

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
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

A. C. LESLIE & CO., Agents,
MONTREAL and TORONTO.

"JESSUP'S" STANDARD TOOL STEEL

Consumers
Are Invited
to Test

BROWN BROS. & CO., Providence, R.I. Manufacturers
of
Belts, Harness, Hooks, and Mill Supplies in General.

LEATHER BELTING



Vol. 22.

TORONTO, MAY 20, 1892.

No. 10.

"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
Dyewood & Chemical
Co. Toronto*

GENERAL DRY SALTS
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 Discounts.

ESTABLISHED 1856

THE J. C. McLAREN BELTING CO.

BELTING MANUFACTURED FROM

IMPORTED OAK-TANNED LEATHER

EVERY BELT GUARANTEED.

TORONTO, 76 York Street.

MONTREAL.



MONTREAL OFFICE:
91 Temple Building,
St. James Street.

- ANILINES -
BENZO COLORS
METHYLENE BLUES
- DYEWOODS -

EXTRACTS
CHEMICALS
MANUFACTURED BY
The Berlin Aniline Co.
The Stamford Manufacturing Co.

MIDDLETON & MEREDITH
MONTREAL

John Bertram & Sons,
CANADA TOOL WORKS!

Dundas, Ont.

See Advertisement, Page 313.

TORONTO
Steel Works

Mild Crucible Steel Castings

J. & A. BERTRAM, Makers, Toronto

IMPERIAL BANK OF CANADA.

Capital Authorized - \$2,000,000
 Capital Paid-up - 1,200,000
 Res. Account - 200,000

DIRECTORS:

H. S. HOWLAND, President.
 T. H. MERRITT, St. Catharines, Vice-President.
 William Ramsay, T. R. Wadsworth.
 Robert Jaffray, Hugh Ryan,
 T. Rutherford Stayer.
 D. R. WILKIE, Cash'r. B. JENNINGS, Asst.-Cash'r.
 E. HAY, Inspector.

Head Office, - TORONTO.

BRANCHES IN ONTARIO.

Essex.	Niagara Falls.	St. Thomas.
Fergus.	Port Colborne.	Sault Ste. Marie.
Galt.	St. Catharines.	Welland.
Ingersoll.	Woods-ock.	Hat Portage.
Toronto.	Cor. Wellington 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 "Cheque Bank, Ltd."
 Agents, London, Eng. "Lloyd's Bank,
 Ltd." 72 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.**

**PRITCHARD
 & ANDREWS**

OTTAWA, ONTARIO.

**Rubber Stamps,
 Stencils, Seals, &c.**

SEND FOR PRICES.

Toronto Stamping Co.

MANUFACTURERS OF

Tin, Sheet, Brass, and Copper

STAMPINGS

And Steel Metal Wares.

TORONTO - - ONTARIO.

PILLOW & HERSEY MFG CO.

Manufacturers of every description of
 Cut Nails, Tacks, Brads, Railway and
 Pressed Spikes, Horse Shoes, Carriage, Tire
 and other Belts, Coach Screws, Hot Pressed
 and Forged Nuts, Feloe Plates, Lining and
 Saddle Nails, Tufting Buttons, &c., &c.

The Hardware Trade, Shoe and Leather
 Finding Dealers, and Boot and Shoe Manu-
 facturers, will find the Largest and Best
 Assortment and Greatest Variety of above
 Goods always in stock, and can rely on orders
 being rapidly executed, our facilities for
 doing so being unequalled.
 CYRICE, 106 Mill St., Montreal.

**McArthur,
 Corneille & Co.**

MANUFACTURERS AND IMPORTERS,

310-316 ST. PAUL ST.

— AND —

**147-151 COMMISSIONERS ST.
 MONTREAL.**

Offer at lowest prices, Pure Olive Oil,
 Winter Pressed Lard Oil, Extra Fine
 Spindle Oil and a full assortment of other
 Lubricating Oils, Greases, Mill Soaps,
 etc.; also Chemicals, Dyestuffs, Dye-
 woods, Extracts, etc., etc.

Sole Agents in Canada for

St. Denis Dyestuff & Chemical Co.,

PARIS,

A. POIRRIER, President.

Aniline Colors, Archil 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.

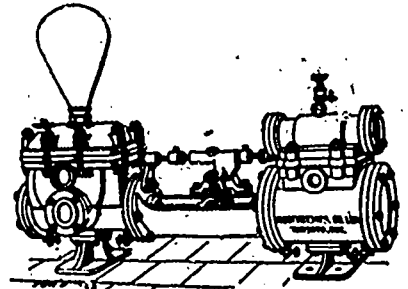
**WATSON, WALKER & QUICKFALL
 LEEDS,**

INDIGO EXTRACTS.

Millerton, Tannin Extract Co.,

HEMLOCK EXTRACT.

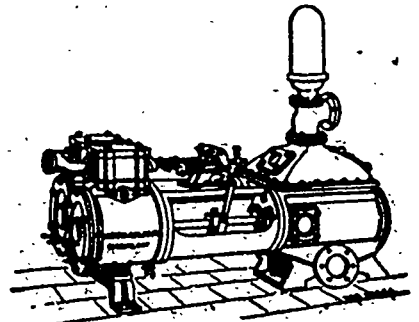
Maintain large stocks fully assorted and
 will always be pleased to furnish quotations
 and samples.



Boiler Feed Pump.

Steam and Power

PUMPS

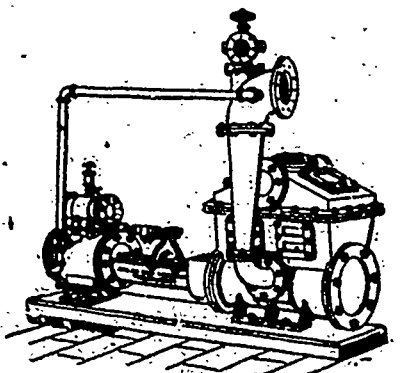


Improved Duplex Pump.

FOR ALL

POSSIBLE

DUTIES.



Independent Condensing Apparatus.

AS BUILT BY

THE NORTHEY M'F'G CO.

LIMITED,

TORONTO, - - ONT.

Write for Sixty-Eight Page Catalogue.



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.

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.

PREFERENTIAL TRADE.

WHILE it is greatly to be desired that preferential trade should be established between Canada and the Mother Country we should not be over sanguine that that event lies in the near future. We know that a sentiment adverse to that of free trade has crystalized in Great Britain into what might be called a political party, but we should not ignore the fact that the adherents to it are comparatively few in numbers, and that there is a long road, toilsome marching and fierce fighting to be encountered before any change can be hoped for in the fiscal policy of that country. No doubt the McKinley tariff in the United States and the newly inaugurated tariffs of other countries, together with Mr. Blaine's new system of reciprocity with the States of South America, are telling heavily against British mercantile and manufacturing interests, but these interests are not yet in a condition of collapse, and it may be a long, long time before Britain will abandon her present system. We believe that that change will come—that it is inevitable—but the progress of it will be marked by demands for concessions from the colonies which we are not now prepared to recommend to Canada. We are convinced that Canada's best interests do not lie along lines which lead in the direction of free trade with any country, and that for many years to come it will not be to our advantage to abate in any degree the policy of protection which we have adopted. We cannot imagine any terms which Britain might be willing to adopt in consideration of Canada discriminating in her favor to the

extent of twenty or even ten per cent in tariff charges, which would really be to our interest, and the only practicable scheme for us would be to retain our present tariff substantially as it now is, against Britain, and increase it against the rest of the world. In other words, it would never do for Canada to sacrifice her manufacturing industries even for preferential trade with Great Britain. We do not hear the advocates of Imperial Federation suggesting increasing our tariff duties against all the rest of the world as an inducement to Britain to grant us preferential trade, the idea being rather that Canada should either greatly reduce her duties, or abandon them entirely as her concession to bring about this change of British policy. As far as Canadian manufacturers are concerned, if they are to be slaughtered and destroyed, it would matter but little to them whether the destruction was in the interests of British or of American manufacturers. But any material reduction in our tariff in favor of Great Britain would produce this very result. With some few exceptions our imports from Great Britain are of classes of goods which are manufactured largely in Canada. The domestic goods are equal in all respects to the imported, and they are quite as cheap in price, the N. P. giving the home market to the home producer, the imports being generally of finer and more expensive goods intended for the use of the wealthy. A reduction of duties, therefore, would destroy our manufacturing industries and force us to become the producers of raw materials for British manufacturers, and this is a condition which Canadian manufacturers will resist to the last. On the other hand, a great need of Canadian manufacturers is an increase of duty upon such manufactured articles as are imported from the United States. An increase of these duties would stimulate their production in Canada, a thing to be most devoutly wished for, and it would transfer a very large portion of our import trade from the United States to Great Britain, a thing which our Imperial Federation friends tell us they wish for most devoutly. Therefore, if Imperial Federation or preferential trade is to be desired, it can only be accomplished by increasing our tariff duties against the rest of the world, not by decreasing them in favor of Great Britain.

THE PRICE IS TOO HIGH

ONE of the most ardent advocates of closer trade relations between Canada and Great Britain is Mr. G. F. Frankland, of Toronto, who frequently expresses his views in the public press. In a recent letter in the *Empire*, Mr. Frankland shows that the day is not far distant when Britain will become convinced that she can live and prosper by free trade and closer trade relations with her colonies, and that Australia with her abundance of mutton and wool, India and Manitoba with their wheat, and Ontario with its cattle have the capacity to forever supply the wants of the mother country for these necessities. He alludes to the selfish conduct of the United States in creating the McKinley tariff, showing that Britain is the best customer of that country for their beef, bacon, cheese and numerous other things, and that as a return they are endeavoring to the best of their ability, by their "damnable" McKinley bill to prevent the British people from wage earning, that they may live by their labor. "Canada," Mr Frankland says, "should be able to take a leading part in smashing this

state of things by at once declaring for free trade with Great Britain, and by taking the initiative she will make history and lay the foundation of what is sure to come—Imperial Federation." Mr. Frankland, we believe, has always been a supporter of Canada's National Policy, and we presume he is sincere in his expressions of desires for Canada's prosperity, but we assure him there is as much necessity for protection in Canada at this time as there was when it was first introduced. Before the advent of the N. P., Canada was an agricultural community, engaged almost exclusively in raising grain for the British market. The people appreciated the necessity for a change. They wanted to be something more than hewers of wood and drawers of water for other nations. They wanted to diversify their industries. They wanted to grow crops which could be sold to advantage at home. They wanted to establish factories which would give employment to large numbers of Canadians who would be consumers of just such things as the agriculturists produced, and who would not be producers of them. They knew that no nation could attain to the acme of prosperity, until it engaged in manufacturing pursuits. The axiom, "The nation that manufactures for itself prospers," correctly represented their views. These were the reasons why the people of Canada declared so emphatically for tariff protection for manufacturing industries. They have abided by these sentiments ever since. The mutations of time and the specious arguments of their political foes have never changed their opinions on this subject; and they have declared time and again at the ballot box their abiding faith in their first and only love. The history of the country has demonstrated that this choice was a wise one. The occupations of the people have multiplied wonderfully. We have factories and industrial establishments on every hand in which a very large proportion of the necessaries of the country are produced, and not only this, but the thousands of employees engaged in these factories have created demands for every variety of agricultural products capable to the soil and climate, which have enabled the agricultural element of the country to diversify crops and increase values which was simply impossible under the old order of things. Mr. Frankland would recognize this situation, and the importance of it, if he would for the time being lose sight of his occupation of shipping cattle to Liverpool. His trade is an honorable one, and he deserves to prosper in it, but he should remember that either Toronto or Montreal consume more beef every year than all our exports of beef and cattle to Great Britain. This could not be possible under free trade, and when he suggests that the condition of Canada, under Imperial Federation, bought at the cost of free trade with Britain, would be bettered, he discloses the fact that he has not thoroughly studied and mastered the subject. Canada does not value the article at that price, and the sooner Mr. Frankland and the Imperial Federationists comprehend this fact the better. The price is too high

THE ONTARIO IRON AND STEEL COMPANY.

ALLUSION was recently made in these pages to the fact that the Ontario Iron and Steel Company, composed chiefly of Toronto capitalists, were seeking incorporation for the purpose of manufacturing iron and steel. In the petition to the Govern-

ment it is set forth that although promising deposits of iron ore suitable to make pig-iron and steel, exist in Ontario, there is at present no iron mine in operation in the Province; that the extent and value of ore deposits is as yet not fully known, nor is there any blast furnace in operation. Ores of apparently excellent quality have been discovered, some of them being exceptionally free from phosphorus and other impurities, and suitable for the manufacture of the finest steel, but further practical tests are required to be made to prove their quality and quantity. Allusion is made to the fact that capitalists are not willing to assume the whole risk of pioneering as vast an enterprise as this company propose engaging in without some financial aid from the Provincial Government to assist in the erection of blast furnaces, and also a bonus upon the output thereof. It is shown that a company intending to erect and operate such a blast furnace as is proposed, capable of producing one hundred tons of pig-iron per day will require a paid up capital of at least \$500,000; that the establishing of such a furnace will lead to other industries incident to the multifarious applications of iron, steel and nickel steel, and, retaining at home the large sums of money now expended in importing such goods from foreign countries, give employment to thousands of our own artisans. The prayer to the Ontario Government is that it will make a suitable appropriation to test some of the more accessible deposits of ore in the Province, showing their value and extent; and that a bonus of \$2 per ton on the output of a 100 tons per day furnace be granted, to be continued for a term of ten years. In the event of this prayer being answered to the satisfaction of the petitioners they propose to forthwith complete the organization of their company and proceed with the erection of furnace works with capacity to produce from 100 to 150 tons of pig iron per day. The following gentlemen, all well known, influential and wealthy business men of Toronto, are named as provisional directors of the proposed Ontario Iron and Steel Company; Messrs. Elias Rogers, H. S. Howland, Robert Jaffray, A. S. Irving, S. H. Janes, H. N. Baird, J. K. Kerr, W. D. Matthews, John I. Davidson, H. L. Hime, T. D. Ledyard.

We are not advised as to with what favor this proposition will be received by the Ontario Government. The importance of the proposed enterprise cannot be questioned, and the only vital matter in connection with it, affecting the Government, is whether the request for a bonus shall be complied with. It is clearly within the scope of the policy of the Government to make the explorations, examinations and tests requested by the company, for this would be for the general good as much as for the benefit of the company, and the information to be thus derived would be available for any others who might desire reliable information in that direction. As to the guarantee of a bonus of \$2 per ton for ten years on all the pig-iron that might be produced by the company, in our opinion it would be strictly in line with the policy of the Dominion Government in bestowing a like bonus; and there should be no difficulty whatever in inducing that Government to guarantee its bonus for the term of years as asked for by the company. If there should be any hesitancy on the part of those who might be induced to invest their capital in this enterprise because of a fear that the present tariff duty on pig-iron might be reduced, without doubt the Dominion Government would be

LIBRARY!

quite willing to guarantee that the bonus it now gives should be equal under any circumstances to the present bonus and the present duty also. It is clearly the desire of the Government to encourage the manufacture of iron in Canada, and if it should be made apparent to them that the proposed company have both the ability and the inclination to embark in this most important enterprise, and that the Government of Ontario were willing to assist it to the extent indicated, no doubt the desired federal assistance would be cheerfully extended.

As has been repeatedly shown in these pages, there are in exhaustible supplies of high grade iron ores in Ontario, that they are quite accessible and easily worked; that some of our railway lines are in close proximity to them, and that the cost of transportation of ores from mines to furnaces would be quite small; that there are many suitable locations where furnaces and works might be erected to great advantage; that such works would enjoy the advantages of transportation by both rail and water, and that coke from the Connellsville region in Pennsylvania could be delivered at them quite as cheaply as it is now being delivered at Chicago, where the most extensive iron and steel making plants in the United States are located.

It seems, then, that the establishment of this large iron making plant in Ontario depends entirely upon whether the Provincial Government will render the desired assistance. It should be given without hesitation or delay.

A NATION THAT MANUFACTURES FOR ITSELF PROSPERS.

THE Census Bureau have just issued a bulletin containing the first series of reports upon the manufacturing industries of Canada. It relates to the (a) total number of industrial establishments, (b) the value of machinery and tools, (c) the number of employees and (d) the number of steam engines.

In the sense in which the words "industrial establishments" are used in this connection, no reference is intended to mining, either as to the number of miners or the steam power employed in that branch of industry.

The total number of industrial establishments in Canada, as reported by the census enumerators in April, 1891, was 75,765. In 1881 the number was 49,923, showing that during 10 years there was an increase of 25,842, or nearly 52 per cent. The total number of employees in these establishments in 1891 was 367,496, an increase of 112,561 during the 10 years, which is equal to 44 per cent. Classified, the employees in 1881 and 1891 were as under:

	1881.	1891.	Numerical.	Increase. Percentage.
Men.....	193,945	270,764	76,819	39.6
Women.....	41,542	70,262	28,720	69.0
Boys.....	14,181	19,421	5,240	36.7
Girls.....	5,267	7,049	1,782	33.7
Total.....	254,935	367,496	112,561	44.15

The absolute growth is greatest in the employment of women, the development of occupations for women in Canada, as in other countries, having been one of the marked features of the past 10 years.

