

Technical and Bibliographic Notes / Notes techniques et bibliographiques

The Institute has attempted to obtain the best original copy available for filming. Features of this copy which may be bibliographically unique, which may alter any of the images in the reproduction, or which may significantly change the usual method of filming, are checked below.

L'Institut a microfilmé le meilleur exemplaire qu'il lui a été possible de se procurer. Les détails de cet exemplaire qui sont peut-être uniques du point de vue bibliographique, qui peuvent modifier une image reproduite, ou qui peuvent exiger une modification dans la méthode normale de filmage sont indiqués ci-dessous.

Coloured covers/
Couverture de couleur

Covers damaged/
Couverture endommagée

Covers restored and/or laminated/
Couverture restaurée et/ou pelliculée

Cover title missing/
Le titre de couverture manque

Coloured maps/
Cartes géographiques en couleur

Coloured ink (i.e. other than blue or black)/
Encre de couleur (i.e. autre que bleue ou noire)

Coloured plates and/or illustrations/
Planches et/ou illustrations en couleur

Bound with other material/
Relié avec d'autres documents

Tight binding may cause shadows or distortion along interior margin/
La reliure serrée peut causer de l'ombre ou de la distorsion le long de la marge intérieure

Blank leaves added during restoration may appear within the text. Whenever possible, these have been omitted from filming/
Il se peut que certaines pages blanches ajoutées lors d'une restauration apparaissent dans le texte, mais, lorsque cela était possible, ces pages n'ont pas été filmées.

Additional comments:
Commentaires supplémentaires:

Coloured pages/
Pages de couleur

Pages damaged/
Pages endommagées

Pages restored and/or laminated/
Pages restaurées et/ou pelliculées

Pages discoloured, stained or foxed/
Pages décolorées, tachetées ou piquées

Pages detached/
Pages détachées

Showthrough/
Transparence

Quality of print varies/
Qualité inégale de l'impression

Continuous pagination/
Pagination continue

Includes index(es)/
Comprend un (des) index

Title on header taken from: /
Le titre de l'en-tête provient:

Title page of issue/
Page de titre de la livraison

Caption of issue/
Titre de départ de la livraison

Masthead/
Générique (périodiques) de la livraison

This item is filmed at the reduction ratio checked below/
Ce document est filmé au taux de réduction indiqué ci-dessous.

10X	12X	14X	16X	18X	20X	22X	24X	26X	28X	30X	32X
									J		

CANADIAN MANUFACTURER

AND INDUSTRIAL WORLD

DEVOTED TO THE MANUFACTURING INTEREST OF THE DOMINION

Vol. 23.

TORONTO, SEPTEMBER 16, 1892.

No. 6.

"Old Dyewood Warehouse"

Established Fifty-three Years.

Theo. H. Eaton & Son,
WINDSOR, ONT.

Importers and Manufacturers of
PURE DYEWOODS, DYEING DRUGS,
SOLID AND LIQUID EXTRACTS OF
LOGWOOD, FUSTIC, INDIGO,
PURE HEMATINE.

Sole Agents for
**THE CROWN ANILINE DYES,
ALIZARINES, ETC.**

*Dominion Chemical
Dyewoods Co. Toronto*

**GENERAL DRY SALTERS
ANILINE COLORS
A SPECIALTY**

F. E. Dixon & Co.

MANUFACTURERS OF

GENUINE OAK TANNED

Leather Belting

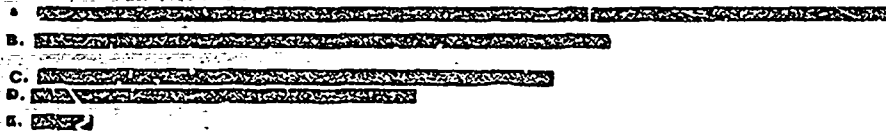
70 KING ST. EAST.

TORONTO.

Our Electric and Dynamo Belts cannot be surpassed for quality and durability.

Large Double Belts made up to any width. Send for our Belting Hand Book and Discount.

Illustrated Comparison of Oak-Tanned Leather for Belting used in Canada



- A. Imports of Oak-Tanned Leather into Canada for Fiscal year ending June, 1889.
- B. The Total Imports into Quebec with 4 Belting Factories in operation
- C. OUR ACTUAL CONSUMPTION OF THIS STOCK.
- D. The Total Imports into Ontario with 2 Belting Factories in operation.
- E. The Balance of Oak Tanned Stock imported by our Competitors in Province of Quebec.

MONTREAL,

*The -
J. C. McLaren Belting Co.*

TORONTO.

THE GUTHRIE PERCHA & RUBBER MFG CO
110 WARREN ST. OF TORONTO LTD CANADA
MELT & PRESS

DEFRIGERATING
CLOTHING HOSE

FACTORIES
PARKDALE

WAREHOUSE & OFFICE 59 & 61 FRONT ST. W.
TORONTO.

MONTREAL OFFICE:
644 Craig St. P.O. Box 698.

- ANILINES -
BENZO COLORS
METHYLENE BLUES

- DYEWOODS -
EXTRACTS
CHEMICALS
MANUFACTURED BY
*The Berlin Aniline Co.
The Stamford Manufacturing Co.*
AGENTS,
**MIDDLETON & MERRIDITH
MONTREAL**

John Bertram & Sons,
CANADA TOOL WORKS!
Dundas, Ont.
See Advertisement, Page 192.

TORONTO
Steel Works
Mild Crucible Steel Castings
J. & A. BERTRAM, Makers, Toronto

PATENTS
Preliminary Advice FREE.

Procured in Canada, Great Britain, and Foreign Countries.
Donald C. Ridout & Co.,
Canada Life Building, Toronto

**ESTAB'D
1867.**

Brown Bros. & Co.,
PROVIDENCE, R.I.
Manufacturers of
Reeds, Harness, Hooks, Leather Belting,
AND ALL MILL SUPPLIES.

**ADVISED TO TEST
CONSUMERS
JESSEF & SONS
MONTREAL AND TORONTO**

FOR MALLEABLE IRON FITTINGS, FOR STEAM, WATER OR GAS PIPE,
 Send to THE MALLEABLE IRON CO., 18 to 20 MILL ST., Montreal.

IMPERIAL BANK OF CANADA.

Capital Authorized - \$5,000,000
 Capital Paid-up - 1,945,997
 Root Account - 1,020,232

DIRECTORS

H. S. HOWLAND, President.
 J. J. McCRITT, St. Catharines Vice President.
 William Ramsey, T. R. Wadsworth.
 Robert Jeffrey, Hugh Ryan,
 T. Sutherland, Asst. Secy.
 D. R. WILBIE, Cashier. H. BRANSON, Asst. Cashier.
 S. HAY, Inspector.

Head Office, - TORONTO.

BRANCHES IN ONTARIO.

Beesey, Niagara Falls, St. Thomas.
 Fergus, Port Colborne, Sault Ste. Marie.
 Galt, St. Catharines, Welland.
 Ingersoll, Woodstock, Wat. Portage.
 Toronto, Cor. Welbington St. and Leader Lane.
 " Cor. Yonge and Queen Sts.
 " Cor. Yonge and Bloor Sts.

BRANCHES IN NORTH-WEST.

Winnipeg, Brandon, Portage la Prairie, Cal-
 gary, Prince Albert, Edmonton.
 Drafts on New York and Sterling Exchange
 bought and sold. Deposits received and interest
 allowed.
 Prompt attention paid to collections.
 Municipal Bonds and Debentures bought
 and sold.
 Agents in Canada for "Quebec Bank Ltd."
 Agents, London, Eng., "Lloyd's Bank,
 Ltd.," 70 Lombard St., E.C., with whom de-
 posits may be made for credit with Head Office
 or Branches.

**Largest Manufacturers of STEEL
 and BRASS STAMPS in Canada.**

**FRITCHARD
 & ANDREWS
 OTTAWA, ONTARIO.**

**Rubber Stamps,
 Stencils, Seals, &c.
 SEND FOR PRICES.**

Toronto Stamping Co.

Stampers and Printers

MANUFACTURERS OF

Suspender Buckles, Clasps, Wire
 Rings, etc., Presses and Dies.

Special Stamping done to any kind of
 Sheet Metal.

10 ALICE ST., - TORONTO, ONT.

PILLOW & HERSEY MFG CO.

Manufacturers of every description of
 Cut Nails, Tacks, Brads, Railway and
 Pressed Spikes, Horse Shoes, Carriage, Tire
 and other Bolts, Coach Screws, Hot Pressed
 and Forged Nuts, Yellow Plaster, Lining and
 Saddle Nails, Tuffing Buttons, &c., &c.

The Hardware Trade, Shoe and Leather
 Finding Dealers, and Boot and Shoe Man-
 ufacturers, will find the Largest and Best
 Assortment and Greatest Variety of above
 Goods at any time in stock, and can rely on orders
 being promptly executed, our facilities for
 doing so being unequalled.
 Offices, 105 Mill St., Montreal.

**McArthur,
 Cornsille & Co.**

MANUFACTURERS AND IMPORTERS,

310-316 ST. PAUL ST

- AND -

147-151 COMMISSIONERS ST.
 MONTREAL.

Offer at lowest prices, Pure Olive Oil,
 W Pressed Lard Oil, Extra Fine
 S Oil and a full assortment of other
 I ricating Oils, Greases, Mill Soaps,
 c ; also Chemicals, Dyestuffs, Dyo-
 woods, Extracts, etc., etc.

Sole Agents in Canada for

**St. Denis Dyestuff & Chemical Co.,
 PARIS.**

A. FAURE, President.

Aniline Colors, Anilin Extract, Cachou de
 Laval, etc.,

British Alizarine Co.

LONDON.

Paste & Dry Alizarine.

Boston Dyewood & Chemical Co.,

BOSTON.

DYEWOODS & EXTRACTS.

COIGNET & CO.,

PARIS.

Glues, Gelatines, etc.

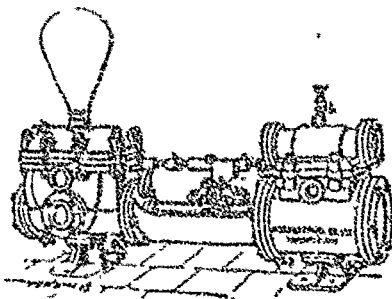
**WATERBURY WALKER & QUICKFALL
 LEEDS.**

INDIGO EXTRACTS.

Millerton, Yarnum Extract Co.,

HEMLOCK EXTRACT.

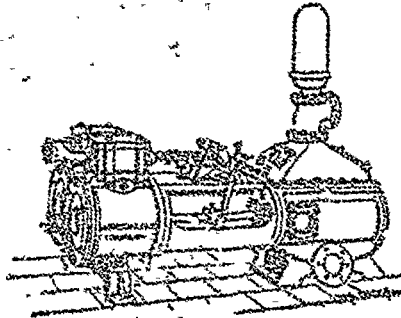
Maintain large stocks fully assorted and
 will always be pleased to furnish quotations
 and samples.



Boiler Feed Pump.

Steam and Power

PUMPS

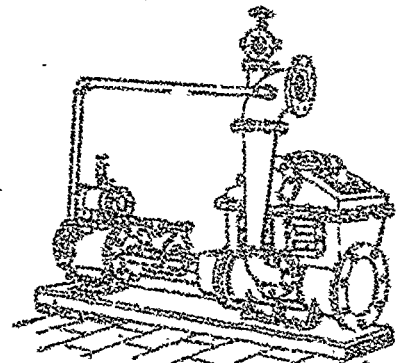


Improved Duplex Pump.

FOR ALL

POSSIBLE

DUTIES.



Independent Condensing Apparatus.

AS BUILT BY

THE MONTNEY M'F'G Co.

LIMITED.

TORONTO, - ONT.

Write for Extra-Blank Page Catalogue.

GEORGE COX

Engraver, Lithographer, Plate Printer, Die Sinker, Etc., Etc.]
 Lithographer of The Canadian Patent Record, Etc.]

35 Metcalfe St.
 OTTAWA.



ESTABLISHED IN 1880.

Published on the First and Third Fridays of each Month
BY THE

Canadian Manufacturer Publishing Co.
(LIMITED)

Room 66 Canada Life Building, King St. West, Toronto.

TELEPHONE - 1274.

FREDERIC NICHOLLS, *Managing Director.* J. J. CASSIDY, *Editor.*

J. C. GARDNER, *Business Representative.*

Montreal Representative. — H. BRAGG, 43 St. SAURAMENT St.

SUBSCRIPTION, - - - \$1.00 per year

ADVERTISING RATES SENT ON APPLICATION

OFFICERS OF THE

CANADIAN MANUFACTURERS' ASSOCIATION.

President	W. K. McNAUGHT
First Vice-President	JOHN BERTRAM.
Second Vice-President	P. W. ELLIS.
Treasurer	GEORGE BOOTH.
Secretary	J. J. CASSIDY.
Chairman Executive Committee	FREDERIC NICHOLLS.

OFFICE OF THE ASSOCIATION

Room 66 Canada Life Building, King Street West, Toronto.

THE AMERICAN TARIFF.

The Toronto *Empire* is disgruntled because some of its contemporaries disfigure their pages with ugly pictures of persons, places and things. Hear it

It is an awful affliction to be an exchange editor in this country under any circumstances. That is because the misguided editors of esteemed contemporaries will hire "artists" to illuminate their pages. No ray of comfort is visible in this murderous system of journalism. Lately several famous and worthy citizens of the United States have died. The country could ill have spared them, and their loss is keenly felt. The newspapers of Canada who pretend to have an affection for the continent to which they belong, have undertaken to represent the features of the honored dead to their readers. The outcome of this recklessness, we need not say, is beyond peradventure. Trouble and disaffection on both sides can only come of it.

Of course these exhibitions of mendacity are entirely inexcusable, inasmuch as they represent these persons, places and things in an untruthful and misleading light. But this chiding comes with bad grace from the *Empire* when it mendaciously, knowingly and purposely misrepresents the facts regarding a certain industry in the United States. The presentation of an abortion in the way of a newspaper portrait of a

prominent person cannot effect much harm, but when facts are distorted for political purposes and with the deliberate intention to deceive, the tendency is to create prejudices which would not otherwise exist. Thus, in a recent editorial on "The American Tariff," the *Empire* produces a tabulated statement copied from an anti tariff Democratic Yankee paper to prove that the American tariff lays unnecessarily heavy burdens upon the people of that country, and that the manufacturers there sell agricultural implements for export to foreign countries at much lower prices than what they sell them for to American consumers, and it declares that the American farmer has to pay nearly double for the articles to which he already grants an unequalled rate of high protection against foreign competition."

We do not advocate the cause of the American manufacturers, but we do advocate the cause of tariff protection to Canadian manufacturing industries, and because we do this we protest against the method of the *Empire* in decrying the American tariff. Our own N.P. was modelled after that pattern, and there is no difference whatever in the theories upon which they are constructed. Whatever differences there are exist only because of the differences of the circumstances which surround them, and of the necessities of the countries to which they apply. How long would our Canadian National Policy exist if the United States should abandon its policy of protection, as elaborated in the McKinley tariff, and the free trade, or tariff for revenue only policy of the Democrats obtain? Will the *Empire* venture an opinion? And yet we see it continually fighting the battle of the Yankee Democrats and quoting from Yankee Democratic orators, statesmen and newspapers with a vigor and pertinacity worthy of a nobler cause. It is fair and legitimate to criticise the American tariff, and to show, if it can be done, that certain features of it could not be made to apply with advantage to Canada in our own tariff, and if it were argued that some of the provisions of the McKinley tariff were actually aimed at Canada in a no friendly spirit, we would not object, for such is our oft expressed belief. The point the *Empire* attempts to make in its attacks on the American tariff is to convince Canadian farmers that it would not be to their interest to have unrestricted reciprocity with the United States. It is well to discuss this question and to prove this fact, and no doubt this may be done successfully. But the senseless attacks of the *Empire* upon the American tariff is very much in the nature of scuttling a ship to destroy the rats. The rats may be thus destroyed, it is true but the ship would also be lost.

It is said that a lie will travel seven leagues while truth is drawing on its boots with the intention to follow and contradict it. This is precisely the case with this lie, revamped and reproduced by the *Empire*, regarding the lower prices of American agricultural implements to foreigners than to home consumers. This Democratic free trade campaign lie was started under the auspices of the New York *World*, than which no more mendacious paper is published in the United States, but it has been refuted and contradicted time and again, and in so many ways and in such public manner that if the *Empire* reads its exchanges it could not help being made aware of it. It quotes Senator Carlisle, a free trade Democrat, as authority for the statements it makes, but it neglects

to show that immediately after the announcement of this screeed by the Senator from Kentucky, Senators Aldrich, Hiscock and others produced the declarations and sworn affidavits of a large number of American manufacturers of agricultural implements showing that the charges made by Senator Carlisle, the *New York World*, and others, were entirely untrue and without foundation in fact. "Fiat justicia runt celum."

But admitting that manufacturers do sometimes sell to foreigners at lower prices than to home consumers, it is simply because a surplus stock may be on hand, which, if not sold, would prove to be a total loss. This is as true of Canadian manufacturers as of those elsewhere. The first and greatest effort is to supply the demands of the home market, and when this is supplied the surplus must be sold abroad. This is as truly the case in Canada as it is in the United States under what the *Empire* calls "ultra" protection, as it is in Great Britain under free trade. It may be that the whole profit of a year's business is locked up in the surplus beyond the home demand, and if it is not disposed of bankruptcy ensues. An opportunity is offered to sell in a foreign market, and strict business wisdom dictates that this opportunity should not be lost. If it is accepted, prosperity follows—if it is neglected, disaster. The home consumer is not injured by the transaction.

It would be a happy circumstance if Canadian manufacturers had such protection. Competition under it would ensure the lowest possible prices, and whatever surplus beyond the home demand, being sold abroad, would mean more work for Canadian labor, and more money in Canadian trade. This would be the safety valve for Canadian manufacturing industries, and a guarantee that the home consumers would enjoy the lowest possible prices for what they bought.

FINE ART IN CANADA AND CANADIAN ARTISTS.

SOME time ago—in the dim ages of the past—a movement was set on foot in Toronto looking to the erection of a bronze statue in memory of the late Sir John A. Macdonald. A Macdonald Memorial Committee was organized, of which Mr. E. F. Clarke, the then mayor of this city, was chairman, and Mr. J. C. Hopkins, secretary. Considerable soliciting was done and we understand that about \$5,000 was subscribed, the idea being to erect a memorial which should cost about \$15,000. At a meeting of the Committee held in June last, a resolution was passed to the effect that circulars be sent to certain English and Canadian sculptors inviting designs for the proposed memorial; and a sub-committee was appointed to discuss the design, and the character of the proposed monument. This sub-committee then proceeded to ask certain sculptors, Canadian and English, for sketches in plaster of a figure of Sir John, to be nine feet in height. The Committee thought that the question of a pedestal, both as regards size and material, might be left for future decision when the site of the proposed statue had been agreed upon. Each sculptor was asked to furnish an estimate of the total cost of a statue in conformity with the design to be submitted, the sketch and estimate to be submitted to the Committee not later than September 30th inst. It will be observed that the sum of \$15,000 is intended to

cover the cost of the whole memorial, but that at present the Committee ask for a sketch model of the statue only, delivered in Toronto ready to be placed upon its pedestal.

If this Memorial Committee were putting their hands down into their own pockets to produce the wherewithal necessary to erect the proposed monument, or if they were in close touch with those upon whom they must depend in this direction, the general public could have but very little to say regarding the selection of the sculptor to whom might be entrusted the work; but seeing that the money that has been already subscribed has been obtained from the general public, and that whatever more money that will have to be raised must come from the same source, it would seem that the committee would do a wise thing if they consulted the general public—took it into their confidence as it were—and allowed themselves to be somewhat influenced by it in the selection of the artist to whom they must entrust the work. It is said that a member of the Committee very generously took it upon himself to request the Marquis of Lorne to suggest the name of some English sculptor who should be invited to compete in this matter; that the suggestion was made, and that this committeeman recently brought over from England the sketch made by this English artist. It was certainly very kind of him to take such an active interest in the matter; and it is due to Lord Lorne to say that he has expressed the opinion that Canadian artists should be invited to compete, and that, if possible, the award should be made to one of them in preference to any one else.

