

Technical and Bibliographic Notes / Notes techniques et bibliographiques

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

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

Coloured covers/
Couverture de couleur

Covers damaged/
Couverture endommagée

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

Cover title missing/
Le titre de couverture manque

Coloured maps/
Cartes géographiques en couleur

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

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

Bound with other material/
Relié avec d'autres documents

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

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

Additional comments:
Commentaires supplémentaires:

Coloured pages/
Pages de couleur

Pages damaged/
Pages endommagées

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

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

Pages detached/
Pages détachées

Showthrough/
Transparence

Quality of print varies/
Qualité inégale de l'impression

Continuous pagination/
Pagination continue

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

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

Title page of issue/
Page de titre de la livraison

Caption of issue/
Titre de départ de la livraison

Masthead/
Générique (périodiques) de la livraison

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

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

AN ADIAN MANUFACTURER

AND INDUSTRIAL WORLD

DEVOTED TO THE MANUFACTURING INTEREST OF THE DOMINION

THE HOME COUNTY PRODUCTS
THE RICHEST IT IS
A NATION THAT MANUFACTURES FOR ITSELF PROSPERS

Vol. 19. TORONTO, NOVEMBER 21, 1890. No. 10.

"Old Dyewood Warehouse"
Established over Fifty Years.

Theo. H. Eaton & Son,
Windsor, Ont. : Detroit, Mich.

**DYEWOODS, DYEING DRUGS,
CHEMICALS, ACIDS, Etc.**

HIGH GRADE LOGWOOD.
Domestic and Imported Extracts of
Logwood, Fustic and Indigo.

FRENCH ARCHIL & CUDBEAR.

SOLE AGENTS FOR THE UNITED STATES AND CANADA
FOR THE "CROWN ANILINE DYES."

DIAMOND BLACK
(PATENTED)
FOR WOOL DYEING.

The only Aniline Color ever offered that
replaces Logwood for dyeing shades of
Blacks, Browns, Blues, Slates and Mode
Colors, fast to light, fulling and scouring.
Diamond Black produces a Black fast to
acid. Write for further information to the

**DOMINION DYEWOOD
AND CHEMICAL CO.**
TORONTO.

Sole Agents in Canada for
Farbenfabriken, Vormals Friedr
Bayer & Co., Elberfeld, Germany.

IMPERIAL BANK
OF CANADA.

Capital Paid-up. \$1,500,000
Reserve Fund. 700,000

DIRECTORS:

H. S. HOWLAND, President.
T. R. MERRITT, St. Catharines, Vice-President.
William Ramsay, T. R. Wadsworth.
Robert Jaffray, Hugh Ryan,
T. Sutherland Stayner.
D. B. WILKIE, Cashier. B. JENNINGS, Asst. Cashier.
E. HAY, Inspector.

Head Office, - TORONTO.

BRANCHES IN ONTARIO.

Essex. Niagara Falls. St. Thomas.
Fergus. Port Colborne. Sault Ste. Marie.
Galt. St. Catharines. Welland.
Toronto. Ingersoll. Woodstock.
" Cor. Yonge and Queen Sts.
" " Yonge and Bloor Sts.

BRANCHES IN NORTH-WEST.

Winnipeg. Brandon. Portage la Prairie. Calgary.

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 all deposits may be made
for credit with Head Office or Branches.

ESTABLISHED 1856

THE J. C. McLAREN BELTING CO.
BELTING MANUFACTURED FROM

IMPORTED OAK-TANNED LEATHER

EVERY BELT GUARANTEED.

TORONTO, 20 Front St. East. MONTREAL.

THE GUTTA PERCHA & RUBBER CO.
WARREN, OF TORONTO, C.N. CANDEE, SECTY.
BEST & TREAS. SELF MANUFACTURED BY THE COMPANY

CLOTHING HOSE.
FACTORIES AT PARKDALE.

WAREHOUSE & OFFICE, 43 YONGE ST. TORONTO.

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

BERLIN ANILINE CO.

ANILINES
BENZO COLORS
Methylene Blues
— AGENTS —
**MIDDLETON & MEREDITH,
MONTREAL.**
— ALSO —
EXTRACTS, DYEWOODS, CHEMICALS.

John Bertram & Sons,
CANADA TOOL WORKS!
Dundas, Ont.

SEE ADVERTISEMENT, PAGE 357.

FERRO-COPPERTIN
AN ANTI-FRICTION METAL
THAT IS
Durable and Gold Running.
J. & A. BERTRAM, Makers, Toronto.

TRADE **IMPERIAL** MARK
BOILER COMPOUND

FOR THE PREVENTION OF SCALE
IN STEAM BOILERS AND
LOCOMOTIVES.

Prepared only and separately for each case after analysis of scale from boiler to be treated.

In successful use in Pennsylvania for over fifteen years.

GUARANTEES
Contains neither acid or any ingredient which will injure iron, brass, or packing.
Payment required only after perfectly satisfactory results.
Prices lower than any high class purger in the market.
REFERENCES.—All branches of Steam Users.

The **Imperial Chemical Co.**
Soho Machine Works,
Esplanade St., TORONTO, ONT.

ALFRED MYERS, A. R. WILLIAMS,
General Manager. Selling Agent.
Send us sample of Boiler Scale in envelope, by mail. We will analyse it FREE OF CHARGE.

Largest Manufacturers of STEEL
and BRASS STAMPS in Canada.

**PRITCHARD
& ANDREWS**
OTTAWA, ONTARIO.

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

OUR IMITATORS

Owing to certain dealers attempting to palm off on the public the products of other makers, and representing them to be ours to the injury of the reputation of our goods, we have issued the following:—

CAUTION TO THE **TRADE**
Merchants are respectfully advised that hereafter all gloves of our manufacture will be STAMPED or bear a SILK WOVEN label as below

W. H. Storey & Son
Acton, Can.

**McARTHUR,
CORNEILLE & CO.**

(Successors to JOHN McARTHUR & SON)

310 to 316 St. Paul Street,

and

147 to 151 Commissioners Street,

MONTREAL,

offer at closest prices

PURE OLIVE OIL.

WINTER-PRESSED LARD OIL,

EXTRA FINE SPINDLE OIL,

and a full assortment of other

LUBRICATING OILS.

Also

CHEMICALS,

DYESTUFFS,

DYEWOODS,

EXTRACTS,

&c. &c. &c.

Are Sole Agents in Canada for

SOCIETE ANONYME

DES

MATIERES COLORANTES ET

PRODUITS CHIMIQUES,

DE ST. DENIS,

Successors to

A. POIRRIER AND G. D'ALSACE,

PARIS,

Manufacturers of

ANILINE DYES,

ARCHIL,

CUDBEAR.

&c. &c. &c.

Prize Medal, London Universal Exhibition, 1862.

Gold Medal, Paris Universal Exhibition, 1867.

Grand Diploma of Honor, Vienna Universal Exhibition, 1873.

Medal and Diploma, with Highest Commendations, Philadelphia Centennial Exhibition, 1876.

Maintain large stock, replete with all the new and improved colors. Will be pleased to furnish quotations, with samples and directions for use.

WILK KNOX.

JOHN H. ELLIOT

KNOX & ELLIOT.

Architects, Engineers and Mill
Constructors,

Office: 19 Queen Street East,
TORONTO

**New York Dyewood, Extract
and Chemical Co.**

SOLID AND LIQUID EXTRACTS
OF

**LOGWOOD,
Fustic and Hypernic,**

OF SUPERIOR QUALITY.

OFFICE 65 BEEKMAN ST. N. Y.

PILLOW & HERSEY MFG CO.

Manufacturers of every description of Cut Nails, Tacks, Brads, Railway and Pressed Spikes, Horse Shoes, Carriage, Tire and other Bolts, Coach Screws, Hot Pressed and Forged Nuts, Felloe Plates, Lining and Saddle Nails, Tufting 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, 106 Mill St., Montreal.

ELECTRIC LIGHTING

Electric Gas Lighting, Electrical Apparatus and Supplies, Contractors for Electrical Work.

HENRY S. THORNBERRY & CO.

39 King Street West, Room 2.

This Space for Sale.

KEMP MANUFACTURING CO.

PROPRIETORS OF

Dominion Tin and Stamping Works

Corner Gerrard and River Streets, Toronto.

GALVANIZERS

JOBGING WORK SOLICITED.

Manufacturers of all kinds of **MACHINE OILERS.**

THE ONTARIO BOLT CO. (Ltd.)

SWANSEA, NEAR TORONTO

MANUFACTURERS OF

Bridge Rods, Gib Plates, Straps, Braces and Bolts, Drift Bolts, Washers, Prisms and Roof Rods, Bolts, Braces, Straps, Bolt Ends and Blank Bolts, Drop Forgings, Carriage Hardware Including Clips, Steps, Stump Joints, Offsets, Stay Ends, Herbrand Fifth Wheels, Sleigh Braces, Couplings, Body Loops, Threshing Machine Teeth, Pitman Irons, and all kinds of Special Work. Machine Bolts, all sizes, Coach Screws and Skein Bolts, Whiffletree Bolts, Best Elevator Bolts, Best Plough Bolts, all kinds, The Prize Tire Bolt, Best Shaft and Step Bolts, Best Eccentric Head, and Spring Bolts, Best Norway Shackle Bolts, Railway Track Bolts and Spikes, Rivets, Best Bridge and Boiler and Black Iron, Wire Nails and Pressed Spikes, Nuts, Hot Pressed, Forged and Cold Pressed, Carriage Bolts, Superb, Eclipse, Sleigh Shoe and Prize, all sizes, Howell's Patent Iron Wheels.

GOLDIE & McCULLOCH, - GALT,

Have the following **SECOND-HAND MACHINERY**, which is offered cheap and on reasonable terms:

70 H. P. Brown Engine, 50 H. P. Slide-Valve Engine, 45 H. P. Osborne, Killey & Co. Engine, 40 H. P. Slide-Valve Engine, 35 H. P. Waterous & Co. Engine, 30 H. P. Waterous & Co. Engine, 25 H. P. Slide-Valve Engine, 20 H. P. Slide-Valve Engine, 16 H. P. Slide-Valve Engine, 70 H. P. Return Tubular Boiler, 60 H. P. Return Tubular Boiler, 40 H. P. Return Tubular Boiler, 28 H. P. Return Tubular Boiler, 20 H. P. Return Tubular Boiler. Blind Slat Tenoning Machine, Pony Planer, Double Surface Planer, Power Mortise Machine, Moulding Machine and Shaping Machine.

The above Machinery and Boilers have been re-built and are in good condition. **THE BOYD PRESS BRICK MACHINE, CLAY PULVERIZER, SCREENS, ETC.**, the best semi dry process Brick Machinery made. For particulars apply to

GOLDIE & McCULLOCH, - - - GALT, ONT.

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



THE HAMILTON AND TORONTO

SEWER PIPE CO'Y,

(LIMITED,)

HAMILTON, CANADA.

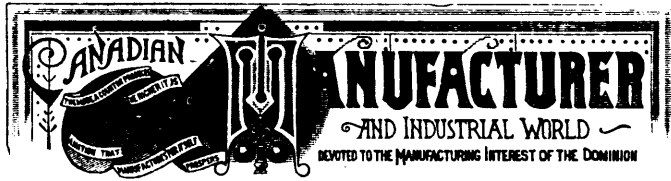
Successors to The Campbell Sewer Pipe Co. and The Hamilton Sewer Pipe Co.

— MANUFACTURERS OF —

Steam-Pressed, Salt-Glazed **SEWER PIPE**
VITRIFIED

FLUE PIPES, CHIMNEY TOPS and SMOKE PREVENTIVES.

Established 1860.



Published on the First and Third Fridays of each Month

BY THE

Canadian Manufacturer Publishing Co.

(LIMITED.)

63 FRONT STREET WEST, TORONTO.

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

SUBSCRIPTION, - - - - \$1.00 per year.

ADVERTISING RATES SENT ON APPLICATION.

MR. FREDERIC NICHOLLS is Secretary of
The Canadian Manufacturers' Association,
The Woolen Manufacturers' Association, and
The Tanners' Association.
His Office is at the Publication Office of the
CANADIAN MANUFACTURER,
63 Front Street West, Toronto.

THE NATION THAT MANUFACTURES FOR ITSELF PROSPERS.

FOLLOWING is the text of a proposition made to Sir John A. Macdonald by Mr. S. J. Ritchie, President of the Central Ontario Railway, and a large proprietor in nickel and iron mines in the Sudbury district. The proposition explains itself. It involves a matter of the utmost importance to Canada, for should it be accepted by the Dominion Government, and the works suggested by Mr. Ritchie be put in operation, it would at once elevate this country into one of the greatest importance among nations, and give it control in the production of certain materials that all other progressive nations must have and cannot possibly do without.

Of late years vast iron and nickel deposits have been found in the neighborhood of Sudbury, and the great problem is how best to utilize them. Mr. Ritchie thinks the interests of the country would be served were they smelted on the spot, and exported in the form of nickel steel instead of in their crude state. He maintains, however, that the vast business of smelting cannot be undertaken unless assistance be given towards the establishment of a steel plant, and the extension of a line of communication between the mines and the outside world. His proposal is, first, that the Government aid in the completion of the Central Ontario road from Coe Hill to Sudbury, the bonus to be of the usual amount, \$6,000 a mile; and, secondly, that a guarantee of three per cent. be given on the stock of the steel plant. Of the Central Ontario road 110 miles is already built. It will be necessary to add 210 miles, and to build thirty miles additional to connect the various mines with the smelting plant. Thus, the subsidy asked approaches \$1,500,000. The capital necessary for the operation of the mines, and the purchase and setting up of the plant, which is to be of the capacity of ten furnaces, is \$5,000,000. The guarantee at three per cent. will therefore involve an outlay of \$150,000 a year. Mr.

Ritchie's figures show that these subsidies will lead to the investment of \$16,000,000 in the country beyond the two and a half millions already spent in the building of the Central Ontario road so far as it has gone.

MR. RITCHIE'S PROPOSITION.

OTTAWA, NOVEMBER 10, 1890.

To the Right Honorable Sir John A. Macdonald, G.C.B.,
Minister of Railways, Ottawa.

DEAR SIR,—On numerous occasions during the last six years I have asked the Government to aid the Central Ontario railway in extending its line from Coe Hill to Sudbury. During the greater portion of the period there were many questions in connection with the metal interests of the country to be traversed and to be reached by the completion of this line which were only partially solved, and the success of the line when built thus rendered somewhat problematical; and to this cause I have attributed the failure of the Government thus far to comply with my request. Happily now, all these obstacles have been overcome and mastered, and the development and manufacture of these minerals in Canada has become a question second in importance to no other commercial question in the Dominion.

By cheap and simple processes even very low grades of magnetic iron ores can be converted into the highest and purest grade of ores which are offered in any of the markets of the country, and they are thus well adapted to the manufacture of the very best quality of steel. In addition to this you doubtless are well aware of the great revolution in metallurgy recently made known to the public by the alloying of nickel with steel, the product being known as nickel steel.

Nothing in the manipulation of metals since the discovery of Sir Henry Bessemer has created such widespread interest among the steel manufacturers of the world as the results obtained from this nickel steel. Wherever it will be possible to obtain this material the war vessels of the world, together with their armament, will doubtless be made from it. This statement I have from the highest officials having these matters in charge.

Its extensive use for commercial purposes where a metal of superior excellence is required is equally well assured. Canada possesses probably five sixths of the world's supply of nickel. Such being the case, she can control the markets of the world and the uses to which this metal shall be applied. She also has inexhaustible supplies of iron ore, which, until the invention above referred to, were neither available for manufacture at home nor saleable abroad.

The comparative close proximity of these iron ores to these nickel deposits, both of which are in inexhaustible and almost incomputable supply, would seem to render any argument unnecessary as to the proper use to which they should be put. That they should be manufactured in Canada, and the manufactured material shipped to the markets of the world, instead of only the crude materials being produced in the country and shipped to foreign markets, would seem to be a question susceptible of only one answer.