The proportion of men, women, boys and girls in every 100 wage earners employed in our factories and workshops is as follows:

	1881.	1891.
Men.....	76.07	73.07
Women.....	10.20	19.12
Boys.....	5.56	5.28
Girls.....	2.08	1.93
Total.....	100.00	100.00

It will be seen by this table that the male workers have by far the larger proportion of the work of the industrial establishments to do. Relatively women, while they have enlarged their field of work, are still far behind the other sex.

In 1881, in Scotland, where in many respects the conditions of life are similar to those of Canada, there were 206 males and 132 females in every 338 persons employed in manufacturing. In Canada, in 1881, there were 276 males and 62 females in every 338 persons, and in 1891 there were 266 males and 72 females. Female workers in Canadian industrial establishments are, as to numbers employed, far behind the sex in Scotland. The proportion of boys and girls under 16 years of age has been reduced in Canada during the past 10 years, but not to any great degree.

Taking the 20 year period for the four provinces, which in 1871 formed the confederation, we find that the number of establishments in Ontario, Quebec, Nova Scotia and New Brunswick in 1891 was 70,929, and in 1871 it was 41,257. This shows a gain in 20 years of 29,672 industrial establishments, or 72 per cent. The number of employees in 1871 was 187,942, and in 1891 it was 342,661, showing a gain of 154,719, or 81.3 per cent. in the 20 years.

The census of 1891 shows that the newer members of the confederation have added 4,836 to the number of establishments and have increased the number of employees by 24,835. The proportion of the industrial strength of the country belonging to the newer provinces is 6.38 as measured by establishments and 6.80 as measured by the number of employees. The proportion for the several provinces in 1891 is as follows:

	Establishments.	Employees.
Ontario.....	42.3	45.0
Quebec.....	40.5	31.7
Nova Scotia.....	13.7	9.3
New Brunswick.....	7.1	7.2
Other provinces.....	6.4	6.8
Total.....	100.00	100.00

In 1881 the proportion was as follows:

Ontario.....	46.0	46.4
Quebec.....	31.8	33.6
Nova Scotia.....	10.9	8.0
New Brunswick.....	6.2	7.8
Other provinces.....	5.1	4.2
Total.....	100.00	100.00

The position of the provinces towards each other in respect to industrial establishments and employees for 1881 and 1891 is as follows:

	1881.		1891.	
	Establishments.	Employees.	Establishments.	Employees.
Ontario..	23,058	118,308	32,028	125,335
Quebec.....	15,848	85,673	23,110	116,467
Nova Scotia.....	5,459	20,390	10,372	34,250
New Brunswick.....	3,117	19,922	5,419	26,009
Other provinces.....	2,441	10,642	4,836	24,835

The newer members of the confederation have advanced rapidly in industrial life. Prince Edward Island had 5,767 employees in 1881, and 7,906 in 1891, an increase of 37 per cent. in 10 years.

Manitoba has increased from 1,921 in 1881 to 4,375 in 1891, an increase of 127 per cent. This, though a great gain absolutely, is relatively to population less than the gain in population, owing, no doubt, to the fact that the farm possesses greater attractions in the Prairie Province than factory and workshop.

The North-West Territories returned 83 employees of industrial establishments in 1881, and 1,081 in 1891.

British Columbia had 2,871 in 1881, and 11,473 in 1891, an increase of nearly 300 per cent.

The proportion of employees to each 10 000 of the total population is as follows:

Province.	1881.	1891.
Ontario	601	782
Quebec	627	782
Nova Scotia	452	760
New Brunswick ..	620	828
Prince Edward Island	528	725
Manitoba	308	287
British Columbia	580	1,175
North-West Territories	10	102

A few comparisons are given to show the development which has taken place in important industries during 10 years.

In the manufacture of foods, animal and vegetable, the manufactories include flour and grist mills, bakeries, confectionery, pickles, preserved fruits, vegetables, meats and cheese and butter factories. These in 1881 numbered 4,702, employing 21,146 hands. In 1891 they numbered 11,910, employing 51,585 hands. Divided according to provinces, these are as follows:

	1881.		1891.	
	Establishments.	Em. ployees.	Establishments.	Em. ployees.
Ontario	2,177	7,587	3,384	12,740
Quebec	3,524	4,210	4,390	13,973
Nova Scotia	386	2,453	2,104	7,914
New Brunswick	315	2,008	1,167	5,660
Prince Edward Island	104	2,177	600	4,952
Manitoba	28	121	114	543
British Columbia	72	1,540	102	5,683
North West Territories	0	13	41	114
Totals	4,702	21,146	11,910	51,585

In the manufacture of textile fabrics and dress, including cotton and woolen mills, boot and shoe factories, tailors and clothiers, dressmakers, etc., in 1891 there were 17,650 establishments and 80,662 employees. In 1881 there were 10,162 establishments and 60,617 employees. Here, again, will be noticed the great increase in establishments in comparison with the increase in number of employees, the increase in establishments being 73 per cent. and in employees 33 per cent.

In the industries connected with paper, including printing establishments, the increase in the 10 years is 48 per cent. in establishments and 53 per cent. in the number of employees.

In the manufacture of machines, tools and implements, the increase in the 10 years is nearly 30 per cent. for employees and the same for establishments.

The above analyses show: 1. That while the gain in number of industrial establishments in Canada in 20 years has been 72 per cent., the gain during the last 10 years was 52 per cent., showing a great increase in 1881-91 as compared with the 1871-81 period.

2. That while the gain in number of employees in 20 years was 81.3 per cent., the gain in the last ten years was 44 per cent., showing a greater proportionate increase in the 1881-91 period than in the 1871-81 period.

3. That the smaller provinces, relatively to Ontario and Quebec, have made greater increase, both in the number of establishments and of employees.

4. That the provinces west of Lake Superior have increased their manufactures with great rapidity, British Columbia during the 10 years passing from fourth place to first place as the manufacturing province of the Dominion in proportion to population.

5. That the eastern maritime provinces have made great headway, New Brunswick standing second in the proportion of its population engaged in manufacturing.

6. That every province shows marked increase in the number of industrial establishments, indicating that many new industries have been started, and that the development of our

industrial life is not merely in the direction of old establishments taking larger proportions than they had in past years.

For the first time the capital employed has been divided into fixed and circulating capital. The following table shows the value of machinery and tools employed in the industrial establishments of Canada:

Ontario	\$38,205,150
Quebec	20,250,791
Nova Scotia	4,083,401
New Brunswick	5,478,024
Prince Edward Island	672,688
Manitoba	1,820,476
North-West Territories	333,346
British Columbia	3,248,571

Total

The number of steam engines has been obtained for the first time. Engaged in the work of driving the manufacturing establishments of the land there are 9,873 steam engines, not including those employed in mines, in shipping afloat or in agricultural pursuits. By provinces the number and horse-power used is:

	Number.	Horse power.
Ontario	5,811	163,596
Quebec	2,287	66,287
Nova Scotia	686	62,300
New Brunswick	507	23,620
Prince Edward Island	106	2,056
Manitoba	170	6,894
North-West Territories	58	1,614
British Columbia	241	11,000
Total	9,873	298,372

This gives an average of 30 horse power to the engine. In Belgium the average engine employed in manufacturing is 26 horse power. Taking the locomotive at an average of 300 horse power, and the horse power of steamers as equivalent to their tonnage, we have the following as an approximation to the steam horse power employed in Canada:

Factories, 298,372; mines, 16,879; shipping (steamboats), 205,632; agriculture, 10,000; locomotive, 540,000; electrical, 3,108; total, 1,073,991.

WILL CANADA STRIKE BACK.

The *New York Times* contains an exhaustive communication from a writer who is evidently well posted as to the situation, in which the question is asked, "Will Canada strike back?" and showing what a tariff war between the two countries would mean for the United States; and it has an editorial relating to the matter. In speaking of the facts presented by its correspondent it says that it is not to be denied that the more extreme partisan organs of the Republican party have wilfully concealed or misrepresented the facts relating to the commerce between the two countries, and for obvious reasons. "About all the duties," it says, "that could by any stretch of imagination be regarded as intended to protect the American farmer from foreign competition were levied on the agricultural products of Canada. These were rare sops thrown to the agricultural element in the voting population of the United States. It would not suit the advocates of McKinleyism to make known to the public that Canada buys of the United States very much more than she sells, and that, if she should determine to do so, she could retaliate for the injury done her farmers by a much more serious injury inflicted upon American manufacturers." It points out that the McKinley tariff and the refusal of the United States to accept Canada's offer of limited reciprocity is "onerous and irrational"; that

previous to existing obstacles there had grown up between the two countries a trade of great importance—a trade much larger and more advantageous to the United States than has been generally understood; and it cites the following figures produced by its correspondent regarding the international trade for the fiscal year ending June 30, 1890:—

Imports into the United States from Canada.	
Raw products of the farm, the forest and the fisheries.....	\$23,000,000
Manufactures and miscellaneous.....	2,220,272
Total.....	\$25,220,272
Exports from the United States into Canada.	
Raw products of the farm, the forest and the fisheries.....	\$20,942,896
Manufactures.....	22,953,497
Total.....	\$43,896,392

This shows an excess of exports from the United States to Canada of, in round numbers, \$20,000,000.

It suits the McKinloyites in the United States, and the advocates of unrestricted reciprocity in Canada, to represent the Canadian exports are chiefly of the two first named commodities; but it will be seen that in this class the trade is pretty evenly balanced, Canada sending to the United States of the raw products mentioned, only a little over a million dollars more than she takes from that country. But of manufactures and miscellaneous goods Canada takes from the United States ten times as much as she sends there, or \$22,953,497 against \$2,220,272. It is to be noted that this export trade to Canada is more than one-seventh of the entire exports of the same kind of goods from the United States. The conditions imposed by Canada on imports from the United States are much more favorable than those imposed by that country upon the trade from Canada. The average duty is lower than the average duty on goods received from the mother country, while the average duty on manufactured goods alone is no higher for the United States than for Great Britain. The result of this is that Canada takes from the United States a larger proportion than from Britain of the following important classes of merchandise.—Hardware and manufactures of metal, miscellaneous and fancy goods other than dry goods, drugs, dyes, books, paper, stationery, and manufactures of leather and rubber.

The situation in which the Canadian Ministry recently approached the question of qualified reciprocity to the United States Government is very accurately diagnosed by the *Times* as follows:—

They propose that all the raw products of each country, together with a limited list of manufactures as may be agreed upon, shall be admitted into either country free of duty; that the fisheries of each country shall be open to both on equal terms, that the canals and inland rivers and lakes and coasting trade shall be free to both, and that American manufactures shall continue to be admitted into Canada on as favorable terms as those of Great Britain. Under such an arrangement Canadians believe that they would obtain considerable advantage from the free admission of their raw products into the United States; but they contend that even under the largest possible increase in their sales of such products the balance of trade would continue to be largely in favor of the United States, whose trade with the Dominion in manufactured goods will largely over-balance any excess in favor of Canada in the trade in raw products.

For the better understanding of this important subject,

drawing his deductions from the table above given and others contained in his communication to the *Times*, the writer there-in establishes the following facts:—

1. That Canada's purchases of products and merchandise from the United States (during the year under consideration) were over 60 per cent. larger in value than those of the United States from Canada.

2. That the export of manufactured goods from the United States to Canada amounted to about \$23,000,000, and formed more than one-seventh part of the entire exports of that class of goods to all countries, the whole exports of which for that year amounted to \$151,000,000.

3. That, taking the whole of Canada's imports of raw products and manufactured merchandise into consideration, the average rate of Customs duties on imports from the United States was much lower than the average rate on imports from Great Britain.

4. That even on manufactured goods the imports into Canada from the United States were admitted on as favorable terms as those from the mother country.

5. That in manufactured goods Canada purchased from the United States a larger proportion of the following descriptions than she imported from Great Britain, viz.:—Manufactures of metals and general hardware, miscellaneous and fancy goods other than dry goods, drugs and dyes, books, paper and other stationery, manufactures of leather, rubber and gutta percha.

6. That Canada admitted from the United States free of duty a larger amount of products and merchandise than the United States admitted from Canada in the same time.

7. That the rates of duty in Canada even on manufactured goods were very much lower than the rates in the United States under which Canadian goods of the same class would have been admitted into the United States.

WHY THEY ARE HERE.

AN accession to the ranks of Toronto journalism has recently been made in the *Printer and Publisher*, devoted to the interests indicated by the name; and in its salutatory editorial, we are informed of the causes which called it into existence, and of the programme upon which it is to be conducted. We are told that at the recent annual meeting of the Canadian Press Association it was decided that the publication of such a journal was necessary; that the executive committee of the Association had urged the establishment of such an "organ," pledging their hearty support and co-operation; that the Employing Printers' Association had also been agitating in the same direction, and that these are the reasons for its existence. The chief aim, we are told, will be to more thoroughly unite the printers and publishers in an effort to increase the diminishing revenues of the printing office, and to look more closely after their own interests than they have heretofore done. In illustrating the necessity for doing this, attention is called to the fact that for years the manufacturers of American baking powders had been worth from \$10 to \$1,500 annually to nearly every paper in Canada, but that the effect of the recent increase in duty on baking powders had practically shut these American products out of the Canadian market, and forcing the withdrawal of the American patronage for the Canadian papers.

We are told that this feature of the situation was advanced by an ex-president of the Press Association, who stated that the increased duty on baking powder gave enormous profits to the Canadian manufacturers, who, in turn, did not find it necessary to advertise their goods, and that the Association should use its influence with the Government to reduce the duty to a figure that would permit the importation of foreign baking powders. It was a case of self-interest. Whether should the publishers or the manufacturers make the money? And then we are told that this ex-president, in the opinion of (some of) the members of the Press Association, was right in his ideas, and that publishers should call a halt, and view their interests from a more selfish standpoint than what they had previously done. "By united influence publishers could bring about a reduction in the duty on these and other goods, and again be in receipt of the thousands of dollars which recent increases in duty have cut off."

And so this is the policy of this new paper and (of some) of the papers embraced in the Canadian Press Association. They are not here to prosper with the country, and to help to the extent of their ability to make the country prosperous, but to prosper at the expense of the country, and to help build up American manufacturing industries provided always that American manufacturers advertise their goods in these patriotic Canadian papers.

The question naturally presents itself not only to Canadian manufacturers but to all Canadians who place a higher value upon the general prosperity of Canada than they do upon Canadian papers or any other individual interest, whether these papers should be encouraged and supported when it is their avowed policy to use their united influence to force the Government to reduce the duties upon imports to a point where American manufacturers, being allowed access to the Canadian market, can afford to contribute of their wealth to support these papers in their efforts to destroy Canadian manufacturing industries. What care these papers if Canadian manufacturers are forced to the wall, Canadian capital sunk and lost, Canadian workmen thrown out of employment, and the Canadian public forced to the consumption of foreign-made goods, so long as they can display American business cards in their pages. But that is just what this newly fledged, so-called Canadian *Printer and Publisher* proposes for itself and for the Canadian Press Association which it represents. If Canadian manufacturers of baking powder, or printing presses, or type, or paper, or ink, or anything else desire to avert the dreadful alternative of the combined efforts of (some of) these papers to destroy the tariff, they must conciliate them by giving them large advertising patronage whether they are to be benefited thereby or not. The suggestion is simply shameful.

A bright side to this porcineness on the part of the Press Association, as reported in the *Printer and Publisher*, is the intimation it makes to the effect that when this patriotic suggestion of an ex-president was being discussed, Mr. Pense, of the Kingston *Whig*, a pronounced free trader, denounced it as "dishonorable." And so it was; and we take pleasure in stating that although the proposition found favor with many of the members, yet there are many other members of the Association who entertain higher and more honorable views of their responsibility to the public, and of their own self-respect

than to accept and adopt any such sentiment. Mr. Pense is a free trader from mental conviction, but those who desire the destruction of the N. P. from such motives as the *Printer and Publisher* attributes to them, are free traders for personal revenue only. Canadian manufacturers should note such utterances as those here alluded to, for from them they may easily determine who their friends are among Canadian papers and govern themselves accordingly.

CANADIAN EMIGRATION.

A CORRESPONDENT sends us the following item clipped from an American paper:—

A member of the Dominion Parliament sejourning in Chicago, says the farmers in Canada are removing by whole train loads to the United States on account of heavy taxation.