We have not been taken into the councils of the Committee, but we have an interest in this matter nevertheless. Our interest in it consists of a desire that Canadian sculptors should have a fair and full chance to compete, and that, if their ideas as displayed in the sketches which they might submit are sufficiently meritorious, the execution of the statue be entrusted to one of them. Perhaps this is what the Committee desire to do. The public, who is to supply the money, knows that we have the necessary artistic talent right here in Canada; and it entertains a strong feeling against going away from Canada in search of a sculptor to do the work. The public has become very weary of seeing native artists ignored, and of efforts made to depreciate and belittle home talent. It is to be hoped that the Committee are not men of this character. Give our home artists a fair showing.

EDITORIAL NOTES.

WE desire to direct attention to the numerous notices given in these pages of exhibits made at Toronto's Great Fair. They have reference to many of the leading lines of Canadian manufacturing industries. From them an idea may be had of Canada's position as regards her ability to supply her own wants in these lines without reference to the outside world. "The nation that manufactures for itself prospers." "The more a country produces the richer it is" Canada manufactures for herself, and is becoming rich by producing within her own borders what she requires.

CANADA does not desire to enter into any entangling alliance with the United States.

BEWARE of entangling alliances.

AMERICAN journals are now discussing the desirability of Canada being annexed to the United States as a solution of the Canal question. Declined with thanks.

IN view of the early completion of the Canadian Sault Ste. Marie Canal and the enlargement of the St. Lawrence canals, permitting a continuous passage of a vessel with fourteen foot draught of water from Lake Superior to the Atlantic Ocean, American journals are now discussing the desirability of negotiating a new treaty arrangement with Canada. No, thanks. A burnt child dreads the fire. The experience Canada is having under the Washington treaty satisfies her that the United States would not respect a new treaty any more than it does the old.

IN Saxony about 70 per cent. of the workmen earn less than \$150 a year. Saxony is blessed with a "protective" tariff.—*London Advertiser*.

Yes, and Saxony is cursed with a large standing army, the support of which overtaxes the recuperative powers of the country. And because of this condition, even the women and children are forced to labor in occupations which should only be filled by men. Protection is no more chargeable with the situation in Saxony than it is with the lack of perception of obvious facts on the part of the *Advertiser*.

THE *Montreal Gazette* asserts that there are "theorists who cannot see that trade is trade unless a foreigner gets half the profit." Are the theorists not correct? Surely international trade is conducted on the basis that both parties to the trade shall profit. If that were not the case, it would very soon come to an end. The foolish people are those who believe that it assists international trade to clap high taxes on goods imported in exchange for commodities sent out.—*London Advertiser*.

If the N. P. don't help international trade it certainly assists interprovincial trade. We should only buy abroad what we cannot produce at home, and we should only sell abroad what we cannot consume at home.

THE lines of manufactured goods for which Saxony is most noted are produced cheaper there than anywhere else in the world. They are the products of factories in which only able-bodied men ought to be employed, but where the labor is performed by old men, women and children, who labor twelve hours or more every day, usually seven days in the week, while the able-bodied men are drafted into the immense standing army of that country. When we object to these products of Saxon cheap labor being imported free of duty into Canada the *London Advertiser* curses the tariff; and when it speaks of the slightly higher prices for such articles in Canada, caused by the higher wages paid to Canadian labor, it curses the tariff. Nothing seems to please or suit it.

It is said that the provisions of our Transient Traders' By-law are more stringent and far-reaching than is contemplated by the Municipal Act. The by-law imposes the payment of a fee of \$50 upon transient traders, and all others carrying on business, who are not on the last revised assessment roll. The statute, it is quite clear, contemplated the payment of a special fee or license by transient traders only, and not by parties who come to town with the bona fide intention of remaining here permanently. We understand, Mr. Beaumont, town sol-

icitor, will recommend that the by-law be amended so as to relieve the latter class from the payment of the fee.—*Galt, Ont., Reformer*.

If this is not protection to home industry, we do not know what it is. And yet the *Reformer* is constantly crying for free trade.

A PRESS telegram from the city of Quebec a few days ago said —

Capt. Wemyss, of the British army, has been sent to Canada by the War Office to learn what facilities can be offered in Canada for the transport of troops to the East in case of sudden call. If notice were given at the time the troops were despatched from England, Canadian Pacific Railway officers say they would be ready to handle them as fast as they left the ship. This statement does not take into consideration the facilities of the Grand Trunk railway, which could do nearly as much. In case of war British troops could be passed through Canada quicker than the War Office could land them.

Perhaps the knowledge that Canada offers such excellent facilities to Great Britain for moving troops back and forth across the American continent is what is having an effect upon the president of the United States similar to that produced upon the urchin who ate too many green apples.

THE intensely Canadian character of the *Canadian Printer and Publisher*, printed and published in Toronto, is exemplified in the following: Messrs. Corcoran & Lee, proprietors of the Canada Printing Ink Co., Toronto, are or were advertisers in the *Canadian Printer and Publisher*, as are also a Cincinnati concern also engaged in the manufacture of printing inks. We are advised that the Canadian company manufacture most excellent inks, and that many large printing houses throughout Canada use them with much satisfaction. But we find this intensely Canadian publication belittling and decrying one of its advertising patrons, to wit, the Canada Printing Ink Co., for the sake of puffing up the Yankee concern. It tells us that "Canadian printers have found through years of experience that no inks manufactured can equal that made by one or two firms in the United States"; and that "these inks are now used almost exclusively in Canada," and special attention is directed to the advertisement of the Cincinnati concern. What do Messrs. Corcoran & Lee and other Canadian manufacturers of inks think of the *Canadian Printer and Publisher*?

THE special organ of the Red Parlor says that every receiver of a bonus from the Dominion Government renders a quid pro quo. Not necessarily. The beet sugar bonus is an example. Prof. William Saunders is authority for the statement that the production of beet root sugar in Canada can never be profitable to the Canadian taxpayer. Is a bounty after a declaration of this kind from a competent authority likely to return a quid pro quo?—*London Advertiser*.

Every dollar paid by the Government as bounty for the production of beet sugar represented a certain number of pounds of beet sugar made in Canada from home grown beets. Prof. Saunders is authority for the statement that the soil and climate of Canada is eminently adapted for the cultivation of the sugar beet. His speculations regarding the profitableness of stimulating the industry by the bounty system are of no more value than those of the *Advertiser*. He is not an expert in the matter, and his speculations were not invited.

THE London, Eng., *Canada Gazette*, discussing the immigration of Chinese into British Columbia, quotes Mr. Parmelee, Dominion Commissioner of Customs, who it declares to be an expert, as saying:

The people of the Pacific slope from Mexico to Alaska could not exist two weeks without the Chinese. They cultivate the vineyards and the farms, the market gardens and the fisheries, and, in great part, the mines and mills, not to speak of domestic labor. Without the labor of the Chinese it is evident there would be a famine in British Columbia and a crash.

The Chinese may be very useful in the occupations alluded to by Mr. Parmelee, but the people of the Pacific slope, particularly those of British Columbia, are not as hopelessly helpless as this expert Commissioner of Customs would lead people to believe. We do not believe that there would be either crash or famine there if the country were denuded of Chinese, nor would the British Anglo-Saxons, who have prospered in every other portion of the world, cease to exist without the presence of the Celestials. In fact, the whole of Canada would be better off if there were no Chinamen in it.

THE net debt of the Dominion of Canada at the end of the fiscal year for the past four years, has been as follows:

1889	\$237,530,042
1890	237,533,212
1891	237,809,030
1892	235,010,173

During these four years large expenditures have been made on public works, and large subsidies have been given in aid of railway construction.

At the same time taxes have been remitted to a large extent.

What the Dominion Government is doing for the public is this:

1. The public service is being improved.
2. The expenditure is being lessened.
3. The taxes are being lowered.
4. The debt is being reduced.

Will some of our Reform friends tell us what better results of good government they can reasonably demand?—*Hamilton Spectator*.

The question is not propounded to us, but we venture to suggest that better results would have accrued to the people if the Government had:

1. Put free sugar on the poor man's breakfast table.
2. Put an export duty on nickel ore and matte.
3. Restored the export duty on saw logs.

THE fact that the mills at Fall River have paid more than \$325,000 in dividends for the second quarter's work of the current year, representing an average of 1.67 per cent. on capital as against 1.61 per cent. for the preceding year, does not show such a deplorable state of things in the Massachusetts cotton trade as many would have the public believe. At this rate the return on capital for the year would be nearly 7 per cent., and this it must be borne in mind, represents only a part of the net results in the way of profits from trade. As compared with last year, when the dividends declared amounted to about 5.7 per cent., the present showing is extremely satisfactory. At the same time, the present situation is favorable to a much better showing for the remainder of the year, for the mills are well stocked up with cotton which was purchased at the low prices prevailing some time ago, and the advance in the price of cloth makes the margin of profit to manufacturers still greater. The mills, too, are enjoying a season of great activity, and at the same time there is no accumulation of stocks, for the demand is sufficiently sharp to enable the mills to dis-

pose of their output as fast as it is produced. In addition to this, now mills of large capacity are being constructed, and the number of spindles extensively increased in many of the old establishments, which makes it plain that, so far at least as Massachusetts is concerned, there is no evidence of declining prosperity among cotton manufacturers.—*Philadelphia Manufacturers' Review*.

This shows what protection is doing for the cotton manufacturing industry in New England, and what it is probably doing in Canada. The raw material comes into this country duty free, and the cost of laying it down in Canadian mills ought not to materially exceed the cost in Massachusetts.

THE Victoria, B. C., *Commercial Journal* desires to have manufacturing industries established in that Province. Hear it:

The need of manufacturing industries in Victoria, and in the whole Province for that matter, fully manifested itself during the dulness incident to the visitation of smallpox. If manufacturing were carried on as extensively as it very well could be in this Province, the contraction would have scarcely made itself felt. The creation of wealth and the consequent prosperity of the people would have gone on, and therefore the purchasing power of the people would not have been perceptibly restricted. Although our manufacturing industries have increased rapidly and large amounts of money have been added to the capital employed in manufacturing, our cities are practically without industrial institutions, as compared with their importance and the opportunity presented for carrying on such works.

Certainly Victoria is not lacking in the wealth required to engage in such enterprises. It is doubtful if any city in Canada can produce men with such high ratings as are to be found here, and to the credit of many of them it can be said that they have in the past evinced a disposition to invest their capital in a manner beneficial alike to the city and Province. But there are others who have not done so, and are not likely to let a dollar get so far away from them that it cannot be pulled back with a string. These men are of no use to themselves nor to the community which is unfortunate enough to be their abode.

As has before been pointed out in these columns, the illimitable resources of this Province offer unprecedented inducements for manufacturing enterprises. Coal, iron, lumber, minerals and other raw products occur in endless profusion throughout the Province, and if judiciously developed would eventually build up a Province unexcelled for permanent prosperity and substantiality. It would be well for our business men to consider that, while railroads are an essential necessity to the prosperity of the Province, we must also have something here for them to do when they are built.

A SPECIAL telegram in the *Toronto Globe* a few days ago, from Halifax, N. S., related the following:

The Richelieu & Ontario Navigation Company, which is composed of leading Canadian protectionists, has just played a trick upon the Dominion Government that places the N. P. in a somewhat ridiculous light. Recently the company got a new steamer built at the works of John Roach, of Chester. She is named the *Columbian*, is of iron and her construction and equipment are of modern and expensive style, after the style of the magnificent Sound boats. Before the ship could be put under the Canadian registry the owners would have to pay twenty-five per cent. on the cost, which was \$200,000. To do the Government out of this duty the Company took the *Columbian* to Newfoundland and had her registered there under the British flag without any tax, and she is now on her way to Quebec to engage in passenger traffic on the St.

Lawrence. Built in the United States, registered in New foundland and doing business in Canada. The little trick is just worth \$50,000 to this company.

One of the complaints the Dominion Government charge against that of the United States is that Canadian vessels are not allowed to participate in the American coasting trade. Perhaps the unfriendliness of the Americans would not allow them to give this matter any favorable consideration whatever; but if they were inclined to do so—inclined to favor Canada in vessels—it could not be expected that they would extend the privilege to English vessels. They would do no such thing. But under existing laws any British vessel is at home in any British waters, and Canada, without a change of law, could not discriminate against English vessels. We have facilities for building just such steamers as the one above alluded to, and would probably have built the *Columbian*, but because of faulty laws American builders are given the preference.

ATTENTION is being directed to the revival of a project of connecting Lake St. Clair and Lake Erie by a canal passing entirely through Canadian territory. A few years ago the engineers of the Dominion Government proved the scheme to be quite feasible, and that the canal could be cut at comparatively small cost, and in view of the existing strained relations between Canada and the United States, and the use of existing canals, and of the fact that the suggested canal would shorten the route between Lake Superior and Montreal, the matter is worthy of examination. The length of this canal would be only about eleven miles, and by utilizing Jonnettes creek, which empties into Lake St. Clair, and Romney creek, which empties into Lake Erie, the cost would be considerably modified. In the territory through which the canal would pass there would be found no heavy rock blasting to be done, nor any heavy cutting; nor would any locks be necessary. Such a canal would shorten the distance between the two lakes about 150 miles, and those particularly dreaded obstacles to navigation, the Lime Kiln Crossing, Colchester reefs and Pelee Point would be entirely avoided, and so would be the city of Detroit. All traffic except that destined to or from Detroit would pass through this route. If this canal were opened, and with the Canadian canal at Sault Ste. Marie completed and in operation, Canadian commerce would find free passage from Port Arthur and Fort William entirely through Canadian territory via the Welland canal to the Atlantic ocean; and this is what can never be said regarding American traffic. Canada would hold the key to the situation, and this could be used to excellent advantage in any negotiations which might be had with the United States. Canada can well afford to expend millions of money in opening up passages through her own territory connecting the great lakes, and entirely independent of any passages in which the United States may be in any manner financially interested. Let this matter be fully investigated, and if found feasible, let it be pushed to completion without delay.

As previously announced, a special general meeting of the Canadian Manufacturers' Association was held in the Board Room of the Exhibition Association on Wednesday afternoon last, Mr. John Bertram, of Dundas, Ont., first vice president, occupying the chair, and Mr. J. J. Cassidey, secretary. Prof.

Saunders, Dominion Commissioner to the Chicago World's Columbian Exhibition, and Mr. J. S. Larke, who is interested in inducing Canadian manufacturers to send exhibits to that Fair, were present and urged that such exhibits be made. These gentlemen used much eloquence in setting forth their mission, but the sentiment of the manufacturers present was very decidedly against it. Prof. Saunders stated that an area of 15,000 square feet of space had been assigned by the Chicago managers for the use of Canadian manufacturers; that one concern alone, making agricultural implements and harvesting machinery, had been allotted 4,000 feet of this space, and that the cotton mill men would occupy the balance of the space if allowed to do so. If, however, other manufacturers desired to make exhibits, the exhibit of cotton goods could be somewhat condensed. Many of our readers are familiar with the size of Machinery Hall on our own Toronto Fair Grounds, and they know that it is entirely too small to accommodate any great variety of products of such manufacturers as exhibit there. The best that can be done is to display only a very few articles by each manufacturer, and these are usually restricted to iron and wood working machinery. This because the building is too small to accommodate what would otherwise be a much finer display, and even the Main Building and the Annex, which should not be used for such purpose, as well as numerous kiosks on the grounds, are taxed to accommodate the overflow from Machinery Hall. And the superficial area of it is about 16,000 square feet considerably larger than what Chicago offers for the accommodation of all Canada. If two concerns are to occupy the entire Chicago space, where would the thousands of other Canadian exhibits find accommodation if our manufacturers should consent to exhibit there? But they will not exhibit, and that is about all there is to it.

SPECIAL ADVERTISEMENTS.

Advertisements will be accepted for this location at the rate of two cents a word for the first insertion, and one cent for each subsequent insertion.

SPECIAL NOTICE.

OUR many friends and patrons who read THE CANADIAN MANUFACTURER, will have noticed on the outside cover the advertisement of a competitor which, to some, may prove a little misleading.

From the illustration there given, one might suppose that, as a matter of course, all leather belting made in Canada was cut from "Imported English Oak Tanned" leather, and that the gentlemen giving the information were the kings of belt manufacturers in Canada.

However much the idea might be cherished by certain old fogies, who seem to think of Canada as she was twenty years ago, it is very far from being correct.

Canadians do not now import everything they use, as in the days of Jacques Cartier. They have made considerable advancement in manufacturing for themselves since then. Others in the leather belting trade as well as ourselves, tan their own leather, and are proud of it.

Why, the whole amount of imported leather, as shown by our friends on the outside cover, would not keep our factory going six months. The millers and manufacturers of Canada would soon find their machines at a standstill were they depending on all the belt leather that is imported in these days.

The rapid and continual growth of our business during the last fifteen years, and the class of mills using our belting, is the appreciation we could ask for our home-made goods.

Thanking our friends for past favors, we would solicit a continuance of the same, and trust to make new friends and customers. We remain,

Yours truly,
ROBIN & SADLER,
Manufacturers of Leather Belting,
Montreal and Toronto.

The Industrial Exhibition.

THE Toronto Industrial Exhibition, just closed, was by far the most successful of any that has ever been held. While the weather throughout the two weeks was not all that might have been desired, there was but one really stormy day, and everything passed off exceptionally well. No such crowds of people ever before thronged the grounds, and the gate receipts were several thousand dollars greater than on any previous occasion. Perhaps the fact that the new Grand Stand was first thrown open to the public had much to do towards increasing the number of visitors. This Grand Stand is claimed to be of the most modern and desirable construction. It is 700 feet long with two tiers of seats, affording seating accommodation for 12,000 spectators, and there is available good standing room for probably 4,000 or 5,000 more. The spectacular fireworks were displayed in front of the stand, as were also other exciting attractions. The displays in Machinery Hall, Main Building, Annex, Store Building, Agricultural Implements Building and other spacious enclosures were well filled and presented a most attractive appearance. Following are brief descriptions of some of the leading exhibits. They are well worth reading, explaining, as they do, some of the most important industries of Canada. Too much praise cannot be bestowed upon the managers of Toronto's Great Fair for the efforts they used in making it such a grand success. And while all of the directors of the Fair did all that they could in this direction, it will not be deemed invidious to mention the names of Mr. J. J. Withrow, the president, and Mr. H. J. Hill, the manager, in this connection. Mr. Hill seemed to be ubiquitous—he was here, there and everywhere—and has again, as he has so often done before, proved himself to be the right man in the right place.

NEW GLASGOW IRON, COAL AND RAILWAY CO., LTD. AND NOVA SCOTIA STEEL AND FORGE CO., LTD.

THE display made by these two Nova Scotia Companies in the north-west corner of Machinery Hall possessed the utmost interest, not only for Canadian manufacturers generally, but for the whole Dominion of Canada. In fact, to our mind no more important and interesting exhibit could possibly have been made. The display consisted of a car load of pig iron, the first produced at the "Forona" furnace, a few miles from New Glasgow, N.S.; a quantity of iron ore, including specimens of several varieties taken from the mines near that place; specimens of coke manufactured at the furnace; specimens of bituminous coal also taken from mines in that vicinity, from which the coke was made, and specimens of the limestone used as a flux in the manufacture of this iron. The other specimens consisted of products of the Steel Company's works. Immense ingots of steel weighing over a ton each, just as they were turned out of the moulds; an immense cogging roll twenty-six inches in diameter and weighing some seven tons; steel billets rolled or hammered down from the ingot, and ready for other pro-

cesses of manufacture; heavy railway and marine forgings, machinery steel in many sizes made for many different purposes, carriage and wagon tire steel; sleigh shoes, a large assortment of shapes of sectional steel for structural purposes, angles, channels, plow beams, fish plates, etc.; mould boards, land sides, harrow teeth, hay rake teeth, harrow discs and cultivator teeth, as used in the manufacture of agricultural implements, and also a pyramid of shafting made to order for the Massey-Harris Company, Toronto, to be used in the manufacture of harvesting machinery.

The Steel and Forge Company have frequently made exhibits of their products at the Toronto Fair, ample notices of which have been given in the pages of this journal. The importance of them cannot be overrated, for they demonstrate the fact that in this direction Canada is well able to supply all her own wants, and the testimony of the manufacturers who consume these products is uniformly to the effect that they are as good as the best, come from where they may.

