the indoor and outdoor air; for the rate of passage of heat through walls is practically in direct proportion to the difference in temperature upon the opposite sides of the wall. The material of such walls, of course, governs the rapidity of this loss; under general conditions, wooden buildings most rapidly dissipate the heat, and stone next, while brick buildings best retain the heat. Obviously the relative area of window surface materially affects the loss of heat, while the amount of wall and window surface in proportion to the cubic contents of the apartment, the climate, the location (whether high or low, or upon the side of the building subject to the most chilling winds), and the method of heating—all have an influence. With so many modifying considerations, it is evident that no unalterable rule can be given for heating all classes of buildings, but that satisfactory results can only be obtained by separate calculation for each.

From the known heat-transmitting power of various forms of construction, the loss of heat may be determined with reasonable accuracy. The conductivity of such surfaces is generally expressed in the number of units of heat transmitted per hour per square foot of surface for each degree difference between the temperature of its two sides. The entire subject has been very carefully investigated by the German Government, and the results incorporated in a series of co-efficients—representing the best practice—to be



employed in determining the relative rates of transmission for various substances employed in construction. It is prescribed by law that these co-efficients shall be applied to the design of its public buildings, and generally used in Germany for all buildings.

These values have been transformed into American units by Alfred R. Wolff, M.E., and by him slightly modified to suit our climatic conditions. The most important of these co-efficients—representing the heat transmission in units per hour per square foot of surface per degree difference in temperature are here presented.

Thickness of Brick Wall in Inches.	Co-efficient.
4	.453
8	.458
12	.465
16	.472
20	.478
24	.484
28	.490
32	.496
36	.502
40	.508
1 sq. ft., wooden beam construction, as flooring.	.083
plank over or coiled, as ceiling.	.104
1 sq. ft., fireproof construction, as flooring.	.122
floored over, as ceiling.	.145
1 sq. ft., single window.	.215
1 sq. ft., single skylight.	.1030
1 sq. ft., double window.	.572
1 sq. ft., double skylight.	.621
1 sq. ft., vault light.	1.430
1 sq. ft., door (35 p.c. wood, 35 p.c. glass).	.572
1 sq. ft., door (plain).	.414

It is further prescribed that these co-efficients shall be increased respectively as follows:

Ten per cent. where the exposure is a northerly one, and winds are to be counted on as important factors.

Ten per cent. where the building is heated during the daytime only, and the location of the building is not an exposed one.

Thirty per cent. where the building is heated during the daytime only, and the location of the building is exposed.

Fifty per cent. when the building is heated during the winter months intermittently, with long intervals (say days or weeks) of non-heating.

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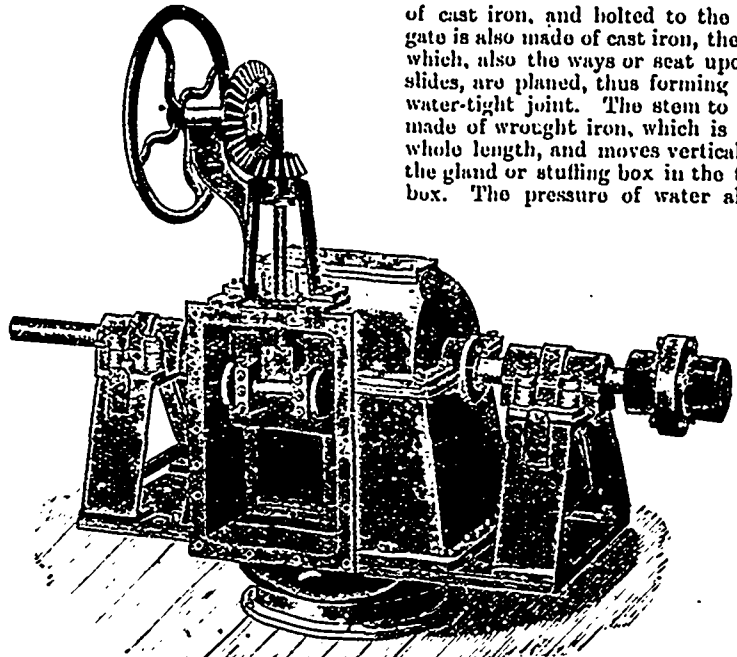
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**LITTLE GIANT TURBINE WATER WHEEL.**

The accompanying illustrations and description are of the Little Giant Turbine Water Wheel, manufactured by Messrs. J. C. Wilson & Co., Glenora, Ont. Two of the illustrations are of the horizontal type of wheel, the third being of the standard vertical shaft style.