This item has been drifting through the anti-Canadian papers on both sides of the line for some time past, but the statements contained therein are so absurd as to place it beneath notice. The name of the member of Parliament is not given, and it is not stated where the whole train loads of Canadians emigrated from or to what particular part of the United States they go to. The lack of specific information in these particulars throws discredit on the whole statement. A few days ago the Toronto *Globe* published an editorial *re* "The Exodus from Lower Canada," in which it quoted the *Canada Revue* as saying that the rural districts of Quebec were being depopulated, "Our unhappy compatriots annexing themselves to the United States by the train load." Perhaps this is the origin of the paragraph above quoted. The *Globe* also quotes from a letter said to have been written by a French Canadian at Worcester, Mass., in which the writer states, that on the arrival of trains in that city over the Boston and Maine Railroad every day from Lower Canada one would fancy himself on the Bonsecours market at Montreal on a busy day, so large are the arrivals of fleeing Canadians. Discussing the situation the *Globe* says.— "It is computed that there are over 400,000 French Canadians in the New England States."

It is by such false statements and insinuations the enemies of the Government and of the N.P. hope to destroy them. No doubt there are a great many French Canadians in New England, even as there are a great many Americans in Canada, people drift from one part of the world to another, and if it had not been for this desire to roam, no white man would be now living on the American continent. But the law of compensation equalizes this matter, and if we are losing some of our population by emigration, we are also gaining by immigration. Common sense tells us that if whole train loads of Canadians were fleeing the country as these unqualified statements represent, some tangible and reliable facts would have been given regarding the exodus. The unsupported say so of some unknown man in Worcester will not do, and his testimony, such as it is, must be impeached. So too the computation of the *Globe* that there are over 400,000 French Canadians in New England. We state it as a fact that no such computation is reliable or even possible from extant data. We have before us a letter written by Mr. A. F. Childs, chief clerk of the United States Census Bureau, dated May 13th inst., in reply to enquiries made by this

journal, in which it is stated that the figures, showing the different nationalities of the people in the United States have not as yet been compiled. There is no other way of telling this fact except from the census returns, and if the facts in question have not yet been compiled, in what way, except by guessing, can the *Globe* compute the number of Canadians in New England? Do such pessimists take intollient Canadians to be fools?

The fact is, such census bulletins as have been issued relative to the nationalities of the people in the United States do not bear out the "computation" of the *Globe*. The census returns show that in all the New England States there are but 1,137,600 white foreigners, men, women and children, and the *Globe's* guess makes nearly forty per cent. of these Canadians, which idea is simply ridiculous. Indeed, in the States of Maine, New Hampshire, Vermont and Rhode Island combined there are only 300,000 foreigners of all nationalities: while in Massachusetts and Connecticut there are 836,000. Boston, in Massachusetts, is a large shipping port, and Connecticut is but a suburb of New York; and this accounts for the large number of foreigners in these States. But comparatively few of them are Canadians.

HIGHWAY ROADS.

There are hundreds of able-bodied men confined in Canadian prisons; and a vexing and important question with our law-makers is as to how they shall be employed. This journal has always opposed employing convicts in manufacturing goods to be sold in the market in competition with the products of free labor. It is an injustice to both the manufacturer and his employees, because it restricts the market in which their products are sold; and the Canadian Government recognize this objection to the extent of absolutely forbidding the importation of convict-made goods into the country. It is an unpardonable cruelty to keep convicts in enforced idleness, and while they may be very properly employed in making clothing, etc., for their own use, such occupation does not require their entire services, and the problem constantly presents itself as to what work they shall be put at the balance of their time.

Very few farmers comprehend the extra cost to them of teaming over poor roads, yet any one who will consider the matter must observe that the difference in the cost of transportation over good roads and bad ones amounts to hundreds of thousands of dollars a year to the country. The weight which can be hauled over any road must be regulated by the worst places in it, even as the strength of a chain must be measured by that of the weakest link. If a road is uniformly good, a large load may be hauled over it, but if there is a rough bad place in it, the load must be decreased accordingly. It is stated that a load weighing a ton can be moved on a good macadamized road with a power of 40 pounds; but if the road is not in good condition greater power will be required. *Farm and Home* states that in one county in New Jersey where 40 miles of good macadam road had been built, the value of the farms adjoining had increased enough to pay the whole cost of the road, and that in Ohio, where the macadam system had been adopted, the adjoining farms had increased in value ten dollars per acre. The same result would accrue to Canada if

some persistent and systematic efforts were made to build really first-class roads, but the objection raised to building them is the cost, the farmers preferring to make out with such as they have to being taxed the amount necessary to make better.

If the matter were properly presented no doubt the whole community would see that it would be a judicious thing to use the labor of convicts in building macadam roads throughout the country. The manufacturers would gladly see it done because they would not then have to compete with the products of convict labor in the open market. The workingmen would advocate it for the same reason, and the farmers would be but too glad to have first-class highway roads over which to haul their produce to market, when the construction of them would not be at their expense. During at least one-half the year the convicts could be thus employed.

EDITORIAL NOTES.

The *Empire* alludes to bricks and pig-iron as being mineral products. Why not call cotton cloth an agricultural product, a woolen coat an animal product and codfish balls a product of the ocean. No one ever disembowels the earth in search of brick or pig-iron; they are manufactured products.

According to a map of Ontario recently published by the Bureau of Mines, the area of the Province is given at 222,650 square miles. The whole area of Great Britain and Ireland is only 121,115 square miles, or over 66,000 less than the 187,000 square miles which are yet in the hands of the Crown unsold.

Now that Toronto is to have an electric street car service, it is to be hoped that, unlike Hamilton where the cars were obtained in a foreign country, all the cars will be built in Canadian works. No better or more serviceable cars are made than those manufactured at the Patterson & Corbin works at St. Catharines, and the Crossen Car Manufacturing Company's works at Cobourg, Ont.

A few days ago while some men were engaged removing a lot of charred hair-felt covering from steam pipes in a building on Front Street, to replace it with mineral wool covering, they pulled out a number of dead rats and mice. The rodents had evidently made their nest in the hair-cloth wrapping during the summer, and got suddenly caught when steam was turned on in the fall. The discovery revealed the cause of unpleasant and unhealthy odors pervading the premises all winter, and would indicate that something better than hair-felt should be used on hot pipes.

GALT's assessment shows a decrease in population of 207 compared with last year. Galt is a manufacturing town. What is trade restriction doing for it?—*London Advertiser*.

If our pessimistic contemporary will enquire among the manufacturing concerns of Galt it will discover that the business outlook is as good or better this year than it was last, and that quite as many or more people are employed in them. The 207 who have left the place are the idlers and silly ones who unfortunately read such papers as the *Advertiser* and

therefrom imagine that the country is going to the demnition bow-wows.

It is a common expression of merchants "that business is so dull it will not pay to advertise." What would we think of the working man who, when work is scarce, would not try all the harder to find it? The duty of the merchant or manufacturer at such times is to create business by offering new and attractive styles, by seeking new customers and pushing beyond usual neighborhood limits. He should not sit down and wait for trade to come to him, but seek it on every side and through the use of every lawful instrumentality. When trade is dull a more active exertion must be made to secure it than when business is brisk.

It is understood that the Ontario Iron and Steel Company, alluded to elsewhere in this issue, has been organized and will at once proceed to the business for which it was formed. The company seem to labor under a misapprehension regarding the terms under which the Dominion Government pay bounty on the production of pig-iron. They seem to think that to obtain the bounty all the materials entering into the manufacture of iron must be of Canadian origin. Such is not the case, the only requirement being that it must be of Canadian ore, and the iron must be made in Canada. The law makes no reference to fuel or anything else except as here stated. There is a duty of 50 cents per ton imposed upon coke, but no doubt the Government would gladly remove this in the interest of the new industry.

IN presenting newspaper comments upon political and other interesting developments in Canada, and in giving prominence to what is said by representative Canadian journals, the publishers of *The Literary Digest*, of New York, are rendering a substantial service to Canada. Recently transpired, and transpiring events have forced the Canadian situation upon the attention of the public, but unfortunately the comments of the American journals have been based more upon what the politicians have said than upon real, substantial facts, and these one-sided expressions have not been characterized by an honest desire to do justice to this country. Messrs. Funk & Wagnalls, the publishers of the *Digest* are, as we say, doing Canada a service in echoing the views of journals which are telling the truth about us.

THE Dominion cruiser *Constance*, recently built by the Polson Iron Works Company at their shipbuilding yards at Owen Sound, was in Toronto this week on her way to Lower Quebec, where she will be employed as a revenue cutter in the suppressing of the smuggling going on in the waters of the St. Lawrence. While here a final test of the steamer and her engines was made, and by the invitation of the Polson Company quite a large party of gentlemen witnessed this trial in a short run out upon Lake Ontario. It is needless to say that the gallant little ship performed even better than had been promised for her. A gentleman connected with a large shipbuilding works in Scotland, and who is now here to superintend the construction of Mr. Gooderham's elegant steam yacht, declares that in first class workmanship and finish the *Constance* is the equal of any similar vessel ever constructed upon the Clyde.

MR. CARROLL D. WRIGHT, United States Commissioner of Labor, has given some figures showing the rapid progress of the Southern States:—In ten years—from 1880 to 1890—cotton mills increased in number from 161 to 334, spindles from \$500,000 to 2,000,000, and the value of products from \$16,000,000 to \$54,000,000. During the same period the capital invested in woollen manufactures increased from \$4,000,000 to \$10,000,000. In 1880 the banking capital of the South was \$92,000,000; in 1890 it was \$171,000,000. The total capital invested in manufactures and establishments of all kinds rose from \$179,000,000 in 1880 to \$551,000,000 in 1890.—*Globe*.

Such prosperity was simply impossible under any policy but that of protection and an assured feeling that protection had come to stay. We might reasonably hope for just such a condition in Canada if such papers as the *Globe* would praise instead of depreciate the country.

THE *Mail* of last Saturday gave the Council value for the \$75 granted in order to procure an illustrated edition of that journal to "advertise" the town. The best advice the friends of the Council and the town can give is that the authorities spend another \$150 in getting all the copies issued and burnt. The work in all its details is simply execrable, a disgrace to us and more of a disgrace to the journal issuing it.—*Galt, Ont., Reporter*.

It is a remarkable fact that what is considered sensible people should squander money on such snide concerns as the *Mail* and *Globe* "illustrated" editions, with a view to bringing their towns into prominence before the public. Almost invariably these ventures cost much more than they are worth, and are disappointing in the extreme. If Galt desired to advertise its advantages as a manufacturing centre, its money would have been well spent by bestowing its patronage on a reliable trade journal circulating among manufacturers. But servant girls are unappreciative of such things. Track can easily be kept of such dupes as Galt by watching the illustrated editions of the Grit papers.

SOME idea of the exodus may be gained from the statement that no fewer than three members of the C.M.B.A. Society branch in Waterloo town have crossed the border within the last day or two.—*London Advertiser*.

Of course all Canada grieves because three members of the C.M.B.A.S. have abandoned Waterloo and "crossed the border," the distress being all the greater because the weeping Jeremiah of the *Advertiser* fails to tell what this alphabetical society is, or why the three members should tear themselves away. But if this is a fair idea of the exodus of Canadians to the United States, we take hope that we will be able to stand it, knowing as we do that last year the value of the imports of settlers effects into Canada aggregated \$1,778,556, of which \$1,412,867 was from the United States. This was nearly twice as much coming from that country into Canada as went the other way. Of course these effects were brought in by actual settlers. Just imagine the piles of furniture and other goods represented by this large value, and think of the army of people who came with the goods. Truly, as the *Advertiser* puts it, the loss of three members of the C.M.B.A.S. gives a fair idea of the exodus of Canadians to the United States.

PREMIER ABBOTT has introduced a bill in the Dominion Senate to amend the Patent Act, and the fact that it is a Government measure gives the assurance that it will become a law

at the present session unless the Opposition force its delay. Some of its sections are important in their scope. The clause governing a citizen of Canada who takes out a patent in a foreign country before applying for it in the Dominion is changed so that he will be entitled to obtain a patent in Canada, which is not the case now, if within three months from the date of his first taking out the foreign patent he gives notice to the Commissioner of Patents that he proposes to apply for a Canadian patent. Another clause does away with the requirement for supplying a model with every application, the matter being left permissive with the commissioner. It is also proposed to extend the life of future patents from 15 to 18 years, the stages at which such may be renewed being 6 and 12 years. The clause rendering void a patent if the patented article be imported 12 months after the patent has been issued in Canada is also modified, the voidance only applying to the interest of the person who imports or causes the article to be imported. There are also other minor changes.

The following is given as the *pro rata* importation per head of population of British goods, in the following countries :

Italy	.....	£0	5s.	5d.
Spain	.....	0	6s.	7d.
Germany	.....	0	8s.	3d.
France	.....	0	8s.	5d.
Greece	.....	0	13s.	6d.
United States	.....	0	10s.	3d.
Brazil	.....	0	10s.	5d.
Tasmania	.....	4	4s.	0d.
Queensland	.....	5	0s.	5d.
New Zealand	.....	5	5s.	9d.
South Australia	.....	6	3s.	5d.
Victoria	.....	6	4s.	7d.
New South Wales	.....	6	9s.	4d.
West Australia	.....	10	1s.	9d.
British North America	.....	1	8s.	9d.
West Indies	.....	2	11s.	5d.
Cape Colony	.....	4	11s.	9d.

Canada takes, in proportion to her inhabitants, almost three times as much of British goods as the United States.

It is safe to assert that there is no legitimate manufacturing business carried on in Canada which may not be benefited by judicious advertising in trade journals. Some manufacturers, however, assert that they can see no good in such advertising—that they can trace no order they ever received to it. This may be true. There are many methods adopted by advertisers to test and discover the source from which their business originates, and some of these may throw some light on the matter, but none of these systems are perfect, and very few orders can be so traced. If advertising is done with care and judgment, and the advertiser's business increases, he should certainly give some credit to the journals in which he had advertised for having been made known through this medium. This popularity may not be traceable to any particular journal, but the fact of the increase of business and acquaintance with new customers should be conclusive evidence that the advertising done had accomplished its mission.

We have political doctors now-a-days who prescribe queer and remarkable remedies. Thus *Hardware*, of Toronto, speaking of the probable prices of binder twine the coming season, and what they were last season, says:—

Though prices have not been quoted the manufacturers say they will be lower this year. For the extortionate prices

charged last year in Manitoba and the North West, the blame is shifted from the shoulders of the manufacturers to those of the big concerns who got hold of a large part of their output. One firm which manufactures binders on a large scale was able to grab a profit of six cents a pound on the twine it sold in the North-Western parts of the country. The best antidote to this sort of thing is to put binder twine on the free list. That would put it out of any concern's power to control the output to such an extent as to realize a profit of six cents a pound.

Last year, according to this, the manufacturers received six cents per pound less for their binder twine than what the extortionists sold it to the farmers for, and their price for it this year will be even less than it was last year, and yet because speculators cornered the market the wise suggestion of *Hardware* is "to put binder twine on the free list." It is quite evident *Hardware* is no friend of the manufacturers.

The Berlin (Ont.) assessor has completed his labors for the year. The total assessment is \$2,767,820, and the population 7,197. The *News* says: "We are sorry to see that there is a falling off of some 200 in the population since last year. It is doubtless owing to the closing up of several of our factories, principally the trunk factory." The Berlin people have plenty of energy. What they, as well as every other industrial community in Canada need, is cheaper raw material, a wider market, and less expense in distributing their products. The N. P. will never affect these reforms.—*London Advertiser*.

All nonsense. Some ill-advised enthusiast with insufficient capital undertook to engage in a manufacturing business in which he did not succeed. His factory gave employment to several hundred hands, and when it was closed they had to seek employment elsewhere. No account is taken of the fact that when the factory was first started it attracted several hundred hands to the place. The closing of the works was not because the raw materials were not cheap enough, nor that there was no market for finished products, but because of lack of business capacity and financial backing. If these were not the reasons, pray why is it that other trunk factories in Canada are prosperous? There are some things which the N. P. cannot possibly furnish.

Mr. D. R. Ross, of Embro, according to the *Courier*, lately had an enquiry from Philadelphia for oatmeal, and in reply expressed a doubt of his correspondent's being able to buy in Canada, owing to the duty of \$1.80 per barrel. An answer came in due course in which the following sentiment occurs: "We regret the absurd tariff policy which prevents free commercial intercourse, and we hope the administration to be elected will be such as will relieve the difficulty." From this it is made evident that Canadian oatmeal would find an enlarged market under continental free trade.—*London Advertiser*.

The imports of oatmeal into the United States in 1890 amounted to 2,360,000 pounds, valued at \$60,000, the duty upon which was one-half cent per pound—the exports from Canada to that country last year amounted to 576 barrels, valued at \$1,900, therefore it is plain that the article was worth more for consumption in Canada than for export to the United States. Further, about all the oatmeal mills in the United States are included in a combine or trust, which controls both output and prices; and if we were under the ban of the "enlarged market under continental free trade" which the *Advertiser* speaks of, the Canadian mills would be closed under the operations of the combine. The regret of the Philadelphia

dealer arises from a desire to obtain cheap oatmeal in spite of the American combine.