But we attach the greatest importance to the fact that a car load of Nova Scotia pig iron was on display at the Toronto Fair, the first time in the history of this or any other fair in Canada that Canadian made pig iron was exhibited. The possibilities in this direction in Nova Scotia are practically limitless. Within a radius of some ten miles were found all the materials necessary in the production of this iron, several varieties of ores enabling the selection of those best suited for the particular iron to be made, the coal for making the coke for fuel, and the limestone for fluxing. And there is the furnace in actual operation turning out iron specially adapted for the manufacture of steel.

There is no better equipped furnace plant in existence than the one here alluded to. The stack is 65 feet high by 15½ feet bosh. There are three Massicks-Crookes stoves each 60 feet high by 17 feet diameter. There is a coal washing plant with storage towers, and a battery of 36 coke ovens of most modern design, said to be one of the very best coking plants in America. And there are the blowing engines, the casting house and everything else necessary for successfully carrying on the business. The steam required to drive the blowing engines and all the other machinery is generated from a battery of eight multitubular boilers fired with the waste gases from the coke ovens. The capacity of this furnace is about 30,000 tons per annum. The plant is arranged so that another furnace can be added whenever desired, the number of hot blast ovens increased, etc. In fact, every thing is arranged with a view to increasing the capacity of the works. The construction of this plant was begun only in August of 1891, and the first iron was made in August, 1892.

Although the New Glasgow Iron, Coal and Railway Company, and the Nova Scotia Steel and Forge Company are separate and distinct concerns, they are owned by the same individuals, one being the complement of the other. One great difficulty the steel company have had to contend with heretofore was that they could not control their source of supply of raw material, but now the furnace company will supply this demand, thus placing the steel company on a substantial and satisfactory footing.

The steel company are increasing their works by the addition of a new machine shop, 175x70 feet, in which some very heavy tools and machinery will be placed. Included in this will be a lathe 46 feet long with a swing of 112 inches between centres, intended for turning heavy marine work. There will also be a 24 inch slotting machine for slotting crank shafts. A new 350x120 foot rolling mill is about being built in connection with the steel plant.

The officers of the furnace company are: J. F. Stairs, M.P., president; Graham Fraser, vice-president; Harry Graham, secretary. Capital stock, \$1,000,000. The officers of the steel company are: Graham Fraser, President and Manager; H. Ritchie, Treasurer; Thomas Cantloy, Secretary.

JOHN BERTRAM & SONS.

Messrs. JOHN BERTRAM & SONS, Dundas, Ont., were on hand as usual in Machinery hall, exhibiting some of the Standard machinists iron working tools manufactured by them, and of the latest and most improved design. Included in the exhibit were an engine lathe with 10 foot bed and 20 inches swing; a vertical drilling machine with back gear and automatic power and hand feed and 32 inch centres; another drill with 20 incl. centres, back gear and automatic power and hand feed; a two inch acme bolt cutter with 11 sets of taps and dies, and with oil pump for supplying reservoir. They also exhibited a universal milling machine, 24 inch traverse, an iron planer with 6 foot table 24 inches wide, and 24 inches high, with automatic down and cross traverse feed from one half inch to zero. This planer is equipped with the Bertram patent worm drive and feed motion, which produces a perfectly smooth and uniform motion, which is evidenced by the face of the table which shows great perfection in planing. It possesses the essential requisites in a planing machine—a quick return to save time and a perfectly smooth driving motion. This planer is as perfect and rapid in its working as any similar machine made. It will plane wrought iron, and even steel with most remarkable accuracy and smoothness. During the last three years this firm have sold forty five of these planers. The engine lathe they displayed has an automatic traverse and cross feed. Every change can be operated from the front and with great facility.

Included in this list of machinists' tools and wood working machinery manufactured by Messrs. Bertram & Sons are lathes, planes, drills, milling machines, shears, bolt cutters, slotting machines, cutters, moulders, tenoners, band saws, mortisors, saw benches, locomotive and car machinery, special machinery, etc.

The improvements made by this firm in all their new machinery have placed it in very high estimation among machinery users; and they feel warranted in recommending their tools for finish, durability and the high quality of work they produce. They always keep on hand complete lines of parts of all their standard tools, so that customers may be certain of having their duplicate orders filled without delay.

Messrs. John Bertram & Sons are, we believe, the oldest manufacturers in Canada of machines of the descriptions here alluded to.

THE "OPTIMATES" POWER HAMMER.

Mr. W. H. LAW, the inventor of this new hammer, displayed it in Machinery Hall, where it excited great attention from machinists and iron workers generally. On "American Visitors' Day" it was a centre of attraction for hundreds of experts from the United States who evidently know a good thing when they see it.

This invention is the result of thirty-five years' experience, close observation and special study into the principal defects in the forging of metals by the different kinds of hammers in use.

This hammer is intended to overcome the principal defects in previous inventions of power hammers, and produce a machine that, whilst under the control of one man, will give blows of varying force, without any change in the number of blows given. Also give the full length of stroke, when required, for any thickness of metal the hammer will admit, all the operations being under easy control by one person. Besides, the normal position of the ram over the anvil when at rest can be set any height required, enabling the workman to place the metal on the anvil before setting the hammer in motion.

The plan generally adopted in previous inventions of power hammers—driven by bolts to give motion to the ram—has been to have

either a tightening pulley acting on the driving belt, or a friction clutch to be thrown in or out of contact, both systems generally operated by the foot of the workman, through treadle attachments, connected to the tightener or friction clutch. In the first case the workman presses the tightener against the belt, which sets the hammer in motion. The tighter he presses the belt to the pulley the greater the number of revolutions are made (until the maximum number is reached) and the heaviest blows given off. Light blows are obtained by allowing the bolts to slip on the pulley, more or less, at the same time decreasing the number of blows, which are also given very irregular and uncertain in force. Therefore the heaviest blows are given when the hammer is running at its maximum velocity and light blows when running slow, a result contrary to general principles in the forging of metals. The clutch operation produces similar results to the belt. Besides, in these same hammers the velocity of the ram in its upward and downward motion is nearly equal.

With the "Optimates" hammer the velocity of the ram in its downward stroke is considerably accelerated, thereby giving a much sharper and heavier blow, resulting in a nearer approach to the action of a blow stricken by a blacksmith's hammer than has ever before been accomplished with a "power" hammer.

These "Optimates" power hammers have several novel advantages over the steam hammer in the forging of springs, files, hay forks, spades, shovels, axes and die work; also in light stamping, planishing silver and copper, flattening, riveting, welding, tilting steel and general blacksmith work. They do not require any costly boilers or extra attendant to run them. They can be run by belt or rope from the line shaft. At the same time the first cost is much less. Another instance of great importance is the following: In the case of a steam hammer having a stroke of say twelve inches, if the operator wishes to forge a piece of metal three inches thick, the fall of the ram would be but nine into the metal, giving a much lighter blow than would have resulted under the full fall of twelve inches.

With an "Optimates" hammer, having a fall of twelve inches, the ram can be made to give the full length of stroke, during all operations, or the fall of the ram or the force of the blow can be changed at the will of the operator. The blows can be varied in force between several thousand pounds and a few ounces, and a greater number of blows obtained in the same period of time than can be got from a steam hammer.

The hammer can also be set to give any desired force of blow continuously. All the changes to be made, for the different thickness of metal, length of stroke and force of the blow can be made almost instantaneously whilst the hammer is in motion, and without the operator leaving the anvil. The hammer can be operated to give any length of stroke desired between "full" stroke and "zero," or it can be made give full length of stroke for any thickness of metal to be operated upon, from tin foil up to the full thickness the hammer is designed to receive or forge. The hammers are strongly built, compact and of neat design, the different parts being made from the most suitable materials for the work they have to do. All the wearing surfaces are large. In fact the whole of the machines are designed for wear and heavy work, and are warranted to give better results than any other power hammer in the market.

Five standard sizes of these hammers will be kept in stock, the weights of the rams being 60 pounds, 80 pounds, 100 pounds, 120 pounds and 150 pounds. Heavier or lighter sizes will be made as required, from 10 pounds to 1,000 pounds weight of ram. The 150 pounds hammer is the most suitable for general blacksmith work and would be a profitable tool in any shop having two or more forges. These hammers are not merely useful for the roughing out of work, but any piece of work however fine and delicate, can be finished under the hammer with greater accuracy and less time than it can be done by any other means.

This hammer is manufactured by the Central Bridge and Engineering Company, Peterborough, Ont., of which Mr. Law is president.

Hot Water Heaters
OXFORD & DOUBLE CROWN
 DIRECT RETURN BLUE
 SEND FOR PAMPHLET HOW BEST TO HEAT OUR HOMES
 THE E & C. GURNEY CO. TORONTO, ONT.

THE GOLDIE & McCULLOCH CO., LTD.

The Goldie & McCulloch Company, Limited, Galt, Ont., made a fine display in Machinery Hall of wood working and other machinery, wood split pulleys, friction clutch pulleys, etc. Included in this display was an 80-horse power Wheelock steam engine which was used to drive the main shaft furnishing power for the machinery in operation in the building.

Referring more particularly to this Wheelock engine, we are informed that it is rapidly taking the place of a large number of other makes of engines previously in use for driving electric light dynamos. In its construction it is exceedingly simple and economical, the general arrangement following the American model, the main bed being of trunk girder pattern, so arranged that the chief bulk of metal lies in the direct line of strain between the cylinder and the shaft bearings. The Wheelock engine was awarded the Great Gold Medal at New York in 1875; the Centennial Medal at Philadelphia in 1876; the Gold Medal at Cincinnati in 1881; Gold Medal at Boston in 1881; the Grand Prize at Paris in 1878; and at the Millers' International Exposition at Cincinnati in 1880 the "Great Gold Medal for the best automatic engine under actual test." This Cincinnati test cost \$15,000, and the award given in competition with the Corliss and other automatic engines was that "The Wheelock engine gave the best regulation, the highest economy of fuel, the least clearance, and the least trouble to the operator"—the highest award ever given to a steam engine.

The Wheelock system is specially adapted to high speed. The valves are perfectly tight, with no necessity for balancing. By the peculiar arrangement of the valve movement, the cut-off is very effective and positive in its action, as the cut-off valve has but slight movement after closing, while the knuckle joint allows of continuous movement of the mechanism without moving the valve.

The Goldie & McCulloch Company, Ltd., have made recent sales of their Wheelock engine as follows:

Guelph Electric Light Co Guelph, Ont.
 Luke & Burley Hamilton, Ont.

A. Bauer & Co. Waterloo, Ont.
 R. & J. Watson Portage la Prairie, Man.
 Clinton Electric Light Co. Clinton, Ont.
 Wingham Electric Light Co. Wingham, Ont.
 Canada Screw Co Hamilton, Ont.
 Abbott, Grant & Buell. Brockville, Ont.
 Calgary Browing & Malting Co. Calgary, N.W.T.
 National Electric Tramway & Lighting
 Co., 2 engines. Victoria, B.C.
 Hamilton Street Railway Co. Hamilton, Ont.
 Prince Edward Island Electric Co. Charlottetown, P.E.I.
 D. W. Karn & Co., 2 engines. Woodstock, Ont.
 Daniel Olmstead Wheatley, Ont.
 Ontario Tack Co Hamilton, Ont.
 P. W. Ellis & Co. Toronto.
 Gendron Mfg. Co. Toronto.
 Ingersoll Electric Light Co Ingersoll, Ont.
 Gordon & Keith Halifax, N.S.
 The R. Forbes Co Hespeler, Ont.
 Listowel Furniture Co. Listowel, Ont.
 W. & J. G. Greyc Regina, Man.
 James Pender & Co. St. John, N.B.
 T. C. Watkins Hamilton, Ont.
 Brown & Erb. Berlin, Ont.
 Edison General Electric Co., for Port
 Arthur Electric Street Railway Co. Port Arthur, Ont.
 Winnipeg Electric Street Railway Co. Winnipeg, Man.
 George L. Diehl & Co. Toronto.
 Chatham Electric Light Co. Chatham, N.B.
 H. N. Schmidt Mildmay, Ont.
 Archibald Bros. Beachville, Ont.
 Orr Bros. Windsor, Ont.
 J. Eveleigh & Co. Montreal.
 Lake of the Woods Milling Co. Portage la Prairie, Man.
 Corporation of Town of Amherstburgh,
 Ont., for Electric Light Station.
 Montreal Rolling Mills. Montreal.
 William Clifford Austin, Man.
 Watson & Malcolm Kincardine, Ont.
 Consumers' Cordage Co. Montreal.

Galt Foundry, Engine and Machine Works.

MANUFACTURERS OF

Corliss Steam Engine

FOR

Driving ELECTRIC Machinery.

COWAN & CO. - GALT, ONT.

The T. Eaton Co., 2 engines	Toronto
Allen Mfg. Co.	Toronto.
J. L. Grant & Co.	Ingersoll, Ont.
W. H. Ives	Colborne, Ont.
Manufacturers' Dyeing Co.	Toronto.
George Fensom	Elmwood.
Alex. Mann & Son	Hamilton, Ont.
P. S. McLaren	Trenton, Ont.
James McIntosh	Toronto.
Brooks Co	St. Jago de Cuba.
Oakville Electric Light Co.	Oakville, Ont.
M. Snyder	Conestoga, Ont.
J. R. Schudel	Breslau, Ont.
Corporation of the town of Collingwood,	Ont.
Corporation of the town of Picton,	Ont.
Kincairdine Electric Light Co.	Kincairdine, Ont.
Palmerston Electric Light Co.	Palmerston Ont.
Strathroy Electric Light Co.	Strathroy, Ont.
Corporation of the village of Markham,	Ont.
Hagersville Electric Light Co.	Hagersville, Ont.
Pembroke Electric Light Co.	Pembroke, Ont.
Niagara Falls Electric Light Co.	Niagara Falls, Ont.
Full Electric Light Co.	Charlottetown, P.E.I.
Preston Electric Light Co.	Preston, Ont.
Lindsay Electric Light Co.	Lindsay, Ont.
Essex Centro Electric Light Co.	Essex, Ont.
Stouffville Electric Light Co.	Stouffville, Ont.
Yarmouth Electric Light Co.	Yarmouth, N.S.
Fredericton Electric Light Co.	Fredericton, N.B.
Halifax Gas Co., two engines.	Halifax, N.S.
Oshawa Electric Light Co.	Oshawa, Ont.
Guelph Gas Co.	Guelph, Ont.
Berlin Gas Co.	Berlin, Ont.
Galt Electric Light Co.	Galt, Ont.
Belleville Gas Co.	Belleville, Ont.
Brockville Gas Co.	Brockville, Ont.
Renfrew Electric Light Co.	Renfrew, Ont.
Brockville Incandescent Elec. Light Co.	Brockville, Ont.
Metropolitan Street R'y. Co., compound.	Toronto.
Leamington Electric Light Co.	Leamington, Ont.
Ball Electric Light Co.	London, Ont.
Cobourg Electric Light Co.	Cobourg, Ont.
Orangeville Electric Light Co.	Orangeville, Ont.
Mount Forest Electric Light Co.	Mount Forest, Ont.
Corporation of the town of Goderich,	Ont.
Stratford Gas Co.	Stratford, Ont.
Reliance Electric Light Co.	Waterford, Ont.
Arnprior Electric Light Co.	Arnprior, Ont.
Corporation of the town of Mitchell,	Ont.
Portage la Prairie Electric Light Co.	Portage la Prairie, Man

WATEROUS ENGINE WORKS CO

In Agricultural Implements Building the Waterous Engine Works Co. Brantford, Ont., made a true display of a number of the specialties manufactured by them, one of the most interesting being the Waterous grip pulley. This pulley has grown into great favour as an adjunct to electric light and power stations. Among the many attachments used for this purpose this appears to be exceedingly simple in construction and in operation, and possesses a number of points of excellence not usually found in pulleys of this class. A point of special value to electricians is the fact that this grip is always motionless when out of clutch. In other words when the pulley is thrown out of clutch, the entire grip mechanism comes to a standstill, when it can be quickly and easily adjusted and again started without interfering in any way with the shaft upon which it is. This is of particular advantage in an electric plant where there may be a large number of dynamo-driving pulleys. In other grip pulleys, should one of them require attention the shaft and all the machinery upon it would come to a standstill. In contrast with this, with the Waterous grip the pulley at fault would alone be stopped for adjustment. Another point of value to electricians whose pulleys and couplings have to transmit very heavy power for their diameter, is that in this pulley the friction or driving ring can be made almost as large as the pulley, increasing very materially the power and

leverage of the grips; and also that in large pulleys the number of grips can be increased to eight or ten should it be required. Again, its patent sectional split hub enables the quick and easy replacing of a new hub when necessary without removing the pulley from the shaft. Two of these pulleys can be arranged on one driver, thus economizing space. The manufacturers of this pulley have recently issued a neat little primer in which it is fully described, and giving opinions of users of it in all classes of work, which will be sent on application.

The fire apparatus shown by this company was very attractive indeed. This included a patent ladder and escape which may be carried upon a truck, and which can be elevated as high as ninety feet. It is exceedingly rigid, and can be used as a water tower. The steam fire engines built by this concern have carried off many first prizes, and they are in use not only throughout Canada but the United States also.

FOR REPAIRING MACHINERY



Our portable drilling machine can be applied to the frame of a machine, or anywhere a hole is required. It bores at any angle. Nothing like it for repairs.

EVERY MANUFACTURER NEEDS ONE.

WRITE FOR PRICES.

A. B. JARDINE & CO., - HESPELER, ONT.

THE Whitman & Barnes Mngf. Co.

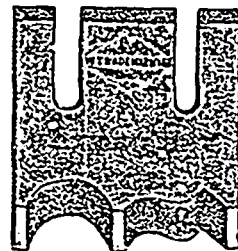
CANADIAN BRANCH:

St. Catharines, Ont.

MANUFACTURERS OF

EXTRA QUALITY

Machine Knives, Etc.



◀ ◀ SPECIALTIES ▶ ▶

Knives for Mowers, Reapers, Binders, Root Pulpers and Straw Cutters.

Knives for all kinds Wood-Working Machinery.

Knives for Paper Mills.

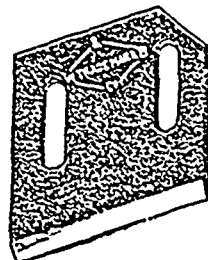
Knives for Leather Splitting Machinery.

W. & B. Diamond Twist Drills.

Spring Keys and Cotters.

PARTIES WANTING SPECIAL KNIVES GET OUR FIGURES.

Goods the Best. Prices Moderate. Quality Warranted.



THE CANT BROS. CO., OF GALT.

THE Cant Bros. Co., of Galt, Ont., made a fine display of their woodworking machinery in Machinery Hall. A machine which excited much interest was an automatic hollow square chisel mortising machine, a representation of which is seen in this company's advertisement on page 178 of this journal. This machine has proven itself to be most useful for mortising in hardwoods, thus rendering it invaluable for car, carriage, wagon, furniture, blind, sash and door factories. The novelty of this machine consists in the peculiar formation of the chisel, which is square, and is fitted with an auger made to revolve inside it. The end of the auger projects slightly beyond the edges of the chisel, and when brought up to the timber it bores a round hole the chisel following it, and simultaneously squaring out the four corners and sides, and with no jarring to the machine. A finished mortise of any length, from $\frac{1}{2}$ to one inch square, and free from chips, is thus made. The depth of the mortise is regulated by the adjustments of the table or the adjustments of the stroke. The movement of the chisel is governed by a treadle placed at the side of the machine, which gives it a continuous reciprocating motion. The stroke is variable by changing the position of the crank pin on the reciprocating frame. The table is counter-balanced, and is adjusted vertically by a lever provided with stops by which one or more mortises can be made as in double mortising. That is, a $\frac{3}{4}$ inch chisel will make any size mortise from $\frac{1}{2}$ to $1\frac{1}{2}$ inches by passing through twice. It has an adjustment endwise for regulating the length of the mortise by a hand-wheel operating a rack and pinion. A $\frac{3}{4}$ inch chisel and auger is provided with each machine and a full set of wrenches. Other sized chisels are extra. Countershaft has tight and loose pulleys, 9 in. by $4\frac{1}{2}$ faces, and should make 900 revolutions per minute. Weight, 1,700 lbs. This machine has been sold to Messrs. Adams & Sons, Paris, Ont. The Bain Bros Manufacturing Co., Brantford, Ont., who have one of these machines, say "It is just the thing for our work. It cleans the mortise out perfectly, and will do it quicker than any other kind of mortiser."