After having mastered a solution of all these metallurgical questions and processes, after their importance has been acknowledged and passed upon by the highest authorities in the world, including, among hundreds of others, the owners and managers of the great steel works of Schneider & Company, of Le Creusot, France; the great works of the Steel Company of Scotland; of the world-wide known works of William Jessop & Sons, of Sheffield; of the results obtained by experiments and tests made in the interests of the French, German, Austrian, British and American Governments, I again come to you and ask your aid, not only for the completing of this line of railway, but also for the building up of a great steel plant which shall produce an article which can be shipped to and find a purchaser in every market in Europe. It may be said that the natural advantages here should be sufficient inducement for either investors or

manufacturers without any Government aid, but you must remember that Canada is without any industry of this kind, and that her facilities and resources are not well understood by people of other countries where these industries are developed on a great scale, and no matter what her advantages are or may be it would be impossible to induce capital sufficiently large to engage in an enterprise of this kind without some Government backing. If the same opportunities, even in a small degree, existed in the United States, Great Britain, Germany or France, capital in any amount required could at once be had to utilize and develop them. But the conditions here at present are different, and if Canada is to take her place among those countries which are producers of manufactured articles instead of a producer of raw materials, the Government must take the initiative and help those who are willing to engage in and push through this enterprise.

I therefore ask of your Government, on behalf of the Central Ontario railway, a bonus of six thousand dollars per mile from Coe Hill to Sudbury, a distance of about two hundred and six miles; and that you grant a bonus of thirty-two hundred dollars per mile on the portion of the line already completed between Trenton and Coe Hill, a distance of about seventy-two miles; this last sum to be used in the building of blast furnaces upon the line of railway.

2. For the purpose of erecting and carrying on a large steel plant upon the line of railway for the manufacture of nickel steel from the iron ores along the line of road, and from the nickel ores of the Sudbury district, I also ask your Government to guarantee the interest at the rate of three per cent. per annum on a capital stock of five millions of dollars for a period of ten years, and in order that we may at once perfect our negotiations for carrying out this enterprise I would most respectfully ask that your Government pass an order-in-Council granting this aid, under such safeguards as shall insure to the Government their successful completion and carrying out.

If the Government shall be pleased to make these concessions to the interests I here represent, a great industry will at once be built up in Canada, and she will sell to the markets of the world a manufactured article instead of raw materials. She will find a market for her labor at home, with a growth of all the varied interests which spring up around such large manufactures. To illustrate the possibilities of a great steel plant I may say that the business of Carnegie & Co.'s firm at Pittsburg during the present year is much larger than the combined business, during the same time, of every mile of railway and steamship owned or operated by both the Grand Trunk and Canadian Pacific Railways both in Canada and the United States. Yet the sources from which this great firm derives its supplies of raw materials are in the aggregate but a small percentage of extent to those to be opened up, connected and made available by the extension of this line of railway. The several interests in this railway and in the iron, nickel and copper mines which it will bring together will all be pleased to heartily co-operate with your Government in building up a great industry in your country, if by your aid you will make it possible for them to do so. This whole subject in all its bearings and connections is quite well understood by your Government, but in order to place the matter in at least approximately definite form before you, I submit the following figures as illustrative of the importance of the enterprise for which I ask your aid :-

1. Line of Central Ontario—110 miles already completed with equipments	\$2,500,000
2. Line to be built, say 210 miles with equipment	6,000,000
3. Capital for steel plant	5,000,000
4. Capital for working the copper and nickel mines with a capacity of ten furnaces, and about thirty miles of railway to connect all the various deposits with the central smelting plant, together with all the necessary machinery, houses and plant of every kind adapted to a capacity of ten furnaces, as well as to provide for the working of the iron mines, at least	5,000,000
	<u>\$18,500,000</u>

To recapitulate, then, I ask of your Government first a direct bonus to the railway of say (about 320 miles when completed)..... \$1,500,000

This would involve to the Government an annual interest charge of about..... \$ 50,000

The guarantee of five millions of stock for steel plant at three per cent. per annum for ten years—this would involve an annual interest charge upon the Government of 150,000

Or a total annual interest charge for ten years of .. \$200,000

And of \$50,000 per year thereafter.

From such knowledge as you have of the importance of like industries in other countries, I submit whether your Government has ever incurred an obligation of like magnitude which promises so much in return for the development of your country, and I most earnestly urge your speedy and favorable action that we may be enabled to close our negotiations and to proceed at once in building up and carrying out this whole enterprise.

Very truly yours,

S. J. RITCHIE,

President Central Ontario Railway.

MR. S. J. RITCHIE AND CANADIAN NICKEL.

IMMEDIATELY upon the passage by the United States Congress of its tariff bill, in which nickel ore and nickel matte were placed upon the free list, retaining a duty of \$200 per net ton upon nickel metal; and the appropriation of a million dollars for the purchase of nickel for the use of the navy in making nickel-steel armor plates, the CANADIAN MANUFACTURER demanded that an export duty be levied by the Dominion Government upon all nickel ore and matte going out of the country. This demand by this journal was the first made by any newspaper in Canada; and since then the question has been more or less discussed, the importance of it being generally acknowledged.

There is no doubt that until this journal advanced the demand to thus levy this export duty, Mr. Ritchie and the Canadian Copper Company, who are the owners of probably the largest and most important nickel mine in the Sudbury district, entertained no idea whatever of manufacturing refined nickel in Canada, their intention being to haul the ores and matte to a certain point in the United States for that purpose. Early in the late session of Congress Mr. Ritchie appeared before the Ways and Means Committee, and urged that nickel ore and matte be placed upon the free list; and although he was backed by large and wealthy influences, including, it is said, no less a concern than the Standard Oil Company, the Committee refused to accede to his request, and the nickel item in the McKinley tariff remained as it was in the old tariff. The duty under the old tariff was fifteen cents per pound upon nickel metal, and the same upon the nickel contained in ore and matte; and it was not until the Annapolis demonstration that the American Government concluded that it would be to their interest to remove the duty upon the more primitive forms of the material, still, however, retaining a high duty upon the refined.

To show that Mr. Ritchie never contemplated the erection of refining works in Canada, we point to his evidence given before the Ways and Means Committee, as reported in the proceedings of that body. Alluding to his nickel mine at Sudbury he said:

To transfer our smelting works to this side, say to Findlay, would require the erection of a very extensive plant, the expenditure of a large amount of capital and the employment of a great number of men, and unless these ores are admitted free, all this expenditure of capital and employment of men must be done in Canada, and the product go to foreign governments.

This was his argument to induce the placing of nickel ore upon the free list—to avoid the expenditure of capital and the employment of labor in Canada in refining the product of his mines.

Circumstances and the American Congress did all they could for Mr. Ritchie; and in his anticipation he could see his Findlay works doing a most lucrative business in refining the ores from his Canadian mine. Under the requirement of Congress all the materials entering into the construction of the new American navy were to be of American material; and this Findlay-made nickel coming within this requirement, was the only nickel that could be had for that purpose. He was sure of one sale of it for that purpose at his own price, and he could almost feel the jingling of that million dollars in his own pocket.

But when the proposition was made for Canada to levy an export duty upon nickel ore a change came o'er Mr. Ritchie's dream. If Canada should levy this duty, and place it where the United States had previously placed it, it meant a tax to him of \$300 per ton upon all the nickel he might make at his imaginary Findlay works; and now he is not as much interested in establishing works there as he is in having them in Canada. In other words, Mr. Ritchie, by the force of circumstances other than those influenced by the American Congress, has become a National Policy man and an out-and-out Canadian Protectionist. We gladly welcome him as such. It is not possible at this time to indicate which or how many of the Canadian newspapers like the *Toronto Globe and Mail*, *London Advertiser* and *Montreal Herald*, that were Mr. Ritchie's champions when he proposed taking his ores to Ohio to be refined, will champion his cause now when he proposes to locate his works in Canada, and will do so if the Dominion Government will grant him certain concessions. This journal favors his scheme. Personally we have nothing against Mr. Ritchie. We gladly welcome him and his associates who bring their wealth to Canada, intending to use it in such manner as Canada will be most benefited by. His proposition will receive the careful and friendly scrutiny of the Government, and it is to be hoped that they will see their way clear in making such arrangements with Mr. Ritchie as will result in the establishment of the important industries he proposes to embark in.

But in the meantime let the export duty upon nickel ore be imposed—that is, let it be discriminatory against such countries as maintain a tariff as hostile to Canadian interests as that of the United States is. If that country insists upon maintaining a duty of five cents per dozen on Canadian eggs, and thirty cents per bushel on Canadian barley, it should be willing to pay Canada \$300 per ton for such Canadian nickel as it has use for.

AS TO NICKEL.

ONE of the most important questions before the people of Canada, and which will probably be decided at the next session of the Dominion Parliament, is whether an export duty shall be levied on nickel ore and matte. The importance of this question has been accentuated by recent events. Until but a few years ago the extent and richness of the nickel deposits at Sudbury was not generally known or appreciated: and although of late considerable development work has been done in the mines there, and some important and valuable shipments of matte from them have been made, chiefly to Great Britain, it was not until the experiments made at Annapolis by the Navy Department of the American Government demonstrated that hereafter all armor plate for war vessels must be of nickel steel was the fact realized that the world would have to depend upon Canada for probably five-sixths of its supply of nickel.

Until the Annapolis incident the Canadian nickel industry had not excited any great or special interest. It was known that there were some three large companies operating there, and that some of the matte produced at their smelters was being shipped abroad, but little or none of it going to the United States. It was known that early in the late session of the American Congress a strong effort was made by Mr. S. J. Ritchie, of Akron, Ohio, a large owner in one of the Sudbury mines, to have nickel ore and nickel matte put upon the free list, or at least to have the duty reduced. Under the tariff then existing the duty was uniformly fifteen cents per pound upon nickel, whether refined or in ore or matte, and it was through the influence, it is said, of Mr. Joseph Wharton, who owns a small nickel mine in Pennsylvania, that the McKinley Committee refused to change the duty. This circumstance showed, first, the influence of Mr. Wharton, and second, that, without special reason for not doing so, the protective policy of the Government was to apply to nickel. It is said that the Standard Oil Company, of which Mr. Ritchie is supposed to be a member and which is probably the richest commercial company in the United States are largely interested with Mr. Ritchie in the Sudbury mine, and that it was this influence that induced the American Congress to vote an appropriation of a million dollars for the purchase of nickel, without the least discussion by either Republican or Democrat in either the Senate or the House of Representatives; while at the same time, and under precisely similar circumstances nickel ore and matte were transferred from the dutiable to the free list, and the duty upon nickel metal reduced from fifteen cents per pound to ten cents. These acts indicated that the American Government appreciated the importance of the situation. They knew that their country could not supply the nickel they would certainly need for making armor plates and for similar purposes, and that what they would require could be had from the Sudbury mines. But as badly as they wanted nickel, they refused to place the metal upon their free list, the idea being that as the distance from Sudbury to Ohio was within a day's haul on the railroad, the ore could be taken over and manipulated there, thus affording investment for American capital in smelting and refining works, and employment for American workmen. This could not be done to advantage with ore brought from far off New Caledonia, in the South Pacific

SUBSCRIBE FOR

The - Canadian - Manufacturer.

ocean. It does not appear why the duty upon refined nickel was reduced—it was certainly not done to induce Mr. Ritchie to manufacture it in Canada.

As we have suggested, the question for Canada to decide is whether a duty shall be levied upon exports of nickel ore and matte.

In our opinion it would be well to impose such a duty upon ore and matte being exported to any country which imposed an import duty upon Canadian nickel, or that discriminates against Canada in imposing prohibitive duties upon such products as eggs, barley, etc.

It would not lie in the mouths of Americans or of Americanized Canadians to say that such a duty would be an act of commercial hostility to the United States, for this move would not be suggested if that country had not itself taken the initiative in such legislation; and then it would be directly in line with Mr. Blaine's proposition to use the tariff as a pressure where it would do the most good to compel other nations to reduce or remove their excessive duties in favor of the products of the exporting country. The United States has no important nickel mining or refining industries to protect in laying a heavy duty upon nickel metal. Until the passage of the McKinley Bill its tariff was against all forms of nickel alike—ore, matte and refined metal; and the retention of a high duty upon the metal while the ore and matte were made free, was nothing more or less than hostile legislation against a valuable Canadian industry. In the nature of things nickel ore could not be imported from New Caledonia, nor will it ever be while a richer ore can be had in Canada; and it is plain that the dependence must be upon Canada. This being the case it is an exhibition of contemptible meanness to attempt to prevent the refining of Canadian nickel in Canada.

The United States cannot do without our nickel. This means that the Dominion Government holds a power that can force the American Government to contribute largely to our treasury, or to rescind the legislation hostile to Canada they recently enacted in their McKinley Bill. The levying of this export duty would either give Canada a largely increased revenue, or it would secure the admission of certain Canadian produce into the United States on terms similar to those prevailing before the enactment of the McKinley Bill as the price of its repeal. Impose the duty.

STOP WHINING.

WE protest in the name of self-respecting Canadian manhood against the whining indulged in by the *Empire* against the American ownership of Canadian nickel mines. To judge from some of its utterances one might suppose that the Americans who have become possessed of these mines had obtained them in some surreptitious and dishonorable manner, and that Canada had been over-reached and cheated in the transaction. Nothing could be further from the fact. As we understand it, the mineral regions of Canada were open to whoever might desire to prospect them. They were prospected, and if these deposits were not discovered and secured by Canadians instead of by Americans, it was not because the Americans had resorted to any illegal means to prevent it. The discoveries were not all made by Americans, for of the three large mines now

being worked at Sudbury, but one belongs to an American company, while the ownership of another is vested in a British company, and the third in a Canadian company. If the American company have developed their mine to a greater extent than either the other companies have done, that fact shows no trickery or unfairness but rather a keener perception of the great value of their property, and a larger investment of capital in developing it. Both the British and the Canadian companies could have done the same with their properties if they had desired to do so and had the requisite capital, which they undoubtedly have. Why then should the American company be abused like pickpockets for doing just what the British and the Canadian companies are doing, only not to quite so great an extent? If this American company came by this valuable property in any illegal manner, Canadian law is able to wrest it from them. But if they have acquired it legally, and if the property is theirs in the eyes of the law, why should they be denounced for doing with it as they please while acting on their rights and within the bounds of the law?

Here are some of the recent utterances of the *Empire* on this subject:

"They (the Americans) have long been securing for a mere trifle from our careless administrators the pick of the mines in Ontario. The mineral discoveries in Algoma of course attracted their attention, and they flocked to the scene like vultures around their prey. At this juncture two simultaneous discoveries combined to suit the purpose of these grasping speculators. * * As the Washington authorities had just come to the determination to construct a war navy, they hastened to investigate this discovery. * * They operated with such secrecy that they even concealed the fact that some of their naval officers had been relieved from their usual duties to be sent on this mission to Europe. * * Nickel-steel plates were anonymously procured from different makers. * * The mining speculators from the United States in Algoma hastened and quietly secured for a mere pittance as copper mines our Canadian nickel for their navy. * * If the projects of our neighbors had been completely carried out, they would have succeeded in absorbing the whole interest of the people of Ontario of a most valuable portion of their property, sacrificed for an absurdly inadequate compensation; in enjoying forever all the employment and profit of manufacture in their foreign land except the roughest preliminary processes left to Canadians; in securing almost a monopoly of the best material for armor plates to the United States navy; in forcing upon the British Empire the great expense and difficulty of arming its cruisers from the scanty supplies of nickel found elsewhere in the world, and depriving Canada of the great stimulus to many industries that would be afforded by a plentiful home supply of nickel steel."

The sneer at "our careless administrators" is directed at the Ontario Government—not at that of the Dominion—but it cannot be urged against them that they showed any more "carelessness" in selling mineral lands to Americans than to Canadians or Britishers; and why don't the *Empire* denounce the acquisition of Sudbury mines by these latter as well as the former? Why liken the Americans to vultures when Canadians and Britishers were also flocking to the same scene? Was it disreputable for them to go where their legitimate interests led them? Suppose the Washington Government did "operate with secrecy" in investigating the merits of nickel steel; that some of their naval officers were sent to Europe for this purpose, and that armor plates were "anonymously" procured abroad, what of it? Whose business was

it? Do not other Governments do likewise? And then how undignified of the *Empire* to set up a man of straw for the pleasure of knocking it down in supposing that these grasping Americans intended to prevent the use of nickel-steel armor plates throughout all the world except in the Yankee navy, and would have done so if their projects could have been "completely carried out." All the owners of these nickel mines—American, Canadian and British—are guaranteed the full and equal enjoyment of their property. Canada has the right and power to encourage the refining of nickel in Canada by the imposition of an export duty. The American company can have no monopoly of nickel except of their own product. As business men they will not sell their product to the American Government any cheaper than they will to any other would-be purchaser. The British Empire can never, because of anything this American company can do, find any unusual expense or difficulty in arming its cruisers; and Canada can never be deprived of the great stimulus to any industries depending upon a plentiful supply of nickel, as long as she is able to go into an open market and pay market prices for it.