THE NATIONAL CONDUIT COMPANY, an American concern doing an extensive manufacturing business in New York City, are establishing a branch factory in Hamilton, Ont., from which to supply their Canadian demand. A few days ago Mr. E. S. Perot, vice-president of the company, being interviewed by a Hamilton newspaper reporter, said:—

The reason why we decided to establish a Canadian factory was that our orders from Canada were increasing and we found it would pay us better to make the goods here and avoid the high duty. Of course we wouldn't have come here if it hadn't been necessary. We would rather supply the Canadian market from our New York factory, but your high tariff stood in our way. I am a high tariff man myself. Although in this instance it did not operate in our favor, I know what it has done for the manufacturing industries of the United States, and I don't blame the Canadian Government for putting a high tariff on our manufactures in order to protect those of this country.

It will now be in order for our callow young friend the *Canadian Printer and Publisher*, to advocate the removal of the duty upon such articles as the National Conduit Company manufacture, unless that company forthwith subsidize it and every weekly newspaper in Canada connected with the Canadian Press Association, by advertising their business with them. That is what we are told these patriotic papers advocate.

Is it an argument in favor of our exorbitant tariff upon iron and steel that promoters of electric railways find themselves compelled to petition for the free importation of heavy rails? If they cannot see their way to improve the cities of Canada, by the introduction of cheap and rapid transit, on account of the heavy duty on rails, how many other national improvements are being strangled by similar causes? How many industries of which iron and steel are the raw materials are checked on account of the cost which is almost doubled by the tax?—*Montreal Herald*.

Let us see. Such electric railways as are now being or about being operated in Canada are merely changes of motive power from horses to electricity. There are mills in Canada and plenty of them capable of manufacturing rails suitable for street electric railways, therefore there is no absolute necessity for importing such rails. These mills give employment to hundreds of Canadian workmen who would soon find themselves in idleness if such rails were admitted duty free. We all know that street railways are bonanzas to their owners; also that the municipal authorities where they are operated fix the price of transportation on them. If the rails were put in the free list it would in no wise reduce the price of travel, but it would increase the enormous profits of the operating companies while it deprived the Government of any revenue which might accrue from imports of rails, besides throwing hundreds of Canadian workmen out of employment. All things considered we do not want street railway rails placed on the free list.

A few days ago a delegation of Toronto lawyers acting in the interest of a Toronto Street Railway Company, accompanied by a number of M.P.'s waited upon the Government to urge that steel rails for electric railways be allowed to be imported duty free, as with rails for steam railways, on the ground

that the character of the rails necessary for electric railways is almost precisely similar to those used for steam roads. It was suggested that this matter is of much importance to Toronto, inasmuch as it affects the proposed conversion of the existing horse system in this city to propulsion by electricity, and that the saving in the matter of duty would be shared in by the city. We sincerely hope that the Government will give no serious consideration to this request. The Toronto street railway is a rich bonanza to the company controlling it, and they are abundantly able to pay duty on their rails even as duty was paid on the rails now in use, and was paid on all the street rails now in use in Canada. There is no reason why all the rails to be used for such purposes in Toronto and elsewhere, should not be manufactured in Canada, for we already have the facility for making them. If we are ever to become commercially independent of other countries for manufactured products we must encourage our own industrial establishments; and it would be the grossest injustice to allow the go-by to be given to Canadian works when they have the ability to supply the demand. Neither the city of Toronto nor any inhabitant thereof, would be benefited to the value of one cent if street rails were admitted free of duty. Nothing but selfish greed prompted the request by the street railway company who alone would receive every cent of any benefit which might accrue from the granting of their prayer.

At a recent political meeting in Toronto, Mr. W. F. Maclean who has since been elected a M.P., announced that Mr. Elias Rogers, a wealthy merchant of this city and a "Reformer" in politics, had that day stated that if a guarantee could be given that the N.P. would be adhered to for ten years a company with \$500,000 capital would be started here at once for the erection of furnaces and the manufacture of iron. Mr. Rogers being an intelligent man, knows that the N.P. will be adhered to as long as the Conservative party is in power, and that no friend of protection has any fear that that policy will be abandoned by that party. Mr. Rogers sees and understands that under the N.P. the manufacture of iron in Canada could be made a very profitable business, and that a guarantee of the continuance of the present policy for ten years would mean big money for such an enterprise. But why is he timorous about investing in it? As a Reformer he naturally desires the success of his party, and yet he knows that the continuance of the N.P. depends entirely upon his party not attaining to power. Consistency is a jewel. Mr. Rogers is, we understand, a provisional director in a company which will be formed with large capital for the erection of iron furnaces in Toronto if some guarantee can be obtained from the Dominion and Ontario Governments. These guarantees are to be for the payment of bounties upon the output of iron for a stated term of years. Most of the projectors of this company are Reformers in politics, and know that the defeat of the present Dominion Government would mean the destruction of the N.P. and the adoption of a policy which would render it entirely impossible for Mr. Rogers' company to continue in business. The best guarantee for the continuance of the N.P. is for all such men as Mr. Rogers to advocate and support it.

A DEPUTATION of carpet manufacturers recently waited upon the Government to urge the necessity of increased protection

to that branch of Canadian industry. We note with satisfaction that the request is strongly opposed by the dry goods section of our boards of trade, as we are convinced that Canada's best interests do not consist in increased customs duties on this or any other class of goods. We have quite enough protection, and all probabilities point to a movement towards reduced duties. Canada is better without manufactures that cannot exist with the measure of protection already extended to them; and better in every way is the movement tending to lower the duties on British goods, reducing cost to the consumer, and promising a better market in return for our national and agricultural products.—*The Shareholder*.

As has heretofore been shown in these pages, the imports of carpet into Canada last year aggregated more than 3,000,000 square yards, the average value per yard of which was about 42 cents. The imported carpet which came most directly in competition with Canadian carpet are the two and three ply all wool and union ingrain, the imports of which last year amounted to nearly 140 000 square yards valued at about 47 cents per yard, and tapestry carpet, the imports of which were over 1,500,000 square yards valued at 31 cents per yard. This latter is a very cheap and inferior article, and although it is sold to consumers at from 50 to 75 cents per yard 27 inches wide, it is very much dearer at that or any other price than Canadian carpet. Existing carpet plants in Canada have capacity to produce nearly one-third of the entire demand, and about one half capacity for such grades as are mostly in demand. A slight increase in duty would not increase the price to consumers, but it would secure the home market to the Canadian manufacturer; and this means that the number of operatives in Canadian carpet factories would be more than 200 per cent., while consumers would not have to pay any more for their carpet than they now do. It would seem from what the *Shareholder* says that the dry goods importers of Montreal would be pleased to sacrifice one of the most important manufacturing industries of Canada for the sake of gaining some profit from imported carpet. We are thankful to say, however, that the Dominion Government are not of that way of thinking.

A few days ago the *Empire*, in making a report of an address delivered before the young men of Upper Canada College by Mr. A. Blue, director of the Ontario Bureau of Mines, made that gentleman say that "the iron ores found in Ontario could not be profitably worked, being too largely combined with sulphur." This report wholly misrepresented what Mr. Blue actually said, and did him as well as the country much injustice. What Mr. Blue said was this:—

Ores of iron are abundant in the Laurentian and Huronian formations, chiefly as magnetite, but sometimes also as hematite and limonite. In the eastern part of the province there are large bodies of magnetic ores in the counties of Peterborough, Hastings, Frontenac and Lanark, some of which are of excellent quality; but sulphur is often present, and occasionally titanium, both of which are very objectionable substances in combination with iron. Yet it seems likely that methods will be found to get rid of both sulphur and titanium, or to greatly reduce their proportions in the ore, in which direction very marked progress has recently been made by a process which consists in crushing the ore and cleansing it at one operation with a flow of water and a magnetic separator. Limonite, the brown ore, is found in Peterborough, and hematite, the red, in Hastings and Lanark. Hematite ore also exists in what is believed to be large quantities on the north shore of Lake

Superior. Farther west, on the Mattawan river, a range containing specular and magnetic ores is found which is supposed to be a continuation of one or other of the great ranges of Minnesota—the Mesabi and Vermilion. Other ranges of magnetic ore, which are described as of vast extent, lie along the Atik Okan river, a tributary of the Seine which flows into Rainy lake. These ranges have been traced a length of ten or twelve miles, rising in places 200 feet above the plain, and the ore is said to be very rich and clean. There are many other out-croppings of iron ore besides the ones I have mentioned; yet it has to be confessed that there is not a working mine in the province, for which the only consolation is that we still have the ore and that it may perhaps be more valuable in some day to come, when other great deposits in America are worked out.

No doubt some of the iron ores found in Ontario contain provokingly large proportions of sulphur, but, on the other hand, it is equally certain that other ores are singularly free from that element. In a report on the Snowdon iron mines in Haliburton county, by Prof. C. Gordon Richardson, it is shown that by analysis of four specimens the highest quantity of sulphur found was but 0.16 per cent. and in one specimen there was but a trace, no titanium being discovered in any, the ore being described as "a fine grained magnetic ore." while as regards the Belmont mine, in nine analyses the highest showing of sulphur was but 0.04 per cent., in five instances there being only a trace. It is evident that there are abundant ores of Bessemer quality in Ontario to supply all the blast furnaces which may be operated here for generations to come.

The Canadian Printer and Publisher, Toronto, is the latest advocate for journalistic favor. As its name indicates, it is published in the interest of printers and publishers, and as far as its mechanical make-up goes it is first class in every respect. It is supposed to fill a long felt want in the community, and to give much ease and comfort to an aching void which would continue to ache and void without it.

It is our pleasure to allude to the rejuvenation which has recently befallen our esteemed contemporary, the *Montreal Herald*. The bright and cheery appearance which now characterizes it indicates a high and deserved degree of prosperity. Under its new management it is a credit to Canadian journalism, and we wish it every financial success. Our regret is that such a bright, newsy, readable paper should be on the wrong side of the most important question that affects the welfare of Canada. With this exception, it is all that its most sanguine friends could hope for it.

True and tried friends are always welcome, consequently *Vick's Floral Guide* is sure of a warm reception, especially when dressed as daintily as this year. The "Nellie Lewis" Carnation on the front of cover, and "Brilliant Poppies" on the back, are unusually attractive, and the numerous colored plates of flowers and vegetables are certainly works of art and merit. The first twenty-four pages, printed in violet ink, described Novelties and Specialties. Send ten cents to James Vick's Sons, Rochester, N.Y., and procure a copy of this attractive and useful catalogue. It costs nothing, as the ten cents can be deducted from the first order.

The Literary Digest, as its name suggests, is a compendium of the contemporaneous thought of the world published weekly by the Funk and Wagnall's Company, 18 Astor place, New York city, with branch office at 11 Richmond street, Toronto. To the busy man who desires to know what is going on in the world, and what people are saying and doing, the *Digest* is just about the correct thing. In concise and condensed form it gives the cream of expressions from contemporaneous journals in all civilized lands, including the United States and China, embracing matters political, sociological, educational, literary, religious, scientific and philosophical.

The Dominion Illustrated Monthly for May is an attractive number in its contents as well as in its pictorial features. Prof. Roberts' further chapter on "The Raid from Beauséjour," are full of interest, and Mr. Edward W. Sandys contributes a characteristic

article, "A River of Geese," which sportsmen will appreciate. "A Woman's Work in McGill University" will be read with keen appreciation by every admirer of the modern educational movement among the fair sex. This paper is contributed by Miss Helen R. Y. Reid. Mr. J. M. Le Moine, of Quebec, the well-known historian of Lower Canada, continues his historic sketches of the waterways of Canada, what he has to say being calculated to stir up the latent longing of the summer Rambler. The other contributions and editorial departments bear impress of the success attending *The Dominion Illustrated Monthly*.

Good Housekeeping for May has the usual variety of helpful things for the housekeeper, looking toward the betterment of the home life, not only at the table, but in the sitting-room and even in the life outside the walls of the dwelling place. The number opens with a frontispiece of "Grandmother's Kitchen." Then comes a paper by Miss Parloa on the cooking of veal, a story of "The Angel of Elbow Bend," the care of dining-room and pantry, by "the expert waitress," how to serve a simple lunch in two courses for a small party, something about corn bread as a southern article of diet, an extended paper on the servant problem, the washing of bedding and laces, the preparation and serving of food for invalids, the mending of stockings—and of one's speech; and so on through a fine and extensive table of contents. A magazine of this cosmopolitan character will find a welcome in any home. Clark W. Bryan & Co., Springfield, Mass.

The Toronto Construction and Electrical Supply Company, Toronto, of which Mr. Frederic Nicholls is general manager, have sent us their new illustrated descriptive catalogue and price list of the electrical machinery, supplies, apparatus, etc., dealt in by them. The departments included in the catalogue include electric light and power supplies; machinery for arc and incandescent lighting; electric hoists, electric pumps, electric drills, and electric street railway apparatus. The company handle a large line of electrical books, including all which are considered of importance as text books to electricians, and the catalogue enumerates these, giving the names of the authors thereof in alphabetical order and the particular subjects of which they treat. Then there are formulae and tables which have reference to electrical business, which of themselves are of the utmost value and importance. There is an index which names every article handled by the company enumerated in the book, and this covers six closely printed pages. The book is a beautiful specimen of typographic art—good paper, good type, good press work and good binding—first-class in every respect.

The Illustrated World's Fair for May comes out with the largest copper half-tone photographic scene ever printed. The entire central portion of the World's Fair grounds is shown in one picture, and the sheet is over forty inches wide. The number contains a page article on the World's Fair, by Madame Patti Nicolini, with two portraits; a page of Patti's; a page article and portrait of Colonel Tom Fitch, of California; a page article and portrait of Stanley Waterloo; a novel and striking representation of the Golden Montana Nail, with which Mrs. Palmer is to finish the construction of the Woman's Building; "Memories for Decoration Day," by John McGovern and Nixon Waterman; a fine front page portrait of Mrs. Potter Palmer; an editorial description of Jackson Park, by Opie Reid; similar observations by James Maitland; many quips and quodlibets, by Nixon Waterman, Frank B. Welch, A. H. Lockwood, Clarence W. Putnam, Alice Mitchell and other numerous writers; an essay by Wm. Horace Brown, author of "A Southern Heritage"; about twenty-five splendid pictures of all the buildings; poems, rules, progress, biography and history of the Fair. Next month the Director-General will write an article for this handsome, truthful and enterprising magazine. Its pictures are everywhere praised and copied. J. N. Halligan, McVicar's Building, Chicago. 25 cents a copy; \$2.50 a year.

An article of much gawsome interest, describing "First Actions of Wounded Soldiers," will be among the contents of *The Popular Science Monthly* for June. The writer, Mr. George L. Kilmer, gives his own experience, and other cases which he has seen on the battle-field or has collected from various sources, and raises a number of interesting physiological queries concerning them. Under the title "The Retreat of Theology in the Galileo Case," the successive steps taken by the Catholic Church in getting out of the unfortunate position which it took in that case will be recounted by Andrew D. White. The excuses for the persecution of Galileo that were invented in the course of two centuries testify to great ingenuity on the part of the theological apologists. Prof. John S. Newberry will contribute a sketch of "The Ancient Civilization of America," embracing the mound-builders of North America and the "palace-builder" of Central and South America. In this paper

Prof. Newberry presents evidence to show that the mound-builders mined lead-ore and sunk wells for petroleum. Under the title "Wanted: A Railway Court of Last Resort," Mr. Apploton Morgan will have an article suggesting a tribunal which should construe the many and often conflicting State and national laws that concern railroads. Such a court, Mr. Morgan adds, might be charged with determining whether or not roads were needed.

The May Wide Awake opens with a delightfully fantastic and oriental rhyme descriptive of the birth of the gamut. It is by Theron Brown with a frontispiece illustration by Burgess, and is called "The Bamboo Fife." The leading article of the number is Miss Fordham's stirring description of "A Mediæval Stronghold," the great French castle of Pierrefonds, which, dismantled by Richelieu, has been restored by the famous French architect, Viollet-le-Duc. The illustrations are from photographs and from sketches made on the spot. Philip Hale's story, "A Grain of Sand," is one of the good things of the number. Miss Helen Gray Cone tells about "A Picture Book of 1789"—William Blake's home-made and hand-made "Songs of Innocence"; Alexander Black has a unique sleeping-car story, "Upper Nine"; M. B. Ryerson contributes a charming story of a little studio girl, "Phebe Stout—Sculptor." There is a bright story for Decoration Day, "Almost a Deserter," by Miriam Brastow, and a stirring ode for the same memorial occasion, addressed to American boys and girls—"Decoration Day," by Elbridge S. Brooks; Mrs. Emma Huntington Nason has a charming set of verses, "My Lady of Make-Believe," with photographic representations of the little lady herself; Lieut.-Col. Thorndike gives in his series of "One Man's Adventures," an account of his "Getting Away from Gibraltar"; James Meoney of the Patent Office at Washington describes "The Indian Owl Game"; William Leo Howard tells of his funny experience with young prince Victor Emmanuel of Italy; and the serials, "Jack Brereton" and "The Lance of Kanana" are brought to an end. There are verses, sketches and pictures in goodly number, and the department of "Men and Things" is full of variety. The editors devote a memorial page to "The Founder of *Wide Awake*"—a brief but appreciative notice of Mr. Daniel Lothrop, whose sudden death occurred just as the May number of the magazine was going to press. *Wide Awake* is \$2.40 a year. D. Lothrop Company, Publishers, Boston, Mass.