This is one of the oldest established manufacturing concerns in Canada; which, by long experience in the business of making wood working machinery, have attained a most enviable reputation.

DODGE WOOD SPLIT PULLEY CO.

THE Dodge Wood Split Pulley Co. made an interesting exhibit in Machinery Hall, as they have done for years. In addition to the stacks and piles of their pulleys, in all sizes and for all purposes, they show a special line of shafting well filled with pulleys, all in motion, driven at a right angle with the general power shaft overhead, by the Dodge system of transmission with manilla rope. This feature in itself is exceedingly interesting, giving as it does a good idea how power may be transmitted to places and in positions which would be simply impossible under other circumstances. And it also illustrates how power may be transmitted over long distances, as over the tops of buildings, across streams, and up or down precipices and steep places. It is interesting to mechanics to witness with what facility power can be transmitted where the driven shaft is at right angles with the driver; where the drive is perpendicular, particularly when it is in quarter twist and perpendicular; where the driver and driven are close together, etc. In transmitting power from a line shaft there is a steady, uniform strain, without flapping, jerking, stretching, slipping or other loss of power; and it is claimed that an engine with this system of rope transmission of power will do twenty-five per cent. more work on the same consumption of fuel than with any other arrangement.

Regarding the Dodge wood split pulley manufactured by this company, they are made in sizes to suit all possible demands—iron centre pulleys, where such are desired, to be placed directly on the shaft of the driving engine; wood arms and centres, with the Dodge patent wood bushing, for service on driven shaft; smooth face pulleys, where leather or rubber belting is to be used, and grooved face pulleys where the transmission of power is to be by manilla ropes. They are made in all sizes, ranging from a few inches in diameter, and for use with narrow belts, up to as many feet in diameter, with face sufficient to accommodate the widest belts.

President, W. K. McNAUGHT

Secretary, J. J. CASSIDEX

Treasurer, GEORGE BOOTH

The Canadian Manufacturers' Association

**THE OBJECTS
OF THIS
ASSOCIATION
ARE:**

To secure by all legitimate means the aid of both Public Opinion and Government in favor of the development of home industry, and the promotion of Canadian manufacturing enterprises.
To enable those in all branches of manufacturing enterprises to act in concert as a united body whenever action in behalf of any particular industry, or of the whole body, is necessary.
To maintain Canada for Canadians.
Any person directly interested in any Canadian manufacturing industry is eligible for membership.

Correspondence
with
Manufacturers
Requested.

Office of the Association, ROOM 66 CANADA LIFE BUILDING, KING ST. WEST, TORONTO.

J. J. CASSIDEX, Secretary.

TELEPHONE 1274.

HENRY NEW, Pres.

J. H. NEW, Vice-Pres.
TORONTO

A. F. CANNISTER, Sec.-Treas.



THE HAMILTON AND TORONTO SEWER PIPE CO'Y,

(LIMITED.)

HAMILTON, CANADA.

Successors to The Campbell Sewer Pipe Co. and The Hamilton Sewer Pipe Co.

—MANUFACTURERS OF—

Steam Pressed, Salt Glazed
VITRIFIED SEWER PIPE

FLUE PIPES, CHIMNEY TOPS and SMOKE PREVENTIVES.

Established 1860.

made. It is claimed for these pulleys that they transmit from twenty-five to sixty per cent. more power than iron rim pulleys of same size and similar tension. The patent compress fastening for securing the wood hubs of these pulleys to the shafting is guaranteed to hold more securely than set screws, and, unlike key fastening, preserves the equilibrium of the pulley on the shaft most accurately. One of the many illustrations of the Dodge system of rope transmission and the Dodge wood split pulleys in this part of the country is that which has been in most successful and satisfactory use in the company's own factory at Toronto Junction, near this city. In this transmission the engine shaft is equipped with two driving pulleys. The smaller one is seventy-two inches diameter, grooved to carry eight turns of manilla rope, the power being used to drive a large Sturtevant blower. The larger pulley is 153 inches diameter, with rim of hard maple, grooved to carry eleven wraps of 3-inch tallow-laid manilla rope, the connection being with a sixty-three inch grooved wood pulley on a 3 1/2-inch main shaft, 250 feet long, from which is transmitted power to all the machinery in the building. The engine is 100-horse-power, the rope travel is 5,000 feet per minute, and the pull on the rope is only one and one-half per cent. of its breaking strain, while it is perfectly safe to use ten per cent.

Some time since a full-page illustration was exhibited in this journal showing the practicability of transmitting power from a mountain stream, flowing between precipitous cliffs, to a plateau several hundred feet above. The tensile strength of such a rope as is usually used for this purpose—one inch in diameter—is 9,000 pounds. That is, it will bear a suspended load of that weight. If the height of the transmission is 1,000 feet, of course the weight of 1,000 feet of rope must be considered in calculating its capacity. The weight of that length of rope is 233 pounds, and therefore a critical elevation of 1,000 feet might be overcome without taxing the strength of the rope by its own weight more than a trifle over

three per cent. This illustrates the feasibility of such transmission. Catalogues, price lists and all information regarding this business may be had on application to the Dodge Wood Split Pulley Co., Toronto.

TORONTO CARPET MANUFACTURING CO.

On the ground floor of the Main Building, near the western entrance, was shown a carpet loom in full operation, driven by steam power. There was no more interesting exhibit in the building. It was placed there by the Toronto Carpet Manufacturing Company, having been taken from their extensive factory at the foot of Jarvis street, Toronto. It was kept in constant operation, and of course it was the object around which crowds of visitors hung all the time. The per capita consumption of carpet in Canada is greater than in any other country, but it was a novelty to the masses to witness the process by which carpet is made.

This company has been in existence but a little more than a year, when they began with but three looms. The fruit of these looms was received with great favor from the first, and it was soon found that the capacity of the factory was unequal to the demand for the goods. The well-known high character of the gentleman embarked in the enterprise was considered a full guarantee to the trade that the goods were strictly as represented, and first class in every particular. Several months ago six additional looms were placed, and later still the entire plant of the Ontario Worsted Company, of Elora, Ont., was transferred to these works, besides much other machinery, giving the company every desired facility for the successful prosecution of their business, and a more recent addition includes a Crompton art square loom, an order having been placed for machinery for the production of Talbot 3xminster carpet. The lines of carpet manufactured in this factory include Kidderminster three-ply, two-ply extra super all wool, extra super cotton chain, unions, mediums and fine. Of course the building in which this most important industry had its beginning was soon found to be too

BELTING

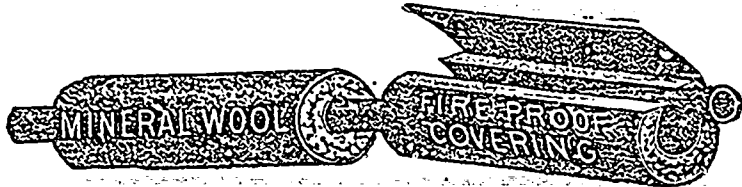
Patent Rolled Shafting, Hangers and Pulleys

WROUGHT IRON PIPE and FITTINGS.

RICE LEWIS & SON, Ltd., General Hardware Merchant, Toronto.

JAMRIN'S PATENT.

A Great Loss!



If you have any Pipes or Boilers uncovered you are losing on same at the rate of 50 cents every year on each square foot of surface exposed. By having them covered with our Mineral Wool Sectional Covering you will save 85 per cent of this loss. The saving thus effected in fuel will in one year more than pay the cost of covering, which we guarantee to last as long as the pipes. Our covering is the best fuel saver on the market.

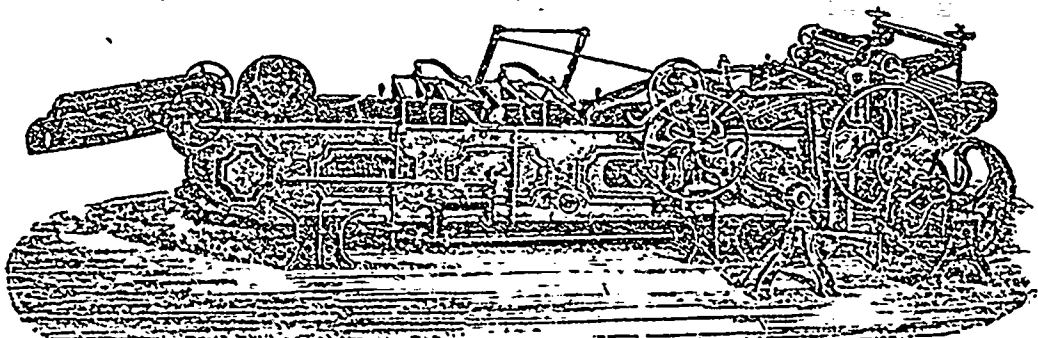
Canadian Mineral Wool Co., Ltd., 122 Bay Street, TORONTO.

IMPROVED WOOL WASHER

BUILT BY
C. G. Sargent's Sons

Graniteville, Mass.,
U.S.A.

Builders of Wool Washers,
Burr Pickers, Wool
Dryers, etc.



The above represents our New Hydraulic Wool Washer, superior to Rake Machine. Send for Illustrated Catalogue

small to accommodate the large additions of machinery alluded to, and while the original building is utilized to its fullest capacity, the company have acquired another building, very much larger and excellently well adapted to their purposes, only a short distance away on the Esplanade.

The company is composed of keen, shrewd, business men, who are abundantly able to carry on their enterprise, without stint of capital. It is under the management of Mr. James P. Murray, the President, assisted by Mr. John A. Murray, Vice-President, Mr. F. B. Hayes, Secretary, and Mr. Henry Wolfe, Superintendent.

W. H. STOREY & SON.

We are entirely within the realm of fact when we say that the Canada Glove Works of Messrs. W. H. Storey & Son, Acton, Ont., is the largest establishment of the kind in the Dominion, and that the output is also the largest. The name, "Storey & Son," is known from the Atlantic to the Pacific, and bears its relation to first class productions of gloves on the American continent that "Dents" does in Europe.

This firm make a specialty of manufacturing the patent "Napa" tanned buck glove, for which they hold the exclusive right in Canada. These gloves, it is claimed, are the best ever presented to the trade, either for walking or driving; that for toughness they have no equal, and that they will outwear any other glove of similar weight produced anywhere else. The stock from which they are manufactured is California deer skin, and dressed in that country by the patent "Napa" process. Being grain dressed instead of prized, every imperfection is visible, but this, though unavoidable, in no way detracts from the strength of the material, as the strongest tests to which they may be subjected will show. Every pair of "Napa" gloves manufactured by this concern is warranted to be first class in every particular as far as the wear is concerned. They are not guaranteed, however, to be absolutely perfect in grain,

such imperfections being proper signs by which the genuine article may be distinguished from imitations.

The celebrated Northrup's patent "Turtle" driving cuffs and wristlet combined, is also a specialty with this firm. This is an arrangement by which the cold air is prevented circulating up the sleeve while driving. There is no buttoning to do and no bother. They can be drawn on in an instant, and can be worn with any style of glove or mitten; and one pair will outlast a dozen pair of gloves. Those who have suffered from cold wrists and arms while driving will appreciate this article. This firm are also manufacturers of cuffs for railroad brakemen, for the protection of their arms and wrists from cold air, snow and cinders; also of a waterproof cuff to be used for all purposes where the cuff and sleeve needs protection. They are the sole manufacturers of these patent cuffs in Canada, and hold the exclusive patent right for the Dominion.

Messrs. Storey & Son are sole agents for Canada for the sale of the celebrated "Saskatchewan Buffalo" goods, manufactured by Messrs. A. M. Nowlands & Co., Galt, Ont., the patentees. These goods are a remarkable imitation of the skin of the now defunct buffalo, and is an excellent substitute therefor. The robes are warm, durable and handsome; are waterproof and windproof, and will stand rough usage in all weather. They are made in both heavy and light weights, in three sizes, and in three standard colors. They are lined with scarlet lambs' wool and trimmed in two colors. Included in these lines are ladies' jackets and ulsters, and the "Princess" baby carriage rug.

The Canada Glove Works were established by Mr. W. H. Storey in 1868, his first venture in this direction being the manufacture of strong and serviceable gloves for harvesting purposes. Ever since then the business has increased until it has assumed the proportions here alluded to. The present factory is a substantial brick building 100x40 feet, four stories high. It is equipped throughout with a full complement of modern and most efficient machinery and appliances, heated throughout by steam, and illuminated by gas made on the premises. The staff of employes includes over two hundred people, and the range of products covers hundreds of varieties in every class of such goods known to the trade. For workmanship, beauty, excellence and fit, this representative firm of Canadian manufacturers challenge its competitors the world over, for no finer nor better goods can be made.

THE

"OPTIMATES"

POWER HAMMER

Patented in the United States, Canada, and England.

W. H. LAW,
Inventor.

MANUFACTURED BY

The Central Bridge and Engineering Co., Ltd.

PETERBOROUGH, ONTARIO, CAN.

ROBIN & SADLER

Messrs. ROBIN & SADLER, Montreal, occupied a space in the east end of Machinery Hall, where were exhibited specimens of the leather belting manufactured by them, including a section of a dynamo belt recently made by them, fifty-two inches wide, for the Royal Electric Light Company, Montreal. This, they say, is the widest leather belt ever manufactured in Canada. This concern make a specialty of manufacturing bolts for electric purposes, and the products of their factory are to be found in electric plants throughout the country. Under a contract with the Royal Electric Light Company they have supplied that concern with all the belting used in their two electric stations in Montreal. The main driving belts used there are among the largest of the kind in the country. Three of them are thirty-eight inches wide, two thirty-two inches wide, and one twenty-eight inches wide, all double thickness. A belt which they have furnished for the Montmorency Cotton Mills, near the city of Quebec, is a double thick, twenty-four inches wide. In the lumber mills of Messrs. J. B. Smith & Sons, in Strachan avenue, Toronto, is a main driving belt made by Messrs. Robin & Sadler, eighty feet long, twenty inches wide, double thickness, endless, put in position at the mill, and contains no rivets, sewing or fastening whatever except the cement with which it is made. Belts made in this manner are exceeding smooth in their running, and, it is claimed, transmit more power than other belts, owing to the closer contact with the surface of the pulleys. A similar twenty-inch double belt placed by this concern is in operation in the works of the Crossen Can Manufacturing Company at Cobourg, Ont. Messrs. Robin & Sadler manufacture a water-proof belting to which the attention of manufacturers is directed. It is made both heavy and light, single and double, of the best material, fastened with water-proof cement and brass wire screws, the entire belt being saturated with a preparation that renders it entirely water proof. Machinery users are advised that this belting is especially adapted for use in damp places.

An important advantage this concern enjoy in their business is that they manufacture their own leather, tanning it with this special view. To show the high esteem in which this belting is held by those excellently well fitted to judge, they inform us that they have sold to one concern alone as much as \$10,000 worth of belting in one year. They have supplied belting to many concerns who are among the largest consumers in the country; and this fact certifies that the prices are right, the material all first class, and the workmanship the very best.

Mr. George W. Sadler, the sole proprietor of this concern, is a thoroughly practical belt maker, having worked at the business, with some of the best manufacturers in the United States. In 1874 he became manager of the leather belting business of Messrs. L. J. Campbell & Co., at Montreal. In 1876 he became associated with Mr. Thomas Robin, his late partner, and the new firm took over the business that Mr. Sadler had previously managed. Mr. Robin died in 1884, since which time Mr. Sadler has continued the business solely on his own account, but under the old and familiar firm name of Robin & Sadler. Mr. Sadler's tannery is at Stanbridge East, Province of Quebec, said to be the largest in the Dominion, making a specialty of manufacturing leather for belting, his factory in Montreal being one of the largest in the country. As we have shown, Mr. Sadler gives special attention to the manufacture of leather belting for electric purposes, and the dynamo belts from his factory give the utmost satisfaction.

The demand for belting made by this concern has increased very rapidly ever since the inception of the business. This trade is most gratifyingly large in Ontario, and some seven years ago it was found necessary, in meeting the demands of it, to establish a branch house in Toronto. It is the policy of Mr. Sadler to exhibit his belting at all the principal fairs of the country.

FETHERSTONHAUGH & CO.

Patent Barristers and Solicitors.

Electrical and Mechanical Experts
and Draughtsmen.

PATENTS

Procured in Canada, United States, Great Britain, and
all Foreign Countries.

Counsel Work undertaken in Patent Causes.

Patent Suits prosecuted before the Courts.

Validity and Infringements of Patents investigated.

Searches made. Assignments and Agreements drawn.

Advice on Patent Laws, etc.

Head Office, Canadian Bank of Commerce Building, Toronto.

TELEPHONE 2589.

CABLE ADDRESS "INVENTION, TORONTO."

G. de G. LANGUEDUC,
PATENT SOLICITOR,
CIVIL ENGINEER AND ARCHITECT.
Associate Member Can. Soc. Civil Engs., Member of the Soc. of Archts. of the P.Q.
Room 7, (3rd floor), 180 St. James St., MONTREAL.

William Bruce, Solicitor of
CANADIAN AND FOREIGN PATENTS,
17 King Street East, - - Hamilton.

C. G. C. Simpson, 146 St. James St., Montreal,
EXPERT and SOLICITOR of PATENTS,
Patents obtained at lowest fees, compatible with first-class practice. (25 yrs.)

CARDING ENGINES

- FOR SALE. -

150 Top Flat Carding Engines. American make and
in first rate order, with Railway Heads, etc., all complete.

Montreal Cotton Company
VALLEYFIELD, QUE.

HEINTZMAN & CO.

Messrs. HEINTZMAN & Co., Toronto, occupied their usual space in the north-east corner of the Main Building, just the same as they have done for many years. It was beautifully carpeted and draped, presenting the appearance of a drawing room, ornamented as it was with bric-a-brac, flowers, curtains, etc., and containing a number of the most excellent pianos manufactured by this firm. Of course the place was constantly thronged with ladies and lovers of music, and all day long, and in the evenings also, both professional and amateur musicians produced sweet concord from the instruments. We learn that all the instruments on exhibition were sold, deliveries to be made when the Fair was over.

This firm and their pianos have been well and favorably known to the public for some forty-two years; and it is but scant justice to say that the Heintzman pianos are unexcelled and unrivalled in this or in any other country. For many years their factory was in King street, in the building where their offices now are. It was at one time considered a large factory but the regular and rapid increase of their business - required that even greater facilities should be had. The old place was not susceptible of further and sufficient enlargement, and a new and commodious building was erected by the concern at Toronto Junction, near this city, where they have probably the largest and best equipped piano factory in Canada.

The patented improvements and other peculiar arrangements embodied in the Heintzman piano have elicited the admiration and approval of the very best musical critics, and at the Colonial Exhibition held in London a few years ago, a commemorative bronze medal was awarded to this firm for their pianos. A special feature introduced exclusively into these instruments is the Heintzman patent duplex bridge, used in the construction of all their grand and square pianos. Other special features include a patent bridge ring applied to the sounding board, an improved action in the upright pianos which renders them less liable to derangement; a new metallic flange for the hammer-butt to work in, and a new and novel arrangement of the music rack for uprights, by which the music is brought more conveniently within the range of sight of the player.

This firm is composed of Mr. Theodore A. Heintzman and his four sons, Herman, George C., William F., and Charles T. The senior Mr. Heintzman was born in Berlin, Germany, in 1817, and is therefore now 75 years of age, a hale, hearty, active business man, who claims to be quite as young, in spirits at least, as any of his sons. He mastered his business in his native city, and while there he was commissioned by Director Cerf, of the Keing Stadter theatre, to build a piano of a peculiar shape to be used in connection with the Italian opera subsequently sung in that theatre, the instrument giving entire satisfaction. In 1850 he found himself in New York city, where he soon found employment in his trade, and was so well appreciated that he was made foreman of the piano factory in which he worked, and it was at this time that Mr. Henry Steinway, senior, the founder and head of what is now one of the largest piano manufacturing concerns in the United States, obtained a situation in this factory under Mr. Heintzman. In 1860 Mr. Heintzman came to Toronto and engaged in the manufacture of pianos, and has lived here ever since. His four sons were brought up in this business, each having his assigned duties. The young men are typical Canadians, full of enthusiasm and love of their business, and they have made it a grand success.