Abuse is not argument.

BEEET SUGAR.

The beet sugar industry is exciting great interest in the United States. In order to its rapid development, Congress, during last session, voted a bonus of \$2.00 per 100 lbs. of raw sugar manufactured from native cane or beets. The Legislature of the State of Nebraska, in its last session, voted a State bounty of \$1.00 per 100 lbs. of raw sugar manufactured from beet roots raised in the State. Meetings have been held in counties in Nebraska, at which resolutions have been unanimously passed, pledging the county to assist any beet sugar company erecting a large factory, by a bonus equal to 20 per cent. of the cost of the establishment.

There are three large beet sugar factories now in operation in the United States; one at Watsonville, Cal., where only raw sugar is manufactured by the Speckles company, and taken to their large refinery at San Francisco; another at Alvarado, Cal.; and another at Grand Island, Neb., at both of which latter factories the process of manufacturing white granulated sugar is employed. Mr. Spreckles contemplates erecting other beet-sugar establishments in California. Within the last few weeks contracts have been let for the erection of a large factory at Chino, Cal., and another at Salt Lake City, Utah, at both which the process of making white granulated sugar is to be used. Other negotiations are pending for the erection of beet-sugar works at Wilmington, Ill., and at Detroit, Mich. Similar projects are being agitated in Iowa, Minnesota, Wisconsin and Pennsylvania.

The adaptability of the soil and climate of California for the production of sugar beets of fine saccharine quality has been established for some years. In the other States referred to preliminary experiments have been made in cultivation and analysis of the beets, and have proved sufficiently satisfactory to induce capitalists to invest their money in this new enterprise.

In none of the States have the experiments in cultivation been made in so extensive and thorough a manner as has been

done in Ontario, and in none of them have they succeeded in producing anything like such fine average quality of roots as have this season been raised in almost every section of the Province. The seed furnished by Mr. Wilfred Skaife, of Montreal, and distributed by Mr. Robert H. Lauder, of this city, proved to be remarkably good, as in only two or three instances out of about two hundred have any plants been found to have missed. The yield per acre has surpassed all expectations, the average having been over twenty tons, or about fifty per cent. above the average production in Germany. This favorable result was predicted by some of the oldest and most extensive seedsmen in the city of Toronto, whose experience in root-culture generally convinced them as to the great beet-productiveness of most of the counties in Ontario. During the collection of the roots this fall, farmers were closely questioned as to the cost of production and their willingness to undertake their cultivation on a large scale at the price suggested to them, \$4.25 per ton, delivered at the factory. Their estimates of cost of production varied from \$18 to \$25 per acre, including rent, taxes and manure; their estimates of yield per acre averaged twenty tons. With these figures it is not surprising that nearly everywhere farmers were found to be not only willing, but eager to cultivate the new crop to any extent which the requirements of a factory should demand. The greatest difficulty which beet-sugar factories in California have to contend with is that of obtaining an ample supply of beets, owing to the high price of labor there, and the high rents asked for lands suitable for this plant, \$20 per acre being frequently asked and paid. The difficulty there is increased by the lack of experience in root cultivation generally, and a like lack of experience exists throughout all the United States. In Ontario, many sections have been found where a beet-sugar company could easily obtain the absolute assurance of an abundant supply. The packages of seed distributed were so small, except in two cases, that only small plots of beets could be grown. Generally the plants were grown in one long row, and with the plants too far apart. This was unfavorable for quality, as close cultivation is absolutely essential to proper success. Further, more than half of the samples of roots collected had been allowed to grow more or less above the ground, while they should have been kept wholly under ground. Notwithstanding these drawbacks, the average percentage of sugar ascertained by analysis at Guelph, has proved a little over fourteen per cent., and purity over eighty per cent. This is a very favorable result indeed, and very much more favorable than the results of any of the preliminary experiments in Western States. Both as to percentage and purity of sugar, the averages shown for Ontario are much higher than the averages shown in sixteen years' operations in Germany, and higher than the percentage shown there in any of these sixteen years, except two.

Plots of one acre each were raised on the Ontario College farm at Guelph, both last year and this; and this season by Mr. T. B. Carlaw, of Warkworth. In all three experiments the quality on these large plots was even considerably better than on the smaller plots. Three parcels of Mr. Carlaw's roots were analyzed this season, showing an average of 15.17 per cent. sugar, and 83.63 per cent. purity; this is remarkably fine quality. The experimental stage has been passed, and it has been demonstrated that an ample supply of beets can be obtained, and of a

quality superior to that which has been manufactured with profit and success elsewhere.

In consideration of the handsome profit which will be obtained by farmers from beet crops, and the further benefits to the soil which are seen in other countries to follow beet cultivation; of the immense addition to the business of railway and transportation companies through the carriage of machinery, building materials, coal, limestone, coke, beet roots, sugar, etc.; and the valuable impetus to commerce generally through the establishment of a new and extensive industry, it is evidently the duty of the Government, both Dominion and Provincial, to assist liberally in the erection of the first large factory which may be started. The amount necessary to establish this industry in the Province will be well spent, because, if its operations should meet with anything like the success which the prospects indicate, it will only be a very few years until about twenty similar factories shall have been constructed and be in active operation. Under the present depression of agricultural interests it is surely the duty, as it must be the desire of Government, to co-operate in any movement which promises to aid in relieving the depression. We heartily commend the beet-sugar industry to the careful consideration and prompt action of capitalists and manufacturers. All the circumstances appear to be exceptionally promising for handsome profits. The customs tariffs is particularly favorable; the raw material is to be found in abundance at our own door; the market for the sale of the products of the factory is extensive, and the products themselves will command a ready cash sale, an advantage which few manufactured articles possess.

BRITISH OPINION.

On the occasion of the recent visit to Toronto of a number of the members of the British Iron and Steel Institute, a city daily newspaper caused interviews to be had with a number of the gentlemen, from which we gather the following regarding the price of labor in Britain of those employed in the iron and kindred industries; and also the views of the visitors regarding the effects of the McKinley Bill upon those industries; and regarding Free Trade *vs.* Protection.

Sir James Bain is a manufacturer of pig iron at Glasgow, Scotland. His workmen are paid from eighteen shillings—\$4.38—per week upwards. The McKinley Bill will not injure Britain.

Mr. Richard Grigg, of Stockton-on Tees, Durham, is managing director of the great salt union in England, and is also largely interested in the manufacture of iron and steel. Wages in Durham in the iron, coal and salt trades are from four shillings—97 cents—per day up. The best thing for Great Britain is for the McKinley Bill to remain in force and the worst thing the Americans could do to hurt British trade would be to declare for Free Trade.

Mr. A. C. Bamlett, of Thirsk, Yorkshire, is engaged in the manufacture of agricultural machinery. He pays his men an average of sixteen shillings—\$3.89—per week. He has no fear of the McKinley Bill as far as his industry is concerned.

Mr. George Birkbeck is a member of the Gower Tin Works Company, near Swansea, Wales. He declined to name the wages paid his employes, but stated that they varied consider-

ably according to the department in which they are employed. The McKinley Bill will doubtless affect the output of tin works at first, but only until other markets are discovered in which to dispose of their products.

Mr. James Allan, Glasgow, Scotland, is a manufacturer of iron tubes for steam purposes. The wages of his men vary from eighteen shillings—\$4.38—to thirty-eight shillings—\$9.25—per week. The McKinley Bill will not affect his industry; his concern manufacturing lines of goods which the Americans cannot make.

Mr. James L. Thomas is largely interested in collieries in South Wales. The mines in the district in which Mr. Thomas is interested give employment to from 15,000 to 20,000 men. Laborers earn only from three shillings—73 cents—per day upward. He did not state if the McKinley Bill affected his business.

Mr. J. F. Pease, of the Darlington Forge Company, Darlington, Durham is a manufacturer of pig iron. The wages of his men average nineteen shillings—\$4.62—per week. Regarding the McKinley Bill, he had no fear that it would injuriously affect British commerce.

Mr. J. C. Tannett, a manufacturer of hydraulic machinery at Leeds, pays his workmen seventeen shillings—\$4.14—per week. The McKinley Bill will affect his business somewhat, but he will find other outlets for his goods.

Mr. Isaac Butler, of Monmouth, South Wales is connected with the Panteg Steel Works, the Elva Steel Works and other similar industries. He employs over 2,500 men, whose wages range from three shillings to eight shillings—73 cents to \$1.95—per day. He has no fear of the McKinley Bill.

Mr. William Bright, of Gowerton, near Swansea, Wales, is a manufacturer of tin plates. The wages of his men vary from £14 to £15—\$68.13 to \$73.00—per month. The McKinley Bill will interfere with the sale of his inferior qualities of tinplate, but the Americans will be utterly unable to make the higher class goods.

Mr. Joseph Richardson is the manager of the iron ship-building firm of Richardson, Duck & Co., whose works are at Stockton-on-Tees. His firm pay their workmen from eighteen shillings—\$4.38—per week upward. The McKinley Bill means a curtailment of America's foreign trade and a corresponding advantage to Britain.

Mr. H. G. Powell, of Wolverhampton, is a manufacturer of tinplates. The wages of his hands range from fifteen shillings—\$3.65—per week upward. The McKinley Bill will injure the production of the cheaper grades of tinplates; but America will be the greatest sufferer.

Mr. Jackson Smith is a member of a cutlery manufacturing firm in Sheffield. Mr. Smith evaded giving a definite answer to the question of wages, stating that they vary a great deal, but that the cost of living is low. "Our great trouble," said he, "has been that American manufacturers have constantly used the names of British makers on worthless goods, palming them off as genuine Sheffield goods." The McKinley Bill will affect the manufacture of low-priced goods.

Mr. J. C. Ridley, of the Swalwell Iron Works, Newcastle-on-Tyne, said the pay of his employes ranged from four shillings—97 cents—per day up. The McKinley Bill does not give him much anxiety.

Mr. B. Marsden, of Manchester, is a manufacturer of bolts and nuts and machinery. He did not tell how much wages were paid his workmen, but his opinion of the American people was that they are not as anxious to obtain good workmanship and the best products for their money as they should be. It seemed to him that all an American desires is to get something to last just for the time being. The waste that was observable in American industrial establishments indicated a very low standard of thrift.

The gentlemen who were interviewed, and who expressed their views upon the subject, were unanimous in saying that in their opinion the American system of manufacturing, as affected by Protection, is or will be a failure; that a woful and inexcusable waste is observable in many processes of manufacture; that the best thing Canada could do, particularly in view of the McKinley Bill, is to declare for Free Trade; that if this were done Canada would be at a great advantage over the United States in that that country would be compelled to maintain a largely increased number of custom houses along the international frontier; and that the worst thing the Americans could do to injure British trade would be to also declare for Free Trade.

The facts here collated commend themselves to the attention of Canadian workmen in that they show that the wages paid in the iron industries in Britain are very far lower and inferior to those paid in similar industries in Canada. In many of the industries alluded to the pay of the skilled British workman is not equal to that of the cheapest unskilled Canadian workman.

Not one of the gentlemen interviewed expressed the opinion that any of the great manufacturing industries of their country would be seriously hurt by the operations of the McKinley Bill. Some of them said that Britain would not be hurt much, and most of them agreed that she would not be hurt at all. These are curious statements to make, in the face of the fact that the McKinley Bill increases the duty on nearly all of the products of these industries, especially the cutlery and tinplate trades, the duty upon the latter being increased 120 per cent. and upon some of the products of the former even more; and that such consternation prevailed in Sheffield when it was known that the duty upon cutlery had been so greatly increased as to culminate in a public meeting, convened upon the call of the mayor of that city, and attended by thousands of interested manufacturers and employes, to see if some influence could not be brought to bear upon the American Government whereby the threatened disaster might be averted. Mr. Jackson Smith, of Sheffield, intimates that one great trouble of the cutlery trade of his city is that American manufacturers fraudulently use the names of British makers upon worthless goods. This is a sweeping and serious accusation which, in our opinion, is not borne out by the facts. It may be true that some unprincipled American manufacturer may have done such a thing, but the character and business standing of the principal cutlery manufacturers in the United States is too well established to suppose that any of them would be guilty of such a disreputable practice. American buyers of cutlery are not to be deceived in that manner; and, moreover, the standard of excellence of fine cutlery there is

not established by the presence of the trade marks of even the most renowned Sheffield manufacturers any more than by those of the American makers. It is offensive to the good sense of the well-informed for Mr. Smith to make such an inaccurate assertion. Regarding the tinplate question, Mr. Birkbeck is correct in saying that the McKinley Bill will affect the output of British tinplate works, seeing that for many years past the United States has absorbed about two-thirds of the output of all those works; but it is not clear as to the direction the British tinplate manufacturers will look to discover the other markets which Mr. Birkbeck hopes to find. The United States has long maintained a duty upon tinplates, but it has never until now been high enough to induce the establishment of the industry there; but now that the duty has been raised to 2½ cents per pound, it is observable that quite a number of works are being established there, and that at least one—in St. Louis—is already in operation. It is evident that the British tinplate industry will be seriously hurt by the McKinley Bill.

The opinion of Mr. Marsden, of Manchester, that American consumers of machinery are not anxious to obtain good workmanship and the best products, and that all they desire is to get things because they are cheap, although they will last "just for the time being," is simply ridiculous. Mr. Marsden is densely ignorant if he does not know that American manufacturing machinery is the equal of any made in Britain, and in some industries and for some purposes the productive capacity is greater; for it is in this particular that the advantage the British manufacturer possesses over his American competitor in the feature of cheaper labor is compensated for by the greater productive capacity of the machinery and appliances employed. There is this difference frequently observable between the methods of the British and the American manufacturer; that the Britisher, having a good substantial machine doing fairly satisfactory work, will hold on to it and operate it, although it may be somewhat inefficient as compared with more modern machinery; while his Yankee competitor will quickly abandon even a good and unworn machine for a more modern one that will enable him to increase his output without increased expense. Perhaps it is this difference that Mr. Marsden failed to see when he spoke of Americans using machinery "just for the time being."

Canadian manufacturers are agreed with American manufacturers that their system of manufacturing, as affected by Protection, is not nor can it be a failure. The evidences on every hand teach a different lesson. Free Trade and its system may suit British manufacturers, but it is not popular on this side of the water.

It is amusing to hear British manufacturers declare that they are not hurt by the McKinley Bill; that the worst that could befall Britain would be for the United States to declare for Free Trade, and to advise Canada that the best thing to do would be to declare for Free Trade. These propositions are inconsistent.

A kind and sympathetic regard for their British cousins will certainly restrain the Americans from blurring Britain's prospects by adopting Free Trade—they are too unselfish to do that.

Neither will Canada change her policy nor abandon our glorious N.P.

CANADA BEGS TO BE EXCUSED.

GENERAL BOOTH, the head of the Salvation Army, has just published a book in London entitled "Darkest England and the Way Out," which is devoted to a scheme to relieve the poverty, ignorance and vice in that country which, the writer says, submerges a tenth of the population. The title of the book is adapted from that of Stanley's "Darkest Africa," and the opening chapter contains a striking parallel between the gloom and horror of Africa which is considered the embodiment of untutored ignorance and mental darkness, and the misery and vice of England which boasts of being the centre of refinement and civilization. The first portion of the book, with its sub-title of "Despair," deals with the social problem as it exists to-day; the second part, 'Deliverance,' explaining how the General intends to cut the Gordian knot which has been the despair of every living philanthropist.

"What then is 'Darkest England?'" asks the author. "For whom do we claim that urgency which gives their case priority over that of all other sections of their countrymen and countrywomen?"

"I claim it," he answers, "for the lost, the outcast and for the disinherited of the world. I appeal for:—(1) Those who in a month would all be dead from sheer starvation were they exclusively dependent upon the money they earned by their own work, or which they receive as interest or profit upon their capital or their property; and (2) those who by their utmost exertions are unable to attain the minimum allowance of food which the law prescribes as indispensable even for the worst criminals in our goals."