No matter what space you have in the local papers, don't fill it so that it looks crowded. I am a great advocate of brevity, and I have good reasons for my position. A handful of sand thrown at a wall will make no mark—a single small pebble will leave some impression. A lot of small type does not catch the eye nearly so quickly as a single word in bold, black caps. Be careful to make that word strong and attractive. Two or three short, sharp, crisp sentences, each embodying some qualities and pointers about your leaders, and you have written quite enough. Don't say your goods are dirt cheap, or that you are selling at a loss, and don't decry the goods of your rivals. Intelligent people won't believe the first statement, and certainly won't approve of the latter.—*Advertiser's Gazette*.

For a long time Continental iron founders have been endeavouring to free themselves from their dependence on the English and Scotch foundry pig-iron markets, and to procure the necessary smelting material in a cheaper way. Every step in this direction has been followed with great interest. When, in 1887, it was asserted that a small addition of aluminum alloy composite would suffice to transform a rotten iron and burnt iron into dense, firm, and soft pig-iron, the German Ironfounders' Association at once determined to test its accuracy by smelting experiments, which it was proposed should take place at the Royal Iron Foundry at Gleiwitz. The Minister of Public Works not only gave his consent but also granted from state funds the necessary means for extending these smelting experiments. It appears from the report on the experiments now issued that highly important results were attained. The cast iron obtained from white pig-iron with an addition of aluminum alloy composite nearly approaches wrought iron in flexibility. This is all the more important as the experimental application of cast steel for machine parts requiring great firmness, denseness and softness, have hitherto yielded no satisfactory results, owing to its hardness, porosity and ductility. The smelting experiments already carried out, justify the expectation that a further study of composite and the kindred aluminum will lead to the production from purely German material of cast pieces for the most diverse purposes and of splendid quality. Such pieces are already cast for manufacturing purposes at the Royal Iron Foundry at Gleiwitz.—*Kuhlows German Trade Review*.

PRESIDENT.
W. K. McNAUGHT.

SECRETARY.
J. J. CASSIDY.

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 Governmental Policy 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. CASSIDY, Secretary.

TELEPHONE 1374.

THE LABOR QUESTION.

The meeting of the Board of Manufacturers and Employers of California, which was held last week, is the most encouraging sign for industry that has been witnessed. The board was organized in August, 1891, with the express purpose of antagonizing the Council of Federated Trades, and asserting the right of employers to control their own business. It was the first attempt made, not only in this State, but in Christendom generally, to regain for capital that participation in the control of industry of which it has been deprived by the organization of labor. It was intended to be distinctively an aggressive body, prepared to meet blow with blow, boycott with blacklist, strike with lock-out; to repel with action the impudent attempts of labor unions to control businesses in which they had no risk, and to teach the demagogues of the coast that if they insisted on fighting, they must be prepared to take as well as to give hard knocks. It proposed to carry into Africa the war which the unions have waged against employers, and in the course of which they have crippled the industries of the coast.

The organization of the board marks the third stage in the contest between capital and labor on the coast. In the first stage, capital had everything and labor nothing to say about wages, hours of labor and conditions of work. The employer stated what he proposed to pay, how long his hands must work, and under what conditions; the workman had to acquiesce or go hungry. There was manifest injustice in this, and impartial observers commended the efforts of the workmen to assert rights to which they were clearly entitled, through the organization of unions.

The next stage was the era of union supremacy. Not only were the men allowed a voice in determining current rates of wages and hours of labor, but they asserted and exacted that theirs should be the only voice heard on the subject. The employer was denied the right of fixing the cost of his labor, on which his profit or loss might depend. He was not allowed to determine the regulations on which his industry was to be conducted, though the success of his business might depend on the form and shape of those regulations. All three—wages, hours and regulations—were settled by a central union, which established a uniform rule for all shops.

It would have been impossible for the labor unions to establish their monopoly of labor if employers had been free to employ non-union labor. Therefore the unions laid down a rule that union men should not work in a shop where non-union men were employed. This denied to employers the right of choosing their own employees and denied to worthy workmen, who did not choose to become members of unions, the means of earning a living. In line with this rule was another forbidding union men to work in shops where more than a certain number of apprentices—fixed by the unions—were employed; this rule had the effect of still further curtailing the right of employers to choose their own workmen and of depriving young men of an opportunity of earning a living.

There only remain for workmen to enlist all the various unions in a federation, or offensive and defensive league, to complete the establishment of the wage earners' monopoly of industry. This was done when the Federated Trades was founded. It then seemed as though the monopoly was impregnable, and there was nothing for employers to do but pull up stakes and try fortune elsewhere.

But the very completeness of the plans of the labor organizers was sure to entail their failure. The despotism at which they arrived was too sweeping to endure. It was certain that capital would not submit to destruction without a struggle, and the open-

ing of that struggle marks the beginning of the third stage of the conflict. Employers have borrowed a leaf from their employees' book. In each trade a union of employers has been formed, and these unions have combined together in a Board of Employers and Manufacturers. As wage-earners have hitherto been able to dictate terms through the power of combination, so now the same power of combination will enable wage-payers to resume some small share in the conduct of their own business.

The result of the present campaign will depend on the sagacity with which it is conducted. Our labor unions are far smarter than those of Australia. In the latter country, when the seamen's union ordered a strike in 1890, the trades council ordered all other trades to strike in sympathy, and the consequence was that all classes of workmen had to live on the reserves in the treasuries of the unions, and in time they were reduced by famine. In this city, when a union orders a strike, the Council of Federated Trades forbids other unions to strike, but requires each to contribute to the support of the men on strike. Thus the strikers are fed out of the treasuries of unions whose members are steadily at work. It was from this source that the iron moulders obtained means to protract their strike for twenty months. Our employers could not do better than follow the example of the labor unions. When the brewery men, or the furniture men go on strike for alleged grievances, the step should be followed by a lock-out of the men employed in trades which have not struck, but whose unions are supporting the strikers. That is the way to carry on war—if victory is to be won.

So with boycotts. It is child's business trying to rouse sympathy for the victim of a boycott. Sympathy cools, and people have something else to do beside befriending sufferers from injustice. The *lex talionis* should come into play. Let the Employers' Union boycott the boycotters and discharge every man who is responsible for the boycott. If the labor agitators are to be believed, there is plenty of idle labor ready to fill vacancies.

Labor organization has been carried to more perfection in this State than anywhere else in the world, and the wages of labor—considered in the light of the cost of living—are higher here than anywhere. But extreme always follows extreme. It is quite on the cards that the collapse of labor organizations—which now seems to be impending—may be more thorough than was ever before witnessed in their history, and that its effect on wages may be surprising. If so, the labor unions will have only themselves to blame.—San Francisco Argonaut.

At present the American Bell Telephone Company, of Boston, has under way fifty lines of long distance telephone construction from Chicago to New York. Each of these fifty lines takes two lines of wire, and as the distance from New York to Chicago is about 980 miles, the length of wire used in connecting these two points would be 98,000 miles of wire. The size of the copper wire used in construction of the long distance telephone weighs 174 pounds to the mile, making the total weight of copper turned into wire for this one undertaking 17,052,000 pounds, or 8,526 tons; or 3,000,000 pounds more than the total production of the Tamarack for the last year; or within about 1,800,000 pounds of the combined output of the Quincy, Osceola and Franklin. Or omitting the Calumet and Hecla, Tamarack and Quincy, more copper than the remaining combined Lake Superior copper mines produced in 1890.—Mining Gazette.

* INVENTIONS. *

This department of THE CANADIAN MANUFACTURER is devoted to the interests of inventors, of patentees of inventions, and of manufacturers of patented articles. Patents are granted in Canada for fifteen years, the Government fee for which may be paid by instalments. Arrangements have been made by which the issue of all patents by the Canadian Patent Office and all renewals and extensions thereof will be promptly noticed in this department, and a brief description thereof given. Enquiries on these subjects are invited and will receive prompt attention. No charge will be made for answers by mail when return postage is sent. Information given free regarding patent laws and the obtaining of patents in Canada, United States, Great Britain and all foreign countries. Claims for inventions, as embodied in Letters Patent, also the illustrations of them, will be inserted in this journal at moderate charges. The attention of manufacturers is specially directed to the opportunities for lucrative business which may be acquired by close observation of whatever may appear in this department.

CANADIAN PATENTS.

OWING to circumstances over which we had no control, patents issued from the Canadian Patent Office since our last issue failed to reach us in time for this issue. In our next issue the list will be printed complete up to May 31st.

TWENTY cents per 1,000 watt hours is equivalent to \$2 per 1,000 feet of gas.

It is now generally held by electricians that the principle of the aurora borealis is the same as that shown by the Geissler tube, in which electricity is discharged through rarified air.

THE porous cups and carbons of a Leclanche cell may often be renewed by boiling in water fifteen or twenty minutes. If this does not do, substitute new cups and their contents.—*The Electrical World*.

AN important invention has been made in the adaptation of magnetic electricity to the prevention of the slipping of car wheels. The use of it is said to increase the hauling power of an engine many per cent.

THE electric car requires more horse power because the car drawn by horses weighs only about one-fourth as that operated by electricity, and travels at from one-tenth to one-third the speed commonly attained by the latter.

THE new insulator, termed chicle, is produced in the States of Campeche and Yucatan, Mexico. Chicle, the sap of the sapodilla tree, is extracted like camphor, india-rubber and other gum; it is an insoluble substance, and it is said to be now used extensively as an insulator.

THE H. C. Frick Coke Company has made several experiments in the last few months with electric lights in the mines, and, it is said, the company is now considering the advisability of erecting an electric light plant at each of its shaft and slope plants.

A FIRM in Switzerland is at present engaged in the construction of what is said will be the largest electric locomotive in the world. The dynamo will be from 1,500 to 2,000-horse power, and each of the eight axles will be operated by a direct acting motor.

It is estimated that during the past year 30,000 horses were supplanted in the street railway service by the electric motor. Here, if nowhere else, electricity is a blessing. There is no service which the horse is asked to do that is more severe than that required in hauling street cars, and no one will be sorry to see these faithful animals relieved of this work.

It is calculated that in sawing lumber about one-eighth is wasted, as represented by the sawdust heap. Taking the yearly cut at 30,000,000,000 feet, the waste represents 3,750,000,000 feet, and this, at the price of \$5 per thousand, shows a loss of \$18,750,000. The man who can invent a method of saving this would be pretty sure of making a fortune.

It is proposed to utilize water power near the Table mountain, in South Africa, about three and a half miles from Cape Town, in the generation of electricity to be used for the illumination of the town, as also for the motive power of the tramways. It is also proposed to utilize the Hardeck waterfalls for electrical purposes in Maritzburg, Natal, a distance of over twelve miles.

THE Agricultural and Mechanical College of Alabama, located at Auburn, claims to be first to utilize electricity in the ginning of cotton. A generator in the college dynamo-room was connected by a 300-foot wire with the motor at the station farm, and when things were in readiness the latter was started up and did the work of a 10-horse engine, which was formerly used, ginning cotton, be-

sides grinding up cob and corn for cow feed. Not only does the application of this power form a most convenient method of operating the gin, but it also obviates to a great extent danger from conflagration.

If some one would devise a primary battery which would meet the demand which the introduction of the electrical apparatus calls for, they would be sure of a fortune in a very short time. There is not a primary battery on the market to-day which gives anything like satisfactory results, the nearest approach to it being the old-fashioned gravity, or Daniels. There are many of them advertised, but few that come up to the claims made for them.

EXPERIMENTS were recently made to determine which portion of a hide of leather gave the best results when made into belting. Four strips, each eighteen inches long and two inches wide, were cut and carefully tested in a machine. One of the pieces from the centre of the hide broke at a strain of 2,490 pounds, equal to 14,940 pounds per foot of width, while the strip from the upper part of the shoulder parted at 1,130 pounds. The experimenter stated that double belts made with pieces from different portions of the hide were defective, the shoulder part being so much more liable to stretch, and is not able to stand as much strain as the centre. He claimed that a double belt would be much better if made from the same parts of the hide throughout, and that if made entirely of centres it would stand a strain of 30,000 pounds per foot of width, whereas a belt made from shoulders would hardly stand 15,000 pounds per foot of width.

Is it not possible that electricity is merely an effect? Is it not reasonable to suppose that this condition of electrical equilibrium extends to all matters and to all space? Our methods of producing electricity are simple means for distributing the electrical equilibrium. The forces from which all motion comes—electricity, heat, light, magnetism, and chemical affinity—are the active agents of the universe. All material matter is simply acted upon; and these great vital giants are nothing. They are neither fluid nor solid. We have them as one form of energy; we easily transform them into another. But back of all, are they not the several manifestations of some one great form of energy? In conclusion, electricity is a condition, an effect of matter, and it is not peculiar to any material. This condition is a state of equilibrium pervades all matter and all space, ready to produce an effect when its equilibrium is disturbed; and we know of several ways to disturb the equilibrium—by magnetism, heat, and chemical effects.

WITH the aid of a specially prepared paper the well-known sand-blast, so long identified with many industrial operations, may be applied to engraving of stone. The reason that this stone engraving has always been exempt from the applications to which the blast might be made is that it has been difficult to provide a cheap material which could be applied to the stone, and which would resist the cutting action of the sand for a sufficient length of time to allow the unprotected portions of the surface to be cut away to the required depth. The prepared paper is gummed to the face of the stone, and the design to be cut outlined on it, after which the outlines are cut through with a sharp-pointed knife, and the pieces of paper removed which cover those parts of the stone to be sunk. The blast is then applied equally over the whole stone, in cases where a greater depth is required to be cut, the blast being allowed to act upon those parts for a greater length of time. This method of cutting designs possesses many advantages, the sharpness of the outlines of the design being far more distinct than by the chisel even, and, moreover, are produced at a lesser cost, and the most intricate designs and delicate tracery, which could not be done at any cost by the ordinary method, can be executed with ease and certainty.

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."

PASSENGER ELEVATORS.

The maximum speed of the fastest passenger elevators which have ever been built, the *New York Journal of Commerce* says, is 1,500 feet a minute, a rate of one mile in three minutes and a fraction. Before the fire in the Western Union building in New York City occurred, that Company had a machine which could run 1,500 feet a minute. It was the only one of its kind in the East. Mr. Thomas E. Brown, jr., a consulting engineer of New York, thinks it possible there are few of equal speed in the West. These machines are of the water balance type—that of the original hydraulic elevator, the invention of Cyrus Baldwin. Owing to its expensiveness, and the fact that it could not be controlled automatically, it went out of use. The speed was regulated by the engineer, and it went fast or slow, as he pleased.

With the modern elevator almost any speed desired can be obtained; it all depends on the power used and the distance travelled. In a building which has a shaft of 250 feet, a speed of from 850 to 1,000 feet a minute can be attained. On a rise of 150 feet it is easy to get a speed of 750 feet per minute with a weight of 1,000 pounds aboard the elevator. In New York the fastest elevators are in the Union Trust Company's building, on Broadway, near Wall street. They shoot up or down, carrying 3,000 pounds, at a speed of 600 feet a minute. When tested with lighter weights they have travelled from 800 to 900 feet in a minute. But the average speed of elevators in office buildings in and around New York is 300 feet a minute. It is best adapted for work, and experience has demonstrated that more passengers can be carried daily in a car going at that speed in the ordinary large building than any other. The increase in the size of elevators is in keeping with improvement in other directions.

The largest passenger cars in the world are now in course of construction at Weehawken. These elevators, of which there are three, are designed to carry 135 persons on each trip, and are equivalent to ten tons. They will be owned by the North Hudson County Railway Company. A viaduct 875 feet in length has been built out from the Palisades to a point above the ferry depot. From the rails on the viaduct to the river level the distance is 150 feet. An elevator shaft of that extent is now building, and passengers who cross the ferry will be transferred to the elevators and thence to the trains, instead of ascending to the Palisades by the inclined railway as heretofore. The railroad company's contract calls for a speed of 200 feet a minute, but, as a matter of fact, the cars will be capable of going much faster. Each elevator will be worked by 200 horse power. The entire plant will cost \$30,000. Elevators are gaining favor in private houses.

The common elevators of small business buildings are worth at least \$3,000. From that they range up to \$13,000 in the same class of buildings. The American elevators in the Eiffel Tower were costly affairs. They are somewhat similar to those now constructing at Weehawken, but have not the same lifting capacity. The journey to the highest platform, a distance of more than 900 feet, is done by three elevators. The longest run of any of them is 420 feet. Each can carry fifty persons. These elevators are remarkable, because they do not go up in a straight line. Starting at an incline of 54°, they run for a distance of 250 feet, then around a verticle curve of 50 feet radius, and then at an incline averaging about 78°. From an elevator point of view the new Masonic Temple building in Chicago will be the most important in the world. It will have twenty-four cars built in a circular shaft having a 250-foot rise.

