

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.

- |  |  |
|--|--|
| <input checked="" type="checkbox"/> Coloured covers/<br>Couverture de couleur  | <input type="checkbox"/> Coloured pages/<br>Pages de couleur   |
| <input type="checkbox"/> Covers damaged/<br>Couverture endommagée  | <input type="checkbox"/> Pages damaged/<br>Pages endommagées   |
| <input type="checkbox"/> Covers restored and/or laminated/<br>Couverture restaurée et/ou pelliculée  | <input type="checkbox"/> Pages restored and/or laminated/<br>Pages restaurées et/ou pelliculées                    |
| <input type="checkbox"/> Cover title missing/<br>Le titre de couverture manque   | <input checked="" type="checkbox"/> Pages discoloured, stained or foxed/<br>Pages décolorées, tachetées ou piquées |
| <input type="checkbox"/> Coloured maps/<br>Cartes géographiques en couleur   | <input type="checkbox"/> Pages detached/<br>Pages détachées  |
| <input type="checkbox"/> Coloured ink (i.e. other than blue or black)/<br>Encre de couleur (i.e. autre que bleue ou noire)   | <input checked="" type="checkbox"/> Showthrough/<br>Transparence   |
| <input type="checkbox"/> Coloured plates and/or illustrations/<br>Planches et/ou illustrations en couleur  | <input checked="" type="checkbox"/> Quality of print varies/<br>Qualité inégale de l'impression                    |
| <input checked="" type="checkbox"/> Bound with other material/<br>Relié avec d'autres documents  | <input checked="" type="checkbox"/> Continuous pagination/<br>Pagination continue                                  |
| <input checked="" type="checkbox"/> Tight binding may cause shadows or distortion<br>along interior margin/<br>La reliure serrée peut causer de l'ombre ou de la<br>distorsion le long de la marge intérieure  | <input type="checkbox"/> Includes index(es)/<br>Comprend un (des) index  |
| <input type="checkbox"/> Blank leaves added during restoration may appear<br>within the text. Whenever possible, these have<br>been omitted from filming/<br>Il se peut que certaines pages blanches ajoutées<br>lors d'une restauration apparaissent dans le texte,<br>mais, lorsque cela était possible, ces pages n'ont<br>pas été filmées. | Title on header taken from: /<br>Le titre de l'en-tête provient:   |
| <input type="checkbox"/> Additional comments: /<br>Commentaires supplémentaires:   | <input type="checkbox"/> Title page of issue/<br>Page de titre de la livraison                                     |
|  | <input type="checkbox"/> Caption of issue/<br>Titre de départ de la livraison                                      |
|  | <input type="checkbox"/> Masthead/<br>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
									✓		

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

**CANADIAN MANUFACTURER**  
AND INDUSTRIAL WORLD  
DEVOTED TO THE MANUFACTURING INTEREST OF THE DOMINION

Vol. 22.

TORONTO, APRIL 15, 1892.

No. 8.

**"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.**

*Jeminion  
Dyewood & Chemical  
Co. Toronto*

**GENERAL DRY-SALTERS  
ANILINE COLORS  
A SPECIALTY.**

**ALFRED BOYD,**  
1 WELLINGTON ST. EAST,  
TORONTO.

Telephone 2222

Borax,  
Boracic Acid,  
Sal-ammoniac,  
Chemicals,  
Oil Cakes,  
Fertilizers.

LARGE OFFICE SAFE FOR SALE.  
In use only a few years. Cheap for cash. Will deliver  
at any railway station in Canada.

"JESSUR'S" STANDARD TOOL STEEL,

Consumers  
Are Invited  
to Test

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

LEATHER BELTING

ESTABLISHED 1856

**THE J. C. McLAREN BELTING CO.**

BELTING MANUFACTURED FROM

**IMPORTED OAK-TANNED LEATHER**

EVERY BELT GUARANTEED.

TORONTO, 76 York Street.

MONTREAL.

**THE GUTTA PERCHA & RUBBER MFG. CO.**  
OF TORONTO LTD. CANADIAN SECT.  
110 WARREN STREET & TREAS.

BELTING RACKING CLOTHING HOSE

WAREHOUSE & OFFICE, 43 YONGE ST. TORONTO.

FACTORIES AT PARKDALE.

**ANILINES**  
BENZO COLORS  
METHYLENE BLUES

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

John Bertram & Sons,  
**CANADA TOOL WORKS!**  
Dundas, Ont.  
SEE ADVERTISEMENT, PAGE 254.

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

**IMPERIAL BANK OF CANADA.**

Capital Authorized - \$2,000,000  
 Capital Paid-up - 1,925,000  
 Res. Account - 200,000

**DIRECTORS:**

H. S. HOWLAND, President.  
 T. R. MERRITT, Esq. Catharines, Vice-President.  
 William Ramey, Esq. T. R. Wadsworth.  
 Robert Jeffrey, Esq. Hugh Ryan,  
 T. Sutherland Stayer.  
 D. R. WILKIE, Cash'r. H. JENNINGS, Asst.-Cash'r.  
 K. HAY, Inspector.

**Head Office, - TORONTO.**

**BRANCHES IN ONTARIO.**

Essex.	Niagara Falls.	St. Thomas.
Fergus.	Port Colborne.	Sault Ste. Marie.
Galt.	St. Catharines.	Welland.
Ingersoll.	Woodstock.	East 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. Calgary. 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 deposits 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.**

**S. Lennard & Sons**  
**DUNDAS, ONT.**

Patentees of the "Elystan" Seamless Hosiery.  
**MANUFACTURERS OF PLAIN AND FANCY HOSIERY, CAPS, TUQUES, SASHES, Etc., Etc., 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.**

**McArthur, Corneille & Co.**

**MANUFACTURERS AND IMPORTERS,**

**310-316 ST. PAUL ST**

— AND —

**147-161 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-wood extracts, etc., etc.

Sole Agents in Canada for

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

**PARIS,**

A. POIRRIER, President.

Aniline Colors, Archil Extract, Cachon 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.

WILM KNOX.

JOHN H. ELLIOT.

**KNOX & ELLIOT.**

*Architects, Engineers and Mill Constructors,*

Office: 19 Queen Street East, TORONTO.

**Toronto Stamping Co.**

MANUFACTURERS OF

Tin, Sheet, Brass, and Copper

**STAMPINGS**

And Steel Metal Ware.

TORONTO - ONTARIO.

**PILLOW & HERSEY MFG CO.**

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

The Hardware Trade, Shoe and Leather Finding Dealers, and Boot and Shoe Manufacturers, 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.  
 OFFICE, 105 Mill St., Montreal.

**The BELL TELEPHONE**

COMPANY

OF CANADA

Manufacturers and Dealers in

**Telegraph and Electrical**

**INSTRUMENTS**

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

For further particulars apply to

**No. 12 HOSPITAL ST., MONTREAL**



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.

**DISCRIMINATING DUTIES.**

MR. FOSTER, at the end of his budget speech, hinted darkly at discrimination in favor of British products. His words made a pretty peroration for his speech, and it elicited some cheering. The *Hamilton Times* tells him that the simple way to encourage British importations would be to abolish the Canadian duties upon such goods as are principally obtained from Britain, while leaving unchanged the duties upon commodities of which the United States supplies the principal share. For instance, the "not elsewhere specified" wineys imported from Britain were worth \$7,468, on which the duty was \$1,680.34, while from the United States only \$1 worth of those wineys was taken, on which the duty was 23 cents. By abolishing the duty on wineys, trade with Britain would be increased and trade with the United States hardly affected at all. Then it gives a list of goods which we import so much from Great Britain that the duties paid upon them amount to \$2,148,198, while the duties on the same classes of American goods amount to only \$18,273. The list includes carpets, clothing, woollens, knitted goods, etc.—*Toronto Globe*.

The suggestion of the *Times* and its illustration of it do not harmonize very nicely, but the suggestion is in the right direction. For fiscal reasons we could not conveniently abolish our duties upon British goods, although we could, and should increase our duties upon American goods. In a recent issue we published a list of imports into Canada from the United States and from Great Britain, in which it was shown that the values received from the latter country were many

times those received from the former. In fact in many lines we received absolutely nothing from the United States; and it is evident that raising the duty upon these from that country would have no marked effect upon our general trade. We also gave another list showing the contrary fact—that much the larger part of our importations were from the United States, while in certain lines of manufactures we received absolutely nothing from Great Britain. In this list, however, are enumerated many articles which might as well as not have been imported from Britain, the matter of greater freight charges from these serving to turn the trade against that country. Now if our tariff discriminated in favor of Britain and against the United States, Canadian manufacturers of such articles would be benefitted to the extent of the greater freight charges over and above the benefit now afforded by the tariff; and this discrimination in favor of Britain would increase our trade with that country.

We also gave another list of articles imported from the United States into Canada upon which no duties are levied, while the most of these, if going the other way—from this country to that—would be confronted with the high duties of the McKinley tariff. Many of these articles are supposed to be raw materials which are required for consumption in Canadian manufacturing enterprises, and not produced in this country. This may be true to a limited extent, but to our certain knowledge many of these articles could be manufactured in Canada, and would be if they were properly protected by the tariff. There are other of the articles enumerated in this list as imported from the United States, and are credited as products of that country, which were not produced there, nor indeed could they be. We allude to such articles as mahogany, hides, raw silk, bananas, pine apples, rattans, crude rubber and gutta percha, palm oil, ivory, etc. Our imports of these goods from the United States last year were valued at several million dollars, yet not a dollar's worth of them were produced there. It may be well enough for some of these articles to be admitted free of duty, but this should only be when imported direct from the countries producing them, or via Great Britain; but when coming through the United States they should be subjected to tariff duties. To do this would increase our trade with foreign countries and with Britain, and reduce the volume of intertransit trade through the United States.

A judicious system of discriminating duties as here alluded to would also tend to build up certain Canadian manufacturing industries. Under our present industrial development it is impossible but that we should import many articles of necessity from abroad, and tariff discrimination would force this trade to be carried on with the Mother Country to a very large extent, but it would also build up many enterprises upon Canadian soil where the tendency now is to sustain them on American soil. Under our present arrangement we import only to a quite limited extent from Britain and to quite a large extent from the United States of a great many lines of manufactures which really ought to be made in Canada—we allude to such lines as, rubber goods, printing ink, locomotives, builders' and housefurnishing hardware, sewing machines, stamped hollowware, mechanics' tools, jewelry, boots and shoes, etc. A higher rate of duty upon these lines would not sen-

sibly affect our trade with Britain, but it would certainly largely increase our home production of them and that, too, at the expense of American manufacturers.

### THE NICKEL BOOM.

THE *Empire*, in an editorial discussing "A Boom in Nickel," misses a fine opportunity to show how the Canadian Government might greatly benefit the country by encouraging the manufacture of refined nickel and discouraging the export of the crude article; but this is the manner of the *Empire* in this and similar respects. It shows, however, that a great American and British "trust" has been organized for the purpose of buying up all available nickel property in the Sudbury district, and that a powerful French syndicate has been formed for the acquisition of nickel lands in Algoma, and the smelting and refining of nickel there. In regard to this latter enterprise it is shown that a French admiral had personally investigated the matter and had made a most favorable report, his enquiries showing that the necessary supplies of coal were conveniently to be obtained. This French company, we are told, should certainly be more than a formidable competitor with that which owns the New Caledonia nickel mines, and should be able to completely outrival it, as the claim is made that nickel can be produced from Sudbury ore at one-third the cost of the New Caledonia production. An appeal is made to local capitalists to start refining works in Toronto, and to prevent our great mining interests from falling entirely into the hands of American and French speculators. "We have," the *Empire* declares, "practically the only nickel mines in the world—the only ones of any importance—and the future demand is assured."

The fine opportunity which the *Empire* misses in discussing this question lies in not showing that our Government have the power to restrain the export of nickel except under such restrictions and regulations as may be prescribed. There is no possible objection to be raised against Americans, Britishers or Frenchmen investing their money in Canadian nickel lands and receiving large profits therefrom. These people are more interested in making money out of their ventures than they are in the general welfare of Canada; and in this they do not differ from Canadians. It is the duty of the Government, however, to see that Canada derives a just share of the profits and benefits which may accrue in the development of our nickel industry, and the conversion of the metal into commercial commodities. And it is here that the *Empire* fails to grasp its opportunity. If it is true that we have practically the only nickel mines in the world, and this seems to be the fact; and if it is true that nickel can be produced from Sudbury ore at one-third the cost of that from New Caledonia, as this French admiral asserts, Canada cannot but become the laughing stock of the world if she stands gazing dreamily and unconcernedly into the fast enlarging mines and holes in the ground, while Yankers and Frenchmen are working twenty-four hours in each day hauling the precious metal from them to their own lands and giving rich employment to their own people. The *Empire* itself shows what Canada is losing through her do-nothing policy, when it tells us that in the case of one company alone, with a capital of only \$100,000 had

doubled their money the first year, and had sold out for \$2,000,000. There can be no objection whatever to even this condition of things, our contention being that if a certain nickel property which was worth only \$100,000 two or three years ago can now be sold for twenty times that amount, Canada is neglectful of her own best interest if she does not participate in the valuable increment. It is foolish to beg that Toronto be made a participant in the boom by local capitalists investing their wealth in nickel refineries, blast furnaces and steel works, while the Government have it in their power to force conditions under which both domestic and foreign capital would compete in such enterprises. Capital is seldom invested from patriotic motives; and we could not conscientiously beg Canadian capitalists to invest in works which could not possibly succeed under existing circumstances. But there would be no need for begging if the circumstances were different. The American demand for nickel already amounts to thousands of tons per year, and still their McKinley tariff of \$200 per ton on refined nickel forces all the refining to be done in that country. No matter if we had a thousand refining works in Canada, and every facility for successfully conducting them, they would never be called upon to produce a pound of refined nickel for consumption in the United States in the face of the McKinley duty. What is the use, then, of the *Empire* whining and begging that some of our own citizens be allowed to receive some of the benefits which accrue from the existing situation? It begs for an impossibility. It remains with the Government to make it possible. Why doesn't the *Empire* ask the Government to consider the matter?

### CARTWRIGHT VS. DRUMMOND.

IN the course of a speech delivered a few days ago at Ingersoll, Sir Richard Cartwright stated in effect that under the existing tariff the Canadian sugar refiners were obtaining some two million dollars per year out of consumers; and he named Hon. G. A. Drummond, of Montreal, as one of these refiners. Mr. Drummond has published a letter in the *Empire* challenging the correctness of Sir Richard's assertion, in which he says:—

There surely cannot be a sugar consumer in the Dominion who does not appreciate the cheapness of the article, and who does not know that the entire sum abated from the taxes by the abolition of the sugar duty went into the pockets of the sugar consumers. There is not, therefore, the shadow of a foundation for his observations.

We agree with Mr. Drummond that the people of Canada are paying less for sugar than they did before the so-called removal of the duties; but we deny most emphatically that the entire sum abated by the abolition of the duties goes into the pockets of the consumers. Mr. Stairs, who is a member of Parliament and also the head of one of the large sugar refineries, stated from his place in the House of Commons that the Canadian refiners could manufacture sugar quite as cheaply as the American refiners. We accept this as a fact, and point to the McKinley tariff which imposes a duty of only \$10 per ton in the United States, against \$16 per ton in Canada. Why this difference of \$6 per ton—sixty per cent.—higher duty in Canada than in the United States? Can anyone explain why

there should be this difference? Mr. Drummond, as a member of the Senate, has never explained it; Mr. Stairs, as a member of the House of Commons, has never explained it, nor has Mr. Foster, the Minister of Finance, ever thrown any light on the subject. Why this remarkable silence? If there was a purpose in granting Mr. Drummond and Mr. Stairs and the other refiners sixty per cent. more protection than the McKinley tariff gives American refiners, the consumers of Canada have a right to become acquainted with it.

Another remarkable feature in this sugar question is that the limit of free sugar is that which is not higher than number 14 Dutch standard, while in the United States the limit is number 16. Our readers will understand that number 14 raw sugar, which is the only sort imported into Canada duty free, is entirely unfit for human food, while number 16, which is the sort imported free into the United States, is a beautiful light brown sugar which is well adapted for many domestic purposes, and would constitute probably at least twenty-five per cent. of the consumption if it were allowed in duty free. It is a quibble, then, for Mr. Drummond to challenge Sir Richard Cartwright's statement as to the exact number of dollars which flow into the pockets of the refiners over and beyond what a fair tariff protection would undoubtedly give them, when it can be shown, as we here show, that the volume of wealth is very large and approximates quite nearly to what Sir Richard said it did.

Our consumption of sugar is about 125,000 tons per year; and this extra, extraordinary and unnecessary additional duty of \$6 per ton above what the McKinley tariff allows American refiners represents \$750,000 per year which the Canadian tariff allows Mr. Drummond, Mr. Stairs and a few other gentlemen to wring out of the consumers of sugar.