Then the General asks what is the standard of living that men have the right to insist upon, and the answer is startling enough in its unexpectedness. "It is the standard of the London cab horse." In other words, men have the right to demand food and shelter in return for their work, and to be picked up when they fall down.

General Booth, who is a man of sharp observation, and who is in a position to know whereof he speaks, after a careful study of recent statistics fixes upon the approximate size of England's destitute army as three million souls; which, he says, is about one tenth of the whole population. Several chapters of the book are given to descriptions of the actual condition of the outcast poor, the facts being compiled from the reports of his Army officers and from his thirty years' experience in the midst of England's most degraded population. Speaking of the Rescue Home for fallen women, the General says that the Army has done more than any other organization to solve this most insoluble of social problems, "but that even now at our Home we are unable to take in all the girls who apply. They cannot escape even if they would, for want of funds whereby to provide them a way of release."

After pointing out the utter inadequacy of the English poor laws, jails, charitable institutions, etc., to cope with the existing evils the writer makes clear what his views are in the matter. He says:

What, then, is my scheme? It is a very simple one, although in its ramifications and extensions it embraces the whole world. * * * The social problem presents itself before us whenever a hungry, dirty and ragged man stands at

our door asking if we can give him a crust or a job. That is the social question. What have you to do with that man * * * To deal with him most effectually you must deal with him immediately, you must provide him in some way or other at once with food and shelter and warmth. Next you must find him something to do. * * * Then having trained him you must provide him wherewithal to start life afresh. All these things I propose to do. * * * By the formation of these people into self-helping and self-sustaining communities, each being a kind of co-operative society or patriarchal family governed and disciplined on the principles which have already proved so effective in the Salvation Army. These communities we will call colonies. There will be: (1) The city colony. (2) The farm colony. (3) The over-sea colony.

The city colony is to be in the main an extension of already established Army features, i.e., food and shelter depots, labor yards and factories and labor bureaux. Then there is to be a vast army of sandwich men, who will be paid the full wages of two shillings per day, instead of as at present being mulcted of nearly one-half that sum by the grasping middle man, and finally there is to be a Household Salvage Brigade, generally known as "The Waste Not, Want Not Brigade." The brigade is to consist of an organized number of collectors, each with his own street district, who will go round from house to house collecting food, boots, bottles, newspapers and all the refuse of an establishment. There are 500,000 houses in the London districts, and merely to provide each house with a tub and bag will cost a preliminary sum of £25,000.

The farm colony is for the benefit of the able-bodied outcasts and is intended to turn the tide of emigration which always flows from the country into the towns. It will consist of market gardens, orchards, allotment farms, poultry yards, etc.,—and the men will have healthy out-door work, good wholesome food, comfortable quarters and stirring religious services.

The over-sea colony is one of the vastest and most complex of the General's many schemes and he admits that his ideas on the subject are still in a tentative and experimental condition. It is to be the final stage in the regenerative process of the outcast. South Africa has been fixed upon as the first colonial home, but British Columbia and other parts of Canada are to have their twins later on.

In regard to this last proposition, in which General Booth proposes to establish some of his semi-penal colonies in this country, Canada begs to be excused. She will have none of it. She has had more of that sort of thing already than she cares to encourage in its Barnardo business. General Booth may take his swarms to Africa if he pleases, but not to Canada.

In telling of the destitution prevailing in England General Booth does not startle the world by disclosing a condition that was not before known to prevail. But in calling attention to it, and in proposing to involve Canada in his scheme of regeneration, there is much to interest Canadians. It may not be that the financial system of Great Britain as now existing is responsible for all the suffering there; but it is very true that under Free Trade the condition of the poorer classes has not been improved. The acme of Britain's commercial ambition is to supply the demands of the world for manufactured products

and to do the carrying trade of the world in British ships— to have all the rest of the world employed in producing raw materials, and Britain employed in preparing them for consumption. To do this successfully it is necessary to manufacture cheaply; and to manufacture cheaply means that the labor of human beings employed in this manufacturing must receive but the smallest possible pay. What is the poverty, degradation and vice in which one tenth of her population exist to the glory and aggrandizement of British merchants and British shipping interests? What does Britain care how many of her farmers are driven into exile in foreign lands; how many of her farm laborers are driven into the cities seeking work they cannot find in the country; how many of the inhabitants of her cities are forced into the slums and sink into the lowest degradation from which even General Booth with the million pounds of money he asks for will not probably lift them, so long as she can produce cheap goods and keep her ships employed? Cheapness of production under Free Trade has made British manufacturers, merchants and ship owners wealthy, but it has also made paupers of her working classes, and driven a tenth of her population into a condition that can never prevail in Canada as long as Protection prevails.

The *Toronto Globe*, lamenting that Canada does not abandon her policy of Protection and seek an increase of foreign commerce under the banner of Free Trade, says:

The true way and the only way of extending our foreign sales is to lift the embargo on our foreign purchases—to give the farmer, the lumberman, the fisherman and all concerned the inestimable advantage of cheap goods, that is, of cheap production, which in turn implies ability to sell cheap. This has been the Liberal platform ever since we obtained the right to frame our own tariffs fifty years ago.

Canadians will look upon this Free Trade picture in the light thrown upon it by General Booth in showing the condition of the poor in Free Trade England. It is there that this undoubted authority says the situation is such that one-tenth of the population would be dead within a month of sheer starvation were they exclusively dependent upon the money they earn by their labor; and that these wretched people by their utmost exertions are unable to attain the minimum allowance of food which the law prescribe as indispensable even for the worst criminals confined in British jails; that the standard of living with which these people ask to be guaranteed to them is the standard of the London cab horse—the right to demand food and shelter in return for their work, and to be picked up when they fall down, but to which standard they do not attain under British Free Trade.

From this condition Canada also begs to be excused.

EDITORIAL NOTES.

THE six States bordering on the Great Chain of Lakes, viz., New York, Pennsylvania, Ohio, Illinois, Indiana and Michigan—produced in the census year of 1890, 4,203,760 tons of steel, or 96.3 per cent. of the total steel production of the country. This aggregate is nearly 100,000 tons greater than the total steel production of Great Britain in 1889.—*Cleveland Iron Trade Review*.

Protection did it. The duty upon steel is much higher in the United States than in Canada—just enough higher to ensure the permanent establishment of the industry there. If

Canada hopes to become a large producer of steel it can only be under similar circumstances.

It is reported that the British Admiralty has resolved to strip, as rapidly as possible, all war ships now in English ports having compound armor for the purpose of replating them with nickel steel, and that the Sheffield Works intend beginning to roll the plates immediately. In the United States, on the other hand, the mills will not be ready to undertake the rolling of nickel steel plates for at least a year.—*Toronto Mail*.

Where will the British Admiralty obtain their supply of nickel if not from Canada? As it is large quantities of nickel matte are going to England for the manufacture of nickel metal, although that operation ought to be performed here. But it will never be unless the Canadian Government compel it by imposing an export duty upon ore and matte. The more a country manufactures the richer it becomes. Impose the duty.

CERTAIN Tory papers are urging the Dominion Government to get Parliament to clap an export duty on nickel ore with a view to promoting the manufacture of the metal at Sudbury. Of course Parliament would have a perfect right to do this, but it is tolerably clear that the Sudbury mines will not benefit by it. What would probably happen is that the Washington authorities would go to New Caledonia for their nickel ore under an arrangement with France, or help to develop the nickel mines said to have been found in Nevada.—*Thessalon Advocate*.

This is an aborted echo from the *Toronto Globe*. What an idea it would be for the Yankees to send to New Caledonia, in the South Pacific, to obtain inferior ores, while far richer can be had within a day's haul from Canada. If our Yankee-friends desire Canadian ores let them remove their duty upon Canadian nickel. Impose the duty.

DR. ROBERT BELL, of the Dominion Geological Survey, is reported as saying that no one but an idiot would propose to put an export duty upon nickel ore. That idea was first advanced in this journal immediately upon the passage of the McKinley Bill and the appropriation of a million dollars by the American Government for the purpose of buying Canadian nickel. Dr. Bell may be, and no doubt is, an accomplished geologist; and it was because of this accomplishment he was appointed to the position he holds. We do not understand, however, that his position entitles him to speak with authority for the Dominion Government upon the fiscal questions of the day, nor to denounce as idiots those who may differ from him on such questions. To say the least, Dr. Bell has been guilty of an impertinence that deserves emphatic rebuke. Impose the duty.

MR. S. J. RITCHIE who is engaged in developing the copper and nickel mines around Sudbury, states that he could easily raise ten millions of dollars of American capital to develop Canadian iron mines and furnish employment for an enormous amount of labor, if the restrictions upon commerce between this country and the United States were removed.—*Thessalon Advocate*.

Bosh. The consumption of pig iron and manufactures of iron in Canada amounts to about 300,000 tons a year, while the manufacture of pig iron in Canada amounts to only about one-tenth of that quantity. Although the Canadian duty upon pig iron is much less than the American duty, pig iron is cheaper in the United States than here, and much of our

supplies come from that country. If Mr. Ritchie is so solicitous to develop Canadian iron mines, why don't he build blast furnaces and manufacture iron, for which there is a large and increasing demand? But this is not in accord with his plans. He wants to take the ore from the Canadian mines and smelt it in Ohio, leaving Canada nothing to show for its mineral wealth but a hole in the ground. Mr. Ritchie and his ten million dollars syndicate are too good for anything—to themselves. Impose the duty.

SECRETARY WINDOM has finally decided to enter upon a thorough investigation regarding the charges of discrimination in Welland Canal tolls on grain. The people of Kingston and Toronto are displeased with the loss of business sustained through the establishment of big elevators at Ogdensburg, but the fact that the grain is transhipped from Ogdensburg and not from Canadian ports should not stand in the way of equal rights in the canal. The Sault and other American canals are free to Canadian traffic.—Cleveland, O., *Marine Review*.

Secretary Windom will discover that there is nor has been any discrimination against American vessels in Welland Canal tolls. All vessels passing through that canal pay the regular tolls, whether they be American or Canadian, and whether they are bound to American or Canadian ports. They are all served alike. If any vessel, American or Canadian, proceeds to Montreal to discharge cargo a certain portion of the Welland Canal tolls are remitted, otherwise not. If the cargo is discharged or either side of Lake Ontario—in Ogdensburg or Kingston—the toll is collected in full. Will the *Marine Review* kindly inform us what other American canal than the Sault is free to Canadian traffic? How about the Erie Canal?

THE Welsh tin plate makers are now looking for Government aid. One of them, J. Rushton Turnock, of Loughor, has written to the press proposing that an application be made for a bounty in order as he puts it, that Welshmen may be able to "run a needle into the egg before it is hatched, by getting our Government to enable us to supply the plates to the States under the price which they can be made out there." This is another proof of the solid foundation upon which Darwin's theory of evolution rests.—*American Artisan*.

Just so. This has always been the policy of British manufacturers, to "run a needle into the egg before it is hatched." The only thing that ever rescued the United States from the clutches of British manufacturers, and secured the establishment of the thousand industrial enterprises that have made that country the great and independent country it now is was Protection. Not a tariff for revenue only, but a tariff for Protection. Under the previous duty of one cent per pound on tin plate the United States was not able to compete with the British manufacturers of tin plate, but now the duty has been increased to 2½ cents, the difference is too great to overcome, even with the very cheap Welsh labor, and the tin plate makers there are clamoring for Protection in the shape of a subsidy from the British Government to enable them to run a needle into the American tin plate egg now about being hatched out into works that will supply the demand of that country. This is the old, old story.

ONE of the effects of the N.P. is the establishment in Canada of works for the manufacture of tower clocks. Until quite recently all such clocks in use in this country were imported, chiefly from the United States. Messrs. Ellis & Co., of Toronto, have embraced this specialty in their business,

and are now manufacturing clocks that cannot be excelled by any made anywhere else in the world. One of the finest specimens of their work is that in the new post-office building in Hamilton. This clock has now been running several months, and our information is that it is a remarkably good time-keeper, and that it gives the utmost satisfaction both to the Government officials and to the citizens of Hamilton. These clocks are made in the most thorough and workmanlike manner and every part of them is constructed of the very best materials, much better than some more costly instruments brought from abroad; and what is of the greatest importance is, that every part of them is manufactured here in Canada. Messrs. Ellis & Co. have the necessary machinery and appliances, and are prepared to manufacture any style of tower clocks that may be desired, for churches, public buildings, fire halls, school houses, etc., with both opaque and illuminated dials. In connection with this industry, we learn that whenever the Government have asked for competitive bids for clocks for any of the public buildings, this Toronto concern have secured the contract; and they are prepared to make bids for any such contracts that the Government may have to offer. We regret to learn, however, that the Government have on several recent occasions awarded contracts for tower clocks without having asked for competitive bids. This may have been through negligence; but this should not be, for when as responsible a concern as the one whose name is here mentioned invests largely in the necessary machinery for making such articles, and who turn out only the very best timekeepers, they should be allowed the opportunity to tender upon any contracts that may be let.

SPEAKING to *The Mail* correspondent at Ottawa, Mr. Ritchie, of Akron, Ohio, who is interested in the Sudbury nickel deposits, expressed his willingness to supply the Imperial Government with the nickel necessary to test for purposes of armament free of charge. The fact is the supply is unlimited. An export duty, if the metal is really useful in naval construction, would be a heavier blow at British interests than at American interests, to say nothing of the injury it would inflict upon ourselves.—*Mail*.

The Imperial Government is quite able to buy all the nickel it may require for test purposes, and is not at all likely to place itself under an obligation to Mr. Ritchie, of Akron, Ohio in that way. There does not seem to be any "if" involved in considering the usefulness of nickel in naval construction; and there would be no heavier blow struck at British interests in imposing an export duty upon nickel ore and matte than there is struck at American interests by the American tariff in imposing a duty of \$200 per ton upon imports of nickel metal. It is not proposed for Canada to impose any export duty upon nickel metal manufactured in Canada, but only upon the nickel contained in ore and matte taken out of the country to be manufactured elsewhere. How, pray, can we inflict any injury upon ourselves by manufacturing refined nickel in Canada? If manufacturing refined nickel in Canada would inflict an injury upon Canada, why would not the manufacture of refined nickel in the United States, from Canadian ore, inflict similar injury upon that country? How silly for Mr. Ritchie and the *Mail* to advance such an argument. Impose the duty.

WHEN the McKinley tariff came into force there was a disposition among the Manchester thread, plush and other textile manufacturers to open branch establishments in the United

States. But opinion has been changed by the recent Democratic victory. A special cablegram to the *Mail* from Manchester says the principle cotton lords do not believe in the stability of the McKinley tariff, nor consequently in risking money in building factories which would be rendered valueless by a not unlikely legislative enactment. It is true the shipments last month from Liverpool to New York show a marked decline; but this is largely accounted for by the extra shipments sent immediately prior to the enforcement of the McKinley Bill. At any rate, there is no feeling of despair amongst the English producers. They believe the high tariff is doomed.—*Toronto Mail*.

This editorial item in the *Mail* was inspired, as it stated, by a cablegram from Manchester. It may be that the Manchester cotton lords do not believe in the stability of the McKinley tariff, and that there is no feeling of despair amongst them on account of it; but the cablegram alluded to stated distinctly that "Mr. Kerr, of the Scotch cotton thread firm of Kerr & Co., was in the United States building a large mill in New England" and that "Coates, Clarks and other thread lords have mills across the Atlantic, and Kerr thinks he might as well have one too." Mr. Kerr's action, we are told, "has no connection with the McKinley Bill," therefore the *Mail* is wrong in saying that these "lords" decline "risking money in building factories that would be rendered valueless" by the repeal of the McKinley Bill. The Coates and the Clarks have had their American mills in operation for several years; and it is impossible that Kerr & Co., could have been induced to build there by the passage of the McKinley Bill which became law only a few weeks ago, and long since that concern determined to build. The *Mail* should not distort the facts.

THE old story that, thanks to the N. P., Mr. So-and-So, of England or the States, is about opening a branch factory in Canada is not heard so often these days as it used to be. It appears from a report of a British Consul in Italy that a similar yarn has been doing good service on the Protectionist side in that country. Not long ago, however, a Government commission took evidence on the subject of investments by foreign manufacturers. One of the manufacturers, an Englishman, was extremely frank. He said:—"My business is to make money. If you choose to tax your people so that I can make a lot of money at their expense, you must not blame me for taking advantage of my good fortune." The *London Times*, in a recent issue, shows that foreign manufacturers have done well in Italy under the high tariff by erecting factories; but adds that the Italian consumer has had about enough of it.—*Toronto Globe*.