There will be express elevators, way and freight trains. The first will go to the top floor without stopping, while the others will stop

G. de G. LANGUEDOC,
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.

either at every floor, or at the fifth, tenth, fifteenth, and so on. They will not run at full speed, probably because passengers do not like the sensation of flying. With the present safety devices it is just as safe to run fast as it is to run slow. Accidents are few, and invariably due to negligence on the part of the elevator attendants or the passengers. When accidents do happen, it is usually a case of the car catching persons as they step on or off. Passengers frequently try to board a car after it starts, with the result that if caught by the elevator between the car and the floor or the ceiling, they are killed in nine out of ten cases.

Messrs. JOHN INGLIS & SON, Toronto, have just completed two tandem compound Corliss steam engines for the Kingston Electric Light Company, the cylinders of which are 16 and 30 inches diameter and 42 inches stroke. They are now building a tandem compound Arrington & Sims engine for the Mimico and Toronto Electric Railway Company, the cylinders of which are 10½ and 20 inches diameter and 12-inch stroke. They are also building two sets of pumping engines, two boilers, hydrants, etc., for the Brandon, Man., waterworks. They are also building a complete plant for the Mimico Pressed Brick and Tile Company, including a Corliss engine with cylinder 18 inches diameter and 42 inches stroke, and two boilers, each 66 inches diameter and 16 feet long. They are also building the compound marine engine, boiler and all the machinery for a passenger steamer now in course of construction at Lindsay, Ont., for Capt. McCanness. The cylinders of this engine will be 15 and 30 inches diameter and 36 inches stroke. They are also building two boilers for the Guelph waterworks, each 72 inches by 12 feet, and a boiler for the O'Keefe Browning Company, Toronto, 60 inches by 14 feet.

The Stratford Flax Mill Company have made an offer to that city to start a binder twine factory there, and to employ twenty or thirty hands, and ask the Council for exemption from taxation for ten years. The offer is likely to be favorably considered, as it is desirable that such an industry should be established. In Porth county better flax is grown than anywhere else upon this continent, both the soil and the climate being peculiarly adapted to the successful raising of flax. At present, most of the flax grown about here is exported to the United States, where it is worked up into twine, towelling, etc. The manager of the Flax Mills Company, Ald Hargarth, took some flax direct from here and had it manufactured into twine, when it turned out a very superior article, and one which gave more twine to the pound than the ordinary imported goods. An industry such as it is proposed to establish, if properly protected, should grow to gigantic proportions, and completely oust the American article from our markets. No doubt the patriotic gentleman who represents North Porth might then be induced to give as much praise to the home production as he now does to the foreign article he has sold in the past.—*Empire*.

Captains of Industry.

This department of the "Canadian Manufacturer" is considered of special value to our readers because of the information contained therein. With a view to sustaining its interesting features, friends are invited to contribute any items of information coming to their knowledge regarding any Canadian manufacturing enterprises. Be concise and explicit. State facts clearly, giving correct name and address of person or firm alluded to, and nature of business.

THE Napanee Cement Company, Napanee, Ont., are enlarging their works.

MR. JOSEPH SAULNIER has recently started a hat factory at Brookville, N.S.

THACKERAY'S planing mill at Ottawa was destroyed by fire May 10th; loss about \$50,000.

MR. P. GARDNER has started a factory at Vancouver, B.C., to manufacture wire nails, etc.

MR. A. BAILEY, Vancouver, B.C., is erecting a factory for the manufacture of spring mattresses.

MR. C. M. BOSTWICK'S saw mill at Martin's Head, N.B., was destroyed by fire May 9th; loss \$20,000.

THE furniture factory of Messrs. Dowling & Leighton, at Harrison, Ont., was destroyed by fire May 15th.

THE electric railway between Port Arthur and Fort William has been completed and the cars are now running.

MR. M. B. PEHNE'S flax mill at Doon, Ont., has been and is running overtime filling orders for binder twine.

MESSRS. DAWSON & CURRY'S cheese factory near Prescott, Ont., was destroyed by fire May 10th; loss about \$1,500.

THE Guelph Carriage Top Company, Guelph, Ont., have recently made a large shipment of their carriage tops to Australia.

MESSRS. OLIVER, ALLEN & Co., Fraserville, N.S., are starting a new shipyard and are getting out the timber for a new vessel.

THE Rackarock Company has been incorporated at Sherbrooke, Que., with a capital of \$35,000 to manufacture explosives, etc.

THE newly-established Berlin Shirt and Collar Company, Berlin, Ont., are operating with thirty hands, which number will soon be increased.

MESSRS. McGregor, Gourlay & Co., Galt, Ont., are building a 70x40 feet addition to their machine works. It is of stone, two storeys high.

THE pulp department of the paper mills of Messrs. W. Barber & Bro., at Georgetown, Ont., was destroyed by fire May 15th; loss about \$8,000.

THE capital stock of the Dominion Cotton Mills Company, whose headquarters are at Montreal, has been increased from \$1,000,000 to \$5,000,000.

THE James Stewart Manufacturing Company, Woodstock, Ont., has been incorporated with a capital stock of \$100,000 to manufacture stoves, etc.

THE agricultural implement factory of Messrs. Matthew Moody & Sons, Terrebonne, Que., were destroyed by fire May 7th; loss about \$20,000.

THE British Columbia Iron Works, Vancouver, B.C., are manufacturing the iron work for the two new bank buildings now being erected in that city.

A SYNDICATE is being formed at Wawanesa, Man., to erect a flour mill with possibly suitable power attached for the purpose of establishing a woolen factory.

THE Mason & Risc's Vocalion Company, Toronto, has been incorporated with a capital stock of \$150,000 to manufacture vocalions and other musical instruments.

THE North American Tobacco Company is being incorporated at Montreal with a capital stock of \$75,000 to manufacture tobacco. Their factory is at St. John's, Que.

MESSRS. McINTOSH, WILLIAMS & Co., of New York City, have recently begun the manufacture of eider down quilts in Montreal. Another one to the credit of the N.P.

MR. JAMES H. ETHERINGTON, proprietor of the Empire Carpet Works, Paris, Ont., has moved into a larger factory and increased the number of his looms from 16 to 20.

ARRANGEMENTS are being made by which it is believed that the Paris Manufacturing Company, Paris, Ont., will rebuild their woolen mills recently destroyed by fire.

THE Canadian General Electric Company, of Montreal, are applying for incorporation with a capital stock of \$1,000,000 to manufacture all sorts of electric machinery and appliances.

THE Consumers' Cordage Company, of Montreal, have sent us a blotter which, with its artistically ornamented celluloid cover, is not only a thing of practical utility, but of beauty besides.

MR. GEORGE RUMPLE, proprietor of the Berlin Felt Boot Company, Berlin, Ont., will erect an additional factory four storeys high and introduce machinery for the manufacture of felt socks.

THE Canadian Conduit Company, an American concern recently located in Hamilton, Ont., are receiving their machinery and expect to begin work in a few days with a force of about fifty hands.

THE Street Railway Construction Company, of Toronto, are applying for incorporation with a capital stock of \$80,000 for the purpose of building and equipping railways, furnishing plant, machinery, etc.

THE Aner Incandescent Light Company, Montreal, is being incorporated with a capital stock of \$500,000 for the purpose of manufacturing and dealing in all devices, fittings, combinations, etc., for illuminating and heating purposes.

THE Rathbun Company, who have a very extensive manufacturing establishment at Deseronto, Ont., will open a branch establishment in Winnipeg for the sale of their wares. Some of the products of the company are terra cotta, native and Portland cements, etc.

THE Lake of the Woods Milling Company have started operations in the taking down of parts of the old mill at Portage la Prairie and the erection of a new one. When completed the mill will have a capacity of 600 barrels of flour per day, with elevator of 175,000 bushels capacity.

MR. T. DRAPER, Petrolia, Ont., calls the attention of those interested to the Draper improved globe valve manufactured by him. This article is well known in every machine shop and to the users of steam engines throughout the country. Prices and particulars sent on application.

THE Consumers' Cordage Company are putting a large new engine into their works at Dartmouth, N.S. The engine is 200 horse power with condenser. The fly wheel is seventeen feet in diameter and weighs nine tons. It is grooved for transmitting power by twelve two-inch cables.

THE Crossen Car Manufacturing Company, of Cobourg, Ont., inform us that their works are now very full of work in orders for tourist and colonist sleeping cars, second class and vestibule dining cars, all for the Canadian Pacific Railway Company. The cars turned out by this company are all first class in every respect.

MESSRS. E. H. PORT & Co., of New Westminster, B.C., have recently sent to New York 20,000 pounds of fresh salmon, packed in ice. The fish are shipped just as they are taken from the water, except that they are thoroughly washed to remove the slimy matter. This was the largest shipment of fresh salmon ever made to the United States from British Columbia.

FIVE carloads of the product of the St. Croix Soap Manufacturing Company left the station here yesterday—two for Montreal, one for Toronto, one for St. John and one for Halifax. Notwithstanding the many increases made from time to time in their producing power, the company find their capacity none too great for the steadily improving demand for the excellent goods they turn out.—St. Croix, N.B., *Courier*.

THE object of the Canadian Colored Cotton Mills Company, Limited, in increasing their stock to five millions was to buy up the property, stock in trade, etc., of the following mills, viz.: The Stormont, St. Croix, Canada, Lybster, Merritton and Ontario Companies. The directors of this company are: Messrs. A. F. Gault, D. Morrice, sr., and R. L. Gault, of Montreal; King, of Boston, and C. D. Owen, of Providence, R.I.

MESSRS. JOHN FENSOM & SON, Toronto, manufacturers of elevators, are now building four freight elevators for different buildings belonging to the Toronto Land and Security Company, two of which are for their new warehouses now being erected on Bay Street; also two elevators for the warehouse of Messrs. Gowans, Kent & Co., on Front Street, and one for Mr. S. H. Jones' new building at intersection of Yonge and King Streets.

THE Dodge Wood Split Pulley Company, of Toronto, make a special point of shipping all ordinary orders for pulleys on day re-

ceived. This is a great convenience to users of power, and when generally known should be appreciated, particularly at this time of year when more or less fitting up is going on. The company issues a very complete illustrated catalogue setting forth all the advantages of the wood split pulleys, and will be glad to mail same with best discounts to intending purchasers.

Messrs. F. E. Dixon & Co., Toronto, inform us that they are very busy manufacturing their genuine oak tanned leather belting for electric light and power purposes. As we have before stated, this concern has made all the belting used in the power house of the Toronto Electric Light Company, some of these being very long, very wide and subjected to the severest tests; and the fact that they are giving the utmost satisfaction is the very strongest recommendation that could be accorded them.

The Dominion Bridge Company being the lowest tenderers, have obtained the contract for placing a new iron bridge across the Petittodiac River at Salisbury. The work is to be completed by Dominion Day. Work will now rapidly be pushed on the Moncton bridge. The framework of the spans is well advanced towards readiness for erection. The work of strengthening and improving the bridge will be much more extensive than is generally supposed. The bridge may be classed as a new one when finished.—Moncton, N.B., Transcript.

Messrs. Christie, Brown & Co, biscuit manufacturers, Toronto, are erecting a brick building adjoining their present works, and an extension of the same, which will largely increase their capacity for output. It will be 132x67 feet, five storeys high, which will double their present floor space. They will put in another steam engine and boiler and considerable new machinery, including two new ovens—one for specialties, and an English travelling oven for manufacturing high class goods which cannot be made as well in any other oven. The new works will be completed and in operation in time to meet the demands of the fall and holiday trade.

The town of Perth, Ont., are offering a large bonus to Messrs. R. Gemmill & Son, of Port Elmsley, Ont., to remove their woolen mills to that place. Speaking of this the Perth *Expositor* says: "At a largely attended meeting of the Board of Trade the matter was very fully discussed. The arrangement with Messrs. Gemmill to pay them \$11,000 was approved, and of the two propositions submitted by the Finley Bros., one for \$11,000 with new buildings, and the other for \$9,000 with liberty to buy the Stanley factory buildings,

the latter was approved by a large majority. One chief reason for preferring the \$9,000 bonus was that our limit under the law is about \$25,000, and as Mr. Lillie proposes to re-open the bolt works and employ twenty-two to twenty-five hands for a bonus of \$5,000, his offer could not be accepted if we gave \$22,000 to the other two industries." The by-law will be submitted to the ratepayers soon.

The Polson Iron Works Company, Toronto, have just shipped the compound marine engine built by them for the Dominion cruiser No. 2 now nearly ready for launching at their shipbuilding works at Owen Sound. The cylinders of this engine are 18 and 36 inches diameter and 24 inches stroke. They are also at work building a similar engine for cruiser No. 3, the construction of which they will begin as soon as No. 2 is launched. It is expected that No. 2 will be ready for service in September. They are also busy on the 10,000,000 gallon pumping engine being built for the Toronto Water Works. These engines are cross compound Corliss type, cylinders 28 and 59 inches diameter and 48 inches stroke, and will be completed within a month. They have just finished the construction of two steam boilers for the Hamilton Electric Light Company. They are 250 horse power each, and embody the Caldwell water tube patent, the right to which the Polson Company have acquired for Canada. They have just finished and shipped to St. Thomas, Ont., a very large patent water filter manufactured by them by order of the New York Filter Company.

The Nanaimo, B.C., *Free Press*, commenting on the fact that large consignments of fire clay from the Wellington and Northfield mines have been sent to Victoria, B.C., to be used in the pottery works there, has the following: "The Victoria Pottery recently received an order for 200,000 or 300,000 fire bricks from a firm at Kootenay, and before accepting the order, the clays from Wellington were thoroughly tested, and it was decided that, if possible, the clay from shaft No. 1 would be used. We understand that a sufficient quantity of the required article has already been delivered to fill the order. There is no doubt that the clay from both the Wellington and Northfield mines is peculiarly adapted for pottery and fire brick purposes, and it seems a great mistake to allow of this article being exported from the district, when we have every facility for converting it into a saleable article right at hand. There should be a good opening for some enterprising individual to start a pottery and a brick yard in this vicinity and utilize the material, thus opening up a new industry in our midst, which would undoubtedly benefit the promoter, his employees and the district."

LAMKIN'S PATENT.



What is Mineral Wool?

A Fire and Frost-proof Insulating material, blown from rock. Used for covering Steam, Hot Water, and Hot Air Pipes, Boilers, and Furnaces, and for Densifying and Fireproofing buildings. Covering Hot Pipes and Boilers saves forty per cent. in fuel.

EXCLUSIVE DEALERS AND PATENTEES.

Canadian Mineral Wool Co., 122 Bay St., Toronto.

SEND FOR CATALOGUE.

BELTING

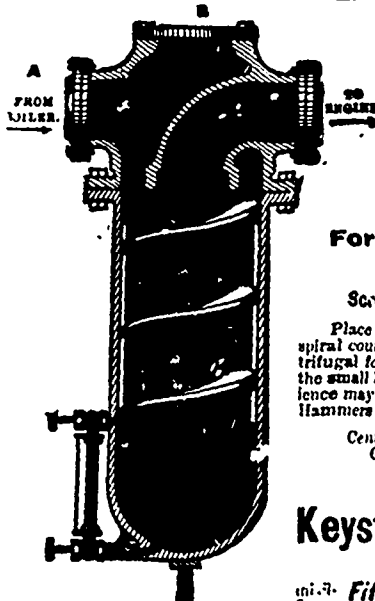
Patent Rolled Shattings,

Hangers AND Pulleys,

Wrought Iron Pipe and Fittings.

RICE LEWIS & SON Limited.

General HARDWARE Merchants, TORONTO.



SIMPSON'S CENTRIFUGAL

STEAM SEPARATOR,

For Supplying Clean and Dry Steam to Engines, Dry Houses, etc.

Screwing Flanges included with each Flanged Separator.

Place Separator as close to engine as possible. The steam taking a spiral course between the threads causes the water to be thrown by centrifugal force against the outer walls, while the dry steam goes through the small holes to centre of pipe. Steam can enter at A or B as convenience may require; also used in conveying steam long distances for Steam Hammer and Dry Houses.

Centrifugal Steam Separators, Centrifugal Oil Extractors, Centrifugal Exhaust Heads, Keystone Double and Single Plunger Belt Pumps, Keystone Feed-Water Heaters and Purifiers.

Keystone Engine & Machine Works

W. L. SIMPSON, M.E.

5th and Buttonwood Sts., Philadelphia, Pa.

SPEAKING of the factory of Messrs. A. M. Nowlands & Co., Galt, Ont., the *Reporter* of that town says: "We imagine but few of our townspeople have any conception of the importance of the trade of this factory or the amount of its annual output. To give an idea we believe we are correct in saying that it stands quite high up in value amongst our manufacturing establishments. Of glove, rubber and shoe linings it produces considerably over 300 different patterns, plain and striped, and a very large variety of jersey patterns for children's dresses. The Lambskin curls and Astrachans in many colors are very pretty and are largely used. Then come the manufacture of carriage robes, in imitation of buffalo, only water and wind tight, and much more durable than the old buffalo robe; imitation fur overcoats, handsome, warm and a perfect protection from either wet or cold weather, a grand thing for farmers or others much exposed in the winter time. Rugs, large and small, are also largely made. The factory is self-contained and does all its own work except the making of the woolen and cotton yarns used, which necessarily are of the finest variety. The yarns are stored until required, dyed the requisite colors and then woven on one of the various machines to the desired pattern, the cloth produced being then passed through the machine required to finish it for the purpose designed. The factory is situated on Mill street, is a brick two-story structure, fitted with the automatic fire sprinkling system and all the mechanical details are designed for security and ease of access, the latter so far as business demands does not somewhat overcrowd machinery.