There is more in it than this for these refiners. If our tariff were as favorable to Canadian consumers as the American tariff is to American consumers, i.e., if number 16 sugar were admitted free, in view of the fact that this number 16 sugar would take the place of about twenty-five per cent. of the refined sugars made by the Canadian refiners, about 30,000 tons would be admitted free and go into consumption. This extra duty of \$6 per ton upon this quantity would amount to \$180,000, which, instead of going into the pockets of the refiners, would go into the pockets of the consumers. This is where this difference between number 14 and number 16 sugars hits the pockets of the people pretty hard.

The McKinley tariff is supposed to be the acme of protection; but while our Government decline to approximate to it in almost every other particular, they have discounted it most wonderfully as regards sugar. Would not the higher duty of \$16 per ton have satisfied Mr. Drummond and the others, without exacting the utmost farthing by preventing the people from using number 16 sugar if they desire to do so?

We are no political friend of Sir Richard Cartwright, and on general principles we detest the fiscal policy which he would force upon the country if he had the power to do so, but if Mr. Drummond and the other refiners and the Government deliberately place such a formidable club in his hands as they have done in this matter of the sugar duties, he would be but a poor politician and debater if he did not use it unsparingly.

## MANUFACTURING ENTERPRISES vs. A SINGLE TAX.

MR. JAMES P. MURRAY, of the well known large retail dry-goods house of W. A. Murray & Co., Toronto, is also largely interested in manufacturing, being president of the Toronto Carpet Company. A few days ago a letter written by Mr. Murray was printed in a Toronto morning paper, in which he exhibited much solicitude regarding the manufacturing industries of this city. He argued that the volume of his retail business depended upon the extent of the population, and that increased population depended to great extent upon the number of manufacturing industries carried on in the city. He showed also that the enormous local taxes to which all manufacturing and business enterprises are subjected tended to prevent the establishment of factories within the city, driving them rather to other places where such onerous taxes are not levied, and that Toronto could never become the great manufacturing centre it ought to be, until a different system prevails. His suggested remedy for this state of things is that the City Council should exempt live machinery from taxation, grant free water to factories, have a fixed taxation on buildings and lands, unchangeable for at least ten years, and that efforts should be made to enlist the owners of real estate in the matter.

While Mr. Murray has stated his facts very correctly, we fear that his scheme for improving the situation is too complicated, and for that reason could not be made operative. Indeed it does not seem to have been suggested to him that the only just and equitable system of levying taxes under any and all circumstances should be upon the value of the land and not upon anything upon the land. But we doubt that, if any such system should be proposed, Mr. Murray would find it an impossible thing to get the real estate men and those who now hold land for speculative purposes to operate with him in encouraging the establishment of more factories in Toronto. In fact he would have to look in another direction if any such industrial boom is to strike this town.

Under our present system—and the real estate men and land speculators are vitally interested in its prosperity—it shows great nerve for a manufacturer to think of establishing his business in Toronto. Some who may enjoy some peculiar and exceptional facilities may thrive here, but these are the exceptions which prove the rule. It seems to be the accepted theory here that any man who invests his money in a manufacturing enterprise in Toronto should be punished to the extent of the law for his temerity, and our law-makers may be trusted in making this punishment as severe as possible. If he should invest his money in stocks or bonds, or put it in vacant corner lots, where no human labor is required, but where the returns are large and certain, with no division of profits, he might have no cause to object to the present law; but the day he begins to lay the foundation of a factory where hundreds of skilled artisans and workmen are to be employed, and where these wage earners share the profits with the proprietor, he begins to accumulate indebtedness to the municipality in the shape of taxes, water rates, etc., which are well calculated to make him wish that he had never seen the town. He is taxed on all sides and for every possible purpose.

Mr. Murray is mistaken, we think, in supposing that any special favors as such from the city would be acceptable to manufacturers. If the municipal taxes were levied equitably they would never think of asking favors; and such favors as may be tendered to them from time to time are not esteemed as such, but rather as recouplements for injuries previously inflicted. No man should be punished by taxing him upon the capital he may invest in building factories and giving employment to labor. Tax the land upon which his factory is built; but although this factory may have cost many thousand dollars, the land should not be taxed a cent more than the neighboring vacant lot held by a land shark for speculative purposes, the value of which is largely increased because of the contiguity of the factory. The vacant lot should be taxed at precisely the same rate as the factory lot.

If this system prevailed, it can be readily seen that the real estate men would cease to hold land for speculative purposes, and that factory sites would be more abundant and at lower prices. Manufacturers would not then have to ask or accept such so-called favors as Mr. Murray proposes. Manufacturing enterprises would multiply, and the employees of them would occupy their own homes instead of paying exorbitant rents to landlords.

#### WE MUST MAINTAIN OUR TARIFF SYSTEM.

Will the *Herald* please explain how "free trade" would enable us to sell more eggs to Great Britain? As it is we find there a profitable market for all we can send, and the demand is unlimited. We would like to know just what lines of goods, and in what quantities, it would be necessary for us to purchase from Britain to enable us to sell her more eggs than we have to sell.—CANADIAN MANUFACTURER.

All trade is barter. Imported goods are in the main paid for by exports. If we reduced our present exorbitant tariff on British goods, and imported more largely from that country, that would create a larger demand for Canadian products to pay for those imports. Eggs would share in that increased demand, always provided they were suitable. Tory orators and Tory organs are everlastingly prating about extending our trade with Great Britain. The way, and the only way, to expand our trade with that country on a permanent basis is to reduce our tariff on British goods. Increased imports will call for increased exports. Do you see?—*Montreal Herald*.

Aside from the new, startling and heretofore unheard-of fact just discovered by the *Herald* that "all trade is barter," we are surprised at the statement that "imported goods are paid for by exports." This is not true as regards Canada or any country under the sun. Allusion is made to our trade with Great Britain; last year our imports from there were valued at \$42,000,000 and our exports at \$49,000,000. How was the balance of \$7,000,000 in our favor settled? Last year we bought \$53,600,000 from the United States, and sold \$37,200,000; how was this balance settled? Last year Great Britain imported £435,540,000 from all countries, and exported but £247,272,000; how was this balance of £188,268,000 settled? Will the *Herald* please explain what "barter" Great Britain had in the settlement? In her trade with the United States that year she bought £104,510,000 and sold but £27,545,000; if all trade is barter how was the heavy balance against Britain settled? So, too, with the aggregate

trade of Britain with all her possessions; for she imported from them £99,454,000 and exported to them only £35,967,000. If, as the *Herald* suggests, we reduce our tariff on British goods and import more largely from that country we would soon have the balance of trade against us, and gold would be exported to pay it, impoverishing the country to the extent of the balance, whereas we now receive British gold in payment of the balance which is in our favor. And then if we imported more British goods we would consume less Canadian goods, and this means that Canadian consumers instead of paying their money to Canadian workmen would pay it to workmen across the sea. And as to eggs, we only sell to Britain what we ourselves do not want, for our best market for eggs is the Canadian home market, not the British market across the sea. It would be infinitely better for Canada if we could consume every egg we produce; but the *Herald's* plan to deprive the Canadian workmen of the ability to buy Canadian eggs would injure the Canadian farmer by depriving him of his home market and forcing him to sell across the sea in competition with all the world.

The *Herald* staggers and stumbles along the road like a blind man when it tells us that the way for Canada to expand her trade with Britain is to reduce our tariff on British goods. We state the question differently. Britain is not our commercial enemy, but the United States is. We treat both countries alike as far as our tariff goes; but we might very safely discriminate in favor of Britain. This need not imply any sacrifice of our present fiscal system, nor that the N.P. should be set aside, for this Canada would not submit to. But if Britain will make some tariff discrimination in favor of Canada and of all her possessions as against the rest of the world, this country would be very willing to meet her on that ground. There is a very large trade in certain imports into Canada from the United States which might as well be done with Britain, and would be if such an arrangement existed. This would not necessarily mean that the volume of our imports would be increased, but that our trade with Britain would be increased at the expense of that with the United States.

#### EDITORIAL NOTES.

It is one thing to be a professional free trader "on principle," but when your professional free trader desires to invest his wealth in a manufacturing industry, it is surprising how very quickly he abandons his fad, becomes an enthusiastic admirer of protection and the N.P., and immediately proceeds to ask the Government for a bonus on his product.

A news item comes gently wafted to us from Hamilton to the effect that the newly created electric street car company there has placed an order with a Troy, N.Y., car building firm for fifteen cars for their road. What's the matter with the *Spectator*, and where is it, anyhow? This is the company, we believe, whose cause it so strenuously championed; and is this the thanks it gets from its ungrateful clients? Nothing but Yankee cars will do for Canadian street roads, while such first-class Canadian firms as the Crossen Car Manufacturing Company, of Cobourg, and the Patterson & Corbin Car Com-

pany, of St. Catharines, are prepared to make quite as useful and beautiful cars as were ever turned out of a shop. It is evident that the duty on street cars is not high enough.

THE *American Artisan*, of Chicago, is a very decided anomaly in American trade journalism devoted to the interests of manufacturers. Its general hobby is free trade, and its speciality is denouncing the McKinley tariff duty on tin-plate and sneering at the efforts being made in that country to establish a tin-plate manufacturing industry. There is an inscription upon a tombstone in Madrid, which reads something like this: 'Here lies Juan Pinto. When he entered heaven and joined his voice with those of the angels the Lord said: 'Silence all, and let me hear only the wonderful singer, Juan Pinto!'' When the *American Artisan* talks tin-plate and tariff let all the world keep silence. The *Artisan* knows it all, and more; but its knowledge on these subjects could be contained in a very small tin cup. A very small one.

THE theory of protection is most clearly defined in the following terse paragraph copied from *Wade's Fibre and Fabric*:

Within the borders of the United States all manufacturers are on an equal footing, all pay rent and taxes under one government, hence we have absolute free trade among ourselves. But if we should admit the goods of another people into our country free of duty, we should favor the government under which that people lived, and to whom they paid taxes, to the extent of the surplus we took from them. We should favor the manufacturer of that country to the extent of the difference between the cost of manufacture in their country and ours and carriage to our shores; hence the difference comes in the cost of labor chiefly, which is what we must protect to equalize the products of the two countries. Then arises the question, should our government get a revenue out of such importations? and to what extent will such importations bear taxing?

THE Ontario Iron and Steel Company has been organized in Toronto, and are asking for incorporation with a capital stock of \$1,000,000, to erect blast furnaces at some convenient point in Ontario, and to operate works for the manufacture of puddled bar-iron. The provisional directors include many of the most prominent business men of Toronto, which is a guarantee that their undertaking will be carried to completion. Some of these gentlemen have heretofore been most determined opponents of the N.P., but it is to be noticed that about their first official act was to ask the Ontario Government to give them a bonus upon whatever pig iron they may produce, the same as is done by the Dominion Government. We have heretofore shown that the Dominion bounty on pig-iron should be very largely increased, or the duty upon the article advanced to seven or nine dollars per ton. It is to be hoped that the Provincial Government will see their way clear to accede to the request of this new company, and thereby ensure the establishment of this great and important undertaking.

HON. JOHN CARLING, in his manifesto to the electors of his constituency, previous to the recent election, declared that the cardinal principles to which he was committed were as follows:

1. Canada and Canadian industry the first consideration.

2. The support and encouragement of Canadian manufactures by the imposition of such duties on importations as will afford reasonable protection to our home industries, providing a home market for farm products and assist in building them up, while having due regard to the necessities of the public revenue.

3. Extending our commercial intercourse with all other countries upon fair and reasonable terms, but no discriminating duties against the Mother Country.

4. The maintenance of British connection.

5. To encourage by every reasonable means the settlement of the vast and fertile regions of the North-West.

6. The adoption of fair and reasonable protection to farm products, the encouragement of every practicable improvement in our system of agriculture, and the application of all available means for the development of our great natural resources.

THE *Montreal Herald* continues to twang its discordant harp against the iron duties, continuing to call attention to the visit recently made to Ottawa by a couple of Montreal shipping agents who asked the Government to reduce or remove the duty on bar iron, to the end that their steamers might have increased freights in bringing bar iron from Europe. It tells us that it has repeatedly pointed out the "onerous iron duties" as a grave hindrance to the progress of the country, "as not only most unfair to our importing houses, but as diminishing the Customs revenue and the harbor receipts." At one breath the *Herald* abuses the Government because our domestic iron industry is not being more fully developed, and at another breath the abuse is because the Government is protecting and building up the industry. It should remember that the first and highest duty of the Government is to the whole people of Canada rather than to strangers who are among us for revenue only; and that the people of Canada are more interested in building up our iron and other industries than in the increase of Montreal harbor receipts.

CLAUS SPRECKLES, of San Francisco, who came to Philadelphia and built a mammoth sugar refinery, to fight the U.S. sugar combine with, was formally thanked by the commercial and trade organizations for his public spirit and enterprise, and quite recently was introduced to an immense audience as the foremost citizen of Philadelphia, and as the champion of the people against monopoly. When the sugar trust raised its price for the anti-monopolist refinery to the proper figure Mr. Spreckles put \$7,000,000 in his pocket and went home. He was a Federal Telephone kind of a public benefactor.—*Montreal Gazette*.

Right you are in your opinion of Mr. Spreckles; and without doubt when the American sugar trust obtains possession of all the outside refineries in that country, the price of sugar will be considerably advanced. And without further doubt when that event occurs, the price of sugar in Canada will also be correspondingly advanced. But if Mr. Spreckles put a large fortune in his pocket, that is just what the Canadian refiners are doing, only to a greater extent considering the consumption of the article. We do not, however, hear the *Gazette* accusing the Montreal sugar refiners of being a Federal Telephone kind of public benefactors, which is just what they are.

THE *London Advertiser* points to the fact that the casket factory at Ridgetown, Ont., had been sold and the contents removed to London, and that "The story now told is that but



for the 35 per cent duty on caskets there would be no casket factory here." It also tells us "There is a casket factory in Hamilton, and the chief owner of that enterprise has again and again assured the writer that he would hold up both hands for complete reciprocity with the United States, and vastly increase his business by the deal;" and enquires "If in Hamilton why not in London?" We can assure the *Advertiser* that under unrestricted reciprocity the result in London would be precisely the same as in Hamilton—both concerns would be abandoned. The Hamilton factory is a branch of an American enterprise which was brought to Canada because of the N.P.; and if the N.P. were removed the Hamilton factory would immediately cease to exist. The goods which it now supplies would be manufactured in the United States, and the utmost silence would reign in the Hamilton factory. The *Advertiser* would really rather see idle factories throughout the land, and the employes of them out of work, than to know that their existence was due to the N.P.

A LETTER to the editor from the N. & G. Taylor Company, Philadelphia, acknowledging their appreciation of a few kindly words said regarding their new tin-plate factory in that city, now nearly ready for operation, suggests that when these works are started up and the process of manufacture clearly shown, there will not be so many ridiculous reports circulated regarding them and intended to show that the industry cannot be a profitable one in that country. The process of manufacture of tin-plate is exceedingly simple and easily carried on. The chief constituent is sheet iron or sheet steel, the output of an ordinary rolling-mill adapted for the purpose, coated with pure tin or a mixture of tin and lead. The value of tin-plate is measured simply by the value of the sheet iron or sheet steel, the tin and the lead, plus the value of the labor expended in the process of manufacture. The materials used are almost as cheap in the United States as in Wales, the great difference in the cost being the very much higher wages paid to American workmen than to those employed in the Welsh industry. As far as the American industry is concerned, there can be no question of its ultimate success if the politicians and other enemies of it would let it alone for a reasonable length of time.

ACTING Secretary Wharton of the state department was mistaken when he wrote the *Review* a few days ago that, as a result of the reciprocity conference between representatives of the Canadian and United States governments, the question of discrimination against American citizens in Canada's canal policy would probably be amicably settled. Canada again proposes the canal regulations of last season, and it now remains for our own government to collect at the St. Clair canal the same tolls on grain bound to Montreal that are now collected at the Welland on grain bound to Ogdensburg.—*Cleveland, O., Marine Review.*

Go slow, friend, go slow. There is no discrimination against American vessels going through Canadian canals. If a Canadian vessel tranships her grain at Ogdensburg she would not be allowed the rebate on canal tolls, neither would the American vessel. But tell us about how the treaty has been kept as regards Canadian vessels going through American canals in the state of New York? Can they pass through them, and if not, why not? And then please tell us how the American Govern-

ment would go to work collecting tolls on Canadian vessels passing through the St. Clair canal when at least one end of that canal is entirely within Canadian territory. Will it be done by the right of the strong arm; and in that case does our too precious friend consider that might makes right? Don't go off at half cock, friend.