The grounds of the Heintzman piano factory at Toronto Junction face 258 feet on Van Horn street, and 275 feet along the line of the Canadian Pacific Railway. The main factory building is a substantial brick structure with stone trimmings, four storeys high, 200 feet long and 43 feet wide. A one storey brick continuation includes the engine room, 24x12 feet, boiler room 30x30 feet, and a machine shop and wire working department 42x20. The factory is

POROUS TERRA COTTA FIREPROOFING

See it in use in new Bank of Commerce Building, Toronto; new Royal Insurance Company Building, Montreal; Imperial Fire Insurance Company Building, Montreal; St. Lawrence Sugar Refinery, Montreal.
The finest thing for suburban cottages. Excludes heat and cold; is cheap and durable.

Try our improved Cedar Oil for cleaning boilers. We guarantee it to satisfy or no pay.

ADDRESS

The Rathbun Company

DESERONTO, ONT.

"PERFECTION"

Stoves, Ranges, and Furnaces

Enjoy the unique distinction of being made entirely from original designs and original wood patterns. We confidently place them in competition with the best American productions duplicated by Canadian makers.

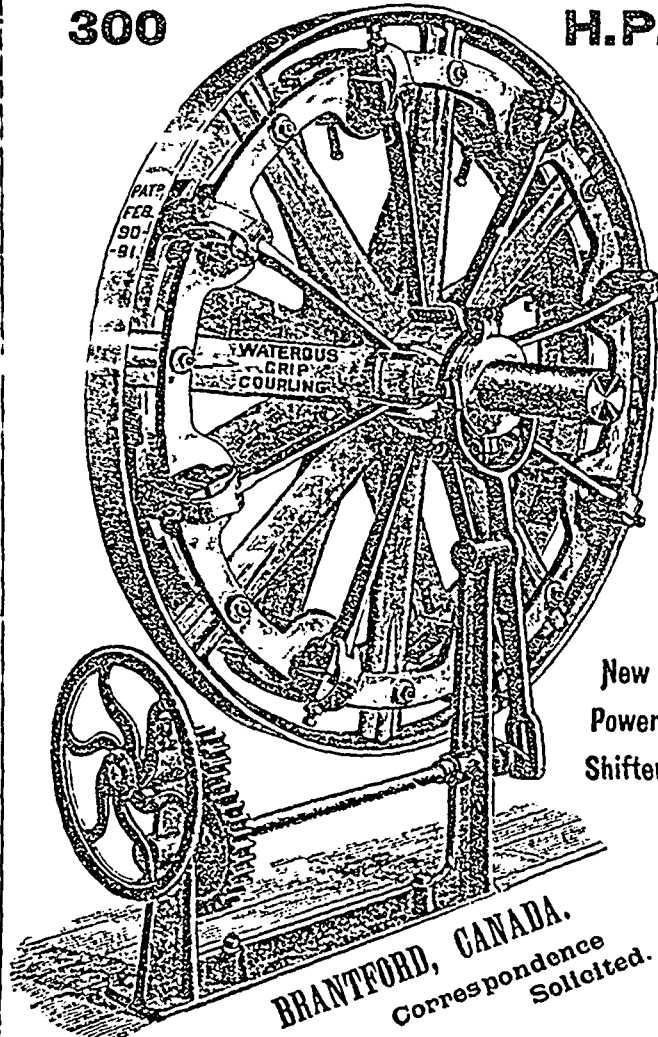
WRITE US FOR PARTICULARS.

The Jas. Smart Manufacturing Co., Ltd.

BROCKVILLE, ONTARIO, CAN.

300

H.P.



New
Power
Shifter

BRANTFORD, CANADA.
Correspondence
Solicited.

equipped with every appliance and convenience, tools, machinery, etc., of the very best description.

ROBB ENGINEERING CO.

The Robb Engineering Co., Amherst, N.S., displayed one of their high speed Robb-Armstrong steam engines in Machinery Hall, where it was connected with a dynamo used for supplying energy for an electrical exhibit. The frame of this engine is of the Porter type, with double disc crank. The engine weighs a little over a hundred pounds per horse power, not an unusual weight, but the metal is distributed to give the greatest attainable stiffness.

The crank is built up of cast discs and forged steel pin and shafts, the peculiar arrangement of the crank permitting the fits of the shafts and pin in the discs to be very long without unduly separating the shaft bearings. The counter weight is of equal moment with the reciprocating parts. The shaft bearings are finished by grinding operations of great delicacy. The shafts are made to gauge, and all parts of the engine are interchangeable. The crank is covered by a cast iron case, snutting it in completely except at the slot through which the connecting rod works. The fly wheel governor is a modification of the "straight line," and, together with the valves, is used by arrangement with the Straight Line Engine Co. The eccentric rod, so called, although there is no eccentric, has ball and socket bearings at each end, the balls being case hardened and ground, and the sockets, or boxes, are of phosphor bronze. The rocker arm, by which the eccentric rod drives the valve, is horizontal, with a vertical axis. The centre bearing of the rocker arm works in a bath of oil so arranged that it is continually flooded, so that no oil can escape, any overflow draining to the crosshead guide, and finally to the crank pit. The piston is a single casting, made extremely light. The exhaust passages are jacketed by air spaces from the cylinder, and from the live steam in the steam chest. The workmanship is equal to that of any other engine made. The firm make cheaper automatic engines, but this Robb-Armstrong was brought out to fill a demand for a really first-class engine adapted to the purposes to which this is usually put. This specimen on exhibition was the admiration of mechanics generally, and particularly those interested in high-speed engines for driving dynamos.

METALLIC ROOFING CO.

It is doubtful if any concern making an exhibit at the Fair had their specimens shown in as many different places, and in as conspicuous a manner as the Metallic Roofing Co., of Toronto. Their Eastlake metal shingles were everywhere, and wherever they were they were on top on top of the Natural History Building, the gate entrances, Floral Hall, Press Bureau, ladies' retiring parlors, Grand Stand, new Dog House, about all the beautiful kiosks - everywhere. Wherever it was thought they would do the most good, there they were, and certainly they did an immense amount of good during the fearful rain-storm on the 13th, in sheltering the immense crowds from being drenched. These shingles are in great demand for covering all sorts of buildings, particularly mills, factories, warehouses, depots, foundries, workshops, farm buildings, - in fact, for covering any sort of a building that requires a good, weather-proof roof. It is light, durable, fire proof, and easily and quickly applied. Under the management of Mr. J. O. Thorn this company have built up a very large trade extending throughout the Dominion. The Eastlake shingle, because of its excellence and durability, is received with great favor by architects and builders.

BERLIN PIANO CO.

The exhibit of musical instruments made by the Berlin Piano Company, Berlin, Ont., in the west nave of the Main Building, was most interesting. It was crowded at all times by artists and lovers of good music, which was produced on remarkably fine and effective instruments, and the appreciation of the public was such that a large number of sales were effected, every one, we understand, of the in-

WIRE.

Coppered Steel Spring,
Tinned Mattress Wire,
Broom and Brush Wire,
Soft Coppered Wires,
Hay Baling Wire,
Flat Wires.

Write for Catalogue.
We Guarantee the Quality of all our Wires.

MANUFACTURED BY

The B. GREENING WIRE CO., Ltd.
HAMILTON, CANADA.



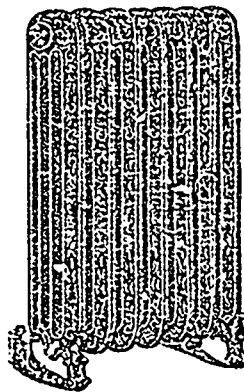
The Standard Drain Pipe Co., St. Johns, P.Q.

Manufacturers of Salt Glazed Vitrified Sewer Pipes, Double Strength Railway Culvert Pipes, Inverts, Vents, and all kinds of Fire Clay Goods. The Standard Drain Pipe Co., of St. Johns, P.Q., Ltd. W. C. TORREN, Pres.

Safford (Patent) Radiators

FOR

HOT WATER AND STEAM HEATING



Lead the World

MADE IN

ALL SIZES and HEIGHTS

Send for Catalogue

MANUFACTURED ONLY BY

The Toronto Radiator Mfg. Co.

TORONTO, - ONTARIO.

Branches:

Montreal, Quebec, Winnipeg, Victoria, B.C.

struments on exhibition having been sold. Mr. Wesley, who had charge of the exhibit, and who is manager of the company, is an old and experienced manufacturer of musical instruments, having been in the business a great many years. The Berlin Piano Company is a young concern, but its promoters are experienced business men, and their knowledge of their business, backed as it is by abundant capital, is a guarantee of its financial success. Their new factory at Berlin is large, commodious and well arranged, and equipped with every necessary appliance for carrying on the business. It is no matter of surprise to find that the pianos made by this company should be of such a superior quality, both as regards their intrinsic merits as musical instruments, and the really elegant cabinet work bestowed upon their construction, when it is known that the very best artists are employed under the immediate supervision of such an expert as Mr. Wesley.

CHRISTIE, BROWN & CO.

Messrs. CHRISTIE, BROWN & CO., biscuit manufacturers, Toronto, occupied their usual space in the west nave of the Main Building, where they are always to be found, in which they exhibited full lines of their products. This exhibit extended from floor to ceiling and was most tastefully arranged, the fancy cases and cartoons displaying their contents to the best possible advantage. It was a constant and pleasant attraction at all times to the thousands of visitors who crowded the building, and every corner had an opportunity to taste of the crisp and delightful morsels which were most generously distributed.

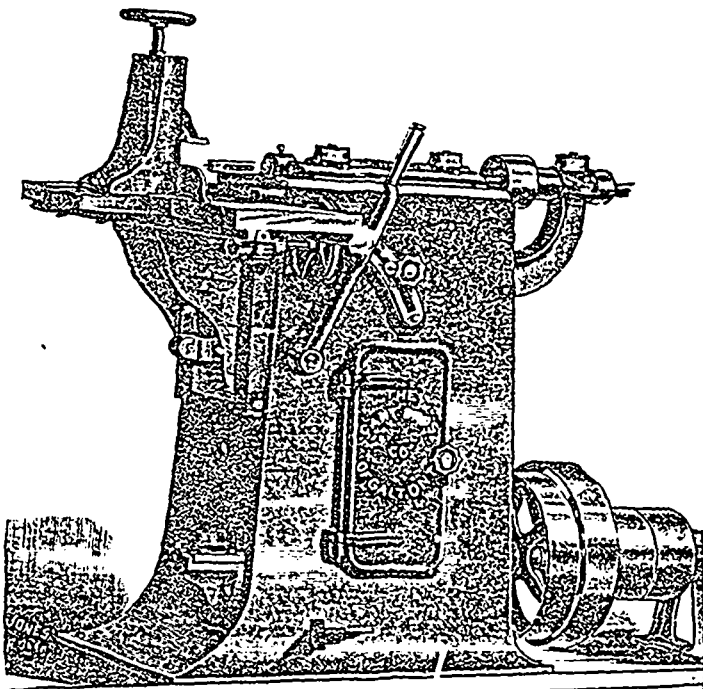
There are but twenty-six letters in the English alphabet, and so, of course, the different products of this concern could not conveniently be designated by letters, for there are over four hundred different varieties; but the names of them, as recorded in the firm's catalogue, would suggest that the nomenclature of the trade had been pretty well exhausted. These goods are made of the very best and finest materials, selected specially for purity and delicacy of flavor. Generally they are put up in cartoons containing from fifteen to twenty-five pounds each, but some of them are packed in two pound tins, contained in cases holding six, twelve, twenty

five and fifty-two pounds each. Without doubt the factory where these goods are manufactured is the largest and most thoroughly equipped bakery in the Dominion.

Mr. William Christie is one of the oldest manufacturers in Toronto, having embarked in the manufacture of confections in 1851. In 1868 he became associated in business with Mr. Alexander Brown, under the firm name of Christie, Brown & Co.; and although Mr. Brown has since died, the name of the concern has never been changed. Their works were first located at 626 Yonge street, but finding the place of not sufficient capacity for their rapidly increasing business, in 1872 they removed to more commodious quarters in Francis street, where they still further increased and enlarged their capacity, introducing what is known as a thirty barrel reel. Two years later—in 1874—the firm purchased the land at the intersection of Duke and Frederick streets, where they built extensive works, which have since been very considerably enlarged. The factory covers an area of one hundred and thirty feet square. It is of brick, three stories high, and is equipped with all desirable machinery and appliances known to the trade.

CANADIAN MINERAL WOOL CO.

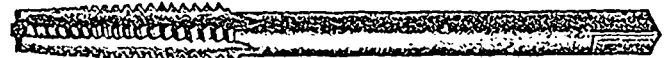
The Canadian Mineral Wool Co., Toronto, had a comprehensive exhibit in Machinery Hall, where mineral wool was shown in the condition it is received from the furnaces, and also in the different styles in which it is prepared for use. Mineral wool is used for pipe and boiler covering, for covering the hot air flues and furnaces in residences, and wherever it is desired to prevent the radiation of heat, for deafening in floors, for filling partitions, for lining roofs, for lining refrigerators, and for all purposes where protection from heat and cold is desirable. It is superseding other materials for covering steam and hot water pipes because of its wholesomeness, durability and insulating qualities, and costs no more than hair felt, which is combustible, and which, for that reason, is condemned by the fire insurance companies as risky and dangerous, and by medical men as productive of disease, spreading microbes. This mineral wool is largely used in Canada, although introduced only about three years ago. Some of the places in Toronto where it is now in use are:



Hollow Square Chisel Morticer

FOR MORTICING IN HARD WOODS

CANT BROS. CO., Ltd., GALT, ONT.



Machine Nut Tap.



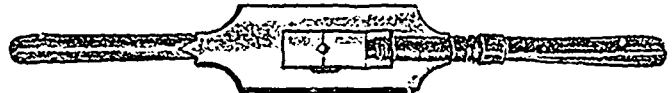
Hand Nut Tap.



Set of Hand Taps.



Size C 1/4 to 1/2.



Adjustable Tap and Reamer Wrench.

BUTTERFIELD & CO.,
Rock Island, P.Q.

MANUFACTURERS OF THE

Finest Screw Plates, Taps, Dies, Reamers,

And Other Blacksmiths' and Carriage-makers' **TOOLS.**

WRITE FOR ILLUSTRATED CATALOGUE.

Goderham & Worts distilleries, Davies Brewing Company's brewery, E. & C. Gurney Co. Iron Works, Mason & Risch piano factory, Polson Iron Works, T. Eaton & Co., and Robert Simpson dry goods houses, Canada Life Assurance Building, Sick Children's Hospital, General Hospital, Woman's Guild, Toronto University, Biological Institute, Victoria College, Consumers' Gas Company, Rossin House, Queen's Hotel, many of the steamers plying out of Toronto, etc. It is particularly well adapted for covering hot air pipes of furnaces in residences, and is desirable for that purpose, seeing that the economy of fuel amounts to from twenty five to forty per cent.

CHATHAM MANUFACTURING COMPANY.

Toronto's great Fair would scarcely be complete if the "Government Standard" Wagon manufactured by the Chatham Manufacturing Company, of Chatham, Ont., did not form a prominent feature of the Carriage Department. The usual display of this company was there as it always is, the specimens showing a solidity and adaptability to the work they are intended for. This company began the construction of these wagons about ten years ago. As soon as they were introduced they were received with great favor, and now they are in use in all directions throughout Canada. Mr. D. R. Van Allen, the head of this concern, has charge of his own exhibit and is glad to explain the processes by which his wagons are made, and their peculiar excellence to all enquirers. His company possess unequalled facilities in their business. They are large manufacturers of hardwood lumber and ship plank, and have extensive mills for that purpose, their output being several million feet per year. And it is from this source that selection is made of the lumber that goes into these wagons. They operate a large iron foundry where all their castings are made, and their factory is equipped with every desirable special tool and convenience for the successful carrying on of their work. The lines of vehicles to which this company confine themselves include farm, light farm, one horse and freight wagons, farm and railway dump carts, log trucks, railway platform baggage trucks, bob-sleighs, the

patent Champion hay rack, etc. The floor space of the factory where these goods are made aggregates about 50,000 square feet.

TORONTO SILVER PLATE CO.

The Toronto Silver Plate Co., this city, made their usual beautiful display of artistic silver plate in a very handsome plate glass show case in the Main Building. This display included about everything in that line desirable for domestic use, and attracted the unbounded admiration and interest of the ladies. That is what the display was made for, and that is what it undoubtedly accomplished. Mr. Copp, of the company, was happy and smiling in displaying these goods and explaining that they were second to none made anywhere in the world. He was happy also in explaining that this important manufacturing establishment, existing here in the city of Toronto, giving employment to a large number of expert and skilled artists and workmen, and producing such a large assortment of such elegant goods, was the direct outcome of that policy of the Dominion Government which encouraged such enterprises.

The business of this company is very large. It was started in an unpretentious way but a few years ago, the field being an untried one in Canada; but in the face of the fierce competition of both British and American manufacturers it has succeeded. In starting the business, it was determined that nothing but first class goods should be produced, and that rule has been observed ever since. All of their products are artistic in design and as perfect in workmanship as any made in even the most renowned establishments of London, Paris, Berlin or New York.

AUGUSTUS NEWELL & CO.

Messrs. A. G. NEWELL & Co., Toronto, exhibited a machine in Machinery Hall which attracted much attention, and deservedly so, seeing that it is the first of the kind ever made in Canada, and a specimen of what this concern propose manufacturing in sufficient

A. ALLAN, PRESIDENT.

J. O. GRAVEL, SECRETARY-TREASURER.

F. SCHOLLES, MANAGING DIRECTOR.



The CANADIAN RUBBER CO. of Montreal and Toronto. CAPITAL \$2,000,000.

Manufacturers of First Quality Rubber Boots and Shoes, Superior Quality Rubber Beltings, including The Forsyth (Boston Belting Co.) Seamless Rubber Belting. For which we are Sole Agents and Manufacturers in Canada. We hold the Patent and sole right to manufacture in Canada

The Patent Process Seamless Tube Hose

We make all our Hose by this process. Ask the merchant you deal with for it and take no other.

RUBBER PACKINGS, VALVES, GASKETS, ETC.

Head Office and Factory: MONTREAL.

J. J. MCGILL, Manager.

Western Branch: Corner Front and Yonge Sts., Toronto.

J. H. WALKER,

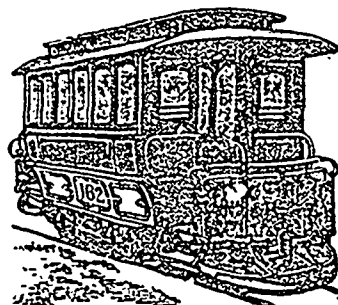
Manager.

PATTERSON & CORBIN

FINE

ELECTRIC CARS

OUR SPECIALTY



ST. CATHARINES, ONT.

MANUFACTURERS OF

Horse and Trail Cars

OF

EVERY DESCRIPTION

numbers to supply all of the Canadian demand. It is a machine for rolling precious metals. A bar or ingot of gold or silver can be reduced in it to any required thickness or thinness, thus preparing it for the goldsmiths' and jewellers' use. The manufacture of this class of machinery in Canada is a step in the right direction. Mr. F. H. Wright, the manager of the works at 31 Haytor street, has had years of experience in making fine machinery for the use of his concern, and realizing the need of a first class shop with first class tools, in Toronto, where those in want of fine work can be assured of a first class job, has added to his already well equipped shop such tools as Pratt & Whitney planer, shaper, lathe, etc., and Brown & Sharpe milling machine and grinders. They are well prepared to do all kinds of light machine work, models, etc. A few years ago this concern began business in Toronto manufacturing organ reeds and keys, for which they enjoy a very large demand. In their business they require a great deal of special fine machinery, and this they make themselves; and the fine metal rolling machine here alluded to, being of similar character, they have undertaken the construction of it and also of many other similar goods.

GOWANS, KENT & CO.

Messrs. GOWANS, KENT & Co., Toronto, presented a beautiful exhibit of their celebrated Rochester lamp in the Main Building. These lamps are made in a large variety of styles, adapted to all purposes. Those who are the happy possessors of the Rochester lamp very correctly feel that they are not at all dependent upon either gas or electricity for a delightfully soft and agreeable light. The flame is large and the combustion of oil perfect, therefore no disagreeable odor is given off, so perceptible and objectionable in other oil lamps. Some of these lamps are really exquisite works of art, including highly polished brass stands for piano use, with Limoges vases or bowls, for containing the oil, hand painted shades, and sparkling cut glass pendants.