The Toronto Stamping Company is a new manufacturing concern recently started in Toronto, which is already doing a most gratifyingly large business, and which is a direct result of the N.P. A recent inspection of one department of this factory—that for the manufacture of suspender buckles, clasps, etc.—disclosed the character of the enterprise. It began operations in December last with an equipment of two power presses and two employees, and there are now nineteen such presses and eight special machines, giving employment to over twenty hands. There is an American automatic buckle and ring forming machine for making wire buckles, angle, square and D rings, and an additional machine of similar character is now being erected; and there is a complete nickel-plating plant for electroplating all such articles as are produced in the factory. A machine shop has just been added to the plant

than which there is no better equipped in the country, considering the class of work done in it. Mr. Frederic Taylor, one of the company, is an accomplished mechanic and an expert die maker, and the ingenuity he has displayed in originating special tools to be used in his business has enabled his company to greatly cheapen the cost of their products. In some of their machines but one operation is required to perfect an article, while to obtain the same result in American machines three operations are required. On their buckle and clasp machine their capacity is to manufacture 20,000 per day. In the production of the innumerable small articles made in this factory the average requirement is for 360,000 different and distinct operations per day. The factory covers a floor space of 5,100 square feet, and this will have to be enlarged in the near future, to accommodate the six additional power presses now being built for it. The lines of articles manufactured by the Toronto Stamping Company include lanterns, lamps, soap-boxes, pill-boxes, salve-boxes, inhalers, oil-tins, paint-tins, varnish-tins, biscuit-tins, etc., and stampings are made for buckles, suspenders, buttons, gasaliers, curtain rolls, telephones, pocket-books, bird-cages, toys, etc. All sorts of special stamping made to order; and presses, dies and special machinery made for the manufacture of steel metal wares.

WHAT will be one of the most beautiful specimens of naval architecture ever seen afloat in Canadian waters, and one of the most complete and comfortable in all her appointments, is the steam yacht now being built in Toronto for Mr. Albert E. Gooderham, by the John Doty Engine Company, after designs and plans furnished by Messrs. G. L. Watson & Son, of Glasgow, Scotland, the builders of the celebrated *Thistle* and many other flyers. She will be 118 feet long and 17 feet beam, hull entirely of steel, with four water-tight compartments, triple expansion engines, cylinders 10, 15 and 25 inches, with 12-inch stroke, Mather boiler to carry 200 pounds steam, which will develop 375 horse power in engines. Mr. Mosher, who designed this boiler, also designed that for the American yacht *Norwood* and other very fast boats. The screw will be of manganese bronze and known as a Thornycroft torpedo screw, to be run at 330 revolutions per minute. The outside streaks of planking below the plank sheer will be of imported teak wood, but all the interior finishing will be of Canadian hardwood. Mr. Gooderham, in giving the Messrs. Watson instructions for

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 COLORS.**

WINN & HOLLAND, Montreal,

Sole Agents for the Dominion of Canada.

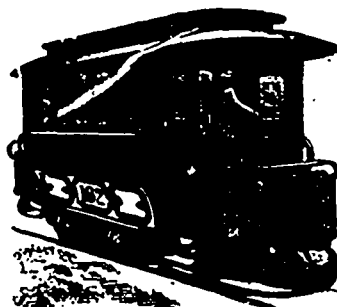
← PATTERSON & CORBIN →

FINE

ELECTRIC CARS

OUR

SPECIALTY



ST. CATHARINES, ONT.

MANUFACTURERS OF

Horse and Trail Cars

OF

EVERY DESCRIPTION

what he wanted as regards the model, as well as the interior accommodations and arrangements for this yacht, emphasized the fact that he desired a cruiser, not a racer, and that comfort and convenience should in no manner be sacrificed for speed. This is being observed, but it is safe to say that at the homestake of any skirmish race in which this vessel may participate she will not be found loitering in the rear. The deck will be flush from bow to stern, unobstructed except by the usual and necessary houses. The between decks will be six feet three inches in the clear, giving an abundance of head-room. The dining saloon, in the fore-part of the vessel, will be 12x13 feet, and will comfortably accommodate twelve or fourteen persons. Opening from this will be the owner's room, of generous size and furnished with every convenience—folding bed and sofa, desk, etc. The ladies' saloon, which will be aft, will have stateroom accommodations for four guests, with toilet-room, bath-room with hot and cold water, etc., and there will also be accommodations for quite a number of gentlemen. Aft of the ladies' saloon will be separate quarters for the officers of the vessel, and these will be equipped with every convenience. On the

main deck, forward of the smokestack, will be the cook's galley, which will be most thoroughly furnished, and from which convenient access will be had to the dining-room immediately below, and the galley will be perfectly ventilated by the up-draught in the smokestack. Forward of the galley will be a gentleman's smoking-room. The yacht will be sufficiently supplied with boats, life-preservers and other safety appliances. The windlass will be operated by steam, also the steering gear, and electric lamps will supply light wherever needed. In fact, no desirable thing will be left undone, and everything throughout will be of the best quality and workmanship. Messrs. Watson & Son have sent out one of their most reliable men to superintend the construction and equipment of this vessel, and it is expected that she will be ready for service in July. Her cost will be about \$40,000.

Established 1872.

THE

Accident Insurance Co.

OF NORTH AMERICA.

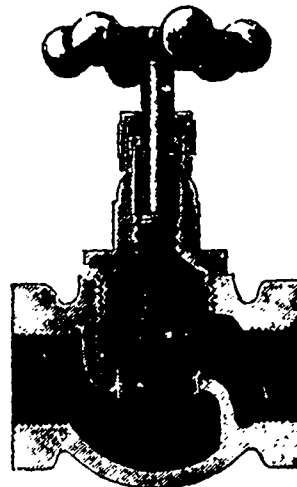
NEW FEATURE:

Joint Insurance for Partnerships.

Important to Manufacturing Firms.

MEDLAND & JONES, Gen'l Agents,

Mail Building, TORONTO.



DRAPER'S

IMPROVED

Globe Valve

Constructed to prevent Scales or Grains of Dirt being caught between faces at point of closing.

When the projection on valve enters the seat orifice, of which it is an easy fit, only clean fluid rushes past. Scales, etc., are pushed back and the faces meet with nothing between to injure them. Send for prices and particulars to

T. Draper, MANUFACTURER
BALL VALVES

For Various Purposes,

Oil and Salt Well Supplies, Etc.

PETROLEA - - ONTARIO.

Galt Foundry, Engine and Machine Works.

MANUFACTURERS OF

Corliss Steam Engine

FOR

Driving ELECTRIC Machinery.

COWAN & CO. - GALT, ONT.



The Bell Telephone Co.

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, &c.

For further particulars apply to

No. 12 HOSPITAL ST., - MONTREAL.

THE POLSON IRON WORKS CO., Ltd.

Capital, \$300,000

HEAD OFFICE, TORONTO

Builders of the Celebrated BROWN AUTOMATIC ENGINE.

Single, Tandem and Triple Expansion. Specially Designed for

ELECTRIC LIGHT PLANTS.

12,000 Horse-Power of these Engines built by us are NOW IN USE IN
ELECTRIC LIGHT PLANTS IN CANADA

A. ALLAN, PRESIDENT.

J. O. GRAVEL, SECRETARY-TREASURER.

F. SCHOLES, 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, Man.

WESTERN BRANCH:

Cor. Front and Yonge Sts., Toronto.

J. H. WALKER,

Manager.



"Dodge" Patent Wood Split Pulley



All Ordinary Orders

Send for List

SHIPPED ON

— AND —

• DAY RECEIVED. •

• DISCOUNTS. •

Dodge Wood Split Pulley Co.

83 King St. West, TORONTO, ONT.

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 Incandescent 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.

THE TORONTO CONSTRUCTION & ELECTRICAL SUPPLY CO., LIMITED.

Authorized Capital
\$250,000

OFFICE AND SHOWROOMS: 63 to 69 Front St. West, Toronto.

Branches at
Winnipeg, Man.; and St. John, N.B.

ELECTRIC LIGHTING FOR MILLS AND FACTORIES

We are prepared to submit Estimates for Complete Electric Light and Electric Power Equipments for Mills and Factories.
We carry the Largest Stock of ELECTRICAL SUPPLIES in Canada.

SOLE CANADIAN AGENTS
FOR THE

THOMSON-HOUSTON SYSTEMS

OF INCANDESCENT
ELECTRIC LIGHTING.

Electric Street Railways, Electric Mining Apparatus, Electric Pumps, Electric Hoists, Power Generators and Motors, Direct Reading Watt Meters, Transformers, Incandescent Lamps and all General Supplies for Electric Light and Railway Plants.

THE "WOOD" ARC LIGHTING SYSTEM.

(Manufactured by the Fort Wayne Electric Company.)

A Full Line of Electric Lighting and Power Supplies always in Stock. Write for Estimates.

W. R. BROCK,
President.

H. P. DWIGHT,
First Vice-President.

FREDERIC NICHOLLS,
Second Vice-President and General Manager.

The Londonderry Iron Co., Ltd.

MANUFACTURERS OF

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

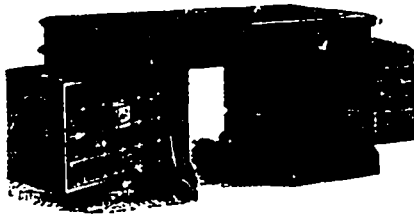
OFFICE, **MONTREAL.** WORKS, **LONDONDERRY, NOVA SCOTIA.**

The Canadian Office & School Furniture Co., Ltd.

PRESTON, ONT.

SUCCESSORS TO W. STAHLSCHEMIDT & CO.

Manufacturers of Office, School, Church and Lodge Furniture.



Rotary Desk No. 56.

SEND FOR CATALOGUE.

G. & J. Brown M'f'g Co.

(LIMITED.)

BELLEVILLE, ONT.

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

RAILWAY & CONTRACTORS' SUPPLIES A SPECIALTY

FROGS, DIAMOND CROSSINGS, SWITCHES, HAND CARS, LORRIES,
VELOCIPÈDE CARS, JIM CROWS, TRACK DRILLS,
SEMAPHORES, RAIL GAUGES, DOUBLE AND
SINGLE DRUM HOISTS, ETC., ETC.

NAPANEE CEMENT CO.,

(LIMITED.)

NAPANEE MILLS, ONTARIO

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., furnished on application.
Endorsed by leading Cities, Engineers, Railways and others.

ROACH LIME Particularly adapted for paper manu-
facturers, gas purifying, etc.

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 Fire Castings where
the utmost strength is required.

This Brand of Iron has been found Equal to the Famous "Salisbury" 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, Dennams, Cottonades,
Tickings, Bags, Yarn, Twine, etc.
TWEEDS—Fine, Medium and Low Priced Tweeds, Serges, Cassimeres,
Doeskins, Etoffes, 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.

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.

Established 1841.

THOROLD

Hydraulic Cement Mills

THOROLD, ONTARIO.

ESTATE OF JOHN BATTLE

Manufacturers of Hydraulic Cement of the
Best Quality for

Bridges, Culverts, Aqueducts, Tanks, Cisterns,

And every species of Stone or Brick Work under
Water or exposed to dampness.

Millers' and Manufacturers' Insurance Co^y.

STOCK AND MUTUAL.

OBJECTS.

1. To prevent by all possible means the occurrence of avoidable fire.
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.

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 WELLINGTON MILLS
LONDON, ENG.
GENUINE EMERY

OAKLEY'S Flexible Twilled Emery Cloth.
OAKLEY'S Flint Paper and Glass Paper.
OAKLEY'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 OAKLEY & SONS, Wellington Mills, Westminster Bridge Road, London, Eng.

ENQUIRIES SHOULD BE ADDRESSED TO
JOHN FORMAN, 467 St. Paul St., MONTREAL.

THE MANUFACTURERS' Life Insurance Company.

PRESIDENT **GEORGE GOODERHAM,**
President Bank of Toronto.

**A
Five
Years'
Record**

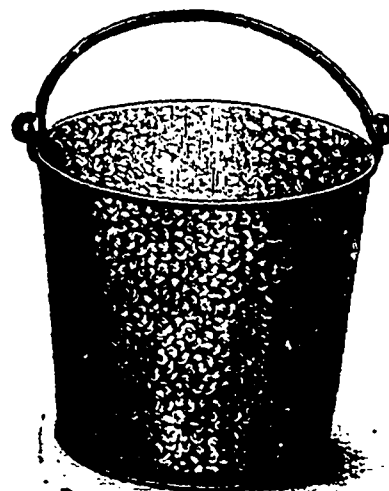
Income	\$207,486.
Increase over previous year	\$30,069.06
Gross Assets	437,959.11
Increase over previous year	86,219.18
Insurance Reserve for the protection of Policy-holders	289,045.00
Increase over previous year	71,795.00
Surplus on Policy-holders account	135,307.63
New Business written in 1891	2,111,100.00
Insurance in force Dec. 31, 1891	7,414,761.00

Head Office, - TORONTO.

JOHN F. ELLIS, - - - - - **Managing Director.**

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 protects them 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 Manufactur'g 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

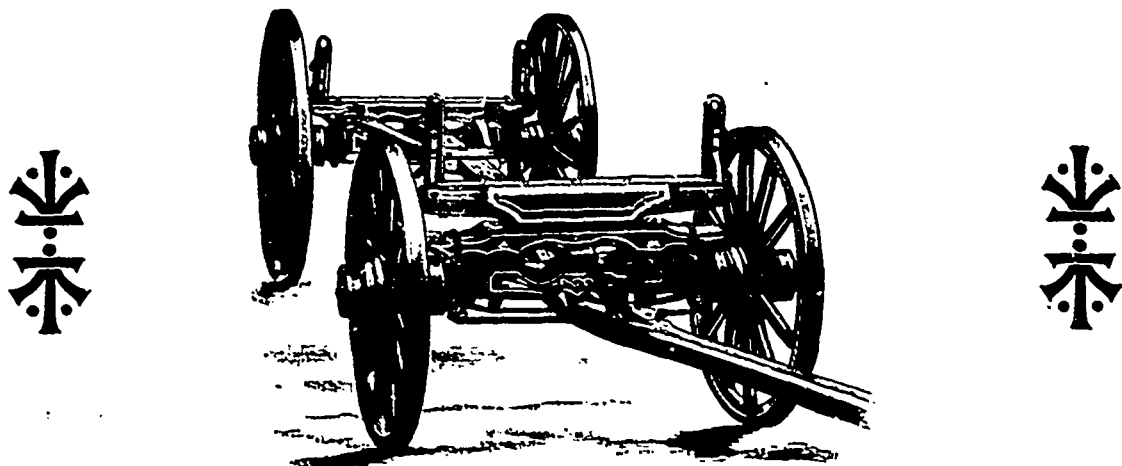
THE BELL ORGAN & PIANO CO., Ltd.

HEAD OFFICE AND FACTORIES:

GUELPH, ONT.

BRANCH WAREHOUSES,

LONDON, ENG., SYDNEY, N.S.W., AND TORONTO, HAMILTON & LONDON, ONT.



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 MFG CO. L'td.,

Chatbam, Ont.

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 closest prices, every description of coloring materials required by manufacturers of woolens, cottons, silks, paper, leather, etc. Are sole agents in Canada for the celebrated aniline dyes of A. Perrier, Paris.

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

Advertising

IF YOU wish to advertise anything anywhere at any time write to Geo. P. Rowell & Co., No. 10 Spruce Street, New York.

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.

Chemicals and Dye Stuffs.

McARTHUR, CORNEILLE & CO., Montreal.—Offer at closest figures chemicals required by soap-boilers, oil refiners, paper-makers and manufacturers of woolens, 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 Muskrat & Sons, Liverpool, Soda Ash, Bleaching Powders, etc. Specialties for Cotton, Woolen and Leather Colors.

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.

Hoists and Elevators.

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

Hubs, Spokes, Handles, etc.

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

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 warehouse 58 Yonge St. Agents—The Precision Iron Works Co. Montreal warehouse, Craig St. Agents for Quebec—The Machinery Supply Association, Montreal.

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 closest 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 Curriers. 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.

THE GANT BROS CO. of Galt, Ltd., Galt, Ont.—Wood-working machinery for builders, planers, furniture, cash and door and wagon works. Toronto warehouse, 141-145 Front St. west. Agent, H. W. Petrie, Front St. west.

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.