If the *Globe* were honest it would mention some of the names of English or American manufacturers who had been reported as about opening branch factories in Canada but had not done so. There would be something tangible about it that would be "business." As it is what the *Globe* says is the veriest bosh. In the case of the Englishman in Italy, his testimony is directly to the point that he prospered through Protection, and the testimony of the *London Times* is also to the effect that "foreign manufacturers have done well in Italy"; but how does the *Times* know that the Italian consumer has had enough of Protection.

TWENTY years ago the world's production of nickel was only 600 tons, and at that time the price in Britain was eleven shillings per pound. The present price is about sixty cents. This drop was brought about in great part by the finding in 1876 of high grade nickel ores in New Caledonia, the penal colony of France. The output in New Caledonia averages from 800 to 1,000 tons a year. The cost of mining there is very

great, owing to natural obstructions. The ore has to be handled or transhipped twelve different times before it reaches the European markets. Liberated convicts are employed in the mines but they are lazy and difficult to manage. Free labor was brought in from Australia by the French Government, but the workmen demanded enormous wages. The ore is smelted into matte carrying from 60 to 70 per cent. of the metal. There are one or two mines where nickel is obtained in the United States. These are said to be controlled by Mr. Joseph Wharton, of Philadelphia. They are poor affairs, however, compared with the deposits in the Sudbury district. It is stated that nickel metal can be manufactured from Sudbury ore for 25 cents per pound. Nickel ore has been found also on Michipicoten Island, in Lake Superior and on the Assumption River.—*Toronto Globe*.

The United States duty upon nickel metal is \$200 per net ton, but ore and matte are free. Canada should impose a duty of say 15 cents per pound upon the nickel contained in all ore and matte exported from the country, the refined nickel going out free. This would ensure the establishment of refineries in Canada, and give us some compensation for our rich mineral wealth being taken away, now leaving nothing to show but a hole in the ground. Impose the duty.

A TELEGRAM from Canada tells us that a certain section of the Canadian press is urging the Dominion Government to place an export duty upon nickel. The motive which has inspired this suggestion is obvious. The experiments made by the United States naval authorities have shown nickel steel to be the best material for armor plates, but the supply of nickel within the United States is so small, that dependence must in a large measure be placed upon the almost inexhaustible Canadian supply. Hence, the McKinley law removes the duty of 15 cents per pound which has hitherto been exacted for the benefit of a small mine in Pennsylvania, and places nickel ore and nickel matte upon the free list. But Canadians are asking themselves, "Why should we do for the United States what the United States will not do for us? They have of late been raising their tariff against us to a practically prohibitive extent—why should we not pay them in their own coin? They want our nickel; let us compel them to buy our finished product. A duty of 15 cents a pound upon all nickel contained in ore or matte carried out of the country would stimulate the establishment of nickel refining works here, and set another industry on foot." The argument is, of course, sound enough from the Protectionist point of view, which holds sway in North America, and it would perhaps do the people of the United States good to have a little taste of their own logic; but after all, it is for Canada to consider whether this duty would really lead to the establishment of such refineries. The state of the Canadian sugar trade will seem to many to be a not very encouraging illustration of the wisdom of the suggested policy, and we are glad to know from the *Times*' correspondent at Ottawa that he has the highest authority for stating that it is not the intention of the Dominion Government to impose such an export duty.—*Canadian Gazette, London, England*.

Our esteemed trans-Atlantic contemporary should bear in mind that all such questions as this are viewed from the Protectionist standpoint; and Canadian Protectionists have no doubt as to whether an export duty would really lead to the establishment of works for refining the metal. The Ottawa correspondent of the *London Times* may or may not be in the confidence of the Dominion Government, but that Government will not be likely to resist the demand of Canadian Protectionists, now becoming general, to have something more than a hole in the ground to show for our extracted deposits of nickel. Impose the duty.

NICKEL, since the visit of the Iron Kings of Europe to Sudbury, and the discovery of its uses as an alloy with steel for cannon, etc., is an article of great interest to metal men and scientists. S. J. Ritchie, T. W. Cornell, George G. Allen, of Akron, Ohio, and Judge Burke, of Cleveland, went to Sudbury, Ont., to meet the English iron and steel men, and the nickel deposits were looked over. Garnier, French expert, who came over to test the Sudbury syndicate's nickel, has gone back to France, says the Akron, Ohio, *Beacon*, under contract to return early next year and superintend erection of big works in Cuyahoga valley, near Cleveland, for reduction of the ore and extraction of nickel. He has a process for elimination of sulphur.—*Monetary Times*.

Is this Mr. Ritchie's programme? The Sudbury syndicate spoken of is composed chiefly of Mr. S. J. Ritchie, of Akron, Ohio, and the Standard Oil Company, perhaps the most wealthy and most unscrupulous financial octopus on the American continent. This is the gang who, having obtained possession of the Sudbury nickel mines, made it to the interest of the American Congress to place nickel ore and matte on the free list, although upon all forms of nickel a duty had previously been levied of \$300 per ton. But not content with this legislation made specially in their favor, and which of itself will make them immensely wealthy, they now want to haul all their ore and matte to Ohio, leaving to Canada as her share of her own wealth nothing but a big hole in the ground. It would look to many Canadians as a betrayal of a great trust for the Canadian Government to allow this wrong to be perpetrated. The American Government, while favoring the Ohio nickel octopus by removing the duty upon ore and matte, will not allow Canadian refined nickel to be imported for a less duty than \$200 per ton. If it is worth that much to the American Government, it is certainly worth as much to Canada. Impose the duty.

SPECIAL ADVERTISEMENTS.

Advertisements will be accepted for this location at the rate of two cents a word for the first insertion, and one cent for each subsequent insertion. Subscription \$1.

TISDALE'S BRANTFORD IRON STABLE FITTINGS.—We lose no job we can figure upon. Catalogue sent free. The B. G. Tisdale Co., Brantford, Canada.

A DYER.—Blue vats and fancy colors in wool and piece. Fast carriage green cloths, tricots, flannels, etc., etc. Am at present engaged in the States, but desirous of coming to Canada. Address, GUBELINUS, this paper.

FOR SALE.—In town east of Toronto, Two Set Woolen Mill, fully equipped and in good running order; never-failing water-power, main building stone, 50x150 feet, three stories; picker house, brick, 24x30, two stories; railway and water convenient for shipping, will sell with or without machinery. For further particulars address this office.

FOR SALE in Kent County, Michigan, the Buchanan Mill property consisting of a first class lumbering mill the extensive water power in connection with it including the entire power furnished by the river with real estate on both sides of sixteen acres, situate one mile from Main Street of Lowell, a

rich farming country surrounding an excellent location for paper mill, furniture factory, woolen mill and the many uses that require power. Also a splendid home and farm of 87½ acres with buildings, fruit, evergreens, etc. For further information call at the premises of JAS. R. BUCHANAN, Lowell, Michigan.

TO MANUFACTURERS.—The most desirable factory site in vicinity of Toronto, or equivalent cash bonus will be given free to suitable parties who will erect a factory thereon. Correspondence invited. Address GEO. F. COOK, 92 Church Street, Toronto.

TO MANUFACTURERS.—The Town of Thorold, Welland County Ontario, is a splendid site for manufactures of all kinds, and reasonable encouragement will always be given for the settlement of bona fide industries. It is situated on the boundary between the Counties of Lincoln and Welland; population, 3,000; lighted by electricity (public and private circuits); electric street railway connection with the City of St. Catharines, four miles distant; nine miles from Niagara Falls; the New and Old Welland Canals, also the Welland (G.T.R.) and Niagara Central Railways, all run through the town; water power from the canal; bonded debt small; situation, on the brow of the mountain; overlooking Lake Ontario, most picturesque; public health not excelled; five churches; first class High school, also two Public and one Separate school. Any information desired will be cheerfully given by application to JAMES LAWSON, Mayor.

THE Montreal Herald is now issued in seven-column form—eight pages—and publishes an extra edition on Saturday which is very largely patronized by advertisers. The *Herald* is one of the sturdiest advocates of enlarged trade with the United States.

THE Electrical Railway Advertiser, published at Boston, Mass., is a semi-monthly electrical paper that has recently been launched upon the sea of trade journalism. As its name indicates, it is devoted to the great problem of electric traction—a problem that concerns not only street railway companies, but also all such investors who are financially and otherwise interested in such institutions.

Good Housekeeping, which is published "For the Homes of the World," certainly contains in each of its issues a great deal to justify its claim. Pretty nearly every department of the household receives attention with each number; its articles are always timely, readable and commendable. How to make the lives of the members of the family more enjoyable, how to brighten and beautify and improve in every way the "dearest spot on earth," this is surely a most laudable purpose, and one which this magazine is faithfully and ably serving. It will be a magazine in form after January 1st, as it has always been in quality. Published by Clark W. Bryan & Co., Springfield, Mass.

THE November number of The Old Homestead, a literary and domestic monthly published by Messrs. Davis Bros., Savannah, Ga., U.S.A., has been received. It contains forty large pages of original stories, sketches, poems, essays, etc. Its household department, handsomely-illustrated fashion pages, children's corner, select music and premium list, together with its complete and serial stories, make the publication eagerly sought by people of all nationalities and sections. There is not one line in its columns that will offend delicate tastes, and the matter throughout is carefully freed from sensational effects. The subscription price, unlike the costly magazines, is very low, being only \$1 a year. Send for sample copy, free. Davis Bros., publishers, Savannah, Ga.

THE Newmarket Era, published at Newmarket Ont., has adopted the plan of having the wrappers in which it is enclosed convey some valuable information regarding that go ahead and prosperous manufacturing town. The information thus conveyed is as follows:—"Newmarket is thirty-four miles north of Toronto, on the Northern Division of the Grand Trunk Railway; is a manufacturing town with a population of 2,300. Has good primary, model, separate and high schools; seven churches; market and town hall; the largest and most extensive wooden-ware factory in

Canada, two tanneries, two foundries, wool-mat factory, one of the finest roller flour mills in the Dominion, two cabinet factories, lumber and planing mills, splendid mercantile establishments, telegraph and telephone communication, banking facilities, electric light, pure artesian well water and efficient water-works for fire protection and domestic purposes; and is the business centre of a well-to-do agricultural district."

WEBSTER'S International Dictionary is the book which is destined to go into every library, every public school, every household where American literature is received and where the English language is studied. The publishers have spent more than a quarter of a million dollars in bringing this work out in its unabridged, revised, enlarged and authentic form. It now takes the name "International," and this is intended to emphasize the fact that the language of the Mother Country now encircles the globe. Every page has been treated as if the book were now published for the first time. The claim of the publishers is that it retains that excellence in definition which has made Webster the safe and familiar authority to which judges, journalist, scholar, artisan and man of business refer, and that in etymology, pronunciation, citations and pictorial illustrations it carries to greater perfection the merits of its predecessors. We believe that it abundantly justifies these modest claims, and that, as a comprehensive, popular dictionary, it is likely to retain the pre-eminence which has long been held by "Webster's Unabridged." No dictionary can be final, but for the next twenty-five years the "International Dictionary" must be accepted as the best work of its kind in the English language.—*Boston Herald.*

THE twenty-third volume of Alden's *Manifold Cyclopedia* includes the titles from McCook to Memorial. Among the articles we notice the biographies of many eminent men and women of early times, as well as those of the present day, also excellent descriptions of many large cities and towns. The volume treats very satisfactorily three States: Maine, Maryland and Massachusetts; and of foreign countries there are Madagascar, Madeira, Malta and Manitoba. Interesting subjects in other lines are: Machine Gun; Magic; Magna Charta; Magnetism, nineteen pages; Mammalia, ten pages; Man, six pages; Mangel-Wurtzel; Manure, four pages; Marble; Marriage, six pages; and Masons (Free) about five pages. These are named only as samples of what the volume contains. The articles are brought down very nearly to date, many of them are illustrated, the style and arrangement are excellent, and the printing and binding are entirely satisfactory. The one thing about it which is difficult to comprehend is how so valuable a work can be supplied for so low a price. For farmers, mechanics, teachers, students and the great mass of general readers, the *Manifold* is far superior to any other *Cyclopedia*. Specimen pages will be sent free on application to the publishers. A specimen volume in cloth binding will be mailed for fifty cents, or in half Morocco for seventy-five cents, and the money refunded if the volume is returned within ten days. John B. Alden, Publisher, New York, Chicago and Atlanta.

"TORONTO 'Called Back,' and Emigration." Mr. C. C. Taylor, of Her Majesty's Customs, Toronto, has sent us an exceedingly pleasant book with the above title, which includes reminiscences of a recent trip made by him to Great Britain and Ireland, and an account of the visit of Her Majesty the Queen to Wales, the Mersey Tunnel, Manchester Ship Canal, and a visit to Lord Dufferin at Clondeboye, his Lordship's estate in Ireland. There are lithographic portraits of Queen Victoria, Lord Stanley, the Governor-General of Canada, and E. F. Clarke, Esq., Mayor of Toronto. This interesting book should be considered a supplement to, or an addenda to, "Toronto Called Back," probably the most interesting history in print of Toronto for the last fifty years, which was recently placed before the public by the author, Mr. Taylor, and which was received with so much favor by both press and people of Toronto and Great Britain. "Toronto Called Back" was widely and judiciously distributed in the Old Country, and is to be found in many of the public libraries in the United Kingdom; and it is to the information contained therein, and the well-known character of the author, which is a guarantee for the correctness of what is therein stated, that a great many of the most desirable class of British emigrants have directed their footsteps towards Canada, and are now contributing to her wealth and prosperity. The book here under consideration is written in a most pleasant style, in which a great deal of information is given concerning the places visited and the persons met during a summer vacation. As might well be imagined, in all his intercourse abroad Mr. Taylor was persistent in advancing the claims of Canada to be a most delightful and desirable country, and just the place for those who desired to better their condition to emigrate to.

Manufacturing.

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. Subscription \$1.

THE cotton factory at Dundas, Ont., is to be again put in operation.

THE Barnum Wire and Iron Works, Walkerville, Ont., are establishing a branch of their works in West Toronto Junction.

THE Rathbun Company are putting in machinery in their mills at Napanee, Ont., for the manufacture of Portland cement.

THE oatmeal mill and elevator of Messrs. Johnson & Barclay, Portage la Prairie, Man., was destroyed by fire October 31st.

THE Halifax Shovel Company, Halifax, N.S., are putting in a lot of new machinery to enable them to increase their output.

MESSRS. GEORGE WARING AND OSCAR WHITE are erecting and will operate an iron foundry and nail factory at St. John, N.B.

MR. PETER BERTRAM, proprietor of the Dundas Axe Factory, Dundas, Ont., has recently filled an order for axes to go to Scotland.

THE Jenckes Machine Company, Sherbrooke, Que., are manufacturing \$50,000 worth of mining machinery for parties at Sudbury, Ont.

MESSRS. GORSON & PURCER, St. Catharines, Ont., have been awarded a \$15,000 contract for putting in the waterworks at Gananoque, Ont.

MESSRS. WELLINGTON, BOULTER & SON, recently, in six days, packed 135,000 pounds of pumpkin at their canning factory at Pictou, Ont.

THE St. Lawrence Iron Bridge Company, Montreal, has been incorporated with a capital stock of \$25,000, to manufacture iron bridges, iron beams, etc.

It is said that Welsh hard coal is as good as Pennsylvania coal, and that it could be laid down in Ottawa for \$5 a ton, whereas coal is now selling there for \$7.

THE Vancouver Sugar Refinery Company, Vancouver, B.C., expect to have their new works ready for operation in December. The capacity will be 250 barrels per day.

MESSRS. JOHN INGLIS & SONS, Toronto, have been awarded the contract for the construction of the engines and boilers for the new electric light works at New Westminster, B.C.

MESSRS. J. & J. TAYLOR, manufacturers of fire and burglar proof safes, are building two large and substantial vaults for the new machinery depot of Mr. H. W. Petrie, in this city.

THE Miner Carriage Manufacturing Company, with headquarters at Granby, Que., has been incorporated, with a capital stock of \$50,000, for the manufacture of sleighs, carriages, etc.

THE tunnel being constructed by the Grand Trunk Railway Company under the St. Clair river is rapidly approaching completion. It is expected that it will be ready for traffic in February next.