Messrs. Gowans, Kent & Co., whose place of business is at 14-16 Front street east, Toronto, have in their spacious warehouses and show rooms one of the most beautiful displays of crockery and

chinaware, glassware, cut glass, bric-a-brac ornaments, etc., in Canada. The place is really a palace of decorative art which is exceedingly attractive. It should not be supposed that because this establishment is not on a fashionable thoroughfare, but on Front street among the wholesale houses, that it is not open to receive such visitors as may be interested in such displays. Of course it is a wholesale house, but the proprietors are always pleased to receive visits from those who delight in seeing the highest and most artistic taste embodied in articles which enter into the every-day, constant use of families, such as dinner and tea sets, chamber sets, pantry appliances, etc.

CROMPTON CORSET CO.

The display of corsets by the Crompton Corset Co., Toronto, in the Main Building, was a centre around which the ladies delighted to linger. The exhibit included more than a dozen styles of corsets, some of which were beautifully trimmed with lace and expensive needlework. These goods are made to meet the demand of all classes, but they are all made on one general principle, the difference in price merely indicating the difference in cost. This factory gives employment to about four hundred hands.

R. & T. WATSON.

It would be difficult to discover any place on the grounds where there was not a candy stand, and every candy stand was an advertisement for Messrs. R. & T. Watson, of Toronto, who have what is probably the largest candy factory in Canada. These candies sell upon their merits, for a personal inspection of the factory shows that only the very best refined sugars are used in their manufacture; and all the other ingredients contained in their--nuts, fruit, flavoring extracts, etc., are all of the same character. A specialty manufactured by this firm is "Koff No More," a most excellent remedy, as the name implies, for coughs and colds. It is put up in packages convenient to be carried in the pocket, and can be had at all the drug stores and candy stands.

BRUNNER, MOND & CO., Limited, Northwich, Eng.

Manufacturers of **PURE ALKALI** Guaranteed 58 degrees.

The Strongest and Purest Form of **SODA ASH** in the market, and the most Economical Form of **SODA** for the Manufacture of



Glass, Paper, Wood Pulp, Soap and Starch

Also for **PRINTERS, BLEACHERS** and **COLOURS.**

WINN & HOLLAND, Montreal,

Sole Agents for the Dominion of Canada.

THE ROYAL ELECTRIC CO., 54 to 70 Wellington Street, MONTREAL

SOLE PROPRIETORS FOR THE DOMINION OF CANADA OF THE

Thomson-Houston Systems of Arc AND Incandescence Electric Lighting

The Most Perfectly Automatic System of Electric Lighting in the world.

Thomson-Houston Arc Dynamos and Lamps for 1,200 and 2,000 c.p.

Thomson & Thomson-Houston Incandescence Dynamos for low tension direct current.

Absolutely Automatic Regulating and Compound Wound. Thomson Alternating Dynamos, Transformers, and all Supplies for long distance Lighting. Thomson Power Generators and Motors of the latest and most efficient types. Our Customers all over the Dominion are our references, and our plants speak for themselves.

FULL LINES OF ELECTRIC LIGHTING AND POWER SUPPLIES.

BRUSH & CO.

Messrs. Brush & Co., Toronto, manufacturers of corsets, & ties, etc., made their usual beautiful display in the Main Building. Of course this exhibit attracted much attention from all feminine visitors. These goods are all made on scientific principles, and are faultlessly correct as to shape, workmanship and style. They are made in several different styles to meet all the necessities of the trade, including those ranging from ridiculously low in price and within the reach of those of very small means, but which are, withal, of good value, up to those of elaborate finish and of the finest materials, all being constructed on one general principle. This concern gives employment the year round to a large number of women and young girls, and the industry is a large and important one.

MR. HAMILTON MACCARTHY.

Upon a suitable elevation in the Art Gallery adjoining the Main Building was a group of life-size busts of several well known Canadians and others, modelled in plaster by Mr. Hamilton MacCarthy, R.C.A., the well known Toronto sculptor. They are of Lieut. Governor Kirkpatrick, Sir John A. Macdonald, Sir Daniel Wilson, Hon. Edward Blake, M.P., Principal Grant, Hon. Alexander MacKenzie, A. T. Todd, Herbert Spencer and Prof. Huxley. There is also an equestrian group entitled Herne, the Hunter. These busts are entirely true to nature, and afford the utmost satisfaction to the friends of the gentleman they represent.

LONGFORD QUARRY & LIME CO.

Just to the south of Machinery Hall was the exhibit of the Longford Quarry and Lime Co., consisting of a pyramid and a portion of a wall constructed of stone taken from the quarries of the company at Longford, Ont. The location, surroundings and transportation facilities of these quarries are so exceedingly favorable that this stone is sold at exceedingly moderate prices; and its excellence is such that, by the advice of the best architects in the country, it has been and is being placed in some of the most important public buildings in the Province, as well as in many of our most costly private residences. It has been used in Toronto in the construction of the new Provincial Parliament buildings, the new City Hall and Court House, Canada Life building, Bank of Commerce building, Confederation Life building, the new Drill Shed, King Street subway and Toronto Junction subway, in the new works of the Edison General Electric Company at Peterboro', and the new post office at Orillia. It possesses a soft grey color, which it holds unchanging from atmospheric effects, is easily worked, and gives the utmost satisfaction. The exhibit is in charge of Mr. Andrew Craig, the manager of the works. The company deal in all kinds of building, bridge, foundation and dimension stone.

PURE GOLD MANUFACTURING CO.

Messrs. Alex. Jardine & Co., Toronto, proprietors of the Pure Gold Manufacturing Company, made their usual beautiful exhibit in the Main Building. What did it consist of? It would be difficult to enumerate all the articles included in the variety; but every one of them are found and appreciated in every home in Canada. The trade mark of the concern is "Pure Gold," every article they produce is marked and labeled with these words—Pure Gold baking powder, Pure Gold flavoring extracts, Pure Gold everything else. Thirty or forty different flavors of extracts—spices of all descriptions—curry powder, cellery salt, mustard, herbs of all kinds, washing compound, laundry soap, toilet soap, blacking for ladies boots, also for gentlemen, enamel paste for stoves, ground coffee, etc.

The factory at 31 33 Front street east, where these goods are manufactured, is one of the largest and best equipped in the Dominion. There are eight floors, four of which are 160 feet long, by 25 feet wide, and four 100 feet long and 25 feet wide with a large annex building in which is much of the heavy machinery. The coffee roasting and grinding capacity is 3,000 pounds per day, and of the soap works 10,000 pounds. The concern gives employ-

American Manufacturer and Iron World.

A Technical, Statistical and Commercial Review of the
Iron, Steel, Machinery, Coal and Associated Trades.

Published Weekly. **JOS. D. WEEKS, Editor.**

RATES OF SUBSCRIPTION (POSTPAID).

United States and British America per year \$4.00
All other Countries " 5.00

ADDRESS, Samples Mailed on Application.

American Manufacturer, PITTSBURGH, PA.

Wade's Fibre AND Fabric

A Record of New Industries in the Cotton
and Woollen Trades.

JOS. M. WADE, Editor and Gen. Man.

SUBSCRIPTION.—\$2.00 per annum, \$1.00 for six months, to all subscribers in United States and Canada. English subscribers must add \$1.04 for postage. Specimen copies free to all. All postage prepaid by the publishers.

Published Every Saturday by

JOS. M. WADE & CO., 185 SUMMER ST., BOSTON, MASS.

THE IRON TRADE REVIEW

CLEVELAND, O. CHICAGO, ILL.

Has a successful career of **Twenty-Four Years**, and is now on a better basis than ever before in its history. It is a recognized authority on the Production of Iron Ore, Pig Iron, Manufactured Iron and Steel, Machinery, Transportations and General Manufacturing Interests of the **CENTRAL WEST**, and has a general circulation throughout the United States.

Subscription Price, \$3.00 Per Annum, (In Advance).

An Excellent Advertising Medium.

ADDRESS THE PROPRIETORS.

THE IRON TRADE REVIEW COMPANY, - Cleveland, Ohio.

THE

Industrial World and Iron Worker

PUBLISHED WEEKLY AT

51 & 53 LA SALLE ST., - CHICAGO, ILL.

A leading representative of the Iron and Steel Manufacturing Industries, and the Iron, Steel, Hardware, Coal and General Metal Trades. This journal is a practical and scientific exponent of American Industries. It employs a large number of contributors, eminent for their attainments in the Scientific and Mechanical Arts. It gives the latest authentic news touching domestic and foreign manufactures, and presents weekly illustrations of the latest and most valuable inventions.

Its Building Department is a marked feature of the paper, presenting as it does, the latest and most interesting facts pertaining to the Building Industry. Its Hardware Department is more complete than that of any other paper published, and is fully abreast with the times. The market reviews are impartially and correctly written, and are authority in the trades. This journal has a wide and constantly increasing bona fide circulation, and as an advertising medium has no superior in the United States.

INDUSTRIAL WORLD COMPANY, Publishers.

ment to a small army, composed mostly of women and girls, and is a direct outcome of the fiscal policy of the Government which encourages such industries.

EXTERNAL JOURNAL LOOSE PULLEY CO.

In the north-east corner of Machinery Hall was shown by the External Journal Loose Pulley Co., Toronto, the pulley the character of which is indicated by the name of the company. It is the invention of Mr. C. T. Brandon, the president of the company. The pulley axle and the journal boxes are made of finished steel or brass tubing, the outside surface of the hollow axle on which the pulley is fixed is made to fit the interior surface of the journal boxes; the inside diameter being larger than the shaft around which it revolves, the space between it and the shaft forms an oil chamber. Sections of tube, or rings, are made to fit the interior of the tubular boxes and the shaft, thereby closing the ends of the boxes so that the oil cannot escape. Set screws pass through both of these and fasten them to the shaft. The tubular axle is parted lengthwise from the ends to within an inch and a half from the pulley hub, the space left between the edges admitting the oil to the bearing surface. The hollow axle is slightly compressed into the journal boxes just enough to make a snug fit, the expansion being quite sufficient to compensate for wear, and always maintains a proper relation of the hollow axle to the inner surface of the box. This is a general description of the arrangement, but there may be some slight variations in the construction according to circumstances. It is claimed that there are a score or more reasons why this arrangement is better than any other, some of which are: It will outlast a dozen ordinary pulleys run at high speed; at double the price, a saving of over 80 per cent. is effected on first cost; can be run economically at a rate of speed that would be fatal to any common pulley; the journals are

encased, excluding dust, etc.; absolutely noiseless; while loose pulley is in operation the oil cup is at rest; applicable to run on the smallest or largest shafts, etc. The company publish a large number of testimonials from manufacturers and users of machinery who have these pulleys in use, the general consensus being that they do all that is claimed for them. Any who may desire further information should communicate with the company and obtain an illustrated catalogue.

A. W. SPOONER.

MR. A. W. SPOONER, Port Hope, Ont., occupied the central portion of the west end of Machinery Hall with a display of "Phenyle," the great disinfectant manufactured by him, and "Copperine," one of the best and most popular anti-friction metals known to the trade. In an adjoining part of the building he also displayed the machine for putting labels on cans, bottles, etc., recently patented by Mr. F. E. Gaudrie, of Port Hope, and manufactured by Mr. Spooner.

Phenyle is manufactured by a secret patented process, and it is claimed for it that there is no better nor efficacious disinfectant known. It destroys offensive odors, is certain death to insect life; prevents contagious diseases; particularly those arising from foul premises, and is a preventive of sickness among dogs, horses and other animals. It is invaluable in the sick room in destroying offensive odors, and is particularly useful in factories where large numbers of people are congregated, in keeping the atmosphere of closets and privies pure and wholesome. It is put up for family use in pound packages, packed in convenient boxes for the retail trade.

The Gaudrie labeling machine is a remarkably simple contrivance, but the rapidity with which labels are pasted and placed on the cans is most remarkable. If it were possible to feed the cans to the machine, and to remove them when labeled at a speed of one hundred per minute, the machine could do the work perfectly. In canning factories, bottling establishments, etc., it would be invaluable. The machine is small, well-made, light, strong and easily handled. It is a Canadian invention.

Every machinist uses Spooner's "Copperine."

Millers' and Manufacturers' INSURANCE COMPANY.

STOCK AND MUTUAL.

OBJECTS.

1. To prevent by all possible means the occurrence of avoidable fires.
2. To obviate heavy losses from the fires that are unavoidable by the nature of the work done in mills and factories.
3. To reduce the cost of insurance to the lowest point consistent with the safe conduct of the business.

METHODS.

All risks will be inspected by a competent officer of the company, who will make such suggestions as to improvements required for safety against fires, as may be for the mutual interests of all concerned.

Much dependence will be placed upon the obligation of members to keep up such a system of discipline, order, and cleanliness in the premises insured as will conduce to safety.

As no agents are employed and the company deals only with the principals of the establishments insured by it, conditions and exceptions which are so apt to mislead the insured and promote controversy and litigation in the settlement of losses will thus be avoided.

The most perfect method of insurance must, in the nature of things, be one in which the self-interest of the insured and the underwriters are identical, and this has been the object aimed at by the organizers of this company.

W. H. HOWLAND, Vice-President.
JAMES GOLDIE, President.
HUGH SCOTT, Managing Director.

Applicants for insurance and other information desired, please address **MILLERS' AND MANUFACTURERS' INSURANCE COMPANY,** No. 24 Church Street, Toronto.

A Liberal Policy

Indisput-
able

After

Two

Years

Every policy issued by the Manufacturers' Life has this most liberal provision: "That after being in force **TWO YEARS**, provided the age of the insured has been admitted, the only condition which shall be binding upon the holder is that he shall pay his premiums when due. In all other respects the liability of the Company under the policy **SHALL NOT BE DISPUTED.**"

The Manufacturers' Life Insurance Co.

GEORGE GOODERHAM, President.

WM. BELL,
President Traders Bank.

S. F. MCKINNON,
Vice-President Board of Trade.

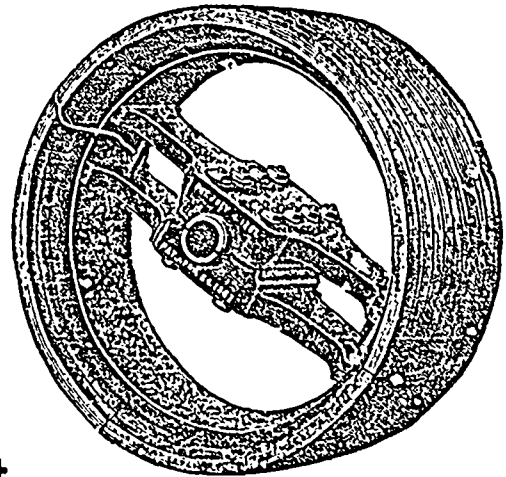
VICE-PRESIDENTS.

Head Office: **Cor. Yonge & Colborne Sts.**
TORONTO, ONTARIO.

Important Notice

MANUFACTURERS
ORDERING

WOOD SPLIT PULLEYS



Will do well to
Specify Plainly that they want

DODGE PATENT WOOD SPLIT PULLEYS

AS THERE ARE BASE IMITATIONS BEING OFFERED BY UNSCRUPULOUS
DEALERS UNDER THE GUISE OF WOOD SPLIT
PULLEYS. SEND FOR CATALOGUE.

Dodge Wood Split Pulley Co., 83 King Street West,
Toronto, Ont.

Canadian General Electric Company, Ltd.

GENERAL OFFICES:

63 to 69 Front St. West, Toronto, Can.

FACTORIES:

PETERBOROUGH, ONT.
HAMILTON, ONT.

BRANCHES:

Halifax, N.S., Montreal, P.Q.,
Winnipeg, Man., Vancouver, B.C.

MANUFACTURERS AND CONTRACTORS

Continuous Current Dynamos, Arc Lighting Apparatus,
Alternating Current Dynamos, Electric Railway Motors and Equipments,
Generators for the Transmission of Power, Electric Mining Apparatus,
Electric Motors for Every Possible Duty.

Electric Cables and Conductors for Telephone, Telegraph and Electric Lighting
and Power Circuits, Flexible Cords, and

General Electrical Supplies of Every Description

CORRESPONDENCE INVITED.

Please address all Correspondence to the Company.

The Londonderry Iron Co., Ltd.

MANUFACTURERS OF

**PIG IRON, PUDDLED BARS,
BAR IRON, NAIL PLATES,
WATER PIPES, ETC.**

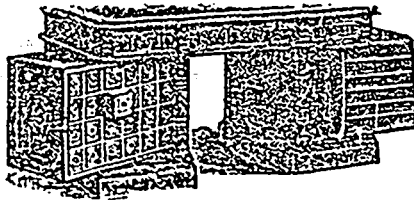
OFFICE, **MONTREAL.** WORKS, **LONDONDERRY, NOVA SCOTIA.**

The Canadian Office & School Furniture Co., Ltd.

PRESTON, ONT.

SUCCESSORS TO W. STAHLSCHMIDT & CO.

Manufacturers of Office, School, Church and Lodge furniture.



Rotary Desk No. 50.

SEND FOR CATALOGUE.

FOR

Railway & Contractors' SUPPLIES

SEND TO **G. & J. Brown Mfg. Co. (Ltd.)**

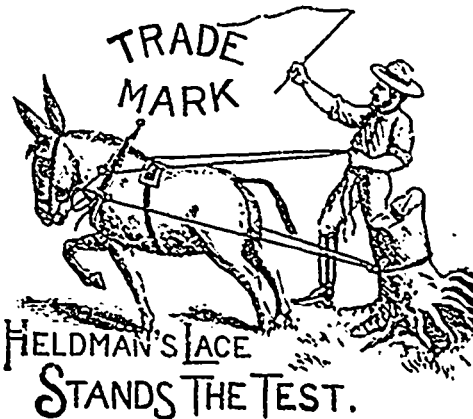
BELLEVILLE, ONT.

*Bridge Builders, Engineers, Boiler Makers,
Machinists, and Foundrymen.*

MANUFACTURERS OF

Frogs, Diamond Crossings, Switches, Hand Cars, Lorries, Velocipede Cars, Jim Crows, Track Drills, Semaphore Rail Cars, Double and Single Drum Hoists, Etc.

Established 1880.



**IF YOU
WANT
A LACE
LEATHER**

Write to

**Heldman Bros.,
BADEN, ONT.**

Canada Iron Furnace Co. Ltd.

MONTREAL, RADNOR AND THREE RIVERS.

—Manufacturers of the well known—

"C. I. F." Three Rivers Charcoal Pig Iron

Suitable for Car Wheels, Cylinders and Fine Castings where the utmost strength is required.

This Brand of Iron has been found Equal to the Famous "Salsbury" Iron.

Offices: New York Life Insurance Building, Montreal.

JAS. A. CANTLIE & CO.

GENERAL MERCHANTS

AND

MANUFACTURERS' AGENTS

ESTABLISHED 22 YEARS.

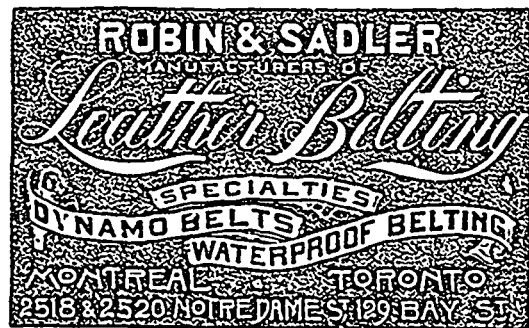
COTTONS—Grey Sheetings, Checked Shirtings, Denims, Cottonades, Tickings, Bags, Yarn, Twine, etc.
TWEEDS—Fine, Medium and Low Priced Tweeds, Serges, Cassimeres, Doeskins, Etouffes, Kerseys, etc.
FLANNELS—Plain and Fancy Flannels, Overcoat Linings, Plain and Fancy Dress Goods, etc.
KNITTED GOODS—Shirts, Drawers, Hosiery, etc.
BLANKETS—White, Grey and Colored Blankets.

Wholesale Trade only Supplied.