We are in receipt of a letter from an officer in one of the few pig-iron manufacturing industries existing in Canada, in which he comments upon an editorial in a recent issue of this journal wherein the exceedingly low duty upon wrought scrap iron was criticized. He quotes the following from our article: "According to the ethics of protection, the duty should be higher upon the article upon which the greater amount of labor had been performed, and this should impose a higher duty on wrought scrap than on cast iron. But the duty on wrought scrap is only half that laid on pig-iron. How is it possible, then, that puddled iron should be made in Canada?" and says that in this we have hit the nail squarely upon the head. He points out that the low duty on wrought scrap is a deviation from the principle not only unfair in itself, but utterly subversive of the object contemplated when the iron duties were revised in 1887, namely, the development of the manufacture of iron from Canadian ore. Reference to Sir Charles Tupper's speech on that occasion will show that he recognized this, and viewed the low duty on scrap-iron as a temporary concession soon to be revised; but unfortunately the longer such an anomaly lasts, the more difficult it will be to correct it. We entertain the hope that the Government will, at this session of Parliament, do justice to our blast furnace industry to the extent at least of making the duty on wrought scrap fifty per cent. higher than upon pig-iron, and also increase the duty on pig-iron to \$7 or \$8 per ton. It should be done.

To what length will the rapacity of our Canadian brethren go? When the CANADIAN MANUFACTURER said that the building of nickel-alloy armor-plated war vessels by the United States was Canada's opportunity to come down on us with an export duty on the Canadian Copper Company's nickel, one would have thought that the desire to profit by another's necessity would stop right there. But how vain was the hope! The MANUFACTURER's nickel duty refrain was only given in the interval of taking fresh breath to vociferate for an export duty on saw-logs. "The pine forests in the United States are almost depleted, and the mill men there must have Canadian logs. It is a ground-hog case," blithely chirps the MANUFACTURER. Go right ahead, neighbor. If your timber-cutters want the wise men at Ottawa to act on what they hear about the "depleted pine forests" on this side the line, they may rue the day that led them to throw away a market that has in it a dozen consumers for every one that the Dominion's length and breadth can give them. Don't understand, though, that this is at all in the nature of advice. Your philosophy is made of sterling protective stuff; no room for doubt about that.—*Cleveland Iron Trade Review.*

"Rapacity" is a good word badly applied. But really, now if the American pine forests are not exhausted, why the desire for Canadian pine logs? And then about that dozen to one consumers. We do not propose to give away our timber wealth when we might possibly bring our neighbors to a realizing sense of their dependence upon us for saw-logs, and this

by an export duty upon them, and lead them to understand that with this weapon in our hands we might exact better treatment for some Canadian products in the American market. Likewise nickel. Yankee cruisers cannot be entirely effective, except under cover of nickel-steel armor—but where can the nickel for that armor be had, except from Canada? This is our opportunity, and a great big Nation (big N) should not object to taking an occasional dose of its own medicine. Let the procession proceed. Impose the export duty upon pine logs and nickel. The "rapacity" is not with Canada.

It is stated elsewhere in these pages that Messrs. Booth & Sons, the long and most favorably known manufacturing coppersmiths of Toronto, are establishing a branch of their works at Detroit, Mich., from which to supply their American demand for a steel-clad bath-tub of which they are patentees. The peculiarities of this article have made it exceedingly popular, and they have experienced a strong demand for it from the United States. In meeting their Canadian demand they have to import their materials largely from that country, but in exporting thither they are confronted with the virtually impassable barrier of the McKinley tariff, and as that trade is or might be made exceedingly valuable to them, they find themselves forced to establish branch works there. This is another evidence of the value of the McKinley tariff to that country. It is doing just what it was intended to do. It forces the establishment of a valuable industry there which would otherwise have been continued here; it forces the investment of Canadian capital there which would not otherwise have gone there, and it will give employment to American workmen in which Canadian workmen cannot possibly participate unless they become American citizens. This is an illustration of what the McKinley tariff is doing for the United States. We have no fault whatever to find in the matter. That country is doing just what it had a perfect right to do; and our regret is that Canada does not do the same thing. Messrs. Booth & Sons are doing just what a number of other Canadian manufacturers have done—established branches of their works in the United States from which to supply their American trade. Mr. George Booth, the senior member of this firm, is an ardent protectionist, and has always been a firm supporter of our National Policy. His business was established in Toronto in 1861, and has been in successful operation ever since. An expert coppersmith, he was the founder of what was the largest and most important sheet metal manufacturing establishment in Canada, in which his genius found active employment; and in his present business is included the manufacture of quite a number of sanitary and domestic articles which were invented and patented by him. In the persons of his sons Mr. Booth has a corps of skilled and well-trained assistants upon whom he can rely for looking after the Detroit business, while that here in Toronto will be in no wise neglected. Our American friends should be proud of their new and valuable acquisition, whom we commend to their most friendly business acquaintance.

A FEW days ago a deputation of representative lumbermen and pulp manufacturers of Quebec waited upon the Council of the Montreal Board of Trade, and submitted the following resolution which had previously been adopted by them, asking

the council to co-operate with them in pressing the importance of the matter upon the Dominion Government:—

Whereas the manufacture of domestic forest products is one of the most important and purely natural industries of this country, and one which gives profitable employment to an enormous amount of home labor in the manufacture and freighting thereof to market, it is therefore deserving of every encouragement on the part of our Government.

And whereas any trade policy that tends to give a foreign country any advantage over that possessed by our own people in the manufacture and shipping of our timber property is prejudicial to the public interest, and consequently the export to any foreign country of such raw material as saw-logs, pulp-wood, shingle-wood, stave-bolts and other manufactured forest products, at the same or a lower rate of duty than that imposed by such foreign country on the lumber, pulp, shingles, staves and other manufactures made from such material, imported from Canada, is detrimental to our home industries, and must result in the transfer of their manufacture, shipping and other incidental advantages from Canada to such foreign country.

Be it therefore resolved: That our Government be respectfully requested to cause an enquiry to be made into the working of existing conditions, with the view of fixing such a rate of export duty on the raw materials above mentioned as will at least place the Canadian manufacturer on an equality with the foreigner manufacturing lumber, pulp, shingles, staves, etc., from Canadian saw-logs, pulp-wood, shingle-wood, stave-bolts, etc., respectively. And pending such enquiry that the export duty on such materials be fixed at the former rate of \$2 per thousand feet board measure on pine and spruce saw-logs, and that a similar rate of export duty be imposed on elm, fir and cedar logs; and also that an export duty of \$2 per cord of 128 cubic feet corded be imposed on the export of all wood when cut into lengths of ten feet and under, when exported into any foreign country imposing duties on the manufactures made from such wood; with this proviso, however, that when any foreign Government shall remove all import duties from all Canadian manufactured forest products, that the export duties on the raw materials from which such manufactured forest products are derived shall thereupon be removed, when exported to such country.

After the deputation had withdrawn the Council considered the subject with the result that the following resolution was adopted:—

That the Council of the Montreal Board of Trade endorse the principles of the resolution adopted by representative lumbermen and pulp manufacturers, and now submitted by them, and that the Council hereby respectfully suggest to the Dominion Government the adoption of a policy of protection to the forest products of this country so that Canadian manufactures thereof may be promoted.

This is a move in the right direction; and it is to be hoped that the prayer of these manufacturers and of the Montreal Board of Trade, will go up to the Government with such unction as to command the response it most certainly deserves.

*Our Dumb Animals*, published monthly by Mr. George T. Angell, President of the Massachusetts Society for the Prevention of Cruelty to Animals, for fifty cents per annum, is a most delightful publication, which should be in the hands of every child. It is an educator in the cause of humanity and manliness, which is invaluable, teaching, as it does, that dumb animals have rights which we all are bound in honor and good sense to respect, and that they are capable of becoming true, warm, useful and appreciative friends. Human beings who ill-use and abuse dumb animals, are themselves brutes of the lowest order.

MR. WALTER R. NURSEY, of Iron Mountain, Mich., the author, has sent us "The Menominee Iron Range—Its Cities; their

Industries and Resources," being a sketch of the discovery and development of the great iron ore beds of the North, situated within portions of the States of Michigan and Wisconsin, and south of Lake Superior, with maps and illustrations. This is an exceedingly interesting monograph, the facts of which have been collected under most difficult circumstances, and written in that breezy and engaging manner so peculiar to those who lead, at least in part, the lives of American frontiersmen, and to be all the more appreciated on that account. The particulars regarding persons, places and things, as recorded in the book, should make it particularly valuable to any who live or contemplate living in that country. Mr. Nursey is no new hand in writing entertaining sketches of some of the most interesting sections of the North American Continent, he being the author of "Ten Years in Winnipeg," "Keewatin, the Debatable Land;" "Escanaba, the Iron Port of the World," etc.

The attention of capitalists and farmers is specially directed to an article in the April number of the *American Agriculturist* (New York), on "Beet Sugar as an Investment." It is here clearly explained how, on only an average yield of fifteen tons of beets per acre and allowing such a heavy estimate of cost of cultivation as \$40 per acre, farmers can get net returns larger than from any other crop they grow. Editorially the *Agriculturist* suggests that the bounty be divided with the farmer, giving him a total of six dollars per ton for his beets, or sixty to one hundred dollars per acre. It then goes on to point out how the growth of the beet-sugar industry must inevitably be the death-blow to trusts and monopoly, as the control of prices will rest as much with the farmers' factories as with refiners. As an investment for capitalists there is, at the very least, a return of 15 to 20 per cent. on the outlay, that amount being practically guaranteed by the Government. The article provides much food for satisfactory reflection to both farmer and capitalist, and is one that should be very generally perused. By the Orange Judd Co., 52 Lafayette Place, New York; 15c. per copy, \$1.50 per year.

The *Illustrated World's Fair* for April, enlarged by four additional pages, devotes many illustrations to a portrayal of the extraordinary traveller or derrick that is now setting the arches on the great floor of the Manufactures. Besides the many instructive scenes photographed in Jackson Park, this bright and instructive magazine contains a page article and portrait of Max O'Rell; a page sketch by Opie Read, illustrated by Charles Lederer; a page sketch and portrait of Mariah Ellis Ryan; a page sketch and portrait of Anna Oldfield Wiggs; an article by Director Odell; an extended editorial description of the scene at Jackson Park, by John McGovern; the rules of the mining exhibit; and a large number of humorous poems and paragraphs. The number is the best so far issued, and promises for the next month articles by Patti and Colonel Fitch, the silvery orator of the Pacific slope. The *Illustrated World's Fair* has taken its place as a first-class magazine. Its pictures are the surprise of the world. A few years ago they would not have been possible. The greatest people in the world have graced its columns. J. N. Halligan, General Manager. \$2.50 a year, 25 cents a number. McVicar's Building, Chicago.

*Good Housekeeping* for April is full of the brightness of spring-time. It is a feature of this "magazine for the home" that it preserves in special manner the fitness of its table of contents to the season. While many of its articles are adapted to all times and to general entertainment, those which are more especially appropriate to certain seasons are brought before the reader at exactly the time when they are pertinent and interesting. This magazine not only treats of the duties which pertain to the interior of the home, but it goes outside as well; among the flowers, through the vegetable gardens, and even roving freely about the farm and sauntering along the city streets, to glean its lessons of life. It is conducted on the principle that "the life is more than meat," while it recognizes the importance of the latter to all well-regulated homes. It therefore aims to instruct, not alone in culinary matters, in the brightening and keeping of the house; but in the spirit which should dwell there, and which makes the home, in the broadest and best meaning of that term. From its pages the young may derive amusement, combined with wholesome instruction under a pleasant guise; the studious will find an abundant store of information, while the ill, the weary or the restless, may obtain diversion and rest. Clark W. Bryan & Co., Springfield, Mass.

Born admirers and critics of Spencer will be interested in the paper on "Herbert Spencer and the Synthetic Philosophy," in the *May Popular Science Monthly*. The writer, Mr. William H. Hudson, was formerly private secretary to Mr. Spencer, and gives an insight into the process by which his philosophic thought unfolded. The paper contains also a true statement of the relation between

the work of Darwin and that of Spencer. Prof. Frederick Starr also contributes some Notes upon Anthropological Work in Europe, telling what museums and other facilities for the study of anthropology exist abroad. The article is illustrated with twelve portraits of leading European anthropologists. "Cave-Dwellings of Men" is the subject of a copiously illustrated article, by Mr. W. H. Larrabee. It relates not only to the ancient cave-dwellings of America and the Old World, but describes also the way in which modern troglodytes are living in several parts of Europe to-day. In an article on "Evolution in Folk-Lore," Mr. David Dwight Wells gives two versions of a negro legend nearly a century apart in time, which show the alterations produced in the tale by the change from free life in Africa to slave life in America. An Index to Volumes I. to XL. of the *Popular Science Monthly* is well advanced in preparation, and will be published in the course of the coming summer. The entire contents of the forty volumes will be entered both by author and by subject in one alphabetical list, and the Index will have all the most approved features of the latest magazine indexes, besides some novel ones. The compiler is Mr. Frederick A. Fernald, of the editorial staff of the *Monthly*.

*Wide Awake* for April is a veritable Easter number. In its pictures, in its stories, in its poems, the Easter spirit predominates, and while there is the usual variety in its material, as suits the wide range of desire that makes up the taste of young people, this Easter flavor is at once pronounced and timely, and makes this April number quite as acceptable a remembrance at the Easter season as the conventional card or booklet. Meynelle's frontispiece, "Easter Day," Burgess' full-page "Easter Lily," Garrett's stirring crusading picture, are fitting accompaniments to Miss Poulson's charming verses, "The Flowers' Easter Message," to Miss Brastow's delightful "Story of an Easter Hat," and to Elbridge S. Brook's spirited Easter Day ballad of crusading days, "Prince Almeric's Amulet." Other timely sketches are Mrs. Lewis's description of "The Easter-Tree," and the day's festivities in Germany, Miss Amanda B. Harris's delightful story of "How Easter came to the Little Nuremberg Maids," and another sketch in the *Fair Harland Series*, "The Holy Coat of Trèves," by Kenneth McKenzie. Miss Cocco contributes a capital war-time story of Southern life, "The Romance of a Calico Gown;" Miss Champney, a story of old stage days in Pennsylvania; Tudor Jinks, a characteristic wonder story, "Christopher's 'At Home,'" and Lieut.-Col. Thorndike, a stirring account of a flight "Out of Paris by Balloon." The leading illustrated paper is a spirited account of the beauties of "Suburban London" told by Joseph Hatton. The serials, "Jack Brereton's Three Months' Service," and "The Lance of Kanada," are full of dramatic interest, and the number is a notable one in every respect.

The excellent work which characterized the contents of the first two numbers of *The Dominion Illustrated Monthly*, is not only maintained but considerably improved in the April number. An appropriate Easter frontispiece, beautifully drawn, commences the issue, and is followed by the third instalment of Professor Roberts' story of early Canadian life, "The Raid from Beauséjour." Miss E. Pauline Johnson gives a very interesting account of "Indian Medicine Men"—a class of practitioners whose methods are little known to the general public. "Canadian Nurses in New York" is a well illustrated sketch from the pen of Mrs. S. M. Almon Hensley, giving details of a profession which is being resorted to by our young *Canadiennes* to a very considerable extent. An article by Miss A. M. MacLeod on "The Church of the Kaisers" is a very interesting one, dealing with a subject which has hitherto received no attention from the older and larger magazines. A biographical sketch (with portrait) of the late Goodridge Bliss Roberts is given, and is followed by an unusually powerful short story, "Garry of Garnitch Bridge," written by that brilliant young *litterateur* shortly before his death. The concluding instalment is given of "Curling in Canada," by James Hedley, and portraits are given of the most prominent Canadian curlers. "Recollections of Charles Haddon Spurgeon" is a series of reminiscences of the great English divine; the article is from the pen of Rev. James Grant, of Toronto, formerly a student in Mr. Spurgeon's training college. Professor Roberts contributes the usual monthly instalment of "Modern Instances," a paper which will command the attention of all thoughtful readers. The pictorial supplement is a reproduction of Duffenback's famous painting, "The Unwelcome Kiss," beautifully worked in colors. At the low price of the magazine, \$1.50 a year, we consider it the best value, in a literary and artistic way, offered in America, and heartily recommend it to our readers. Certainly no other magazine that has ever been published in Canada can compare with it for beauty and general excellence. Published by the Sabiston Litho. & Publishing Co., Montreal and Toronto.

THE WATEROUS GRIP PULLEY.