THE Napanee Paper Company, Napanee, Ont., are introducing new machinery and processes into their works which will do away with the unpleasant odors that arise in manufacturing paper pulp.

MESSRS. JAMES PENDER & Co., St. John, N.B., who are large and well known manufacturers of horse nails, are erecting new and much more commodious works and will include the manufacture of wire nails.

THE Canadian Locomotive and Engine Company, Kingston, Ont., are building two locomotives for the Chignecto Marine Transit railway, which will weigh upwards of 100 tons each, and will probably be the largest locomotives in the world.

MESSRS. R. LAING & SONS, Berlin, Ont., are making important additions and improvements in their tannery plant, included in which is a tanyard 116 x 40 feet; a new four story currying shop, 85 x 65 feet, and considerable new machinery.

THE Menasha Wood Split Pulley Company, Menasha, Wis., have recently filled orders for their hickory pulleys from: Ansell Spool Company, Alpena, Mich.; Munro Paper Company, Munro, Mich.; F. N. Carter, North Baltimore, Ohio; J. C. Bixby, Council Bluffs, Iowa; Utica Electric Manufacturing Company, Utica, N.Y.

THE Clendinning Company, Montreal, has been incorporated with a capital stock of \$500,000, for the purpose of operating rolling mills, and the manufacture of iron and the manufacture of iron bridges, waterworks, hydraulic works, railway equipments, etc.

MESSRS. J. S. SIMS & Co., brush manufacturers, St. John, N. B., purchased the Leonard Ball steam engine recently exhibited at the Exhibition in that city by Messrs. E. Leonard & Sons, of London, Ont., and are now driving the machinery of their brush factory with it. These works give employment to about seventy hands.

THE Grand Trunk Railway Company will build a rolling mill at Point St. Charles, Que., near Montreal, for the purpose of manufacturing the scrap iron constantly being accumulated by the company into merchant iron for its own use. The locomotive works and car works of this company at that place are in a high condition of efficiency.

MESSRS. J. & C. HODGSON, Montreal, manufacturers of wrought iron pipe, claim to have the only works of the kind in Canada. Their works cover an area 600 x 200 feet, and their capacity of output is about forty tons of pipe per day. They give employment to over a hundred hands. They are about building a rolling mill for the manufacture of merchant iron.

THE Canada Southern Railroad is experimenting with a compound locomotive, of which Vice-President Cox says they get twenty-five per cent. more work, and which burns twenty-five per cent. less fuel. Two water scoops are being put down, which, with the compound engines, would make it possible to cover the 250 miles from Suspension Bridge to Windsor without a stop.

MESSRS. A. G. KIDSTON & Co., of Glasgow, Scotland, have been awarded the contract for supplying cast iron pipes, special castings and lead for the New Westminster, B. C., water works system. The price agreed upon is \$52,461.14. The contract for valves, hydrants, gates, etc., has been secured by the Galvin Brass and Iron Works Company, of Detroit, Mich. Their figure was \$6,306.10.

THE Waterous Engine Works Company, Brantford, Ont., are in receipt of a letter from the mayor of the town of Parry Sound, Ont., stating that at the "late disastrous fire in that place the Waterous steam fire engine had saved a large portion of the town from destruction." Recent sales of these serviceable fire engines are to the towns of Sudbury, Little Current and Sault Ste. Marie.

THE Canadian Edison General Manufacturing Company, who recently acquired a valuable location in Peterborough, Ont., for the erection of their new works, are making all possible speed with the same, the expectation being to have them completed and in operation early next summer. It is expected that the machine shop, one of their largest buildings, will be completed before the end of the year.

THE Penman Manufacturing Company, Paris, Ont., are making full-fashioned shirts and drawers on the "Young" seamless machine. The machine is made by this company and operated by them only. These goods differ from all other full-fashioned goods in being seamless, as well as full-fashioned. Ordinarily such goods are knit flat and then seamed on another machine, while these are knit circular and widened or narrowed, as needs be, in the circular, or tubular state.

THE output of the Springhill collieries for October exceeds 52,000 gross tons, and the shipments for the same period were nearly 50,000 tons. This beats the record in Nova Scotia. The quantity shipped is 7,000 tons ahead of the largest shipment ever attained in one month previously, which was three years ago. The collieries are working briskly, and about 1,300 persons are steadily employed. Large quantities of coal are being shipped via Parrsboro. There is no detention of vessels there this season.—Moncton, N. B., *Times*.

MR. THOMAS BOYES, of Barrington, N. Y., has bought on the Mekinak River, a tributary of the St. Maurice, timber limits for the managers of the Morgan Lumber Company and Glen Falls Pulp and Paper Company, of Glen Falls, N. Y.; the Ticonderago Pulp and Paper Company, of Ticonderago, N. Y., and himself, the total area being 536 miles. Mr. Reed, an American lumber surveyor who explored the limits, reports that they are well timbered with pine and spruce. The purchasers intend to make pine lumber for the American market and supply spruce wood to the companies named for pulp manufacturing purposes.—*Montreal Witness*.

THE railway bridge across the Kootenay river, four miles below Nelson, B. C., will be one of the longest single-span wooded truss-bridges on the whole Canadian Pacific system. The main span will be over 180 feet in length, and will be thrown across without the aid of false work, the river at that point being so rapid as to make it impossible to put in work of that kind. The castings for the bridge were made at Vancouver, the heaviest piece weighing 950

pounds. The rods come from Montreal. All the timber used in its construction, except the stringers, will be procured at points along that river between Kootenay lake and Sproat. The stringers were brought from the coast.—Nelson, B. C., *Miner*.

MESSRS. SAMUEL MAY & Co., manufacturers of billiard tables and appliances, have lately supplied the newly fitted up billiard room of the Rossin House with an outfit and equipment that are an indication of the high standard that a Canadian manufactory can reach in its productions. Eight new tables, five for billiards and three for pool, made of the latest design and supplied with the most improved quick cushions were turned out. Four are known as "The Monarch," and are magnificent examples of workmanship, with their massive construction, their ornamental woodwork and supports inlaid with such woods as California laurel, burl ash, French walnut, birds'-eye maple, rosewood, ebony, mahogany and tulip. The other four are known to cueists as "The Brilliant Novelty." They, too, are inlaid with the above mentioned choice woods, and are supplied with the finest Vermont slate and Simonis cloth. The rest of the outfit, fancy spliced cues, cue racks and ball racks are most complete, and show that our own country is not lacking in any of the necessaries for this ancient sport, sometimes called the "king of games and the game of kings."

THE fact that Messrs. Samuel May & Co., manufacturers of billiard tables and equipments, etc., Toronto, have recently completely re-furnished the billiard rooms of the Rossin House, including eight of the best billiard tables, recalls what has heretofore been said in these pages, that this concern is probably the oldest and the largest manufacturers in Canada of these lines of goods. As is known, Mr. May is President of the Dodge Wood Split Pulley Company, of Toronto, which concern recently erected a large brick factory at West Toronto Junction, the better to enable them to meet the increasing demands of their business. A portion of this building is now being used by the billiard table business, which is also being enlarged. Messrs. Samuel May & Co. have their general offices in Toronto at 83 King Street west, where they have on exhibition fine lines of their products, and where they also have a unique and interesting work shop, where all their ivory and celluloid billiard balls are made. The machinery in this shop is actuated by an Eddy electric motor, the energy for which is taken from the street mains of the Toronto Incandescent Electric Light Company. The ivory of which the balls are made is imported from London, where the tusks are sawn to desired dimensions. The operation of turning a billiard ball so as to make it a perfect and evenly balanced sphere requires the services of accurate machinery and a thoroughly skilled workman, such as are employed by this concern.

MR. ANGUS MCPHERSON, of Conn's Mills, has built 1½ miles of railway into his lumber woods this summer, and is now running a train on it. He has already taken out about 100 cords of hemlock bark, and is now ready to begin to carry out logs. The rails he uses are round spruce poles, probably six inches in diameter at the large end, tapering down to half the size, and neatly joined at the ends. The sleepers are small round poles, on which the rails are spiked. The rolling stock consists of a small upright engine, eight horse power, and two flat cars, manufactured by A. McPherson & Co., Oxford. The tires of the wheels on engine and cars are made with a flange on both sides to prevent them from leaving or spreading the rails, and the wheels have play enough on the axles to accommodate themselves to any inequality in the width of the rails caused by the difference in size of the poles used. Mr. McPherson has gone to no unnecessary expense in grading his track. He has followed round the hills, and says he has a comparatively level track. The engine is placed between the two cars he uses, so he has no trouble in making up his train. He expects this engine to do the work of eight horses, and he can carry on his work all winter, even if there should be no more snow than there was during the last two or three seasons. It was the scarcity of snow in late winters that prompted Mr. McPherson to adopt this means of getting his logs out to the river. It cost about \$300 to lay his track and the engine cost \$400. What has already been done shows clearly that the plan is feasible.—Amherst, N. B., *Sentinel*.

COL. HOPE, of London, England, has organized a company for utilizing the enormous water power of Lake Superior and constructing very extensive works in the vicinity of Sault Ste. Marie. The waters of Lake Superior fall at the Sault about thirty feet to the level of Lake Huron, and the velocity has been recorded by Gen. Powell of the United States service as a little more than 90,000 cubic feet a second. Col. Hope, who has just returned from spending several weeks on the spot, made careful and accurate measurements and calculations, and finds the actual velocity and volume of water to be 122,000 feet per second, equivalent to 236,000 horsepower. His company intend to build a tail-race five miles long on

THE CANADIAN MANUFACTURER

Established in 1882.

SUBSCRIPTION PRICE, - \$1.00 A YEAR

DEVOTED TO THE

Manufacturing Interests of Canada

AND THE SUPPORT OF

CANADA'S NATIONAL POLICY

"A COUNTRY THAT MANUFACTURES FOR ITSELF PROSPERS."

ISSUED TWICE A MONTH

ONLY \$1.00 TO END OF 1891.

Specimen Copies sent free on application.

Advertising Rates quoted on application.

ADDRESS ALL COMMUNICATIONS TO

**Canadian Manufacturer Publishing Company, Limited,
63 FRONT STREET WEST, TORONTO.**

FREDERIC NICHOLLS, Managing Director.

J. J. CASSIDEY, Editor.

the Canadian side and a canal five miles long on the American side. These canals will be each 1,000 feet wide, the widest in the world. They will construct large dry docks on both sides, to be filled and emptied by gravitation. They will be the only dry docks in the world, so far as Col. Hope knows, filled and emptied by this method. On the Canadian side all the principal works will be above the rapids, and on the American side below the rapids. The reason of this is that the land for factories and mills is furnished on the Canadian side above and on the American side below the rapids. There will be blast furnaces and shipyards, and it is expected there will be paper mills, pulp mills, flour mills and other industries, whose motive power will be supplied by this company or by one of the several subsidiary companies which it is the intention of Col. Hope's company to form.

SMALL metallic articles, buttons, clasps, buckles and others, have different colored films produced on them by various methods. Some of these are known as oxidized silver. Rainbow colors are produced on brass buttons by stringing them on a copper wire and dripping them in a bath of plumbate of soda freshly prepared by boiling litharge in caustic soda and pouring it into a porcelain dish. A linen bag of finely pulverized litharge or hydrated oxide of lead is suspended in the solution, so as to keep up the original strength of the solution. While the buttons are in solution, they are touched one after the other with a platinum wire connected with the positive pole of a battery, until the desired color appears. The galvanic current employed must not be too strong. The colors are more brilliant if they are heated after they have been rinsed and dried. Colored films are more conveniently produced upon bright brass by different chemicals, by painting with them or by immersion. For example: Golden yellow.—By dipping in a perfectly neutral solution of acetate of copper. Dull grayish green.—Repeatedly painting with very dilute solution of chloride of copper. Purple.—Heating them hot and rubbing over with a tuft of cotton saturated with chloride of antimony. Golden red.—A paste of four parts of prepared calk and mosaic gold. In covering an article with any colored bronze in powder, it is first rubbed with a very little linseed oil, and the bronze is dusted evenly over it from a dust bag. It is afterwards heated in an iron pan to about 480 degrees Fahrenheit. In recent times small articles are also roughened by dipping in strong nitric acid, and, after washing and drying, they are coated with a rapidly drying alcohol varnish that has been colored yellow with picric acid, red with fuchsine, purple with methyl, violet or dark blue with aniline blue. This gives the desired color with a beautiful metallic lustre. These colors are not very durable and are for inferior goods.

A DEVICE for aiding combustion and consuming the smoke of the furnaces in steamers has been invented by Mr. John Livingstone, of Toronto, and patented in Canada, Great Britain and the United States. It has been placed on the new Beatty line steamer *Monarch*, and, according to the testimony of the officers, it is a complete success. In alluding to it the *Sault Ste. Marie (Mich.) News* says:—"When coming up the river it was noticed by all that no smoke whatever escaped from her smoke-stack, which phenomena was greatly marvelled at. Before reaching here, as she approached Lime Island, a look-out was on watch, but not seeing any smoke had no intimation of her approach until he was startled by hearing her whistle nearing the dock. The man was greatly surprised at not seeing smoke. While on board the *Monarch* the entire corps of officers when the second trip had progressed to this port gave a statement of their entire approval of the apparatus. The officers and firemen say that only when cleaning out the flues, and for a minute or two after green firing, was any smoke to be discerned, and even in the few minutes when they put on green fires the smoke, they say, was so thin as to be no heavier than the smoke from burning wood. Even this thin body of smoke the inventor claims he can make part of the combustible matter in the fire when the apparatus has to be renewed, preventing smoke entirely. On the first trip she averaged twelve knots per hour with fair winds, while on her second trip and with adverse head winds she increased this average by three-fourths of a mile." Following is the statement made by the officers of the *Monarch* regarding Mr. Livingstone's invention:—"We, the undersigned firemen engaged in making steam, firing the six furnaces under the boilers of said steamship, say the effect in firing with the Livingstone patented attachment for aiding combustion and to prevent smoke from being sent out of the smoke stack as usually seen, is—First, An improvement in the draught as seen in the violent agitation of the fires and the action of the flames, the whiteness of the fires, great heat, and lack of that yellow appearance so often seen in furnaces. Second, We went frequently to the side of the ship immediately after putting on green fire and the smoke was so thin that it did not look to have as much body at its worst as the smoke from burning wood. Third, In about

a minute or two after putting on green fire we could see no smoke or soot from the stack. Fourth, We think the steamship *Monarch* makes the least smoke of any vessel on the Lakes."

LAKE SUPERIOR COPPER.

THE recent explorations near Mamainse, on the north shore of Lake Superior, by Captain Thomas Trethewey, are full of encouragement for the brilliant future in store for that section of Algoma District as one vast bed of native and copper ores. For fifty years past Mamainse has been an interesting field for the mining explorer, but, unfortunately for the explorers of those early days, they confined their labors to a narrow strip of land near the coast line, without venturing to penetrate into the depths of the wilderness stretching away northward from the great lake for hundreds of miles, and so they missed the deposits opened up by Captain Trethewey in his recent visit to that section. The geological structure of the country is very similar to that on the south side of the lake in the Keweenaw district, so much so indeed as to induce Captain Trethewey that the bed of Lake Superior is a part of a grand mineral belt running from the State of Michigan in the west into the country lying north of Mamainse and Michipicoton. This belt carries amygdaloid and conglomerate lodes and veins, and sandstone which strongly resembles the Potsdam. The great upheaval of nature manifest in the structure of the country has led to so great diversity of opinion regarding the degree of mineral wealth possible in such a formation. But aside from these interesting and scientific views we are faced by the hard fact that in the course of twenty days spent in exploring this country Captain Trethewey has unearthed twelve distinct veins of rich copper, of which number eight are rich enough to form as many distinct mines of a promising character. The dip of the country is at an angle of 22 to 30 degrees; the trend of the strata is S. E. and N. W. inclining more northward inland. The strata of the veins runs north and south, cutting at an angle of about 40 to 45 degrees. The ores carried by the veins opened by Captain Trethewey are those known as the horseflesh and peacock, grey ore and native copper. The specimens left with the *Pioneer* are certainly some of the handsomest ever brought to our notice since the palmiest days of Bruce Mines in 1859-60. These discoveries are all made on the lands belonging to the Silver Islet Mining Company who own 10,000 acres in that vicinity alone, besides immense tracts of other valuable mineral land in the western sections of Algoma District. So thoroughly have the American mineral men informed themselves of the natural resources of the north shore that they have acquired actual possession of these grand deposits while Canadians have been snivelling about them as "a God forsaken country, full of barren rocks."