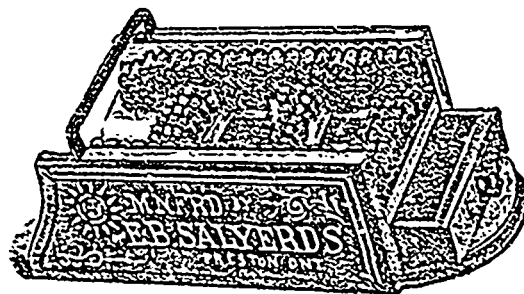
13 & 15 St. Helen St., MONTREAL.

20 Wellington St. W., TORONTO.

Advances made on Consignments. Correspondence Solicited.



For Machine AND FURNACE BRUSHES



Write to

PRESTON

Brush Works

**E. B. Salyerds
Propr.**

PRESTON, ONT.

THE
WELLINGTON MILLS
LONDON, ENG.

**Genuine
Emery**

*OAKEY'S Flexible Twilled Emery Cloth.
OAKEY'S Flint Paper and Glass Paper.
OAKEY'S Emery Paper, Black Lead, etc.*

Prize Medal and highest Award Philadelphia, 1876, for Superiority of Quality, Skillful Manufacture, Sharpness, Durability, and Uniformity of Grain.

Manufacturers: **JOHN OAKEY & SONS,**
Wellington Mills,
Westminster Bridge Road, London, Eng.
Enquiries should be Addressed to

**JOHN FORMAN, 18 St Alexis St.
MONTREAL**

Established in 1848.

STEEL

Singer, Nimick & Co., Ltd.

Pittsburgh, Pa., U.S.A.

Manufacture all kinds of

Tool Steel, Hot and Cold Rolled Sheet Steel,
Hammered and Rolled Steel, Saw Plates,
"soft steel Centre," "Iron Centre,"
Iron Back, Soft Steel Back
(extra thick face), Plow Stools,
Cruelble.

Open Hearth and Bessemer Plow Steels.
Finished Rolling Plow Colls. vs. Rotary
Narrow Discs, Round, Square and
Flat Machinery Steel, Springs,
Axles and Steel Tire. Agricultural
Steel Cut to any
desired pattern.

Represented by Mention this paper.

**MR. RUSH RUSSEL, Temple Building,
185 St. James St., MONTREAL.**

S. LENNARD & SONS
DUNDAS, ONT.

Patentees of the "Elysian"
Seamless Hosiery

MANUFACTURERS OF

**Plain
AND
Fancy Hosiery**

**Caps, Tuques,
Sashes, Etc.**

To the Wholesale Trade only.

Represented in Eastern Ontario, Quebec, Nova
Scotia, and New Brunswick, by
DUNCAN BELL, Montreal.

In British Columbia by
E. G. ANDERSON, Victoria, B.C.

In Western Ontario by
S. LENNARD, Senior Member of the Firm.

Established 1841.

THOROLD

CEMENT

FOR

**Abutments & Piers for Bridges,
Concrete for Foundations,
Cement Drain Pipe, Cisterns,
Floors for Cellars and Stables,
Mill Dams and Aqueduct Work,
Sewers, and all Mason Work
in Moist or Wet Places.**

MANUFACTURED BY

**Estate of JOHN BATTLE,
THOROLD, ONT.**

**THE BELL
TELEPHONE
COMPANY**
OF CANADA.

MANUFACTURERS AND DEALERS IN

*Telegraph and
Electrical Instruments,*

*Electro-Medical Apparatus, Fire Alarm
Apparatus, Electrical Gas Lighting
Apparatus, Magnets for Mills,
Burglar Alarms, Hotel and
House Annunciators,
Electric Call Bells,
Etc.*

For further particulars apply to

**No. 12 Hospital St.
Montreal.**

Napanee Cement Co.

(LIMITED.)

NAPANEE MILLS, ONT.

MANUFACTURERS OF

Hydraulic Cement

Warranted equal, if not superior, to any native
Cement, and as good, for most uses
as Portland.

Full particulars of strength, tests, etc., fur-
nished on application. Endorsed by leading
Cities, Engineers, Railways and others.

Roach Lime, particularly adapted for paper
manufacturers, gas purifying, etc.

Star Brand of Portland Cement, our
own manufacture and unexcelled. Write us
for prices, tests and samples.

IT LEADS THEM ALL

THE OLDEST THE SAFEST
THE LARGEST THE CHEAPEST

Canadian Life Assurance Company is

THE CANADA LIFE ASSURANCE COMPANY

Capital and Funds over \$13,000,000

WRITE FOR PROSPECTUS.

A. G. BRANSAY,
President.

GEO. A. & E. W. COX,
Mgts. for Toronto and Eastern Ont.

Established 1872.

THE
ACCIDENT INSURANCE Co.
OF NORTH AMERICA.

NEW FEATURE

JOINT INSURANCE FOR PARTNERSHIPS

Important to Manufacturing Firms.

**MEDLAND & JONES, General Agents,
Mail Building, TORONTO.**

THE JAPAN TABLETS regulate the stomach, liver and bowels, purify the blood, are pleasant to take, safe and always effective. A reliable remedy for Biliousness, Flatulency on the Liver, Brach's Disease, Catarrh, Colic, Constipation, Chronic Diarrhoea, Chronic Liver Trouble, Discharges, Disordered Stomach, Dizziness, Dysentery, Dyspepsia, Eczema, Intoxication, Female Complaints, Foul Breath, Headache, Heartburn, Hives, Jaundice, Kidney Complaints, Liver Troubles, Loss of Appetite, Mental Depression, Nausea, Nettie Rash, Pimples, to the Head, Pilexion, Salt Head, Scrofula, Skin Diseases, Stomach, Throat, Liver, Ulcers, and every other disease that impure blood or a failure in the proper performance of their functions by the stomach, liver and intestines. Persons given to over-eating are benefited by taking one tablet after each meal. A continued use of the Japan Tablets is the surest cure for obstinate constipation. They contain nothing that can be injurious to the most delicate. 1 gross \$2. 12 gross \$1.25. 24 gross 75c. 48 gross 45c. Sent by mail postage paid. Address THE JAPAN CHEMICAL COMPANY, P. O. Box 672, New York.



STEEL STAMPS

STENCILS I.C.FELL & CO. STAMPS
VICTORIA & TORONTO

P. DUNN,
Mfr.
CUTE
ST. PAUL
NEAR
Montreal

All kinds of Wire Staples and Suspender Rings

FORREST SILVER BRONZE PACKING.

Applied to any stuffing box without disconnection. Steam, air and water-tight without the aid of soft packing, under highest steam pressure and piston velocity. Automatic, admits of excess vibrations, lashing, and crowding of rod, does not bind, economical, guaranteed to outlast all other packing. Used by the largest Iron Works, Steamships, and Electric Light Companies for years all over the world.

FORREST SILVER BRONZE PACKING CO.,
115 Liberty St., New York.
Agents Wanted Everywhere

BROWN & CO.,

Manufacturers of
**SQUARE AND HEXAGON
HOT PRESSED NUTS.**
PARIS, ONTARIO.

Send for Catalogue and Price List to

THE JOHN MORROW MACHINE SCREW CO.

INGERSOLL, ONT.

Mfrs. of Set, Cap and Special nuts, Studs, Finished Nuts, &c.

Trade Mark Manhattan. Registered Sept. 24, 1880, No. 17,054

MANHATTAN SELF-LUBRICATING

Plumago Packing

Is the best to be had for Engines, Pumps, with hot or cold water, Steam Hammers, etc. It is made round and square.

Send for circular, or sample for trial to

GREENE, TWEED & CO.,
Montreal, 83 Chambers Street, N.Y.

NEW G. & S. MACHINERY

ILLUSTRATED CATALOGUE FREE
TORONTO, CANADA

**BEST LEATHER
BELTING**
ALWAYS ON HAND

TELEPHONE 2590.

METAL ENGRAVERS
BRASS and STEEL STAMPS

PATTERSON & HEWARD

40 Wellington Street West, Toronto

ONTARIO Bureau of Chemical Information,

Laboratories, 57 and 59 Colborne St., Toronto

REPORTS GIVEN ON MINING PROPERTIES, COMMERCIAL PRODUCTS ANALYSIS, ORES ASSAYED, RESEARCHES UNDERTAKEN.

Manufacturers Supplied with Processes and unsatisfactory Processes perfected.

SPECIAL MIXTURE USED FOR SHOES & DIES

MATHESON & CO.
ENGINEERS AND BOILER MAKERS
NEW GLASGOW
NEW SCOTLAND

COLD MINING MACHINERY

WINDING GEAR MILLS, PUMPS &c

JORDAN CHAMBERS

W. J. KRAMER

DESIGNER & ENGRAVER ON WOOD

TORONTO, ONT.

THE EVANS FRICTION CONE CO.

85 Water Street, Boston.

Cones for Varying Speed.

Thousands of sets of Cones driving all classes of machinery.

Thousands of Horse Power in use driving Dynamos.

Address,
Jenckes Machine Co.
SHERBROOKE, QUE.

J. L. O. VIDAL & SON,

City of Quebec,

Are agents to sell and handle on commission all sorts of New and Second-hand Machinery.

ROBERTS' PATENT OZONATOR

With Santal Fluid
Is The Disinfectant of the Age.

THE MOST EFFECTIVE DISINFECTANT AND ANTI-SEPTIC KNOWN.

THE MOST PLEASANT DEODORIZER—THE ONLY DEODORIZER WITH AN AGREEABLE SMELL, THE ODOUR OF THE SPRUCE TREE.

Endorsed by Prof. J. T. Donald, Montreal; R. P. Fleming, Esq., C.E., Engineer Montreal Sanitary Association; Dr. C. J. Locout, President Board of Health, Quebec; L. Guyon, Inspector of Factories, Montreal.

It is Pleasant, Powerful and Continuous.

In use by:— Dominion Straw Goods Mfg. Co., Montreal; Paton Mfg. Co., Sherbrooke; Canadian Rubber Co., Montreal; Montreal Stencil Works, Montreal; Globe Woolen Mills, Montreal; Polmer, Bissot et Deville, Montreal, and a hundred other factories.

DOMINION DISINFECTANT CO. Limited,
211 Commissioners St., Montreal.

Every Factory ought to have one in each Closet. No Closet in any Factory should be without one.

Industrial and Trade Directory.

Acids and Aniline Dyes.

THEO. H. EATON & SON, Windsor, Ont. ; Detroit, U.S.A. Importers of every Description Pure Aniline Dyes for Cotton and Woolen Manufacturers. Dyed Samples furnished on application. Address all correspondence to Head Office, Detroit, Mich.

DOMINION DYEWOOD & CHEMICAL CO., sole agents in Canada for Farbenfabriken, vormals Friedr Bayer & Co., Elberfeld, Germany and Read Halliday & Sons, Huddersfield, England.—All shades for woolen, cotton, leather and paper manufacturers. Latest information on dyeing as well as dyed samples on application.

McARTHUR, CORNEILLE & CO., Montreal.—Supply of best quality at lowest prices, every description of coloring materials required by manufacturers of woollens, cottons, silks, paper, leather, etc. Are sole agents in Canada for the celebrated aniline dyes of A. Porrier, Paris.

MIDDLETON & MEREDITH, Montreal.—Aniline Dyes, Benzidine Colors, Dyewoods, Extracts, Chemicals.

BELLHOUSE, DILLON & CO., Montreal.—Drugs, Acid, Aniline Colors and all Dye Stuffs.

Advertising

EVERY one in need of information on the subject of Advertising, will do well to obtain a copy of "Book for Advertisers," 368 pages, price one dollar. Mailed, postage paid on receipt of price. Contains a careful compilation from the American Newspaper Directory of all the best papers and class journals; gives the circulation rating of every one, and a good deal of information about rates and other matters pertaining to the business of Advertising. Address **ROWELL'S ADVERTISING BUREAU, 10 Spruce Street, N.Y.**

Agricultural Implements and Parts.

WELLAND VALE MANUFACTURING CO.—Lock No. 2, St. Catharines Ont., Canada.—Manufacturers of axes, scythes, forks, hoes, rakes and edge tools.

THE WHITMAN & BARNES MANUFACTURING CO., St. Catharines Ont.—Manufacturers of mowing and reaping machine knives, sections, guard-plates, cutting apparatus complete, spring keys and cotters, etc.

Bridge Builders.

DOMINION BRIDGE CO. (Limited), Shops at Lachine, Quebec.—Builders of Steel and Iron Railway and Highway Bridges.

Carriage Makers' Supplies

JOHN HEARD & CO., St. Thomas, Ont., Manufacturers of spokes and all kinds of Bent Goods for Carriages, Buggies, Wagons, Sleighs, Cutters, etc.

F. W. HORE'S SONS, Hamilton, Ont.—Manufacturers of wheels, wheel material, shafts, etc.

Chemicals and Dye Stuffs.

McARTHUR, CORNEILLE & CO., Montreal.—Offer at lowest figures chemicals required by soap-boilers, oil refiners, paper-makers and manufacturers of woollens, cottons, leather, etc. Sole agents for British Alizarine Co., London.

THEO. H. EATON & SON, Windsor, Ont. ; Detroit, U.S.A.—Carry full line of Pure Dyeing Drugs, Dyewoods and Extracts adapted for the requirements of Woolen and Cotton Manufacturers.

DOMINION DYEWOOD & CHEMICAL CO., sole agents in Canada for Mucklow & Co's celebrated English Dyewoods and Dyewood Extracts, Indigo Extract, Cudbear and all chemicals used in dyeing. Stocks kept in Montreal and Toronto.

MIDDLETON & MEREDITH, Montreal.—Agents for the Berlin Aniline Co., Berlin Pure Aniline Dyes. The Stamford Manufacturing Co., New York, Dyewoods and Dyewood Extracts. James Musprat & Sons, Liverpool. Soda Ash, Bleaching Powders, etc. Specialties for Cotton, Woolen and Leather Colors.

BELLHOUSE, DILLON & CO., Montreal.—All manner of Chemicals and Dye Stuffs for manufacturing purposes. Drugs, Acids, Extracts.

Edge Tools, Saws and Hardware.

WELLAND VALE MANUFACTURING CO., Lock No. 2, St. Catharines, Ontario, Canada.—Manufacturers of axes, scythes, forks, hoes, rakes, and edge tools.

Glove Manufacturers

W. H. STOREY & SON, Acton, Ont.—Manufacturers of fine gloves and mitts, in every variety and style. Moccasins.

Hoists and Elevators.

LEITCH & TURNBULL, Canada Elevator Works, cor. Queen and Peter Streets, Hamilton, Ont.—Patent safety Hydraulic, Hand and Power Elevators. Telephone connection.

Knit Goods.

S. LENNARD & SONS, Dundas.—Manufacturers of plain and fancy hosiery.

Machine Tools.

JOHN BERTRAM & SONS, Dundas.—Machine tools and wood-working machinery, Toronto Agents—The Polson Iron Works Co. Montreal, The Machinery Supply Association, Agents for Quebec.

Malleable Iron.

THE OSHAWA MALLEABLE IRON CO., Oshawa, Ont.—Manufacturers of Malleable Iron Castings, to order, for all kinds of Agricultural Implements and miscellaneous purposes.

SMITH'S FALLS MALLEABLE IRON WORKS, Smith's Falls, Ont.—Manufacturers to order of refined malleable iron castings. Agricultural and other castings a specialty. Carriage castings in stock.

Oils.

McARTHUR, CORNEILLE & CO., Montreal.—Afford best value in pure olive and lard oils, also in all other leading lines of vegetable, animal and mineral oils for factory use.

Paper Manufacturers.

WM. BARBER & BROS., Georgetown.—Manufacturers of book and fine papers.

THE TORONTO PAPER MANUFACTURING CO., Cornwall, Ont.—Manufacturers of engine sized superfine papers, white and tinted book papers, blue and cream laid and wove foolscaps, account book, envelope and lithographic papers, etc., etc.

Tanners' Supplies.

THEO. H. EATON & SON, Windsor, Ont. ; Detroit, U.S.A.—Supply at lowest prices all chemicals used by Tanners and Wool Pullers. Special Aniline for Sheep Skin Dyers, Wool Mat Manufacturers, etc., etc. Address correspondence to Head Office, Detroit, Mich.

DOMINION DYEWOOD & CHEMICAL CO.—Quercitron Bark and Quercitron Bark Extract. Solid and liquid Dyewoods and Anilines specially adapted for dyeing leather. Alum, acids, tin, crystals, etc., at lower prices. **McARTHUR CORNEILLE & CO.** furnish at lowest prices extracts for tanning and coloring: Sumac, Gambier, etc., Sulphide of Sodium, and other chemicals. Aniline colors, etc.; also Pure Cod Oil and other oils for Carriers. Degras, etc. Sole agents in Canada for Miller Tannin Extract Co., Hemlock Extract, and Gondolo Extract Co.'s Oak Extracts.

Wire Works.

THE B. GREENING WIRE CO. Ltd., Hamilton, Ont.—Perforators of zinc, iron and steel; manufacturers of wire cloth, all grades, wire ropes, bank and office railings, etc.

TIMOTHY GREENING & SONS, Dundas, Ont.—Wire manufacturers and metal perforators, wire cloth, all grades, perforated sheet metals of every description, all kinds of special perforating and indenting done to order.

Woodworking Machinery.

COWAN & CO, Galt.—Manufacturers of every description of wood-working machinery.

Wool Stock.

SMITH & CO., 219 Front Street East, Toronto.—Manufacturers and dealers in Wool Stock, Shoddies, etc., Wool Pickings, Woolen and Cotton Rags, etc., bought, or worked up and returned. Carbonizing and neutralizing a specialty.

THE DOON WOOL STOCK CO., Doon, Ont.—Manufacturers and Dealers in Wool Stock, Carded Shoddies, Upholsterers' Stock Batting Flock, etc. Custom Work to order. Carbonizing a specialty.

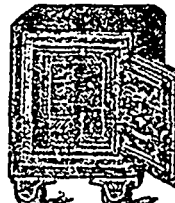
CORRUGATED IRON

ILLUSTRATED CATALOGUE FREE—METALLIC ROOFING CO. MANUFACTURERS TORONTO

Otterville Manufacturing Co., Ltd.

Dowel Rods, all sizes; Turned Balls, Rosettes, and small Wooden Specialties.

OTTERVILLE, - ONTARIO.



CHAMPION FIRE AND BURGLAR PROOF SAFES.

These safes are now in use in all parts of the Dominion. They have stood the test in some of the largest fires and have never failed to preserve their contents. There has never been one of them opened by a burglar, although many attempts have been made on them. Send for catalogue giving prices, testimonials, etc. S. S. Kimball, 577 C. St. Montreal.

A. Schneider & Co.

Manufacturers of



TURK'S Patent Water Motor

IRON DRILLING MACHINES and GENERAL MACHINERY

Telephone 1800. 24 to 26 Pearl St., Toronto

Hamilton Whip Company

HAMILTON, - ONTARIO

Manufacturers of the world-renowned

Eel Skin Lined Whips.

Pat. Jan 30, 1888. All infringements prosecuted.

ALL KINDS OF

Boxes, Crates and Packing Cases

MADE TO ORDER AND BY CONTRACT.

RE-SAWING, PLANING and MATCHING

R. B. ELGIE

141 to 151 Esplanade St. West. - Toronto

Telephone 243

Opposite Union Station.

"IT'S THE PACE THAT KILLS."

SPoonER'S HONOR BRIGHT MACHINERY JOURNAL BOX-METAL

COPPERINE

WON'T LET A LITTLE THING LIKE THAT TROUBLE IT. STANDS ANY GAIT, WRIGHT OR MOTION.

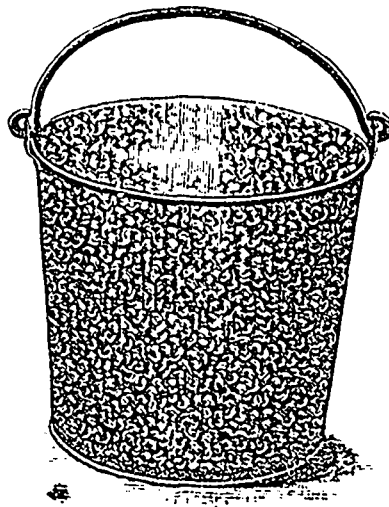
KEEP AN EYE ON YOUR STOCK. IF YOU WANT TO DO BUSINESS HAVE THE RIGHT KIND OF GOODS

TO DO BUSINESS WITH. IF YOU FEAR NOTHING AND FEEL HAPPY, IT HAS A CHRISTIANIZING INFLUENCE

WHEREVER IT REPLACES NEW OR OLD HOT BOXES. BY ALL MEANS USE IT. SIMPLE, THERE IS NOTHING LIKE IT.