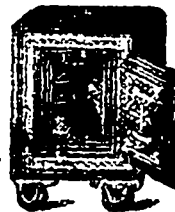
CORRUGATED IRON

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 BURGLAR AND FIRE PROOF SAFES,

Stamp and Stone Extractors, Cash and Parcel Railway for stores, Iron and Wood Money Tills, etc. Good Agents wanted in every town. For catalogue, terms, etc., address

S. S. KIMBALL, Manufacturer, 577 Craig St., Montreal. P. O. Box 945.

WILM KNOX.

JOHN H. ELLIOT.

Knox & Elliot,

Architects,

Engineers,

and

Mill Constructors,

Office:

19 Queen Street East, Toronto.

Hamilton Whip Company

HAMILTON, - ONTARIO

Manufacturers of the world-renowned

Eel Skin Lined Whips.

Pat. Jan. 20, 1883. 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 2563. Opposite Union Station.

When
Corresponding
with
Advertisers
Mention

The
Canadian
Manufacturer

THE HEPANS TABLETS regulate the stomach, liver and bowels, purify the blood, are pleasant to take, safe and always effectual. A reliable remedy for biliousness, blotches on the face, Bright's Disease, Catarrh, Colic, Constipation, Chronic Diarrhea, Chronic Liver Trouble, Diabetes, Disordered Stomach, Dizziness, Dysentery, Dyspepsia, Eczema, Flatulency, Female Complaints, Foul breath, Headache, Heartburn, Hives, Jaundice, Kidney Complaints, Liver Troubles, Loss of Appetite, Mental Depression, Nausea, Nettles Rash, Pimples, Pruritus, Rheumatism, Scurvy, Skin Diseases, Stomach, Tired 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 Hepans Tablets is the surest cure for obstinate constipation. They contain nothing that can be injurious to the most delicate. 1 gross \$2, 1-2 gross \$1.25, 1-4 gross 75c, 1-8 gross 50c. Sent by mail postage paid. Address THE HEPANS CHEMICAL COMPANY, P. O. Box 672, New York.



Sprague, Duncan & Hutchinson, Limited.
FRANK J. SPRAGUE,
LOUIS DUNCAN, Ph. D.,
ALFRED BISHOP MASON,
CARY T. HUTCHINSON, Ph. D.
Consulting Electrical Engineers.
15 WALL STREET,
NEW YORK.

FORREST SILVER BRONZE PACKING.



Applied to any stuffing box without disconnecting. Steam, air and water-tight without the aid of soft packing, under highest steam pressure and piston velocity. Automatic, admits of excessive 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.

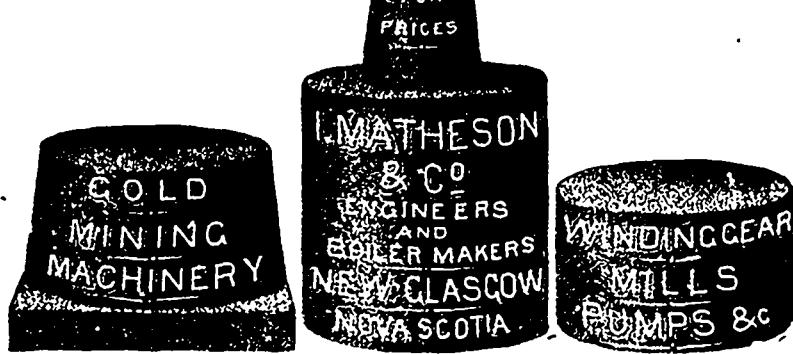
STEEL STAMPS
 I.C. FELL & CO. STAMPS
 VICTORIA & TORONTO

J. L. O. VIDAL & SON,
 City of Quebec,
 Agents to sell and handle on commission all sorts of New and Second-hand Machinery.

Trade Mark Manhattan. Registered Sept. 24, 1889, No. 17,054.
MANHATTAN
SELF-LUBRICATING
 Plum & go 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 circulars, or sample for trial to
GREENE, TWEED & CO.,
 Mfrs., 31 Chambers Street, N.Y.

NEW & 2ND HAND
MACHINERY
 ILLUSTRATED CATALOGUE FREE
H.W. PETRIE
 TORONTO, CANADA.
BEST LEATHER
BELTING
 ALWAYS ON HAND
 TELEPHONE 2590.

SPECIAL MIXTURE USED **WRITE FOR PRICES** **FOR SHOES & DIES**



MATHESON & CO
 ENGINEERS AND BOILER MAKERS
 NEW GLASGOW
 NOVA SCOTIA

WINDING GEAR MILLS PUMPS &c

JORDAN CHAMBERS
W. Kramer,
 DESIGNER & ENGRAVER ON WOOD
 TORONTO ONT

CAST IRON SUCCESSFULLY TINNED
 We are prepared to put in successful operation Tinning plants for the above named purpose. This is no experiment, as the process is in successful operation with several well known firms. We are also prepared to put in Galvanizing or Tinning Works for any class of work. Sample of Tinned Cast Iron on application.
WM. T. FLANDERS & CO., Nashua, N.H.

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.

Henry New, Pres. J. H. New, Vice-Pres. A. E. Carpenter, Sec.-Treas.
 TORONTO



TRAP
INCREASER
P. TRAP
BRANCH
BRANCH

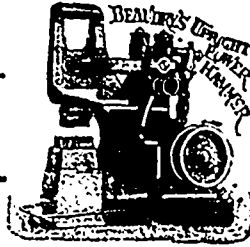
THE HAMILTON AND TORONTO
SEWER PIPE CO'Y,
 (LIMITED),
 HAMILTON, CANADA.
 Successors to The Campbell Sewer Pipe Co. and The Hamilton Sewer Pipe Co.
 —MANUFACTURERS OF—
Steam-Pressed, Salt-Glazed
VITRIFIED
SEWER PIPE

FLUE PIPES, CHIMNEY TOPS and SMOKE PREVENTIVES.

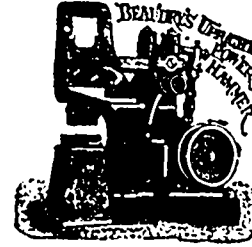
Established 1860.



SIMPLE,



PRACTICAL

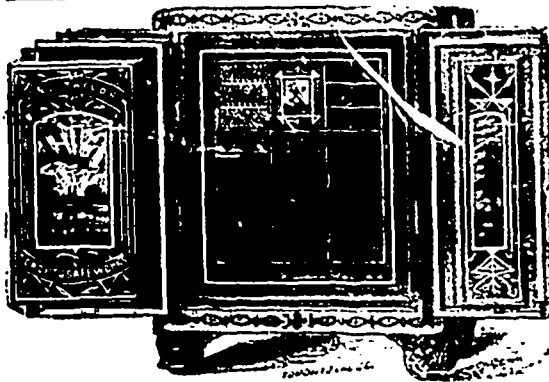


AND BEST.

BEAUDRY UPRIGHT CUSHIONED POWER HAMMER

The most handy, compact, and above all, the most efficient tool ever invented or Manufacturers of all descriptions, Railroad Shops, Steel and Machine Forgers, File and Vico 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, SUCCESSORS TO Miller Bros. & Mitchell, | Sole Makers for | **MONTREAL.**
Toronto Office, 74 York Street. Canada,



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.

For Catalogues and Prices on application.

J. & J. TAYLOR, Toronto Safe Works

THE MONARCH ECONOMIC BOILER

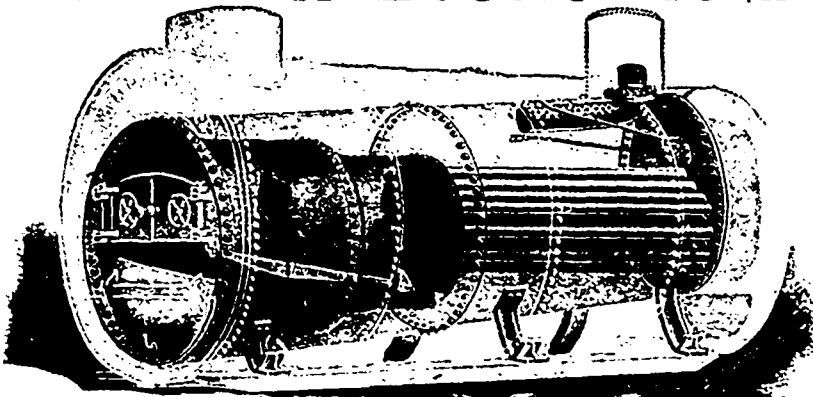
Patented Can. May 6, 1886;
Feb. 10, 1887.

Patented U.S.A. Oct. 3, 1886;
Aug. 23, 1887; May 8, 1888.

Is the strongest and most
Portable Boiler

in use, and its high economy
in fuel makes it specially valu-
able to gold miners.

Tested evaporation: 10.25 lbs.
water per pound of ordin-
ary Nova Scotia coal.



Manufacturers of

**The Robb-Armstrong
Automatic Engine,**

The Hercules Engine,
(For all purposes).

Saw Mill, Electric Machinery
BELTINGS,

PACKINGS, OILS, Etc.

Robb Engineering Co.

LIMITED,

Successors to

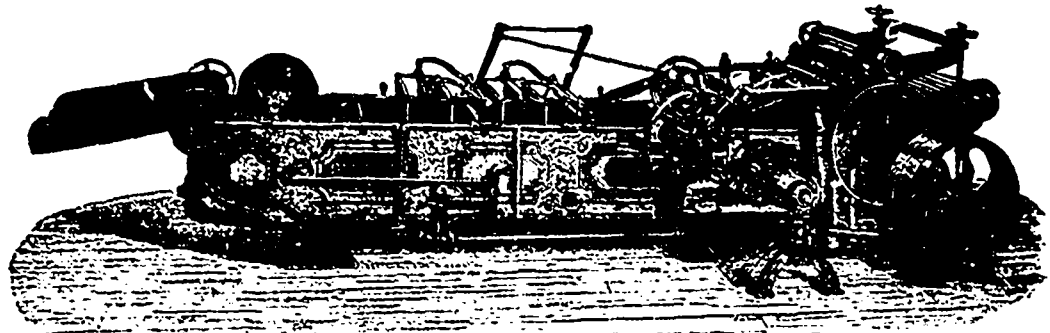
**A. ROBB & SONS
AMHERST, N.S.**

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.

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*

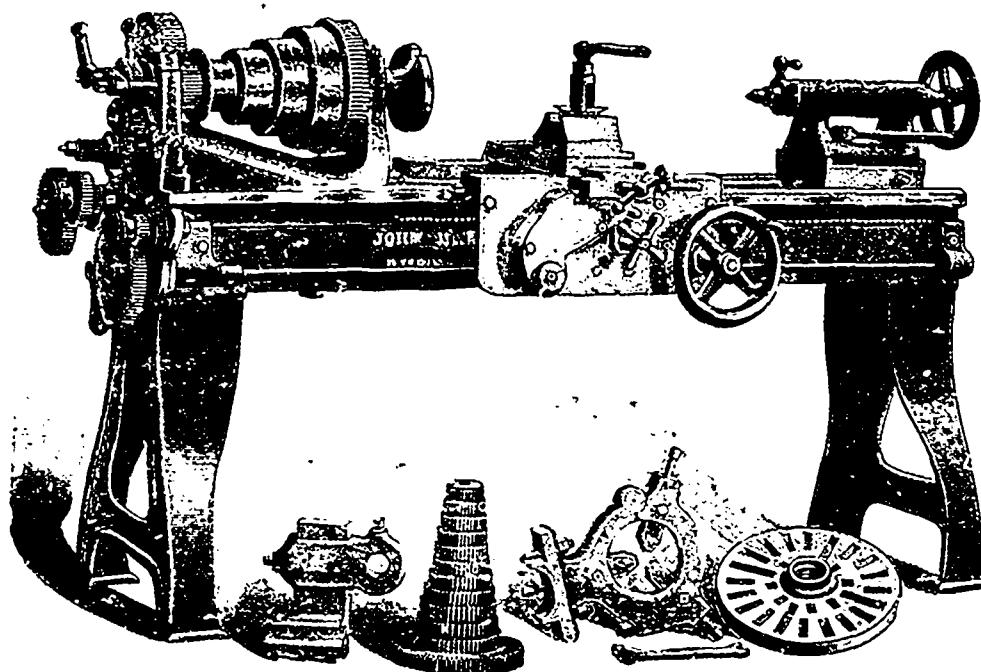
OF EVERY DESCRIPTION

Hay Rake, Cultivator and Harrow Teeth, and Agricultural Springs

Canada Tool Works,

John Bertram & Sons,

DUNDAS, ONT.



16-in. LATHE;

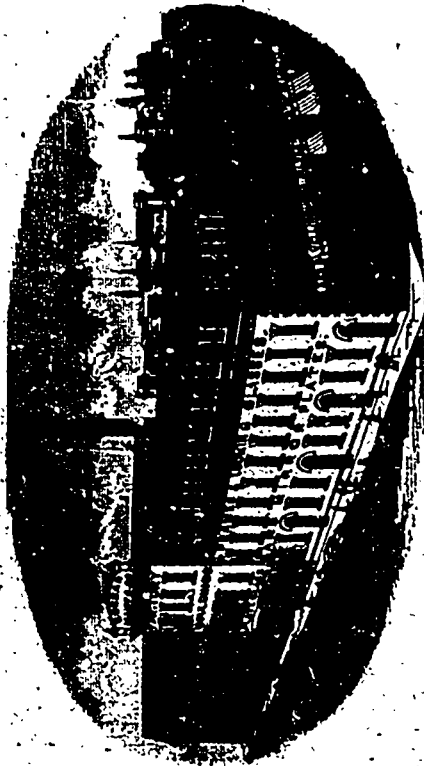
Manufacturers
of
Machinists' Tools
and
Woodworking
Machinery.

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

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

COBBAN MANUFACTURING COMPANY, Ltd.

Factory & Head Office: Toronto.



Cor. Terauley and Hayter Sts.

MANUFACTURERS OF
 Mantles, Over Mantles and Mirrors in Finest Hardwoods. Mouldings, Picture
 Frames and Looking Glasses. Mirror Plates: British, French, German,
 Stocks. Plate Glass Beveling and Silvering a Specialty.
CLOSE PRICES. LIBERAL TERMS.

TORONTO.

HEINTZMAN & CO.

MANUFACTURERS OF



**GRAND,
 SQUARE,
 AND UPRIGHT
 PIANOFORTES.**

SEND FOR ILLUSTRATED CATALOGUE.

Warerooms, 117 King St. West,
TORONTO.

GALT MACHINE KNIFE WORKS.

PLANING MACHINE
 KNIVES.

STAVE CUTTER KNIVES.



STAVE JOINTER KNIVES.



MOULDING, TENONING

MITREING

SHINGLE JOINTER,

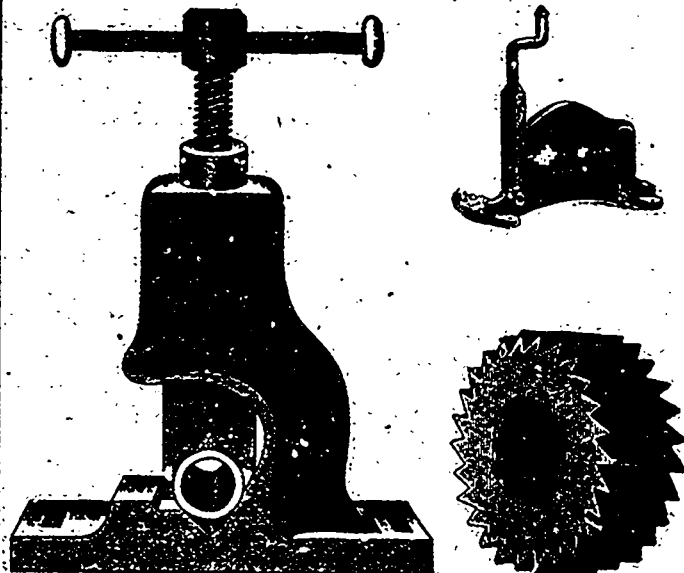
And other irregular shapes.



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

PETER HAY,

GALT, ONT.



BUTTERFIELD & CO.,

Rock Island, P.Q.

MANUFACTURE
 PIPE VISES,
 CUTTERS, TONGS,
 WRENCHES,

All Styles
 GUMMER
 CUTTERS.

Stocks and Dies, Taps, Drills, Reamers, Etc.

SEND FOR ILLUSTRATED CATALOGUE.

CHEMICALS

Drugs,
Acids,
Aniline
Colors,

DYE-STUFFS,

OILS.

BELLHOUSE, DILLON & CO.

9 Custom House Square, 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 in 1848.

STEEL.

Singer, Nimick & Co.,

(LIMITED)

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

Represented by

MR. HUGH RUSSEL

Temple Building, 185 St. James St., MONTREAL.

Mention this paper.

THE OSHAWA
Malleable Iron Co.

MANUFACTURERS OF

**MALLEABLE IRON
CASTINGS TO ORDER**

FOR ALL KINDS OF

Agricultural Implements

AND

MISCELLANEOUS PURPOSES.

Oshawa, Canada.

**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.