In his former researches in the Mamainse section Captain Trethewey discovered several articles of antiquity, such as ancient hand-made pottery, ornamented with indentations of the thumb and



ST. LAWRENCE CANALS.

RAPIDE PLAT DIVISION.

NOTICE TO CONTRACTORS.

SEALED TENDERS addressed to the undersigned, and endorsed "Tender for the St. Lawrence Canals," will be received at this office, until the arrival of the eastern and western mails on Wednesday, the 3rd day of December next, for the construction of a lift lock, weirs, etc., at Morrisburg, and the deepening and enlargement of the Rapide Plat Canal. The work will be divided into three sections, each about a mile in length.

A map of the locality, together with plans and specifications of the respective works, can be seen on and after Wednesday, the 19th day of November next, at this office, and at the Resident Engineer's Office, Morrisburg, where printed forms of the tender can be obtained.

In the case of firms there must be attached to the tender the actual signatures of the full name, the nature of the occupation and residence of each member of the same, and further, an accepted cheque on a chartered bank in Canada for the sum of \$8,000, must accompany the tender for Section No. 1, and an accepted cheque on a chartered bank in Canada for the sum of \$2,000 for each of the other sections.

The respective accepted cheques must be endorsed over to the Minister of Railways and Canals, and will be forfeited if the party tendering declines entering into contract for the works at the rates and on the terms stated in the offer submitted. The cheques thus sent in will be returned to the respective parties whose tenders are not accepted.

This Department does not, however, bind itself to accept the lowest or any tender.

By order,
Department of Railways and Canals,
Ottawa, November 7, 1890.

A. P. BRADLEY,
Secretary.

thumb-nail of the potter; copper hammers and other rudely constructed tools and implements of a long since forgotten race of miners, who come from no one knows where, and disappeared no one knows when, how or why. But, like the traces left by these early miners at Isle Royal and other places along the shores of Lake Superior, it shows that Mamainse did not escape the keen eyes of the copper hunters of those early days, who may have forgotten more about that section of country than the whole of Canada has as yet been able to learn about it.

With eight richly laden veins of copper in sight and half as many more of a lower grade ready for operation the Silver Islet Company will be most likely to begin work next spring for developing some of this long hidden wealth, and therefore the *Pioneer* expects busy times at Mamainse in 1891 and for many years to come in digging through the unknown depths of copper now brought to light by the intelligent search made by Captain Trethewey.

Mamainse is twelve miles west of Batchewaning lighthouse and about forty miles west from the Sault which is the nearest place at which supplies can be had, and therefore the development of these rich mines will have a good effect upon the general business of this town.—Sault Ste. Marie, Ont. *Pioneer*.



NOTICE TO CONTRACTORS.

SEALED TENDERS addressed to the undersigned, and endorsed "Tender for Pumping Plant," will be received at this office until Friday, the 21st day of November, next, inclusive, for supplying, setting in place and delivering in complete working order, the Pumping Plant in connection with the Dry Dock, now in course of construction at Kingston, Ontario, according to plans and a specification to be seen at the Resident Engineer's Office, 30 Union Street, Kingston, and at the Department of Public Works Ottawa.

Tenders will not be considered unless made on the form supplied and signed with the actual signature of tenderers.

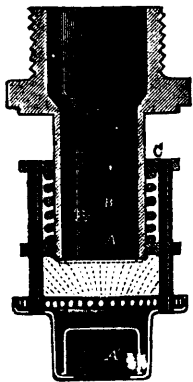
An accepted bank cheque, payable to the order of the Minister of Public Works, equal to five per cent. of amount of tender, must accompany each tender. This cheque will be forfeited if the party decline the contract, or fail to complete the work contracted for, and will be returned in case of non-acceptance of tender.

The Department does not bind itself to accept the lowest or any tender.

By order, **A. GOBEIL**, Secretary.

Department of Public Works, Ottawa, 23rd October, 1890.

FIRE PROTECTION.



BUILDINGS EQUIPPED

WITH

AUTOMATIC SPRINKLERS

BY

ROBERT MITCHELL & CO.

MONTREAL BRASS WORKS,

Write for estimates MONTREAL



ONTARIO CANOE CO'Y, Ltd.
PETERBOROUGH, ONTARIO.

PETERBOROUGH CANOES,
OPEN CANOES, SKIFFS,
DECKED CANOES, ROW BOATS,
SAILING CANOES, SINGLE HUNTERS,
STEAM LAUNCHES.

Tents and Camp Furniture.

SEND THREE-CENT STAMP FOR CATALOGUE.

PATENTS

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

Trade Marks, Designs and Copyrights Registered.

Examinations and Reports as to Validity. Searches made. Infringements investigated. Assignments and Agreements drawn. Advice on Patent Laws, etc.

PETHERSTONHAUGH & CO., Solicitors of Patents and Experts in Patent Causes
Canadian Bank of Commerce Building (2nd floor),
TORONTO.

The Barber & Ellis Comp'y,

NOS. 43, 45, 47, 49 BAY ST.

ACCOUNT BOOKS

MADE TO ORDER IN FIRST-CLASS STYLE.

PAPER BOXES MADE FOR ALL CLASSES OF GOODS

Correspondence Solicited.

TORONTO, - ONTARIO.

NAPANEE CEMENT CO'Y

(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.

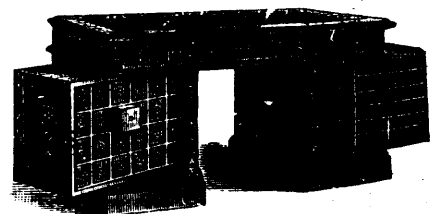
ROACH LIME. Particularly adapted for paper manufacture gas purifying, etc.

W. STAHLSCHMIDT & CO.

PRESTON, ONT.

MANUFACTURERS OF

School, Office, Church and Lodge Furniture.



Rotary Desk No. 50.

SEND FOR CIRCULARS AND PRICE LIST. - Name this Paper

GEO. W. SADLER, Proprietor.

ROBIN & SADLER

MANUFACTURERS OF

LEATHER - - BELTING

129 BAY STREET,

TORONTO.

and

NOTRE DAME ST.

MONTREAL.

Lace Leather, Loom Strapping, Cotton and Rubber Belting
and General Mill Supplies.

G. C. CLEVELAND.

G. F. CLEVELAND.

J. L. GOODHUE & CO.

MANUFACTURERS OF SUPERIOR QUALITY

LEATHER BELTING

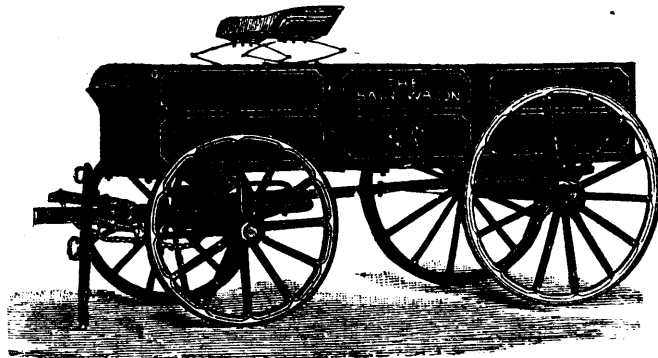
DANVILLE, - QUE.

As Saw Mill work is the hardest that Belting has to do, we refer
by Permission to

Messrs. Gilmour & Co., Trenton, Ont.; The Rathbun Co., Deseronto, Ont.; Messrs. Boyd Caldwell & Son, Carleton Place, Ont.; The E. B. Eddy Manfg. Co., Hull, Que.; Messrs. Beck & Co., Penetanguishene, Ont.; Messrs. Flatt & Bradley, Casselman, Ont.; Messrs. Hall, Neilson & Co., Three Rivers, Que.; Cookshire Mills Co., Sawyerville, Que.; The Bennett Saw Mill Co., New Westminster, B.C.; The Waterous Engine Works Co., Brantford, Ont.; The Wm. Hamilton Manfg. Co., Peterborough, Ont.

BAIN WAGON CO.

— MANUFACTURERS OF —



LIGHT RUNNING

FARM, SPRING AND FREIGHT WAGONS

Also Heavy Sleighs and Steel Skein Log Trucks.

SEND FOR PRICES TO

BAIN WAGON CO. - **Woodstock, Ont.**

BELL UPRIGHT PIANOS REED ORGANS — AND — CHURCH PIPE ORGANS

SUPERIOR QUALITY

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

Recommended by Leading Musicians throughout the World.

SEND FOR CATALOGUES TO

THE BELL ORGAN & PIANO CO., Ltd.

HEAD OFFICE AND FACTORIES:

GUELPH, ONT.

BRANCH WAREHOUSES,

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

The Chatham Manufacturing Co., Ltd., Chatham, Ont.

MANUFACTURERS NOT ONLY OF

The Chatham
Wagon

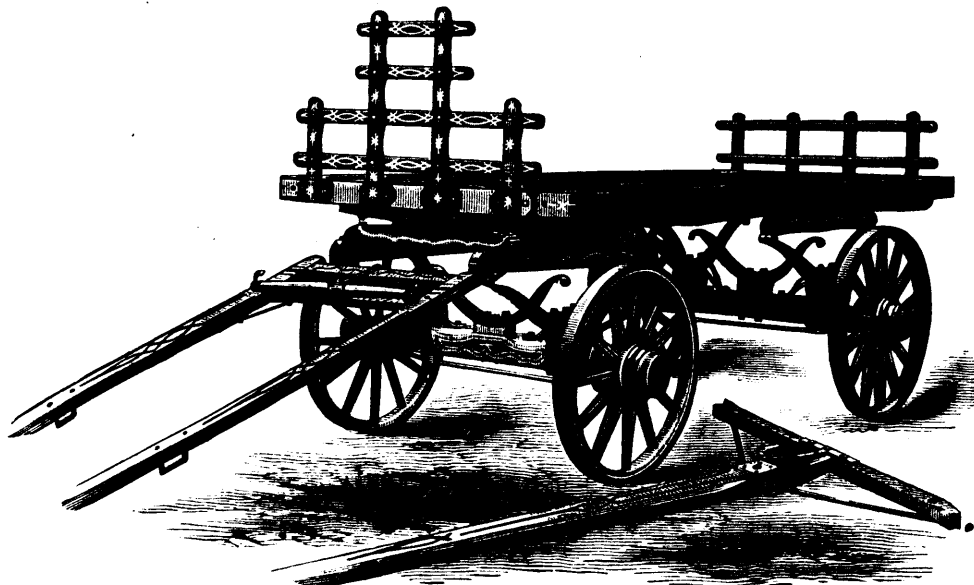
BUT OF ONE
AND
TWO HORSE

LORRIES

WITH AND
WITHOUT
SPRINGS.

Of a one horse, the accompanying is a faithful cut, found to be as durable, and the greatest carrier and easiest running Lorry made in Canada. At greatly reduced prices.

Correspondence Solicited.



THE CHATHAM ONE-HORSE SPRING LORRY. 3 1/2 in. arms, 3 x 1/2 inch tire; capacity, 2 tons. The best and easiest running Lorry made in Canada.

Ship Plank and Hardwood Lumber.

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 and Accident Insurance Co's

HEAD OFFICE:

Traders' Bank Building

61-63 YONGE STREET, TORONTO.

Issues Life Policies upon approved plans.

Issues Accident Policies containing all modern features.

AUTHORIZED CAPITAL:

Life Company,	\$2,000,000.00
Accident Company,	1,000,000.00

OFFICERS:

SIR JOHN A. MACDONALD, P.C., G.C.B. . . . PRESIDENT

VICE-PRESIDENTS:

GEORGE GOODERHAM, Esq., WILLIAM BELL, Esq.
President Bank of Toronto. Organ Mnfr, Guelph.

D. PARKES FACKLER, New York, Consulting Actuary

JNO. F. ELLIS, Managing Director.

SAUNDERS' Pattern Wheel Pipe-Cutter



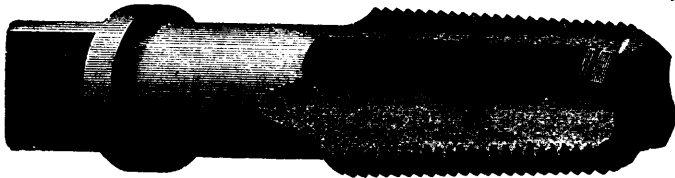
BUTTERFIELD & CO.,
ROCK ISLAND, P. Q.

Desire to call the attention of their Customers and the Trade generally to this new improved WHEEL PIPE-CUTTER. We are confident that a thorough examination of the design, workmanship and general adaptability to the requirements of the Steam and Gas Fitter will be fully answered.

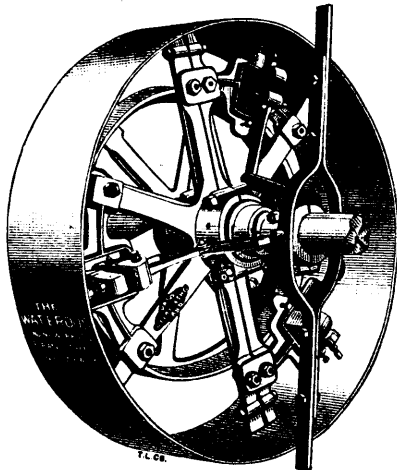
The following are some of the points wherein we claim this Cutter to be superior to any Wheel Cutter that has ever been offered to the trade:—

1. Its simplicity, strength, lightness, and the facility with which it can be adapted to the various sizes of pipe.
2. The body is provided with rollers for the pipe to rest on, producing a rolling instead of a sliding motion, thereby lessening the friction on the pipe. They also roll down the burr that is raised by the wheel in cutting the pipe.
3. The hinged block with the cutter wheel is so arranged that it will not become detached and mislaid; the wheel is held and moved to its work in a most substantial way, preventing the breaking of the wheel.
4. The handle is a hollow malleable iron casting riveted to the rod and not liable to come off in the ordinary usage.
5. All the wearing surfaces—rollers, pins and wheel—are made of the best tool steel and hardened, thus increasing the durability and lessening the friction to the least possible amount.
6. Pipe, one inch and larger, can be cut off in one-third less time than with the ordinary pipe cutter.

All its parts can be duplicated.
Messrs. Butterfield & Co. will mail illustrated catalogue of labor-saving tools to any address. (1)



Friction Grip Pulleys and Cut-off Couplings,



SPLIT AND PLAIN,
Cast Iron and Steel Rim,
2 to 6 grips each.

35 made

IN FIRST EIGHT MONTHS.
From 30 x 6" to 90 x 16"

Where one is tried
others sure to follow.

SEND FOR
New Pulley Catalogue

Of 64 pages, just out.

BEST
Main Driver
EXTANT.

Large Stock to
ship from.

SEND FOR PRICES.

718 Craig Street,
MONTREAL.

30 St. Paul Street,
QUEBEC.

Main Street,
WINNIPEG.

Waterous Engine Works Co., Brantford, Canada.

Canadian Rubber Co.

OF MONTREAL

Capital, - - - \$2,000,000.

A. ALLAN,
President.

J. O. GRAVEL,
Sec'y-Treas.

F. SCHOLES,
Man. Direc.



Sole Agents and
Manufacturers of
the Forsyth Pat.

Seamless
Rubber
Belting
for the Dominion
of Canada.

SUPERIOR QUALITY RUBBER GOODS.

Our RUBBER BELTING is Unequaled in America.

All kinds of Rubber Packings. Rubber Engine, Hydrant,
Suction, Steam, Brewers' and Fire Hose. Rubber
Valves, Car Springs, Wringer Rolls, Carriage
Cloths, Blankets, etc., etc.

MOULD GOODS OF EVERY DESCRIPTION.

Our GARDEN HOSE is the Best in the Market.
HEAD OFFICES AND FACTORY, MONTREAL.

J. J. MCGILL, Manager.

WESTERN BRANCH, Cor. Yonge & Front Sts.

J. H. WALKER, Manager.

TORONTO.