GALVANIZED STEEL BUCKETS

Improved Pattern.



Improved Pattern.

Something entirely new, and superior to old style Buckets, made in three sizes. They are superior to the ordinary Flaring English Bucket, being of greater capacity. They are stronger in shape, consequently more durable. They will not slop over or tip over, owing to the wide bottom. They nest very close and firm, which is an advantage in shipping. The rim is in one piece with the body, consequently cannot get knocked off. They are Galvanized and not lead coated.

For Sale by all Wholesale Hardware and Tinware Houses.

Kemp Manufacturing Co., Toronto, Ont.

**BELL Upright Pianos
REED ORGANS.
AND
CHURCH PIPE ORGANS**

SUPERIOR QUALITY

IN MATERIAL, WORKMANSHIP and TONE, MODERN IN DESIGN, and CONTAINING ALL THE LATEST PRACTICAL IMPROVEMENTS KNOWN.

**Recommended by Leading Musicians
THROUGHOUT THE WORLD.**

SEND FOR CATALOGUES TO

THE BELL ORGAN & PIANO CO., Ltd.,

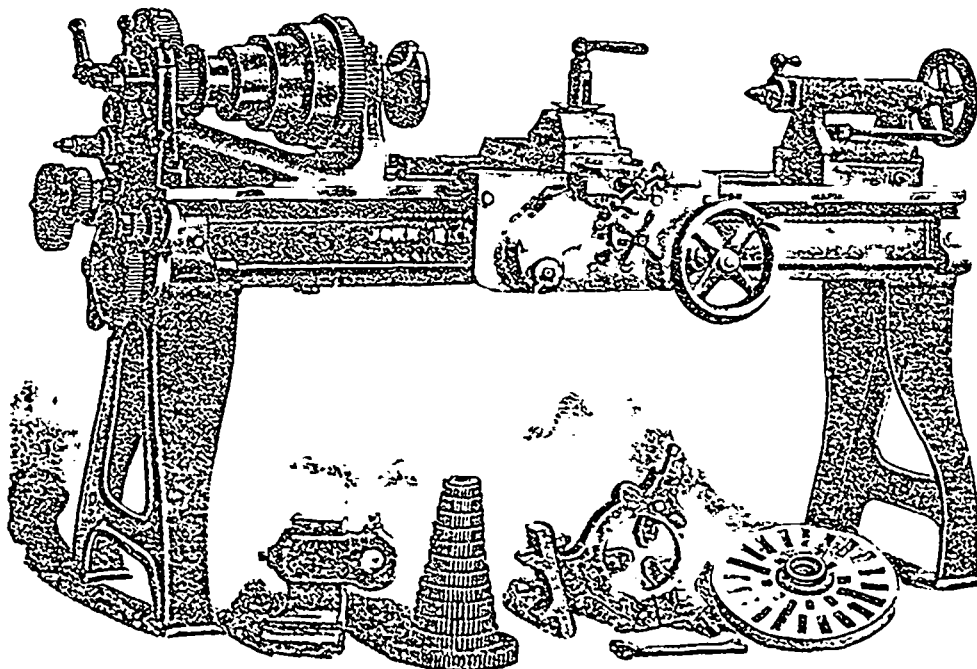
HEAD OFFICES AND FACTORIES GUELPH, ONT.

BRANCH WAREHOUSES: London, Eng. | Sydney, N.S.W., and Toronto, Hamilton & London, Ont.

Canada Tool Works,

John Bertram & Sons,

DUNDAS, ONT.



16-in. LATHE

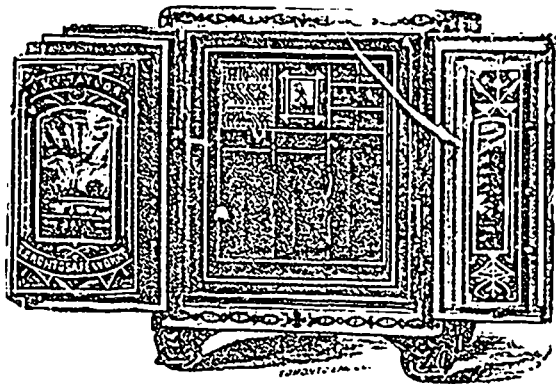
Manufacturers of
Machinists' Tools
and
Woodworking
Machinery

PLANERS
DRILLS,
MILLING
MACHINES
PUNCHES,
SHEARS
BOLT
CUTTERS
SLOTING
MACHINES
MATCHES
MOLDERS
TENONERS
BAND SAWS,
MORTICERS,
SAW BENCHES

Locomotive and Car Machinery, Special Machinery, Price List and Photographs on application.

J. & J. TAYLOR'S
 Double Tongue and Groove FIRE-PROOF
SAFES

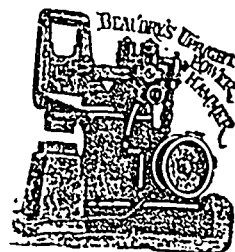
(Patented January 14th, 1886.)



Established 33 years.

All our new style Fire-proof Safes are fitted with **TWO COMPLETE TONGUES AND TWO GROOVES** on both the door and door frames, which effectually prevent the heat from passing between the door and frame into the interior of the safe. They are also fitted with **CHILLED CHROME STEEL PLATES** under the Lock and Bolt Spindles to prevent drilling; and have **DRY AIR-CHAMBER** inside to prevent dampness to papers. **See Catalogues and Prices on application.**

J. & J. TAYLOR,
TORONTO SAFE WORKS



Simple,
Practical,
And Best.

**BEAUDRY UPRIGHT
 Cushioned Power Hammer**

The most handy, compact, and, above all, the most efficient tool ever invented for Manufacturers of all descriptions, Railroad Shops, Steel and Machine Forgers, File and Vice Makers, Knife and Cutlery Makers, Axle, Edge Tool and Agricultural Implement Manufacturers, Carriage Builders, and in fact all others who need a first-class Hammer, and one of extraordinary capacity and adaptability. **CORRESPONDENCE SOLICITED.**

Miller Bros. & Toms, Montreal

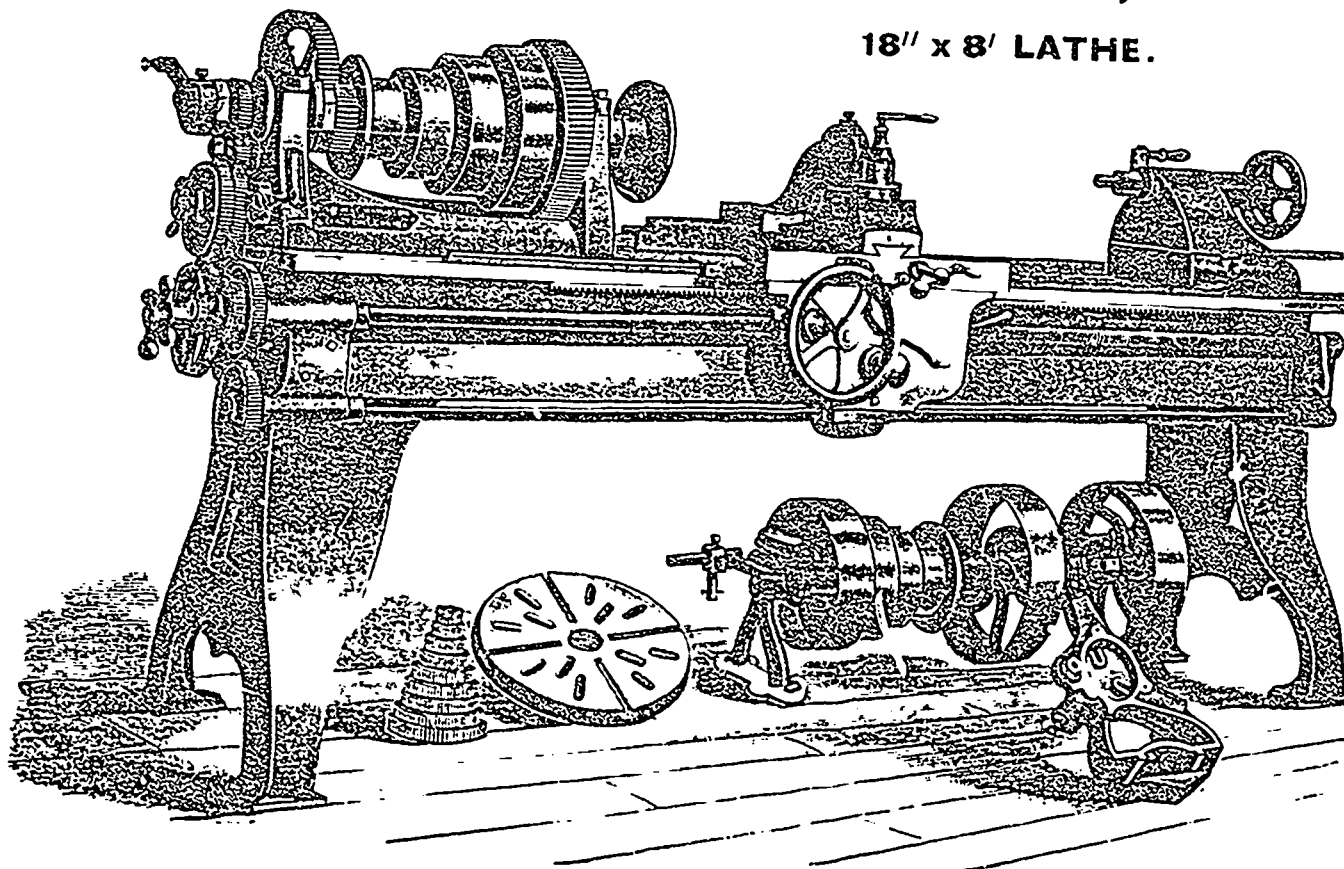
SUCCESSORS TO
MILLER BROS. & MITCHELL.

Sole Makers for
CANADA

Toronto Office, 74 York Street.

STEVENS, HAMILTON & CO., GALT, ONT.

18" x 8' LATHE.



Nova Scotia Steel and Forge Co., Ltd.

NEW GLASGOW, NOVA SCOTIA.

(Only Steel Works in Canada)

MANUFACTURERS OF

Hammered *and* Rolled Steel

MADE BY THE

SIEMENS-MARTIN (OPEN HEARTH) PROCESS.

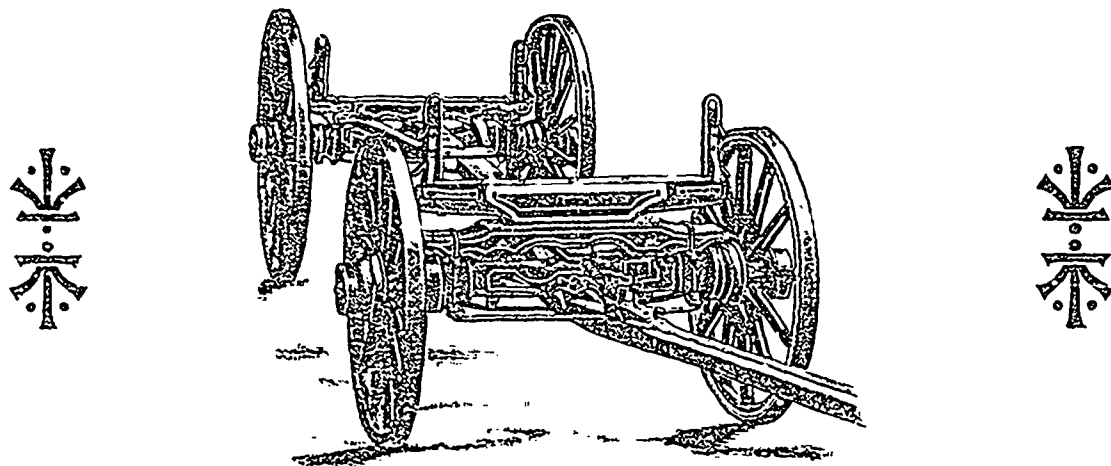
MARINE, RAILWAY, and MACHINERY Forgings up to 20,000 lbs. weight. MACHINERY STEEL Round, Square and Flat. MILD STEEL for Rivets, Bolts, Thresher Teeth, Etc.

PLOW BEAMS, SOFT CENTRE AND SOLID STEEL PLOW PLATES, HARROW DISCS, PLAIN AND CUTAWAY, BOTH BLANK AND FINISHED.
AGRICULTURAL STEEL CUT TO PATTERN. SPRING, SLEIGH SHOE, TIRE, TOE CALK AND CROW BAR STEEL. STEEL NAIL PLATE.

□ Binder Bars. Z Bars and Special Sections

OF EVERY DESCRIPTION

Day Rake, Cultivator and Harrow Teeth, and Agricultural Springs



THE ABOVE CUT ILLUSTRATES THE

CHATHAM GIANT

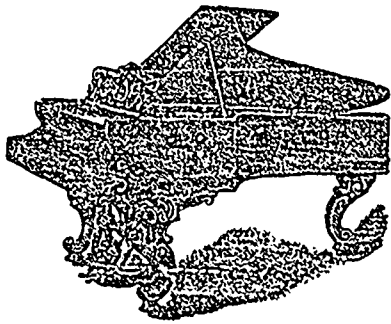
With Chautauqua patent front gearing, which, with the patented improvement seen at the shoulders of the arms in above cut, we assert without fear of successful contradiction, makes the best, the strongest, the most durable, and the easiest running wagon made in Canada. The two improvements in wagon building embodied in the wagon illustrated above, are covered by two Canadian and American patents. These wagons are sold by Mr. Wm. Hewitt, 39 McGill St. Toronto, and all other dealers in Chatham Wagons throughout the Dominion. Made exclusively by the

CHATHAM M'FG CO. L'd.,

Chatham, Ont.

HEINTZMAN & CO.,

MANUFACTURERS OF



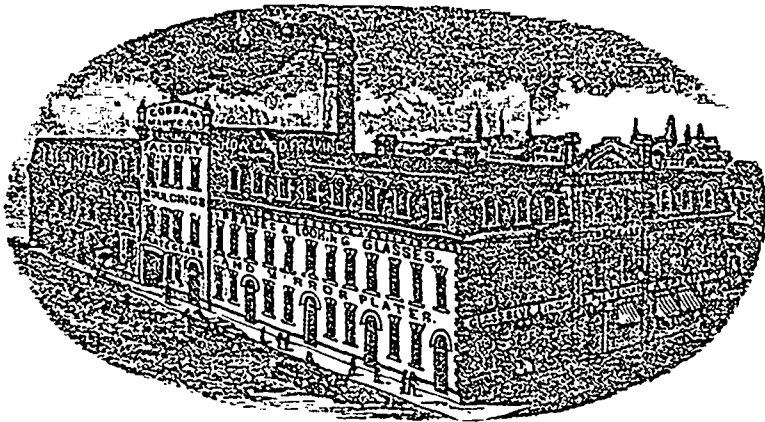
GRAND,
SQUARE
AND
UPRIGHT

PIANOFORTES

Send for
Illustrated Catalogue.

Warerooms, 117 King St. W., Toronto

COBBAN MANUFACTURING COMPANY, Ltd.



Factory & Head Office: Toronto.
Cor. Terauley and Hayter Sts

MANUFACTURERS OF

Mantels, Over Mantels and Mirrors
in Finest Hardwoods.

Mouldings, Picture Frames and Looking
Glasses, Mirror Plates:
British, French, German, Shacks.

Plate Glass Beveling and Silvering a Specialty

CLOSE PRICES. LIBERAL TERMS.

TORONTO.

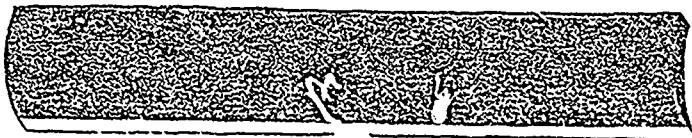
Galt Machine Knife Works

PLANING MACHINE

KNIVES.

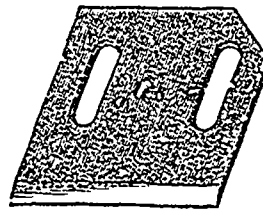
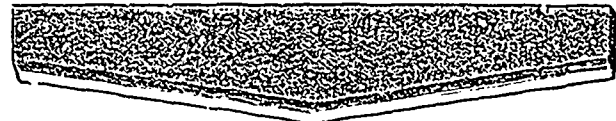


STAVE CUTTER KNIVES.



STAVE JOINTER KNIVES.

PETER HAY,



MOULDING, TENONING

MITREING

SHINGLE JOINTER,

And other irregular shapes.

Cheese-box and Veneer, Paper Cutting, Leather Splitting and any special knife made
to order. SEND FOR PRICE LIST. ALL WORK WARRANTED.

Galt, Ontario.

Brown Automatic Engines

SIMPLE, DOUBLE OR TRIPLE EXPANSION.
12,000 HORSE-POWER.

Built by us, in use for Electric
Plants.

CALDWELL SAFETY TUBE BOILERS

Send for Particulars and Prices.

THE POLSON IRON WORKS CO., ESPLANADE, TORONTO

Shock, Sheet Glass. Etc

HUBBS MANUFACTURING CO.,
LONDON, - CANADA.

21 oz. Double Church Windows, Lead-
ed Work, Cathedral Tints, Etc.

CHEMICALS

Drugs,
Acids,
Aniline
Colors,
DYE-STUFFS,
OILS.

BELLHOUSE, DILLON & CO.

9 Custom House Square, Montreal.



THE OSHAWA
Malleable Iron Co.

MANUFACTURERS OF

**MALLEABLE IRON
CASTINGS TO ORDER**

FOR ALL KINDS OF

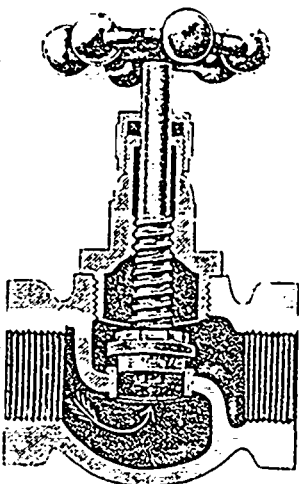
Agricultural Implements

AND

MISCELLANEOUS PURPOSES.

Oshawa, Canada.

DRAPER'S IMPROVED GLOBE VALVE



Constructed to
prevent scales of
Gears of Dirt
being Caught be-
tween faces at
point of closing.

When the pre-
jection on valve
enters the seat
outlet, of which
it is an easy fit,
only clean fluid
passes past.
Scales, etc., are
pushed back and
the faces meet
with nothing be-
tween to injure
them. Send for

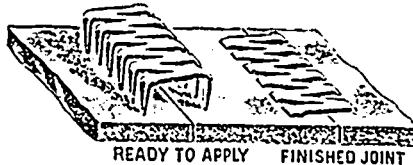
catalogue to
T. DRAPER,
Manufacturer.

GLOBE VALVES
for various pur-
poses. Oil and
Salt Well Sup-
plies. Etc., Etc.

PETROLEA, - ONTARIO

BRISTOL'S PATENT

Steel Belt Lacing



Is a grand success. Try it and see
for yourself.

Saves Time, Saves Belts, Saves Money

Sample Sent Free.

The Bristol Mfg. Co.,

WATERBURY, CONN.

C. F. BAGOT, Hamilton, Ont., CANADIAN
AGENT.

SMITH'S FALLS
**MALLEABLE IRON
WORKS**

WM. H. FROST

MANUFACTURER TO ORDER OF

Malleable Iron Castings

FOR

Agricultural Implements

AND OTHER PURPOSES.

Also CARRIAGE HARDWARE.

SMITH'S FALLS,

Ontario, Canada.

JAMES LESLIE

Manufacturer
OF

Machine Card Clothing, Loom Reeds,

ENGLISH OAK-TANNED

Leather Belting.

COTTON AND WOOLLEN MILL SUPPLIES

428 St. Paul, cor. of St. Francois Xavier Street,

MONTREAL.



The Asbestos Warehouse.

Magnesia and Asbestos Removable Covering. Asbestos, Millboard,
Sheet Packing and Building Felt. Cotton Waste, Oils and
Lubricating Compounds.

WM. SCLATER & Co., 42, 44, 46 Foundling St., MONTREAL.