The accompanying illustration is of the Waterous Grip Pulley, a most useful adjunct to an electric light station. Among the many attachments used for this purpose, this appears to be exceedingly simple in its construction and operation, and possesses a number of points of excellence not usually found in pulleys of this class. A point of special value to electricians is the fact that this grip is always motionless when out of clutch. In other words, when the pulley is thrown out of clutch, the entire grip mechanism comes to a standstill, when it can be easily and quickly adjusted, and again started without interfering in any way with the shaft upon which it is. This is of particular advantage in an electric plant where there may be a large number of dynamo-driving pulleys. In other grip pulleys, should one of them require attention, the shaft, and, of course, all the machinery depending upon it, would come to a standstill. In contrast with this, with the Waterous Grip the pulley at fault would alone be stopped and adjusted. A prominent practical electrician, and manager of one of the largest electric plants in Canada, states that in his opinion this feature makes this grip worth one hundred per cent. more than those which do not possess this feature.

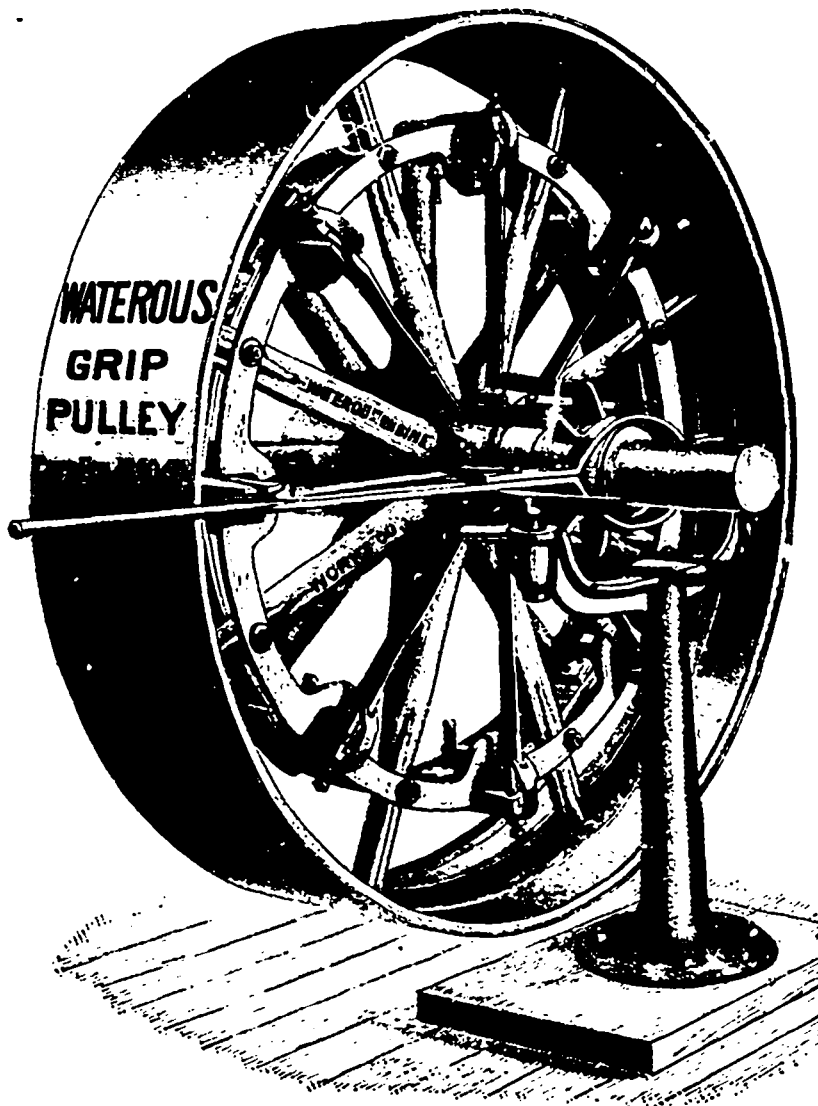
Another point of value to electricians whose pulleys and couplings have to transmit very heavy power for their diameter, is that in this pulley the friction, or driving ring, can be made almost as large as the pulley, increasing very materially the power and leverage of the grips; and also that in large pulleys the number of grips can be increased to eight or ten should it be required. Again, its patent sectional split hub enables the quick and easy replacing of a new hub when necessary without removing the pulley from the shaft. Two of these pulleys can be arranged on one driver, thus economizing space. In illustration of this the Waterous Company are now building for the Hamilton Electric Light Company twelve pulleys 58x14 inches, to be worked in six pairs on six double drivers; and thirteen pulleys and couplings for the Kingston Light & Power Company, several of which are to be worked in pairs.

We are in receipt of a letter from Mr. James Boughner, a mechanical engineer of keen observation and much experience, in which he states that recently in the station of the Royal Electric Company, Montreal, a power shaft three and a half inches in diameter was completely twisted apart by the action of a Waterous grip pulley in use upon it. There was no flaw or defect in the shaft, but the incident illustrates the powerful leverage exerted by the pulley.

The manufacturers of this pulley have recently issued a neat little primer in which it is fully described, and giving opinions of users of it in all classes of work. It will be sent on application to the Waterous Engine Works Company, Brantford, Ont.

TARIFF tinkering is not responsible for the decline during the past year of two cents per pound in the price of domestic and one cent of Australian wools. The supply has been larger, as our market report indicates, but beyond this, one reason exists which alone sufficiently accounts for the decline.

We refer to the displacement of wool by shoddy. This evil is assuming enormous proportions. Not only does every pound of shoddy manufactured into cloth displace more than one pound of honest wool, but consumers are outrageously swindled by paying all-wool prices for shoddy cloths and garments. Moreover, while the sheep grower is thus robbed of from one to three cents on every pound of wool he produces, the entire woollen manufacturing industry is depressed. Millions of capital invested in it yield scant returns and thousands upon thousands of workers in woollen mills are put on reduced pay or scant time, thus injuring all other business in their locality. Who profits by this depression, common alike to farm and factory? Only a limited number of manufacturers of the shoddy fraud. Because of the unequal, unfair and dishonest competition from such bogus wool products, the injury is becoming more serious than was the competition of oleo with honest butter. Why? Because it hurts not the farmer alone, but the woollen manufacturer and mill operative. If shoddy could be driven out of existence, the wool market would improve



sheep husbandry develop, wool production and manufacture increase, and cloth "all wool and a yard wide" could in a few years be sold as cheap as inferior shoddy now is. Imitation, substitution, counterfeiting and similar evils are at the bottom of much of the troubles in the business world that are reacting so seriously on the farmers.—Springfield, Mass., *Farm and Home*.

EXPERIMENTS have recently been made in Great Britain, in which the heat giving power of block petroleum was tested in a torpedo boat. The use of liquid petroleum has the objection of an excessive cost in the construction of special boilers and storage tanks, and experiments were restricted to solidified preparations. It was demonstrated beyond a doubt that the petroleum in blocks was much more powerful as a heat-giving agent than coal, and the speed attained with its use was three knots more in a given time than is possible with ordinary fuel.

# \* 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.

The following patents have been issued from the Canadian Patent Office from March 16 to 31, 1892, inclusive.

Information in regard to any of these patents may be had free on application to THE CANADIAN MANUFACTURER, or copies of American patents corresponding to these, where the American patent has been previously granted, can be procured through us for the sum of twenty-five cents.

### MECHANICAL PATENTS.

- 38,494 Ore concentrating machinery, C. M. Fitch, March 16th.  
 38,495 Joint holder, P. E. Bourassa, March 16th.  
 38,496 Washing machine, L. E. Bisornet, March 16th.  
 38,497 Springing fastener, O. G. Alderman, March 16th.  
 38,498 Tool grinding machine, C. Wing and H. C. Ayer, March 16th.  
 38,499 Lawn mower sharpener, A. M. Batchelder *et al*, March 16th.  
 38,500 Vehicle runner, C. L. Peirce, March 16th.  
 38,501 Horse poke, J. J. Magee, March 16th.  
 38,502 Smoothing iron, L. D. Good, March 16th.  
 38,503 Washing machine, J. Vandyke, sr., March 16th.  
 38,504 Boiler flue cleaner, R. McDonald, March 16th.  
 38,505 Garment protector, O. F. Ostergreen and A. K. Schaap, March 16th.  
 38,507 Knock-down safe, H. J. Moyer, March 16th.  
 38,508 Sleeping cap for covering the ears, A. S. Turner, March 16th.  
 38,509 Hand rake, P. McMichael, March 16th.  
 38,510 Cinder sifting and ash separating grate, T. Ruddell, March 17th.  
 38,511 Machine for separating and cleaning grain, C. Cloaz, March 17th.  
 38,512 Railroad frog, P. P. Merriman, March 17th.  
 38,513 Rolls for reducing worn railroad rails to nail plates, etc., J. H. Poole, March 17th.  
 38,514 Alloy, W. J. Miles, jr., March 17th.  
 38,516 Meat cutter, T. P. Ricks and J. A. Smith, March 17th.  
 38,517 Annealing metal, S. H. Brown and M. McBarron, March 17th.  
 38,518 Music leaf turner, M. A. McMartin *et al*, March 17th.  
 38,519 Nuts for screw bolts, etc., J. R. Peacock *et al*, March 17th.  
 38,520 Extension step ladder, A. J. Myers, March 18th.  
 38,521 Stringing pianofortes, W. H. Ivers, March 18th.  
 38,522 Ventilating railway carriages, S. Hughes, March 18th.  
 38,523 Heating and ventilating railway carriages, S. Hughes, March 18th.  
 38,524 Casket handle, J. McCarthy, March 18th.  
 38,525 Earth auger, N. Schellenberger, March 18th.  
 38,526 Button-hole attachment for sewing machines, W. Wallick, March 18th.  
 38,527 Recording liquid measure, W. M. Fowler, March 18th.  
 38,528 Hot water boiler, E. B. Butterworth, March 18th.  
 38,529 Washing machine, C. Flanders, March 18th.  
 38,530 Sectional dust guard for car axle journals, F. B. Larrison, March 18th.  
 38,531 Car coupler, R. M. Woodard, March 18th.  
 38,532 Device for instruction in reading and calculating, W. W. Hallett, March 18th.  
 38,533 Vehicle wheel, H. Horton, March 18th.  
 38,534 Game apparatus, F. C. Hamilton, March 18th.  
 38,535 Roaster, smelter and separator, J. L. Hooper, March 18th.  
 38,537 Production of motive power, by employment of gas, steam and vapor, and in apparatus employed therefor, and for its utilization, C. Feller, March 18th.  
 38,538 Combined broilers and bakers, G. Milner and G. H. Wood, March 19th.  
 38,540 Press, Pneumatic Press Company, March 19th.  
 38,541 Multiplex stamping machine, H. Howard and T. H. Alexander, March 19th.  
 38,542 Bag holder, E. & E. A. Stinson, March 19th.  
 38,543 Operating lock hinges, L. Abbott and G. J. Cross, March 19th.  
 38,544 Washing machine, F. X. Therien, March 19th.  
 38,545 Refrigerator, D. P. Edgar & J. Butler, March 19th.  
 38,546 Device for securing tools to handles, J. M. Ruser and E. Einstein, March 19th.  
 38,547 Steam road roller, The C. S. Kelly Company, March 19th.  
 38,548 Self-acting car coupler, H. Bunker *et al*, March 19th.  
 38,549 Molds for metallic wheels, C. S. Cannon and A. & F. E. Cannon, March 19th.  
 38,550 Clothes line and suspension device, A. A. Cox, March 21st.  
 38,551 Coal screen, H. B. Sackett, March 21st.  
 38,552 Heating and ventilating apparatus, C. D. Howard, March 21st.  
 38,553 Apparatus for evaporating liquors containing salts, and for separating such salts when rendered insoluble by evaporation of the liquors, S. Pick, March 21st.  
 38,556 Lifting jack, Mr. Chunnard, March 22nd.  
 38,562 Paint compound, E. W. Grafton, March 22nd.  
 38,563 Congress shoe, H. Newcomb, March 22nd.  
 38,564 Pocket century calendar and stamp holder, G. H. McKee *et al*, March 22nd.  
 38,565 Evaporating apparatus, T. Craney, March 24th.  
 38,566 Street sweepings bin, P. W. St. George, March 24th.  
 38,567 Drawing off sterilizing apparatus, G. H. Neuhaus *et al*, March 24th.  
 38,568 Sterilizing apparatus, J. F. H. Gronwald and E. H. C. Oehlmann, March 24th.  
 38,569 Apparatus for preparing milk, J. F. H. Gronwald and E. H. C. Oehlmann, March 24th.  
 38,570 Elevator, H. R. Tracy, March 24th.  
 38,571 Astronomical and other telescopes, A. Rudall, March 26th.  
 38,572 Centrifugal filter, D. Williamson, March 26th.  
 38,573 Thread holder and cutter, H. & B. Oakes, March 26th.  
 38,574 System of cutting clothing that develops a sure shoulder point or neck point in a garment, J. A. Glass, March 26th.  
 38,575 Burglar protection device for safes, T. M. Martin, W. H. Law, March 26th.  
 38,577 Axle gage, H. McQuarry and J. C. Hudson, March 26th.  
 38,578 Apparatus for making lead pipe-traps, W. W. Rosenfeld, March 23th.

# 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."

- 38,579 Truss, J. H. Brownlow and J. S. Warner, March 28th.
- 38,580 High and low water alarm, J. M. Williams, March 28th.
- 38,581 Machines for threading needles of embroidering machines, A. Saurer and V. Kubler, March 29th.
- 38,582 Hay-tedder, F. D. and O. B. Reynolds, March 29th.
- 38,583 Mowing machine, E. Bartlett, March 29th.
- 38,584 Device for cleaning knives, A. H. Storey, March 29th.
- 38,585 Oiler, J. T. Smith, March 29th.
- 38,586 Duplicating cheque book, J. Oldfield, March 29th.
- 38,587 Axle skein, P. Dansereau, March 29th.
- 38,589 Reed or weaving loom, C. S. Strobbridge, March 29th.
- 38,590 Spring clutch for organ pipes, F. W. Hedgeland, March 29th.
- 38,591 Folding keyboard for organs, F. W. Hedgeland, March 29th.
- 38,592 Picture holder, M. Wirths, March 29th.
- 38,593 Manufacturing lacing leather, W. T. O. Lewis, March 30th.
- 38,594 Street sweeping machine, E. Chaquette, March 30th.
- 38,595 Derrick, A. Myers, March 30th.
- 38,597 Cutting veneer, G. A. Oncken, March 31st.
- 38,599 Construction of street railway tracks, C. L. Gibbon, March 31st.
- 38,600 Spring bed bottom, D. Edgar, March 31st.
- 38,601 Wash boiler, A. F. Kempton, R. J. Neithercut, March 31st.
- 38,602 Heating chimney, S. T. H. Holt, March 31st.

ELECTRICAL.

- 38,506 Telephone, W. C. Lockwood, March 18th.
- 38,536 Electric alarm, S. M. Mathews, March 18th.
- 38,539 Incandescent lamp socket, The Bryant Electric Company, March 19th.
- 38,554 Electrical boiler alarm, T. G. Lovegrove, March 21st.
- 38,555 Induction motor, C. J. Van Depoele, March 21st.
- 38,556 Alternate current induction motor, C. J. Van Depoele, March 21st.
- 38,557 Reciprocating electric engine system, C. J. Van Depoele, March 21st.
- 38,558 Alternate current electric railway train system, C. J. Van Depoele, March 21st.
- 38,559 Electric railway system, C. J. Van Depoele, March 21st.
- 38,560 Electric railway system, C. J. Van Depoele, March 21st.

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.

- 38,576 Electric soldering, cementing, etc., Thomson International Electric Welding Co., March 26th.
- 38,588 Electric dynamo and motor, W. J. McKee and R. S. Campbell, March 29th.
- 38,598 Telephone receiver, S. L. Wicgaud, March 31st.

SCIENTIFIC PROCESSES.

- 38,515 Device for aerating, cooling, graining, etc., maple sugar, J. W. Currier, March 17th.
- 38,596 Means for removing and preventing scabs or incrustations in steam boilers, and for the prevention of pitting, corrosion or oxidization of such boilers, which improvements are also applicable to the coating of iron or steel articles generally, so as to protect them from oxidization, J. Draper, March 30th.

TRANSMISSION OF POWER BY ELECTRICITY.

THE transmission of power in mills by means of costly belting, pulleys and shafting, and, in hundreds of cases, by steam pipes radiating from a boiler-house to scattered auxiliary engines has long been considered a costly and more or less unsatisfactory method. This consideration is becoming stronger and more widespread as the adaptation of electricity for the transmission of power progresses towards further development and becomes better known. Mill owners, iron masters, spinners, carpet weavers and others engaged in manufacturing, who are now obliged to depend upon engines, with their accompanying evils of loss of power, dust, oil, strong smells, danger from fire, etc., are asking themselves if it is not possible to adopt some other method of power generation and transmission which will do away with the various disadvantages inseparably connected with this system. Various minor attempts at the utilization of electricity to operate mill and mine machinery at a distance have been made within the past few months, but no experiment on a really grand and extensive scale has been under-

LANKIN'S PATENT.