The Little Giant is described as a double wheel, having two tiers of buckets, or strictly speaking, two water wheels, keyed to the same shaft, one above the other, and both running in the same case, the upper tier discharging at the top, and the lower one, under the bottom of the case. The shaft is supported at the bottom end and revolves upon an adjustable lignum-vitæ step in the bottom bridgetree. The case is made of iron in the form of a scroll. The cases for all the sizes up to twenty-four inches are cast in one piece. The outside or scroll, for larger sizes, is made of boiler plate which is planed parallel on the sides, and is held firmly between the cast iron top and bottom plates by bolts. The case is supported by the bottom bridgetree, which is bolted firmly to it. The bridgetree is bolted firmly to the bottom of wheel pit upon which it rests. The gate box is made



Horizontal Type Turbine.

of cast iron, and bolted to the case. The gate is also made of cast iron, the surface of which, also the ways or seat upon which it slides, are planed, thus forming a perfectly water-tight joint. The stem to the gate is made of wrought iron, which is turned the whole length, and moves vertically through the gland or stuffing box in the top of gate box. The pressure of water always hold

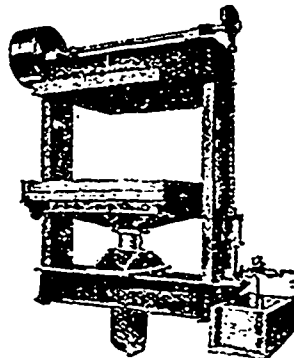
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the gate to its place and the joint remains tight as the gate wears. The gates for the larger sizes of wheels, particularly if to be used under high heads, are mounted upon friction rollers, which changes the friction from sliding to rolling friction, making the gate more easily operated.

There are two hand-holes in the case, fitted with water-tight caps, which may be readily opened to remove any obstruction that may get into the wheel. The convenience of this device will be best appreciated by those who have been obliged to lose hours of valuable time in stopping their mills to shut down head gates in order to draw the water from their flume to get an opportunity to take the wheel apart to remove some obstruction that could have been taken from this wheel in as many

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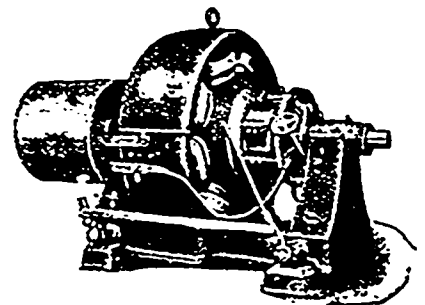
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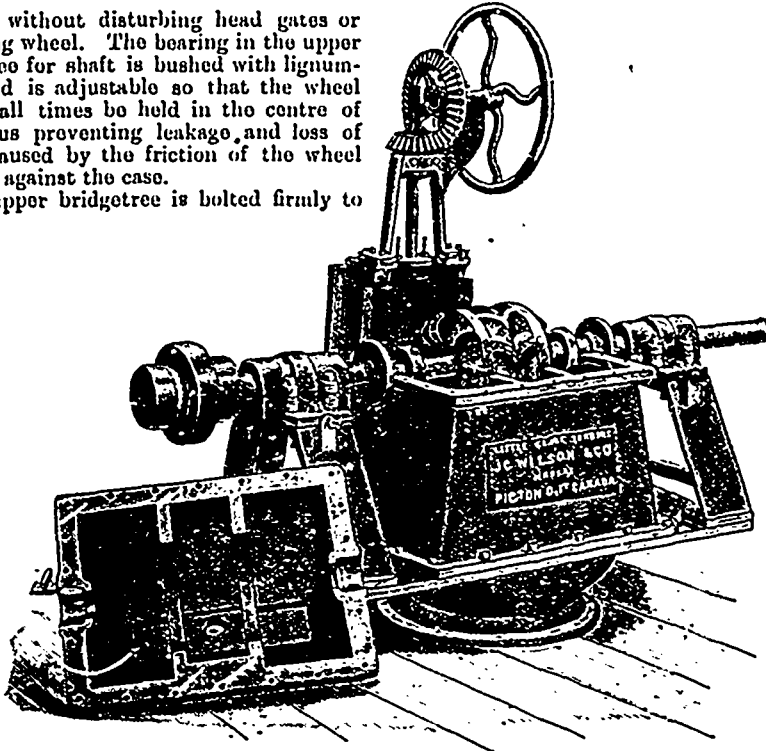
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minutes without disturbing head gates or dissecting wheel. The bearing in the upper bridgetree for shaft is bushed with lignum-vitæ, and is adjustable so that the wheel may at all times be held in the centre of case, thus preventing leakage, and loss of power caused by the friction of the wheel rubbing against the case.