If You Need a Pipe Covering, Get the Best

Lankin's Patent will pay for itself in six months, or in other words, will pay a profit of 100 per cent. a year. That's a good investment. If will pay you to investigate. Catalogue free.

Gast & Co., Toronto, Ont.

taken until quite recently. The Edison General Electric Company seems to have the honor of being the first to solve the problem in a comprehensive manner. The transmission of power from one central power-house, containing all the boilers and engines, to the forty and more different buildings which go to make up the Schenectady Works of the Edison Company, has attracted attention from all sides. A New York publication, *Power*, chiefly devoted to mechanical interests, considers the matter of so great importance that in its February issue it gives a full and graphic description of the manner in which the elimination of the various defects mentioned above is effected.

The power-house is situated almost in the middle of a piece of land twelve acres in extent, and is surrounded on all sides by the different buildings to which it supplies the necessary power. This house contains a battery of boilers of over 2,000 horse power capacity, the engines necessary to drive the electric generators, and the generators themselves. Radiating in all directions run the conductors through special Edison underground tubes, to the different buildings, where they are connected to Edison motors which in turn are connected by belts to the shafting serving to operate the machinery. By the adoption of this method the general aspect of the interior of the buildings is entirely changed. Formerly, there stood in a corner of each building a small independent engine connected by steam piping to the boiler-house, giving off its superfluous steam, smelling of lubricating oil and raising the temperature occasionally to an unbearable degree. Now, in the place of the engine, and occupying, perhaps, less than a quarter of the space, is a small motor, a switchboard and a regulator. One throw of a small switch lever, the motor is running noiselessly, and the whole machinery in the building is in motion. There is no trouble, no engine on centre, no steam, no smell and no dirt. The attention required by the motor is very slight, and one of the workmen looks after it without allowing it to interfere with his ordinary occupation to any appreciable degree. The machinery in the forty odd buildings, operated by the motors, drawing their motive force—electricity,—from the central power-house, gives employment to over 3,500 men. Electricity is also conveyed along the wires to the different testing-rooms, where all kinds of electrical power apparatus is continually under delicate test. In addition, the two largest machine shops, properly so called, where the big Edison dynamos and their smaller brothers are assembled, and the foundry, are each equipped with travelling cranes, which are operated ex-

clusively by means of electrical motors. These are so constructed that they respond immediately to the slightest desire of the motor-man, and are capable of raising and transferring immense weights with ease and rapidity. Here also are to be found the huge shears for cutting iron, and the large and small trip hammers, all owing their working ability to electricity generated at a point many hundreds of yards distant.

In addition *Power* gives the following facts in figures :

The power plant comprises an Armington & Sims 10 x 12 engine of 150 horse power, driving on one 100-kilowatt railroad generators and two 100-kilowatt standard generators, and another Armington & Sims engine of same proportions in reserve, coupled to one 50-kilowatt and one 100-kilowatt generator. A small engine of same make of 25 horse power drives three 8.5-kilowatt generators. There are also two 300 horse power Edison triple automatic engines, each driving two of the new Edison 100-kilowatt multipole dynamos, and a 150 horse power triple automatic engine driving two 60-kilowatt generators of former standard Edison type. The boiler battery consists of three boilers of 500 horse power each and three of 250 horse power each, making a total of 2,250; this will eventually be raised to 3,000 horse power when the three additional 250 horse power boilers are put up. The present generator of dynamo capacity is about 1,000 kilowatts. This will be increased to 1,400 kilowatts as soon as possible, and the normal capacity of the power station will then be 1,900 power. The normal output is about 950 horse power at the present moment, but this is increasing as the new shops go up. The present floor area of the Schenectady Works is 11.84 acres. Current is distributed to 43 motors of standard Edison type, which would represent a capacity of 1,324 kilowatts if run to their full capacity. About 20,000 feet of single conductor wire is used to convey the power from the central house to the motors, and this does not include the wiring of the buildings or the conductors laid in Edison underground tubes. The voltage of the motor circuit is 250 volts, the lights running on 125 volt circuits. The loss of power in transmission is small when compared with the enormous loss when steam was conveyed to the small independent engines in the scattered buildings.

Thus it will be seen from the foregoing that from the points of view of both economy and expediency the days of the universal use of steam alone in power transmission are numbered. The impetus has been given to a new departure, and the progressive nineteenth century ideas will effect the rest.—*Manufacturers' Gazette*.

**C. G. CLEVELAND.**

**G. F. CLEVELAND.**

## J. L. GOODHUE & CO.

Manufacturers of Superior Quality LEATHER BELTING for

# Electric Light and Power

DANVILLE, - QUEBEC.

## F. E. DIXON & CO.

MANUFACTURERS OF

# Electric Light and Dynamo LEATHER BELTING.

TO King Street East, Toronto.

We have the following Leather Belts in use in the works of the TORONTO ELECTRIC LIGHT CO. :—One 36 inch Belt 98 feet long; one 36 inch Belt 100 feet long; one 36 inch Belt 123 feet long; one 38 inch Belt 100 feet long; one 24 inch Belt 100 feet long, and over 1,500 feet of 8 inch Belting. All of the above Belts are **Double Thickness**. The 38 inch Belt is the largest Belt ever made in this Province. **We are prepared to furnish Belts of any size, two or three ply, any width. Every Belt fully guaranteed.** Send for Discounts. Dixon's Belting Hand-Book mailed free on application.

# TOWER CLOCKS —————

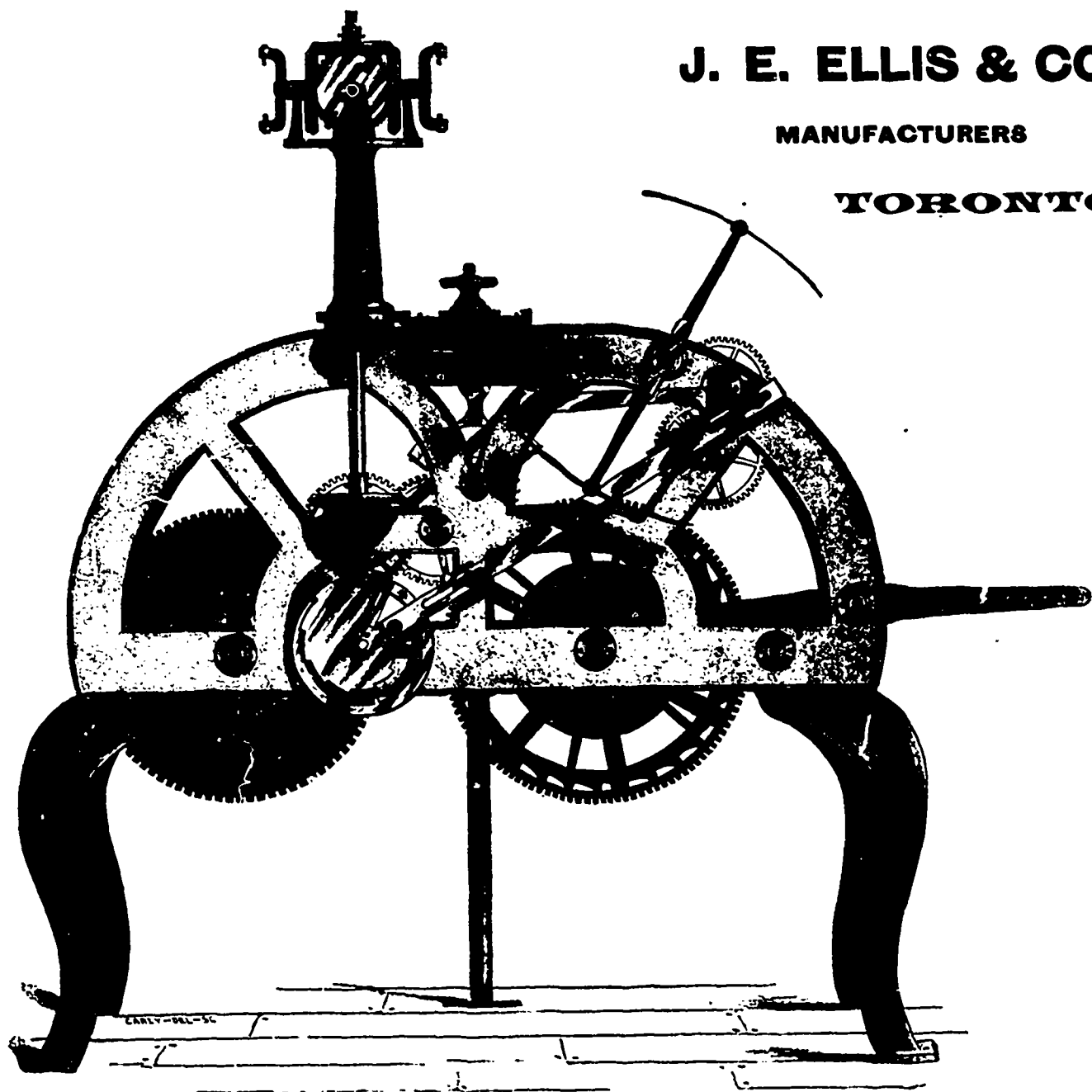
AND

# ————— ELECTRIC DIALS

**J. E. ELLIS & CO.**

**MANUFACTURERS**

**TORONTO**



**Our ELECTRIC DIALS, on which we hold Patents in England, Canada and United States, are especially adapted for PUBLIC BUILDINGS in which a number of Clocks are required.**

**DESIGNS AND ESTIMATES FURNISHED ON APPLICATION**

**JAMES E. ELLIS & CO.**

**TORONTO**



# 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 woolen mills of Mr. Robert Mann, at Peterboro', Ont., were destroyed by fire, March 31st; loss about \$12,000.

Mr. R. B. EIGLE, Toronto, manufactures all kinds of boxes, crates, packing cases, etc., especially for heavy containings, such as machinery, castings, etc.

The Safety Barb Wire Company is being incorporated at Toronto with a capital stock of \$75,000, to manufacture wire, barb wire, wire nails, etc.

The Mercer Company, with headquarters at Alliston, Ont., have been incorporated with a capital stock of \$180,000, to manufacture agricultural implements.

MESSRS. I. C. FELL & Co., Toronto, manufacturers of steel stamps, stencils, branding irons, etc., invite correspondence from those who require anything in their line.

The Kitzelman Wire Fence Company, St. Thomas, Ont., have been incorporated with \$10,000 capital stock, to manufacture the Kitzelman patent wire fence machine and wire goods.

MESSRS. PRITCHARD & ANDREWS, Ottawa, inform us that they are the largest manufacturers in Canada of steel and brass stamps, rubber stamps, stencils, seals, etc., and invite enquiries for prices.

The Toronto Type Foundry Company, Toronto, have been incorporated with a capital stock of \$150,000, to take over the type founding business of Mr. J. T. Johnson, Toronto, and continue the same.

MESSRS. A. C. LESSIE & Co., Montreal and Toronto, invite consumers to test the "Jessop" standard tool steel for which they are agents. Every user of steel tools knows the excellence of this article.

The Toronto Stamping Company, Toronto, manufacturers of tin, sheet brass, copper stampings and steel metal wares, have their shops crowded with work and will soon be forced to enlarge their premises.

MESSRS. GILLES BROS. & Co., Carleton Place, Ont., are applying for incorporation with a capital stock of \$100,000, for more conveniently carrying on their present business and for enlarging and extending the same.

MESSRS. MASON & Risch, Toronto, the well known manufacturers of pianos, have formed themselves into a stock company, without change of name, with a capital stock of \$250,000, to continue and enlarge the present business.

MESSRS. W. H. BANFIELD & Co., machinists and die makers, Toronto, invite the attention of manufacturers who may require anything in their line such as combination and cutting dies, foot and power presses, jeweler's tools, etc.

The Toronto Steel Works, Toronto, of which Messrs. J. & A. Bertram are proprietors, are exceedingly busy manufacturing mild crucible steel castings. This is one of Toronto's new industries for which there existed a great necessity.

MESSRS. BROWN & Co., proprietors of the Ontario Nut Works, Paris, Ont., and manufacturers of square and hexagon hot pressed nuts, inform us that their factory is full of work and that their trade throughout Canada is exceedingly good at this time.

## 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

**Southwick Oil Co.**  
Rochester, N.Y. Toronto, Can.

MANUFACTURERS OF

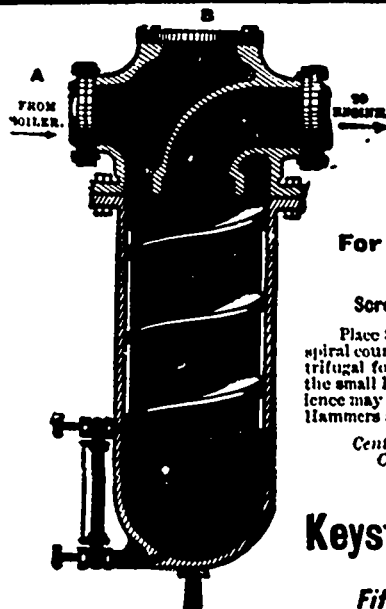
Red Giant Cylinder Oil,

## DYNAMO OILS

Crown Lubricants, Etc:

TORONTO OFFICE,

BOARD OF TRADE BUILDING.



**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 Hammers 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.

Fifth and Buttonwood Sts., Philadelphia, Pa.

The Ottorville Manufacturing Company, Ottorville, Ont., are manufacturers of all sizes of dowel rods, and of every variety of turned balls, rosettes, and small wooden specialties. This concern manufacture probably the best and most durable carpet sweeper offered on the Canadian market.

MESSES. BROWN BROS. & Co, Providence, R.I., manufacturers of leather belting, reeds, hooks and general mill supplies, do not propose being shut out of the Canadian market by the tariff, and invite correspondence regarding prices of their products, being confident that they will be made to suit customers.

MESSES. MIDDLETON & MEREDITH, Montreal, request us to call attention to the fact that they are Canadian agents for the anilines, benzo colors, methylene blues, extracts, chemicals, etc., manufactured by the Berlin Anilino Co., Berlin, Germany, and the Stamford Manufacturing Company, Stamford, Conn.

The Globe File Works, Port Hope, Ont., of which Messrs. F. Outram & Co. are proprietors, are increasing the capacity of their works and putting in special machinery for the manufacture of an improved horse rasp. They are now operating some forty-five machines and giving employment to sixty hands.

MR. ALFRED BOYD, Toronto, invites the attention of manufacturers and other trade to the chemicals and chemical products handled by him, in which are included borax, boracic acid, sal-ammoniac, gambier, alkali, nitrate of soda, sulphate of ammonia, potash salts, muriate of potash, oil cakes, fertilizers, etc.

MESSES. WM. T. FLANDERS & Co., Nashua, N.H., make the declaration in our columns that cast-iron can be successfully tinned, and that they are prepared to put in successful operation plants for that purpose. They are also quite fully prepared to put in galvanizing or tinning works for any class of work.

The London Rubber Stamp Manufacturing Company, Halifax, N.S., inform us that they are enjoying a large trade in their rubber and metal stamps, notarial seals, hectograph copying pads, stencil cutters, etc. This trade is not confined to the Maritime Provinces, but extends westward through Quebec as far as Toronto, Hamilton, and London.

MESSES. GREENE, TWEED & Co, New York City, are manufacturers of Manhattan self-lubricating plumbago packing which they

claim to be a most desirable article for steam engines, pumps working hot or cold water and oil, steam hammers, etc. It is made both round and square, and in sizes to suit. Circulars and samples sent on application.

The Keystone Engine and Machine Works, Philadelphia, Penn., of which Mr. W. L. Simpson is proprietor, are offering to Canadian steam users the Simpson patent centrifugal exhaust head for exhaust steam pipes, an illustrated description of which appears in his business card in another column. It is specially adapted for rolling-mills flour-mills, saw-mills, breweries, etc.

MESSES. BOORN & SOSS, the well known coppersmiths, of Toronto, are establishing a branch of their business at Detroit, Mich., for the manufacture of the steel-clad bath tub of which they are the patentees. Their place there is quite large - 130x72 feet - and will be thoroughly equipped with best machinery and appliances, giving at first employment to some thirty or forty hands.

MESSES. GAST & Co., Toronto, manufacturers of the Lanekin patent mineral wool fire proof covering, advise their customers and the public generally that when a pipe covering is required, the best, which is the Lanekin, should be obtained, as it will certainly pay for itself in six months. This means a profit to the user of one hundred per cent. per annum upon the investment.

The Southwick Oil Company, Rochester, N.Y., and whose Toronto office is in the Board of Trade Building, call the attention of machinery users, and especially of those using electric machinery, to the lubricants manufactured by them, included in which are dynamo oils, Red Giant oil, cylinder oil, Crown lubricants, etc. This is an old established concern and their goods are always reliable.

The Haworth Belting Company, Toronto, require a large space in our advertising department in giving the names of some of the electric light companies in Canada who use the Haworth leather belting for transmitting power from their engines to dynamos. Reference to the list will show that these users are among the largest and most important concerns in Canada, even as far west as Winnipeg and Vancouver.

The Royal Electric Company, Montreal, have recently sold electric motors to the Dominion Blanket Company, and to Messrs. Miller Bros. & Toms, that city. They have also recently installed

A. ALLAN, PRESIDENT.

J. O. GRAVEL, SECRETARY-TREASURER.

F. SCHOLDS, MANAGING DIRECTOR.

**The CANADIAN RUBBER CO. of MONTREAL** Capital, \$2,000,000  
 MANUFACTURERS OF ALL KINDS OF

**Hard and Soft RUBBER GOODS**  
**FOR ELECTRICAL PURPOSES**

Including Black and White Tapes, Tubings, Rod, Sheet, Telephone Receivers, etc. Rubber Belting, all kinds of Hose, Packings, etc. Mould Goods of every description.

Western Branch: **CORNER FRONT AND YONGE STREETS, - TORONTO**  
**J. H. WALKER, Manager.**

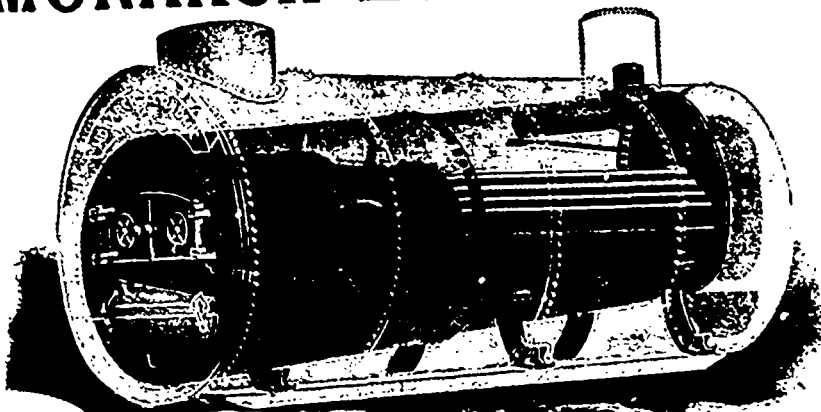
**THE MONARCH ECONOMIC BOILER**

Patented Can. May 6, 1866;  
 Feb. 10, 1887.  
 Patented U.S.A. Oct. 5, 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 valuable to gold miners.

Tested evaporation 10.25 lbs.  
 water per pound of ordinary  
 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,  
 SUDBURY  
**A. BOBB & SONS**  
 ANHERST, N.S.

a complete 500 light alternating plant at Bracebridge, Ont., and a 350 light alternating plant at Huntsville, Ont.; a 350 light alternating machine at Kempsville, Ont., and a 50 light 1,200 c.p. dynamo for the St. John's Electric Light Company, St. John's, Newfoundland.

The Royal Pulp and Paper Company are just completing their new two-machine paper mills at East Angus, Que. The engine room is 110x65 feet, in which are the beating and washing machines; the rotary boiler machine room is 65x28 feet; engine room, 32x26 feet; and there are dynamo room, finishing room, store room, etc. The rag room, on the next floor above, is 137x65 feet. The works are driven by 800 horse water power, and are lighted throughout by electricity.

Messrs. WINN & HOLLAND, Montreal, invite the attention of manufacturers of glass, paper, wood pulp, soap, starch, colors, etc., also printers and bleachers to the pure alkali guaranteed 58 degrees, for which they are sole agents for Canada, manufactured by Messrs. Brunner, Mond & Co., Norwich, England. This article, they inform us, is the strongest and purest form of soda ash in the market, and the most economical form of soda for the manufacture of the articles mentioned.

The Toronto Construction and Electrical Supply Company, Toronto, invite the attention of manufacturers to the fact that they are prepared to submit estimates for complete electric light and electric power equipments for mills, factories, and workshops. They announce that they are sole Canadian agents for the Thomson-Houston system of incandescent lighting, and of the Wood and lighting system manufactured by the Fort Wayne Electric Company, Fort Wayne, Ind.

Messrs. W. H. BANFIELD & Co., Toronto, have been awarded the contract for all the dog tags required by the town of Peterboro', Ont. It is evident that the Humane Society is getting in some fine and effective work in Peterboro', for these tags are to be of aluminum instead of brass as heretofore, the change being made because of the exceeding lightness of aluminum as compared with brass. We are informed that Messrs. Banfield & Co. are the only manufacturers of aluminum goods in Canada.

SOME time ago the Cant Bros. Company, of Galt, brought out a small independent dove-tailing machine which could be quickly attached to any shaper. Recently they have simplified and improved

this useful machine. Instead of requiring two handles, the one to move the table laterally and the other to move the teeth up to the work, they have substituted one handle with an automatic device underneath, thus saving the labor of the operator and ensuring still greater accuracy of work.

The Royal Electric Company, Montreal, announce that they are sole proprietors for Canada of the Thomson-Houston system of arc and incandescent electric lighting, "the most perfectly automatic system of electric lighting in the world." They are prepared to supply arc dynamos and lamps for 1,200 to 2,000 candle power, and incandescent dynamos for low tension direct current. They also carry full lines of electric lighting and power supplies. They say: "Our customers all over the Dominion are our references, and our plants speak for themselves."

The porous terra cotta fire-proofing manufactured by the Rathbun Company, Deseronto, Ont., is being used to a very great extent—almost exclusively—in the large buildings now being erected in Toronto and other cities. Some of the buildings already equipped with it are the Bank of Commerce building, Toronto, Royal Insurance, Imperial Fire Insurance and St. Lawrence Refining buildings, Montreal. The cedar oil manufactured by the Rathbun Company is claimed to be a most excellent article for preventing and removing scale in steam boilers.

Messrs. SINGER, NIMICK & Co., Pittsburgh, Penn., are building up an extensive trade in Canada for their special lines of steel goods. Among these we enumerate tool steel, hot and cold rolled sheet steel, hammered and rolled steel saw plates, soft steel centre, iron centre, iron back and soft steel back (extra thick face) plow steels, crucible, open hearth and Bessemer plow steels, finished rolling plow coulters, rotary harness discs, round, flat and square machinery steel, steel springs, axles, tires, etc. This concern is represented in Canada by Mr. Hugh Russell, Montreal.

Messrs. J. E. ELLIS & Co., Toronto, require a full page in this issue to illustrate the tower clock with electric dials manufactured by them. Regarding these electric dials, this concern hold the patents issued to them in Canada, United States and Great Britain. They are especially adapted for factories, public buildings, etc., in which a number of clocks are required, as these can be all actuated by electricity from one clock. This is the only concern in Canada who manufacture tower clocks, and those which they have already

## Galt Foundry, Engine and Machine Works.

MANUFACTURERS OF

# Corliss Steam Engine

FOR

## Driving ELECTRIC Machinery.

**COWAN & CO. - GALT, ONT.**

erected are giving the utmost satisfaction. They will make designs and furnish estimates on application.

Messrs. F. E. Dixon & Co., Toronto, are meeting with great success in manufacturing electric light and dynamo leather belting. Besides equipping many other plants in Canada, they have the following leather belts in use in the power house of the Toronto Electric Light Company: one 36 inch belt 98 feet long; one 36 inch belt 100 feet long; one 36 inch belt 123 feet long; one 38-inch belt 100 feet long; one 24-inch belt 100 feet long, and over 1,500 feet of 8-inch belting. The Electric Light people evidently know a good thing when they see it. Messrs. Dixon & Co. are prepared to furnish belts of any length, width or thickness.

The Toronto Carpet Manufacturing Company, Toronto, of which Mr. J. P. Murray is president, are making rapid progress in the erection of their addition to their carpet factory at Esplanade and Jarvis streets, and expect to occupy the same within the coming month. This erection of increased accommodations was made necessary by the insufficiency of the old factory to enable the production of goods equal to the growing demand. The new building, which is of brick, four stories high, covering an area of 100x70 feet, will be equipped with considerable new machinery, including a set of new scouring boxes, two art square looms, new cop winder, etc. The dry house and boiler house are separate buildings.

The Royal Electric Company, Montreal, have obtained a charter for utilizing the Chambly rapids, in the St. Lawrence river, near that city, and just as soon as the water is low enough operations are to be commenced. The rapids are susceptible of developing 20,000 horse power. The company will thus be enabled to distribute in Montreal not only the arc and incandescent lights but also intends to supply power for manufacturing purposes, elevators, mills, etc. Once the work is commenced it is to be carried on vigorously, and by the end of the present summer one-third of the power is expected to be developed. One of the effects of this scheme will be to cheapen the electric light to at least 25 per cent. below the price of gas.

Messrs. PATTERSON & CORBIN, St. Catharines, Ont., are busy building the cars to be used on the Toronto and Mimico Electric Railway, the contract calling for their delivery on May 15th. They are also filling an order for four cars for an electric road now being built at Yarmouth, N.S. They have already delivered a number of

cars built for the Victoria, B.C., electric street railway, which extends to Esquimalt. All these cars are of the best description and equal to any made in the United States. The use of electricity for street car propulsion is creating a strong and steady demand for electric cars, and Messrs. Patterson & Corbin have embarked in the business on a rising tide. They also manufacture horse and trail cars of every description.

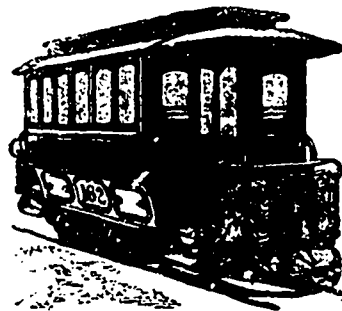
Messrs. CONNOR & ANDERSON, Toronto, manufacturers of presses, dies, and all kinds of special metal working machinery, have shown to us the following letter, which speaks for itself:—"Office of E. & C. Gurney Co. (Ltd.), Toronto, March 30, 1892. Messrs. Connor & Anderson, city, Dear Sirs: Replying to your esteemed inquiry as to how we like the two deep-throat presses made by you especially for our Range Department, we are pleased to say that they have given us entire satisfaction in every respect. We have found the workmanship to be A 1, and both machines have fully come up to, if not exceeded what you represented they would do. We heartily recommend your workmanship for anything of this kind. Yours truly, The E. & C. Gurney Co. (Ltd.), per W. H. Carrick."

The Polson Iron Works Company, Toronto, are building a pair of tandem vertical compound steam engines for the power house of the Toronto Electric Light Company, which are intended to develop 1,000 horse power, and which they inform us will be the largest and most effective pair of engines in Canada used for electric light purposes, and the first large vertical engines used for that purpose. The two pairs of cylinders will be 18 inches and 36 inches in diameter, respectively, by 42 inches stroke. The tendency in placing engines for electric light purposes both in Great Britain and in the United States is to use large vertical engines, and the instance here recorded is the first in that direction in Canada. The steam to drive these engines will be generated in a 500 horse power Caldwell water tube boiler, for which the Polson Company are the Canadian agents.

The Dodge Wood Split Pulley Company, Toronto, have for the past six weeks been more than busy supplying their different agents from Halifax to the Pacific Coast with fresh stocks of their celebrated Dodge pulleys. They have also recently supplied the North America Bent Chair Co.'s new factory at Owen Sound with a large range of belt pulleys; also Ontario Silver Company, Thorold;

# ← PATTERSON & CORBIN →

FINE  
ELECTRIC CARS  
OUR  
SPECIALTY



ST. CATHARINES, ONT.  
MANUFACTURERS OF  
Horse and Trail Cars  
OF  
EVERY DESCRIPTION

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

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

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



Glass, Paper, Wood Pulp, Soap and Starch

Also for PRINTERS, BLEACHERS and COLORS.

**WINN & HOLLAND, Montreal,**

Sole Agents for the Dominion of Canada.

Calgary Water Power Company, Calgary; Chatham Manufacturing Company, Chatham; Havil & Whitham, Brantford; N. Wonger & Bro., of Ayton, and many others. They have in work several large rope drivers for the saw-mill trade, and at same time are kept busy filling large orders for export. They would specially call the attention of electric light men to their new dynamo pulley shown in advertisement of this issue. The Dodge pulley is fully appreciated by all power users.

WHAT is said to be the largest driving belt ever manufactured in Canada is that which is now almost finished and to be seen in the leather belting manufactory of Messrs. Robin & Sadler, Montreal. This belt, when finished, will be placed on the driving pulleys of the Royal Electric Light Company's new engine, and will transmit 800 horse power. It is made without a rivet and is a solid mass of leather, three-ply, cemented together by a pressure of thirty tons weight from a hydraulic press. Its width is 53 inches, length 130 feet, about an inch in thickness, and weighs 2,000 pounds. The outsides of the belt are without a patch, while the whole contains 100 selected steer hides. The belt will be submitted to a special process known only to this firm whereby the surface will be made proof against oil absorption. Messrs. Robin & Sadler are also manufacturing a belt 40 inches wide, three-ply, for the Royal Electric Company's new 600-horse power engine.

A FULL-SIZED working model of the sub-aqueous mining machine, invented and patented by H. T. Scurry, of Vancouver, has been constructed at the Vancouver City Foundry. It consists of an iron flume 12 feet long, 4 feet wide, with sides 3 feet high. There are seven longitudinal divisions in the flume, which are subdivided into compartments 6 inches by 2 feet. A sloping apron with extended wings is fixed in front of the flume, acting as a guide for the sweepings which are gathered from the stream by a heavy spring steel wire brush, 3 feet in width, with 12-inch wires on a 12-inch drum. The brush is run by a cross chain belt off a sprocket wheel at the end of the tumbler shaft. This is worked in connection with a bucket dredge, which first removes the mud from the bottom of the stream. The brush being then lowered sweeps the pay dirt, lying on the hard pan, into the flume, which when filled is hoisted on to the deck of the scow, and the contents are emptied and sluiced, and the operation then being repeated. It will work in from 40 to 50 feet of water.—Victoria, B.C., Commercial Journal.

The Polson Iron Works Company, Toronto, have sent us a circular showing the number of Polson-Brown automatic steam engines operating electric plants in Canada and the aggregate horse power of them. These engines are located as follows:—Royal Electric Company, Montreal, sixteen engines, 4,000 h.p.; Toronto Electric Company, Toronto, six engines, 3,000 h.p.; Hamilton Electric Company, Hamilton, four engines, 1,000 h.p.; Manitoba Electric Company, Winnipeg, two engines, 600 h.p.; Halifax Electric Company, Halifax, N.S., two engines, 600 h.p.; Kingston Electric Company, Kingston, one engine, 400 h.p.; Barrie Electric Company, Barrie, one engine, 200 h.p.; New Glasgow Electric Company, New Glasgow, N.S., one engine, 150 h.p.; Owen Sound Electric Company, Owen Sound, one engine, 150 h.p.; St. Lawrence Sugar Refinery electric lights, Montreal, one engine, 100 h.p.; Orangetown Electric Company, Orangetown, Ont., one engine, 100 h.p.; Regina Electric Company, Regina, N.W.T., one engine, 100 h.p.; Prescott Electric Company, Prescott, one engine, 75 h.p.; Dominion Parliament Buildings, Ottawa, one engine, 150 h.p.; Windsor and Amherstburg Electric Railway, one engine, 150 h.p.; sundry small plant, 90 h.p. Total over 11,000 h.p.

#### BELTING FOR ELECTRICAL MACHINERY.

WE are in receipt of the following from Messrs. Robin & Sadler which explains itself:—

EDITOR CANADIAN MANUFACTURER, TORONTO:—

Not the least important item in an Electric Light plant, is the belting. To run a dynamo satisfactorily a belt made especially for that purpose should be used, so that it may run smoothly and evenly at a high speed and give a good steady light.

To supply this want, we make a belt of two-ply leather, the right thickness to suit the work. The strips for this belt are cut from the centre of whole hides, and are even and uniform in substance as well as firm and solid.

Considerable care is necessary in putting these strips together as our object is to have the belt well balanced, that is, of exactly the same thickness and stability on each edge, so that it may run perfectly true.

Nothing but cement is used in joining the pieces, and that is of

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

SOLE PROPRIETORS FOR THE DOMINION OF CANADA OF THE

## Thomson-Houston Systems of Arc and Incandescence Electric Lighting

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

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

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

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

FULL LINES OF ELECTRIC LIGHTING AND POWER SUPPLIES.

## 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, Incandescence 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.