The upper bridgetree is bolted firmly to



Horizontal Type Turbine.

top of case, is made of cast iron, and of sufficient strength to prevent any springing of shaft.

The shape of the buckets where the water enters is such that the water moves in the same direction as the motion of the wheel;

therefore, the friction of water against the buckets at this point is helping instead of retarding, hence an advantage over other forms where the friction acts in contra direction. It will also be seen that the water is discharged downward, outward, in-

ward and at every intermediate point nearly around the bucket. The discharging capacity is greater than in any other wheel, thus permitting the escaping water to move slower.

Centrifugal force is that with which a body tends to fly off in a direct line from the centre about which it is revolving. Centripetal force on the contrary (always precisely equal to the centrifugal, but in an opposite direction), prevents the body from so flying off, and keeps it in the circle. It is centrifugal force that pulls the string with which we whirl a stone, or which bursts a millstone, or a fly wheel when revolving rapidly, while the cohesive force of the string, millstone, or arms of the fly wheel furnish the centripetal force. When the velocity has reached to that point when the centrifugal is greater than the cohesive or centripetal force, the string breaks, the millstone bursts, or the rim of the fly wheel flies away from the centre.

This force belongs to all revolving bodies, and is governed in extent by their weight and increases as the square of the velocity with which they revolve. Water, being an incompressible and heavy body, with but little if any cohesive force, partakes of this centrifugal force to a great extent, even with a slight revolution. Therefore, this outward pressure or force is a very important factor to be considered in the construction of water wheels; but one that is ignored by most water wheel builders. The centre of this wheel, or inside of bucket, has a downward curve, so that directly after the percussion force of the water is expended on the upper portion of the bucket, it passes downwards, and is distributed according to the velocity at which the wheel is moving to

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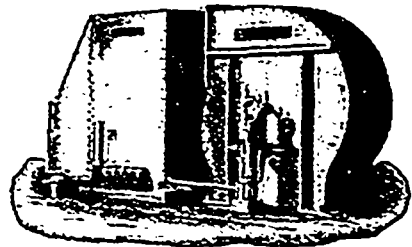
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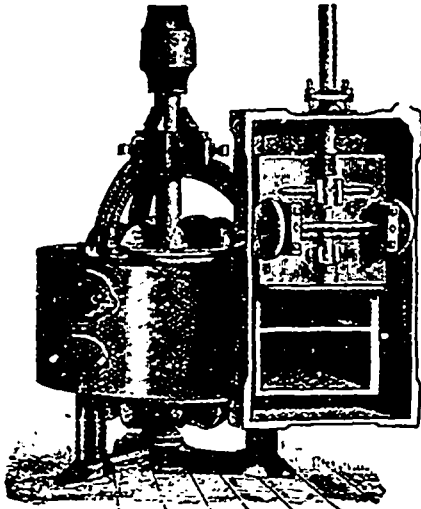
the different points of discharge; so that the powerful outward currents of the water produced by this centrifugal force, as well as the remainder of the other forces not spent in percussion, are applied on the lower curves of the bucket in an indirect and reacting form, utilizing them as a powerful propelling agent, instead of leaving them to retard the inward flow of water or allowing them to exhaust their force in the wheel-pit, as is the case to a greater or less extent in most of the wheels now in the market. It is through ignorance of the laws governing these different forces why many different make of wheels are better

be blocked so that it cannot revolve. We hoist the gate to full capacity, and we find the water escaping with a velocity nearly equal to the full pressure due the head under which the wheel is working, and nearly uniform at each point of discharge. If we remove all resistance, the wheel will acquire a speed nearly equal to the spouting velocity of water under the head it is working, (that is, measuring at about the line of the centre of discharge, the extreme outside will be travelling still faster.)

We will also find that the amount of water passing through the wheel has been reduced

to a very great extent, and that there is hardly any water escaping at the centre or inner discharge, while the water is passing very swiftly at the outside, thus showing that the centrifugal force is throwing the water outward.