# ELECTRIC LEATHER BELTING

## Some of the Electric Light Companies using our Leather Belting :

The Brockville Electric Light Co.	-	Brockville.
The Ottawa Electric Light Co.	- -	Ottawa.
The Kingston Electric Light Co.	-	Kingston.
The Napanee Electric Light Co.	- -	Napanee.
The Belleville Electric Light Co.	-	Belleville.
The Peterboro' Electric Light Co.	-	Peterboro.
The Orillia Electric Light Co.	-	Orillia.
The Barrie Electric Light Co.	- -	Barrie.
The Collingwood Electric Light Co.	-	Collingwood.
The Hamilton Electric Light Co.	- -	Hamilton.
The Woodstock Electric Light Co.	-	Woodstock.
The Ingersoll Electric Light Co.	- -	Ingersoll.
The London Electric Light Co.	-	London.
The Hunt Bros. Electric Light Co.	-	London.
The Aylmer Electric Light Co.	-	Aylmer.
The Chatham Electric Light Co.	- -	Chatham.
The Essex Centre Electric Light Co.	-	Essex Centre.
The Winnipeg Electric Street Railway Co.		Winnipeg.
The National Electric Tramway Co.	-	Vancouver, B.C.
The Gooderham & Worts Co.	-	Toronto.
Toronto Incandescent Electric Light Co.	-	Toronto.
The Central Prison Works.	- -	Toronto.

**We have Manufactured some of the Largest Leather Belts in use in Canada.**

**The HAWORTH BELTING CO., - TORONTO.**

such strength and the splices are subjected to such a heavy pressure when cementing, that the belt when finished is practically a band of a single piece.

The last process of all, is one that closes the pores of the leather and gives it a very smooth surface, thus protecting it from the machinery oil, so much of which splashes about the dynamo. For leather, being of an absorbing nature, will attract and take in the oil and so become rotten and also loose its hold on the pulley.

The enlargement of electric light stations during the last two or three years, has created the necessity for some very large driving belts. Not long ago we placed one of 40 inches wide and three-ply leather in the electric light station at Winnipeg, while the Royal Electric Co. in Montreal have had from us such widths as 28 in., 32 in. and 38 inch belting. At the present time we are about finishing for the same company, a belt of 53 inches wide three-ply leather, and one of 40 inches, also three-ply. These are the largest and heaviest belts ever made in Canada.

The machinery for running electrical railways requires a somewhat heavier class of belting, from the fact that the load is thrown off and on continuously, thus subjecting the belt to severe straining. For this class of work, our electric railway belt is the article to use. From what we have said, it will be seen that with the advance of electricity, the manufacturers of leather belting must keep pace, in order to meet its requirements.

Parties contemplating the erection of electrical light plants, would do well to write us for a sample of our dynamo belt as described, which will be cheerfully furnished together with any further information desired. Dynamo belting kept in stock up to 14 inch.

ROBIN & SADLER,  
Montreal and Toronto.

Twenty-four carat gold is all gold; 22-carat gold has 22 parts of gold, one of silver and one of copper; 18 carat gold has 18 parts of gold and three each of silver and copper; 12-carat gold is half gold and has 3½ parts silver and 8½ parts of copper. Its specific gravity is about 19; pure gold is 19.

FOR DRIVING ELECTRIC LIGHT PLANTS.

In reply to inquiries for information we give the following list of manufacturers of undoubted ability, who are prepared to supply steam engines and boilers, and belting for driving electric light plants:

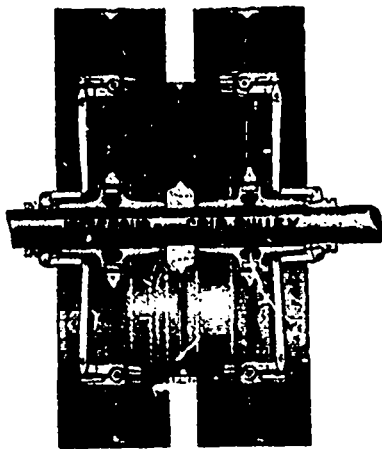
ENGINES AND BOILERS.

- G. & J. Brown Manufacturing Co. . . . . Belleville, Ont.
- Waterous Engine Works Co. . . . . Brantford, Ont.
- I. Matheson & Co. . . . . New Glasgow, N.S.
- Robb Engineering Co. . . . . Amherst, N.S.
- Cowan & Co. . . . . Galt, Ont.
- Polson Iron Works Co. . . . . Toronto.

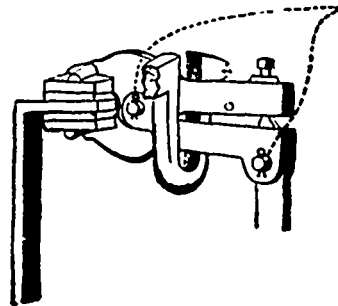
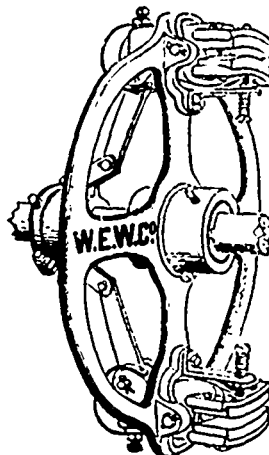
BELTING AND TRANSMISSIONS.

- J. C. McLaren Belting Co. . . . . Montreal.
- James Leslie. . . . . Montreal.
- Robin & Sadler. . . . . Montreal and Toronto.
- Canadian Rubber Co. . . . . Montreal and Toronto.
- Gutta Percha & Rubber Mfg. Co. . . . . Toronto.
- Dodge Wood Split Pulley Co. . . . . Toronto.
- J. L. Goodhue & Co. . . . . Danville, Que.
- Brown Bros. & Co. . . . . Providence, R.I.
- Waterous Engine Works Co. . . . . Brantford.
- F. E. Dixon & Co. . . . . Toronto.
- Haworth Belting Co. . . . . Toronto.

It is thought that the use of petroleum as fuel for the boilers of fighting ships of Great Britain may be looked for in the very near future. More especially is it likely to be applied to torpedo boats. For some time now many of the Great Eastern locomotives, running out of London, have been using oil or coal indifferently on the same grate and in the same furnace. Mr. Yarrow, one of the best authorities on torpedo boats in the world, considers that the system applied to the Great Eastern locomotives can be fitted to torpedo boats without the smallest difficulty.



Sectional View (2 pulleys on 1 grip ring).  
Made with 2, 4, 6 or 8 grips, transmitting any power.



Note Grip is held to place with two pins; to remove Grip, press out split keys, drive out the turned pins and Grips come out clear of everything. This can be done while shaft, pulley is on, is in motion. Contrast this with the intricate and hidden gripping mechanism of other pulleys, in all of which shaft must be stopped to adjust the least important.

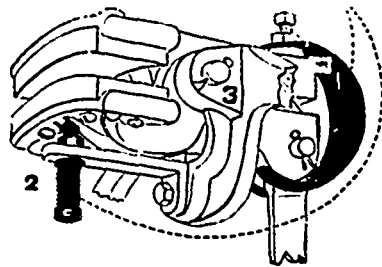
Pulleys in pairs on one Driver economizes space.  
Electricians will appreciate this feature.

SPECIAL FEATURES WHICH RECOMMEND OUR GRIP PULLEY

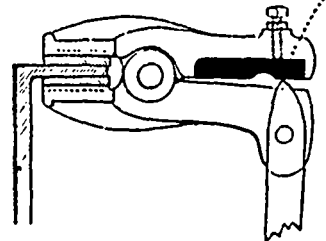
- It has the most practical, simplest and strongest gripping device. Grips instantly detachable.
- Strongest leverage on Grips.
- Positively no contact between Grips and Rim when out of clutch.
- Every portion in sight and easily accessible.
- Lightest Grip Pulley in the market by 25 to 50%.
- Fully guaranteed under all conditions made known when order given.
- Easily operated; lever locks when in Grip; absolutely no pressure when in Grip on sliding hub or ring.

Only Split Grip Pulley made.

OUR MOTTO: Grips always motionless when out of clutch.



These Springs are another patented feature. Grips are balanced on pin holding them in place. Spring 2 holds lower Grip, and Spring 1 upper Grip from driver; both counteracting the weight of shifting lever.



SECTIONAL CUT OF PATENT GRIP.  
This tempered Steel Block is hinged on its inner end, and is adjusted by set-screw and nut to give the requisite tension to Grips taking up any wear of Grip Shoes. Recess in Block gives instant relief to point of lever when Pulley is out of Grip.

WATEROUS, - BRANTFORD, - CANADA

Sp

In g

We fi fo

D

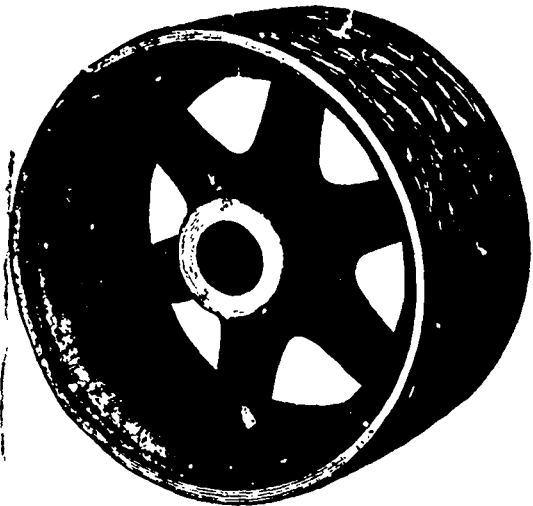
# PULLEYS!

## ARE YOU BUYING THE BEST ?

OUR LATEST IMPROVED

### *Dynamo Pulley*

A neat, serviceable Pulley with iron hub and arms, and selected hardwood rim. This wood rim gives at least 25 per cent. better results than the iron rim, and will be found perfect. Furnished with key seats, set screws, or both.



### The DODGE WOOD SPLIT PULLEYS

WITH PATENT BUSHING SYSTEM

The Lightest, Strongest, Cheapest, Most Convenient and Most Used Pulley on earth. Every Pulley sold under an absolute guarantee.



### Special Iron Centre Split Pulley

WITH WOOD RIM

In special cases where this class of Pulley is desirable, we can give it to you. All the advantages of the wood belt surface, coupled with the substantial Split Iron Centres, with key seat or set screws, make this Pulley "INVINCIBLE."

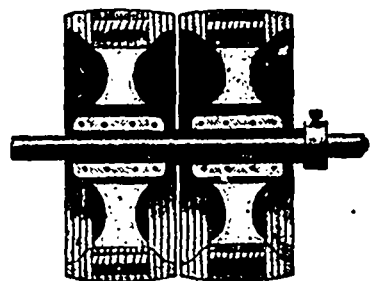
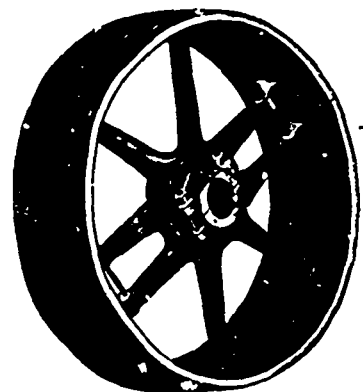
### Tight and Loose Pulleys.

We fit our regular Wood Split Pulley with special turned iron sleeves for Loose Pulleys, making the most convenient and inexpensive Loose Pulley in the market.

Write to Headquarters for CATALOGUE and DISCOUNTS

## Dodge Wood Split Pulley Co'y

83 King St. W., Toronto.



list of supply c light

ers of near vonta. ming same best stem pedo

place Grip, e out trips hing. haft, Con-icate han-ll of PFER tant.

ID rest hon wn ely ch.



# 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, ONTARIO.

SUCCESSORS TO W. STAHLSCHEMIDT & CO.

Manufacturers of Office, School, Church and Lodge Furniture.



Rotary Desk No. 54.

**SEND FOR CATALOGUE.**

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

(LIMITED.)

BELLEVILLE, ONT.

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

**RAILWAY & CONTRACTORS' SUPPLIES / SPECIALTY**

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

## GUARDS

Basement Window Guards,  
Factory and Mill Window Guards,  
School and Church Guards,  
Store Front Guards,  
Office Counter Railings,  
Inside Fine Woven Wire Blinds, Lettered or Plain.

Write for Catalogue and Price List

MANUFACTURED BY

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

# 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,  
Ticking, 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.

THE WELLINGTON MILLS  
LONDON, ENG.

## GENUINE EMERY

Oakey's Flexible Twilled Emery Cloth.  
Oakey's Flint Paper and Glass Paper.  
Oakey's Emery Paper, Black Lead, etc.

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

Manufacturers:

JOHN OAKEY & SONS, Wellington Mills, Westminster Bridge  
Road, London, Eng.

ENQUIRIES SHOULD BE ADDRESSED TO

**JOHN FORMAN, 467 St. Paul St., MONTREAL.**

April

Mill

1. T  
2. T  
nature o  
3. T  
the sale

All  
will mal  
area, as  
Mu  
keep up  
insured  
As  
cipals o  
are so a  
the sett  
Th  
one in  
identica  
compan

W.

H

Aj  
address  
No. 24

Herr

T

S/A

wi  
at  
no  
wt

ist  
V.

# Millers' and Manufacturers' Insurance Company.

STOCK AND MUTUAL.

## OBJECTS.

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

## METHODS.

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

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

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

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

**W. H. HOWLAND,** Vice-President.      **JAMES GOLDIE,** President.

**HUGH SCOTT,** Managing Director.

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

# THE MANUFACTURERS' Life Insurance Company

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

**A  
Five  
Years'  
Record**

Income . . . . .	\$207,486.
Increase over previous year . . . . .	\$36,069.06
Gross Assets . . . . .	437,959.11
Increase over previous year . . . . .	86,219.16
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.**

**HENRY NEW, Pres.**      **J. H. NEW, Vice-Pres.**      **A. E. CARPENTER, Sec.-Treas.**  
TORONTO



## 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.*

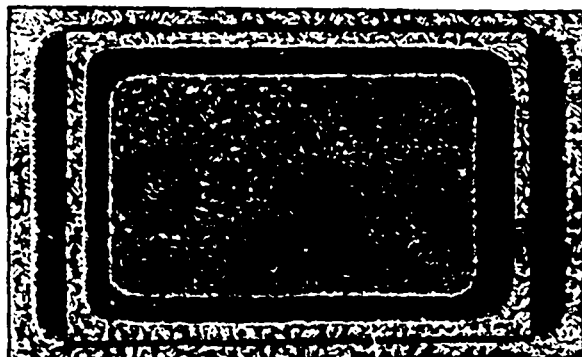
## SEAMLESS WROUGHT STEEL KITCHEN SINKS.

These SINKS are pressed from **SINGLE SHEETS OF STEEL**

without seams or joints, rounded at the sides and corners so that no dirt can possibly collect anywhere.

These Kitchen Sinks are finished in **PAINTED** and **GALVANIZED**.

**KEMP MANUFACTURING CO.**



Owing to the toughness of the material (steel)

**BREAKAGE IS IMPOSSIBLE**

and in consequence of their comparative lightness, **FREIGHT CHARGES** are less than **HALF THE PRICE** of the cast iron article.

**TORONTO, ONTARIO**

# **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.**

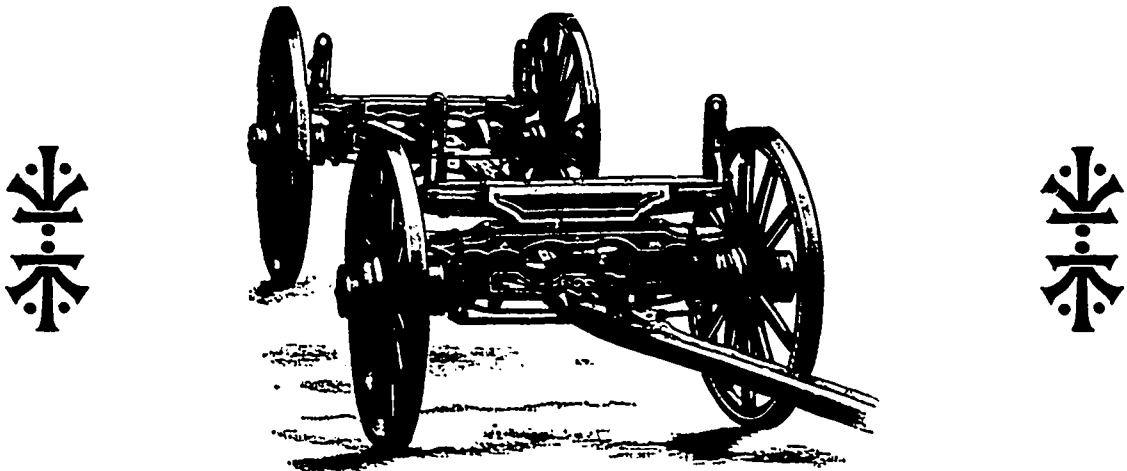
SEND FOR CATALOGUES TO

**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.,**

**Chatham, 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 lowest prices, every description of coloring materials required by manufacturers of woollens, cottons, silks, paper, leather, etc. Are sole agents in Canada for the celebrated aniline dyes of *A. Porrier*, Paris.

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

**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 cutters, 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 lowest figures chemicals required by soap-boilers, oil refiners, paper-makers and manufacturers of woollens, cottons, leather, etc. Sole agents for *British Alizarine Co.*, London.

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

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

**MIDDLETON & MEREDITH**, Montreal.—Agents for the *Berlin Aniline Co.*, Berlin. Pure Aniline Dyes. The *Stamford Manufacturing Co.*, New York, Dyewoods and Dyewood Extracts. *James 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 Polson 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 lowest prices extracts for tanning and coloring. Sumac, Gambier, etc., Sulphide of Sodium, and other chemicals Aniline colors, etc.; also Pure Cod Oil and other oils for Carriers. Degras, etc. Sole agents in Canada for *Miller Tannin Extract Co.*, *Hemlock Extract*, and *Gondolo Extract Co's* Oak Extracts.

**Wire Works.**

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

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

**Woodworking Machinery.**

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

**THE GANT BROS CO.** of Galt, Ltd., Galt, Ont.—Wood-working machinery for builders, planers, furniture, sash 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.

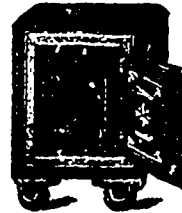
**CORRUGATED IRON**

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,**

Stump 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**, Manufact.  
577 Craig St., Montreal.  
P. O. Box 946.

**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.**

**Hamilton Whip Company**

**HAMILTON, - ONTARIO**  
Manufacturers of the world-renowned

**Eel Skin Lined Whips.**

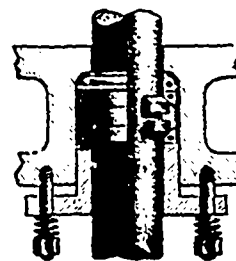
Pat. Jan. 20, 1888. All infringements prosecuted.

**London Rubber Stamp M'g Co.**

Rubber and Metal Stamps, Notarial Seals, Hectograph Copying Pads, Stencil Cutters, etc., etc.

**225 HOLLIS ST., - HALIFAX.**

**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. 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

**THE JAPANESE TABLETS** regulate the stomach, liver and bowels, purify the blood, are pleasant to take, safe and always effectual. A reliable remedy for Biliousness, Headaches on the face, Bright's Disease, Catarrh, Colic, Constipation, Chronic Diarrhoea, Chronic Liver Trouble, Diabetes, Disordered Stomach, Dizziness, Dysentery, Dropsy, Eczema, Flatulency, Female Complaints, Foul Breath, Headache, Heartburn, Hives, Jaundice, Kidney Complaints, Liver Troubles, Loss of Appetite, Mental Depression, Nausea, Nettles Rash, Pimples, Rash of Blood, Sallow Complexion, Scald Head, Sick Headaches, Sour Feculae, Torpid Water, Urinary or symptoms of results from impure blood or a failure in the proper performance of their functions by the stomach, liver and intestines. Persons given to overeating are benefited by taking one tablet after each meal. A continued use of the Japanese Tablets is the surest cure for obstinate constipation. They contain nothing that can be injurious to the most delicate. 1 gross \$2, 12 gross \$1.25, 14 gross \$1.50, 24 gross 15 cents. Sent by mail postage paid. Address THE JAPANESE CHEMICAL COMPANY, P. O. Box 672, New York.



# Toronto Lithographing Co.

## LITHOGRAPHERS & ENGRAVERS.

TORONTO.

### BROWN & CO.,

Manufacturers of  
**SQUARE AND HEXAGON  
HOT PRESSED NUTS.**  
P. O. BOX 672, TORONTO.

**STEEL STAMPS**  
STENCILS I.C. FELL & CO. BRANDS  
13 VICTORIA ST. TORONTO.

### J. L. O. VIDAL & SON,

City of Quebec,

Are 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 Plumbago Packing



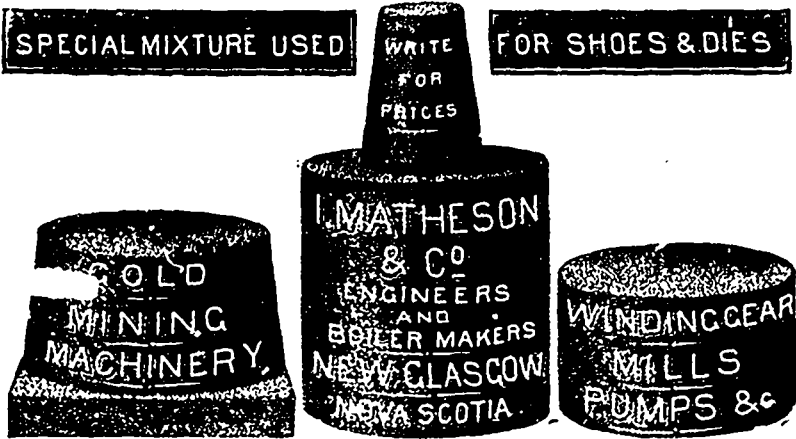
Is the best to be had for Engines, Pumps, with oil, hot or cold water, Steam Hammers, etc. It is made round and square.  
Send for circulars, or sample for trial to  
**GREENE, TWEED & CO.,**  
Manfrs., 53 Chambers Street, N. Y.

**NEW & 2ND HAND  
MACHINERY**  
ILLUSTRATED CATALOGUE FREE  
H.W. PETRIE  
TORONTO, CANADA.

**BEST LEATHER  
BELTING**  
ALWAYS ON HAND

TELEPHONE 2590.

SPECIAL MIXTURE USED FOR SHOES & DIES



JORDAN CHAMBERS  
**W. J. CHAMBERS**  
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,

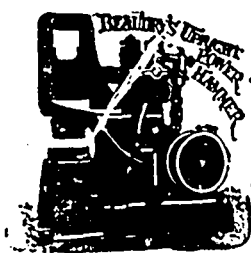
Laboratories, 57 and 59 Colborne St., Toronto  
REPORTS GIVEN ON MINING PROPERTIES, COMMERCIAL PRODUCTS ANALYSED, ORES ASSAYED, RESEARCHES UNDERTAKEN.

Manufacturers Supplied with Processes and unsatisfactory Processes perfected.

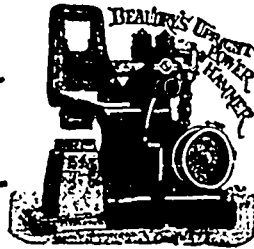
BUTTERFIELD & CO.

DERBY LINE, VT. ROCK ISLAND P. O.

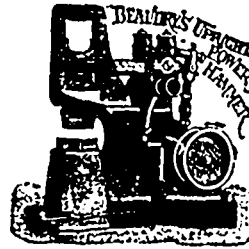
WRITE FOR 1891 CATALOGUE.



SIMPLE;



PRACTICAL

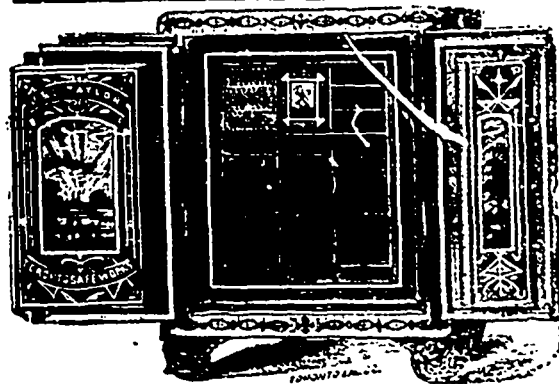


AND BEST.

## 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 Vice Makers, Knife and Cutlery Makers, Axle, Edge Tool and Agricultural Implement Manufacturers, Carriage Builders and, in fact, all others who need a first-class Hammer, and one of extraordinary capacity and adaptability. Correspondence solicited.

**MILLER BROS. & TOMS,** SUCCESSORS TO Miller Bros. & Mitchell, | Sole Makers for | **MONTREAL.**  
 Toronto Office, 71 York Street.



## J. & J. TAYLOR'S

Double Tongue  
and Groove  
FIRE-PROOF

# SAFES

(Patented  
January 14th,  
1866.)

Established 33 years.

All our new style Fire-proof Safes are fitted with **TWO COMPLETE TONGUES AND TWO GROOVES** on both the door and door frames, which effectually prevent the heat from passing between the door and frame into the interior of the safe.

They are also fitted with **CHILLED CHROME STEEL PLATES** under the Lock and Bolt Spindles to prevent drilling; and have **DRY AIR-CHAMBER** inside to prevent dampness to papers.

See Catalogues and Prices on application.

**J. & J. TAYLOR, Toronto Safe Works**

## INTERCOLONIAL RAILWAY OF CANADA.

The direct route between the West and all points on the Lower St. Lawrence and Bas de Chaleur, Province of Quebec; also for New Brunswick, Nova Scotia, Prince Edward Island, Cape Breton and Magdalen Islands, Newfoundland and St. Pierre.

Express trains leave Montreal and Halifax daily (Sunday excepted) and run through without change between these points in 27 hours and 30 min.

The through express train cars of the Intercolonial Railway are brilliantly lighted by electricity and heated by steam from the locomotive, thus greatly increasing the comfort and safety of travelers.

New and elegant Buffet sleeping and day cars are run on all through express trains.

The popular summer sea-bathing and fishing resorts of Canada, are along the Intercolonial, or are reached by that route.

The attention of shippers is directed to the superior facilities offered by this route for the transport of flour and general merchandise intended for the Eastern Provinces, including Cape Breton and Newfoundland; also for shipments of grain and produce intended for the European market.

TICKETS may be obtained, and all information about the Route; also FREIGHT and PASSENGER RATES, on application to

**D. POTTINGER,**  
Chief Superintendent.

RAILWAY OFFICE, MONTREAL, N.B., June 29, 1891

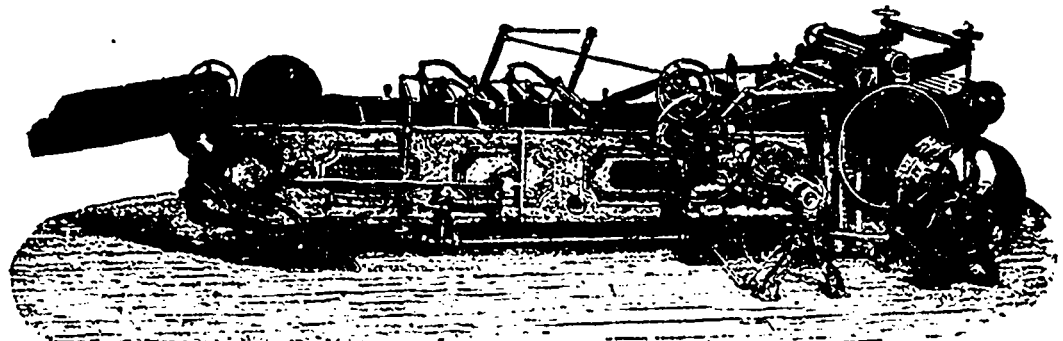
**N. WEATHERSTON,**  
Western Freight and Passenger Agent, 93 Rossin House Bloc's,  
York Street, TORONTO, ONT.

## IMPROVED WOOL WASHER

BUILT BY  
**C. & 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**

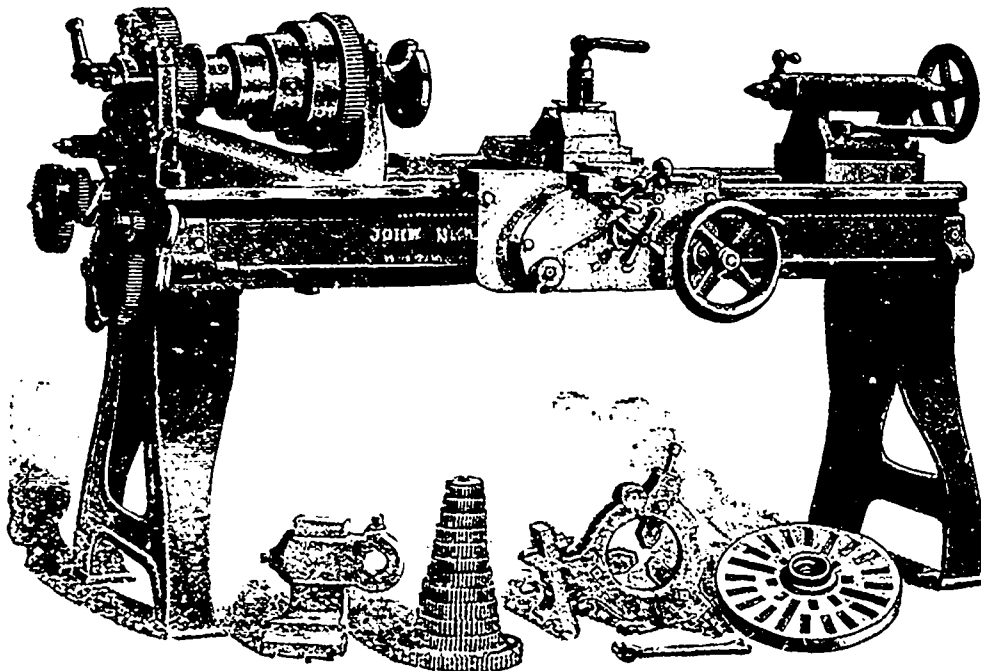
OF EVERY DESCRIPTION

**Hay Rake, Cultivator and Harrow Teeth, and Agricultural Springs**

Canada Tool Works,

**John Bertram & Sons,**

DUNDAS, ONT.



16-in. LATHE

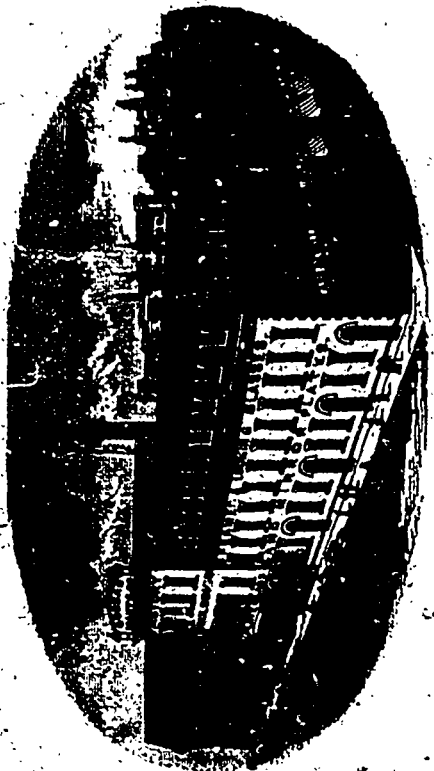
Manufacturers  
of  
**Machinists' Tools**  
and  
**Woodworking  
Machinery.**

LATHES,  
PLANERS,  
DRILLS,  
MILLING  
MACHINES  
PUNCHES,  
SHEARS,  
BOLT  
CUTTERS  
SLOTING  
MACHINES,  
MATCHERS  
MOULDERS,  
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. Teranley and Hayler 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.

**GALT MACHINE KNIFE WORKS.**

PLANING MACHINE

KNIVES.



STAVE CUTTER KNIVES.



STAVE JOINTER KNIVES.



MOULDING, TENONING

MITREING

SHINGLE JOINTER,

And other irregular shapes.



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

PETER HAY,

GALT, ONT.

**HEINTZMAN & CO.**

MANUFACTURERS OF



GRAND,  
SQUARE,  
AND UPRIGHT  
PIANOFORTES.

SEND FOR ILLUSTRATED CATALOGUE.

Warerooms, - 117 King St. West,  
TORONTO.

**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.

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.



# CHEMICALS

Drugs,  
Acids,  
Aniline  
Colors,

DYE-STUFFS,

OILS.

**BELLHOUSE, DILLON & CO.**

9 Custom House Square, Montreal.

**CONNOR & ANDERSON,**

MANUFACTURERS OF

**Presses, Dies,**

And SPECIAL MACHINERY,

39 Adelaide Street West, Toronto.

OFFICE OF  
THE E. & C. GURNEY Co., LTD.

Toronto, March 29, 1892.

Messrs. Connor & Anderson, City,

DEAR SIRS,—Replying to your esteemed inquiry as to how we like the two Deep Throat presses which you made specially for our Range Department. We are pleased to say that they have given us entire satisfaction in every respect. We have found the workmanship to be A 1, and both machines have fully come up to, if not exceeded, what you represented they would do. We can most heartily recommend your workmanship for anything of this kind. Yours truly,

THE E. & C. GURNEY Co., LTD.  
Per W. H. CARRICK.



Established in 1845.

**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 Cutters, 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.