If we should now apply some resistance to the wheel which we can regulate (say like a friction brake), we will find that as we put on resistance and check the speed that the discharge at the outside will decrease, and increase toward the centre accordingly as we increase the resistance, until we reach a neutral point of speed at which the water



Standard Vertical Shaft Turbine.

adapted to low than high heads, and why the water is seen emerging from them with such terrific force. They are wasting their power out in the wheel-pits, instead of using it to propel the machinery. With our form of bucket the speed is more uniform than with other turbines, because when the wheel is properly geared it will regulate the amount of water passed according as resistance is thrown on or off. To illustrate the features of this bucket, we will suppose the wheel to

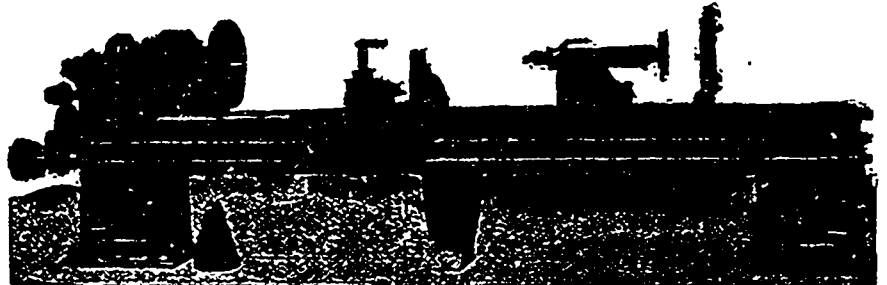
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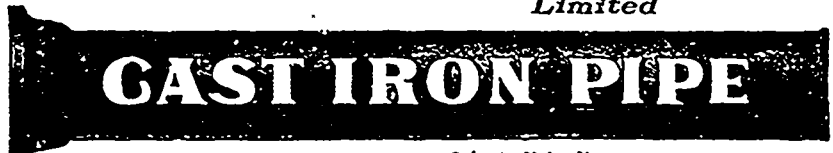
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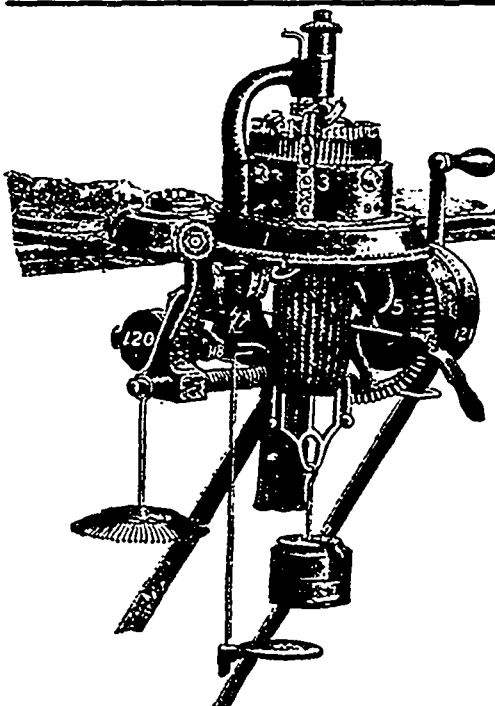
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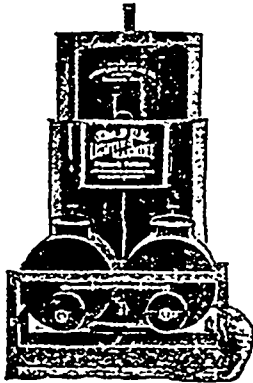


will be discharging uniformly, but the motion of the water so slow that it has barely enough force left to escape from the wheel. If we now put on a little more resistance, we will find we are passing a greater quantity of water at the inner discharge, and consequently getting a little more power, but if we throw off resistance, the speed of the wheel becomes correspondingly accelerated,

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the inner discharge decreased, the water crowded against the outside rim, and we have less power, and the speed checks again. The wheel will thus regulate its speed with sudden changes of resistance equal to from five to ten per cent. of the power, depending some upon the head under which the wheel is working. With this explanation it will be understood why it is so essential to have our wheels geared at the tabled speeds in order to obtain good results. If run too fast, lose power, if too slow, use more water in proportion to power thrown out, the percentage of power decreased, and the wheels will not give the results claimed for them in our tables.

Regarding the construction of wheels with division plate, an iron plate passes horizontally through the case, dividing it into two

compartments correspondingly to the two tiers of buckets, one tier being above this plate discharging at the top of the case, the other tier below the plate discharging at the bottom.

The gate when raised clear up or at "full gate" lets the water on both tiers of buckets with the full pressure due the head, giving the full power of both parts, or the whole wheel. If desired to use but half the power of the wheel, we would drop or "close" the gate down to the division plate, thus shutting the water away from the upper tier (which would now be covered by the gate, and confining the water to the lower tier, we would maintain the full pressure of water on this lower tier of buckets, use one-half the quantity of water used before, and get one-half the amount of power, thus getting as

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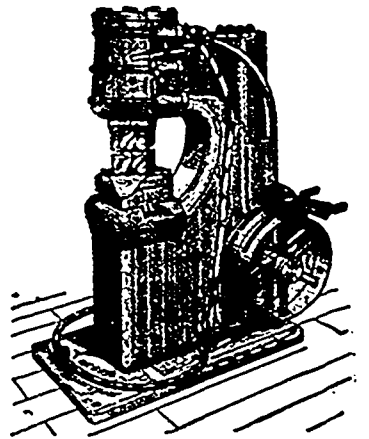
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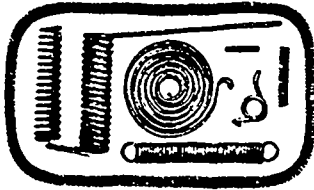
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good a percentage of power at half gate as when at full gate.

If the wheel had no division plate we would get the full pressure of water due the head when used at full gate; but when used at half gate, the water after passing through the gate opening, would pass into both tiers of buckets, but with less pressure; consequently by having less pressure must lose or give a lower percentage of power.

Messrs. J. C. Wilson & Co., will take much pleasure in giving even fuller information regarding their Little Giant Wheels, and also full information as to different methods of measurement of the water with which the wheels are to be run.

**A NEW GOLD SAVING MACHINE.**

While the wonderful gold fields of South Africa have been the occasion of the development of gold mining machinery to a remarkable extent, it was to be expected that, the country being new, all such machinery should find its origin in the old centres of machinery production. In fact much of the machinery now in use in that country was manufactured in the United States—some of it in Canada—and operated under the management of men who had been successful in American and Canadian mining enterprises.

We now learn that South Africa is in the field with a machine intended to save gold that would otherwise be lost in such operations as are now in vogue, the invention of Mr. Robert Harvey, of Durban. It is made expressly to work any kind of alluvial ground containing free gold; is suited for prospectors, and occupies a space when set up for working of about 6 feet by 2 feet 6 inches, and is about 3 feet 6 inches high. When packed for transport it is about 5 1/2 x 1 1/2 x 1 feet, and weighs 120 pounds complete.

It can be worked continuously with about forty gallons of water, and the water is not allowed to run to waste, but can be used over and over again. It can be operated in a shaft, or on a hill side, or by a river side, or in other places where the ordinary sluice box cannot be used. Five persons only are required to manipulate the machine, while one overseer can look after three machines. Ordinary free ground can be washed by the washer at the rate of 8 to 10 cubic yards in eight hours, or about one cubic yard per hour.

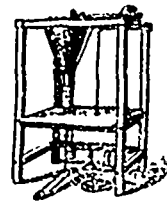
If this machine can do all that is claimed for it it would be a paying investment to manufacture it in Canada.

Miss Margaret Carlyle, one of the Ontario factory inspectors, reports a growing scarcity in female labor, although owing to the rapid progress of manufacturing during the past three years wages are at the top figure, girls in small towns especially making from \$6 to \$10 per week at factory work. Many girls are forsaking the saleswomen's desk for the factory as a result, and in one factory in Toronto two ladies who are medalists of Toronto University are engaged at remunerative salaries preferring the work to that in stores.

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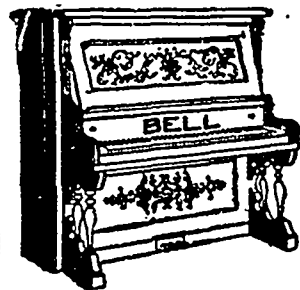
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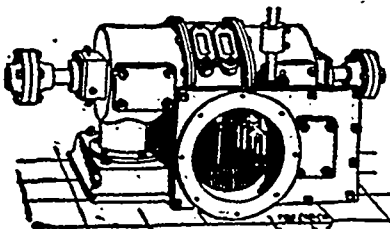
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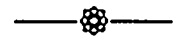
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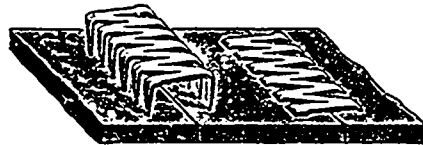
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