Balcony Fire Escapes

(BATTEN'S PATENT)

ADVANTAGES:

The advantages of the BATTEN FIRE
ESCAPE over all others are:

That the balconies are made of the best wrought iron, of any ornamental design or pattern, and securely bolted through the walls. Can be made any length or width. The brackets and flooring are capable of bearing any number of persons standing on them. The ladders, with wide steps and of easy grade, can remain down permanently, or folded up, as desired, showing the ornamental balcony only in sight, which does not mar the architectural beauty of the building, and can be instantly released when desired. No ice or snow will remain on them, neither will the working parts rust; and they will work admirably in any weather.

A Stand Pipe is also connected for high buildings, with valves at each door and on the roof.

Our Escapes have been fully tested at fires and proved themselves invaluable for saving life and property. Iron guards on windows of Asylums and Reform Schools can be so adjusted as to be instantly released in the case of fire by the unfolding of ladder or sounding of a gong.

Straight Iron Ladders.

For situations not requiring a Balcony Fire Escape I can quote reasonable prices for strong and well finished STRAIGHT IRON LADDERS.

FREDERIC NICHOLLS,

Sole Manufacturer for Canada,

The Permanent Exhibition of Manufactures,

63 to 69 Front St. West, TORONTO.

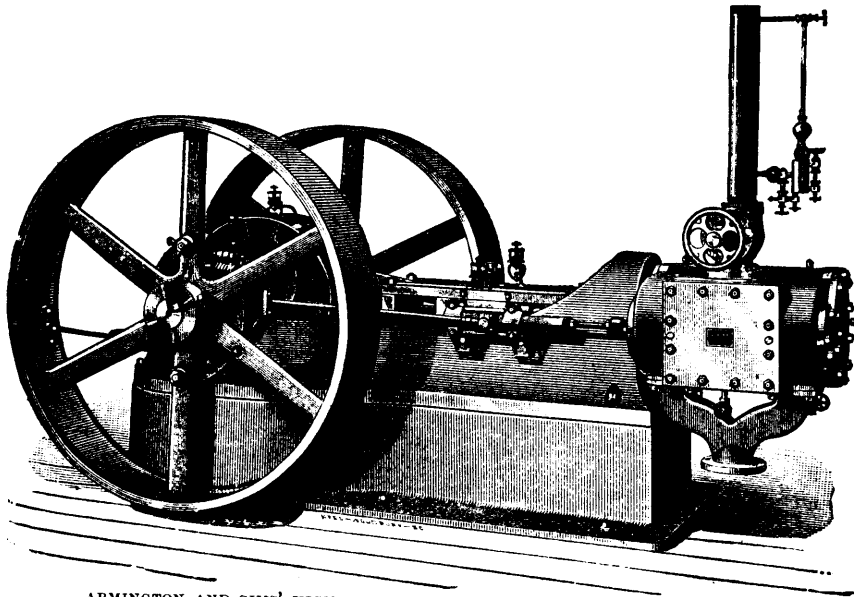
THE CANADIAN LOCOMOTIVE & ENGINE CO., Ltd.
KINGSTON, + ONTARIO.

MANUFACTURERS OF

Locomotive, Marine & Stationary Engines.
BOILERS OF ALL DESCRIPTIONS.

Sole Licensees and Manufacturers for Canada of *Armington & Sims' High Speed Engines*, The "Cycle" Gas Engine, *Atkinson's Patent*, The "Hazelton" Boiler.

DESCRIPTIVE CATALOGUES OF THE ABOVE ON APPLICATION.



ARMINGTON AND SIMS' HIGH SPEED ENGINE FOR ELECTRIC LIGHT PLANT, &c.

NOTICE.

The Canadian Locomotive & Engine Co., Limited, of Kingston, Ontario, have the Exclusive License for building our Improved Patent High Speed Engine for the Dominion of Canada, and are furnished by us with Drawings of our Latest Improvements.

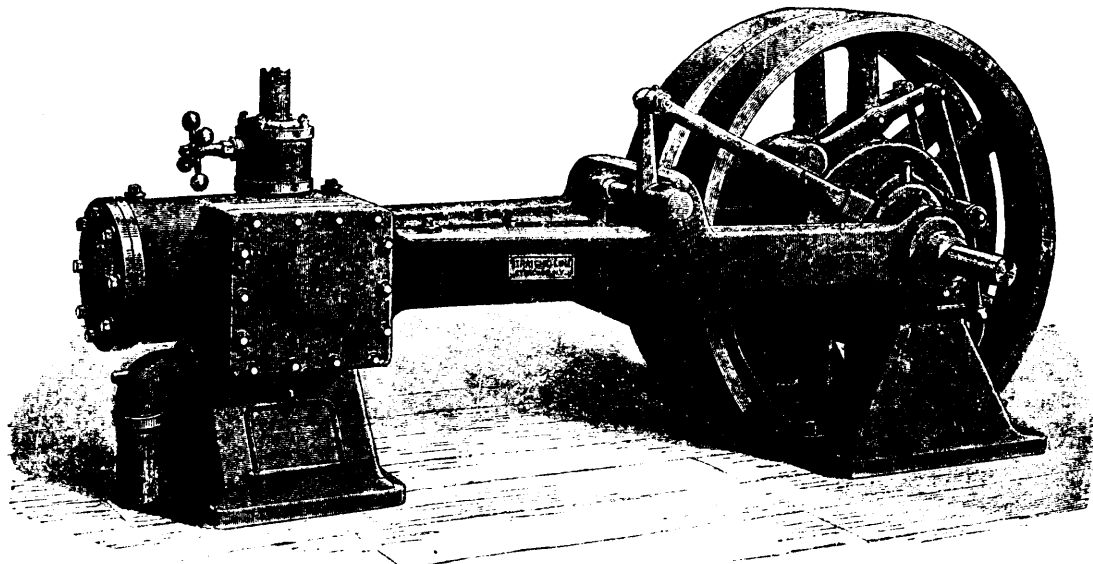
(Signed),

ARMINGTON & SIMS.

PROVIDENCE, R.I., Nov. 18, 1889.

The Straight Line Engine

Single and Double Valve, and Compound. Thirty to Two Hundred and Fifty H.P.



Williams & Potter, Gen'l Agents,

15 Cortlandt Street,

NEW YORK CITY, U.S.A.

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. **Dye 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. (successors to John McArthur & Son), Montreal.—Supply of best quality at closest 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.

Agricultural Implements and Parts.

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

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

Bridge Builders.

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

Chemicals and Dye Stuffs.

McARTHUR, CORNEILLE & CO. (successors to John McArthur & Son), Montreal.—Offer at closest figures chemicals required by soap-boilers, oil refiners, paper-makers, and manufacturers of woollens, cottons, leather, &c.

THEO. H. EATON & SON, Windsor, Ont.; Detroit, U. S. A.—Carry full line of Pure Dyeing Drugs, Dye Woods 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 Dye-wood 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 Dye-wood Extracts: James Musprat & 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.

Gloves.

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

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 & SON, Hamilton, Ont.—Manufacturers of wheels, wheel material, shafts, poles, etc.

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

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 wareroom, 58 Yonge St. Agents—The Polson Iron Works Co. Montreal wareroom, 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.

WEBSTER'S "Vacuum" Exhaust Steam Economizer

Is the Most Improved and Modern Appliance for the Economical Use of Exhaust Steam. Saves the Heat in Exhaust Steam which would otherwise go to Waste.

Utilizes the exhaust steam for heating buildings, etc., returning the condensation to boiler, and for making hot and purified water for boiler feeding and other purposes, and the combined advantages as enumerated in our pamphlet. Orders solicited on trial for acceptance.

We refer to the largest firms in the U. S. and Canada, who have adopted it and duplicated their orders after most exhaustive tests.

JAS. B. ANNETT, 372 Sackville St., Toronto, Ont.

CANADIAN LICENSEE for WARREN WEBSTER & CO.

NEWLANDS & CO.

GALT, CANADA.

MANUFACTURERS OF

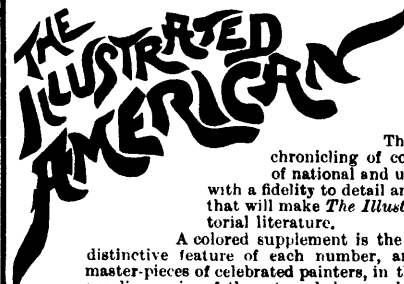
GLOVE AND SHOE LININGS

SASKATCHEWAN BUFFALO ROBES.

BUFFALO FUR CLOTH COATS.

BLACK DOG SKIN CLOTH COATS.

SEND FOR PRICE LISTS.



The Illustrated American Publishing Company are issuing a Weekly News Magazine, which in excellence rivals the most artistic periodicals of England, France, and Germany, and surpassing any produced in the United States.

The illustrations are the picturesque chronicling of contemporaneous history: and events of national and universal interest will be represented with a fidelity to detail and a perfection of artistic treatment that will make *The Illustrated American* a revelation of pictorial literature.

A colored supplement is the most conspicuous but not the most distinctive feature of each number, and fac-simile reproductions of the master-pieces of celebrated painters, in the preparation of which the marvelous discoveries of the art are being employed for the first time in this country. *The Illustrated American* is designed for the home. In its literary character it is clean, unsectarian, and free from political discussion and heavy debate. The serial novels and short stories are amply illustrated; and all other matter is selected to afford amusement, entertainment and valuable information. *The Illustrated American* consists of not less than 24 pages (16 x 12), and colored cover, printed in large type on heavy paper. Subscription, \$10 a year; single copies, 25 cents.

ILLUSTRATED AMERICAN PUBLISHING CO.

Bible House, New York.

142 Dearborn Street, Chicago.

S. LENNARD & SONS, DUNDAS, ONT.,

PATENTEES OF THE "ELYSIAN" 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.

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 (successors to John McArthur & Son), 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—Manufacturer 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 Anilines 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 low prices.

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 to order.

A NEW BOOK FROM COVER TO COVER.
FULLY ABREAST WITH THE TIMES.



The Authentic "Unabridged," comprising the issues of 1864, '79 and '84, copyrighted property of the undersigned, is now **Thoroughly Revised and Enlarged**, and bears the name of

Webster's International Dictionary.

Editorial work upon this revision has been in progress for over 10 Years.

Not less than One Hundred paid editorial laborers have been engaged upon it.

Over \$300,000 expended in its preparation before the first copy was printed.

Critical comparison with any other Dictionary is invited. **GET THE BEST.**

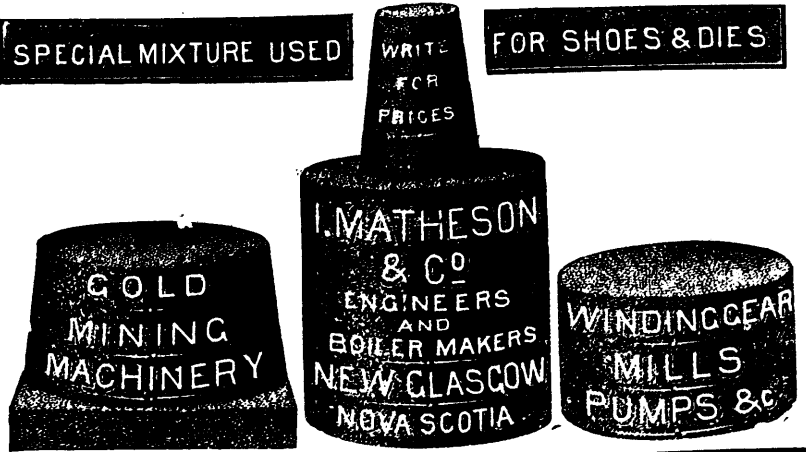
G. & C. MERRIAM & CO., Publishers, Springfield, Mass. U. S. A.

Sold by all Booksellers. Illustrated pamphlet free.

SUBSCRIBE FOR
THE CANADIAN MANUFACTURER.

SPECIAL MIXTURE USED

FOR SHOES & DIES



STEEL WIRE CHAIN

BROWN'S PATENT.



Cut showing Full Size of No. 0.

Strongest, cheapest and best Chain in the market. Made of hard drawn steel wire. Actual tests show three times the strength of ordinary welded chain.

WE ARE NOW MAKING FOUR SIZES, VIZ.: 0000, 000, 00, 0.
SEND FOR SAMPLES AND PRICES.

The B. Greening Wire Co. (Ltd.)
HAMILTON, ONTARIO.

TORONTO LITHOGRAPHING CO.
Globe Building, Toronto
MAKE A SPECIALTY OF
Fine Color Work
CHROMO ADVERTISING
CARDS and NOVELTIES
also do a Superior Class of Wood Engraving

"Their Work Speaks their Worth."

Their Telephone No. is 50

Bingham & Webber,
- ARE THE -
PREMIER CATALOGUE PRINTERS
OF CANADA.

Their Office is 40 LOMBARD STREET,
TORONTO.

MACHINE BRUSHES

All kinds, Made to Order.

Highest Quality of Work Guaranteed.

SEND FULL PARTICULARS OF DIMENSIONS AND QUALITY WHEN ORDERING.

Old Rollers or Blocks Re-filled with special care.

CHAS. BOECKH & SONS,

MANUFACTURERS.

Office and Warerooms : 80 York St.

Factory : 142 to 150 Adelaide St. W.

TORONTO, CANADA.

G. & J. BROWN M'F'G CO.

(LIMITED.)

BELLEVILLE, ONT.

Engineers, Boiler Makers,
Machinists, Foundry-
men and Bridge
Builders.

Railway and Contractors' Supplies a Speciality

FROGS, DIAMOND CROSSINGS,
SWITCHES, HAND CARS,
LORRIES, VELOCIPED CARS,

JIM CROWS, TRACK DRILLS,
SEMAPHORS, RAIL CARS,

DOUBLE AND SINGLE DRUM HOISTS, ETC., ETC.

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 OAKLEY & SONS, Wellington Mills,
Westminster Bridge Road,
London, Eng.**

Enquiries should be addressed to

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

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.**

SECOND - HAND Woolen Machinery FOR SALE.

One Huddersfield Rotary Pulling Mill.
Two Huddersfield Shearing Machines.
One Hydro Extractor, 40-inch basket.
Three Baling Machines for 2nd breakers.
Three Bank Feeds for 2nd breakers.
Two 144 Spindle Doubling and Twisting Frames.
Five Broad Crompton Looms, 4 boxes each end.
Ten Narrow " " " "

All of the above are in good order, and can be seen running. Also

One Brass Liffel Water Wheel, 12-in., and case.
Two Water Wheel Gears, newly cogged.

One Knowles Steam Pump.

For further particulars address,

ROSAMOND WOOLEN CO.

ALMONTE, ONT.

CANTLIE, EWAN & CO.

GENERAL MERCHANTS

AND

Manufacturers' Agents.

BLEACHED SHIRTINGS,
GREY SHEETINGS, TICKINGS,
WHITE, GREY AND
COLORED BLANKETS,
FINE AND MEDIUM
TWEEDS, KNITTED GOODS
PLAIN AND FANCY FLANNEL,
LOW TWEEDS, ETOFFES, ETC.

Wholesale Trade Only Supplied.

15 VICTORIA SQUARE, MONTREAL,
20 WELLINGTON ST. E., TORONTO.

Established 1872.

- THE ACCIDENT - Insurance Co'y of North America.

NEW FEATURE,

JOINT INSURANCE FOR PARTNERSHIPS

IMPORTANT TO MANUFACTURING FIRMS.

**MEDLAND & JONES, Gen'l Agents,
Cor. Adelaide and Victoria Sts., TORONTO.**

THE BELL TELEPHONE CO'Y OF CANADA

—Manufacturers and Dealers in—

Telegraph & Electrical Instruments,

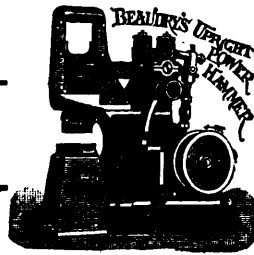
Electro-Medical Apparatus, Fire Alarm Apparatus,
Magnets for Mills, Electrical Gas Lighting Apparatus,
Burglar Alarms, Hotel and House Annunciators,
Electric Call Bells, &c., &c.

FOR FURTHER PARTICULARS APPLY TO

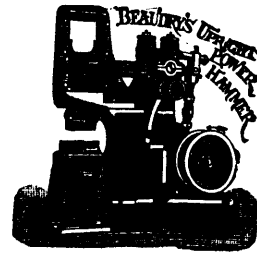
No. 12 HOSPITAL ST., MONTREAL.



SIMPLE;



PRACTICAL

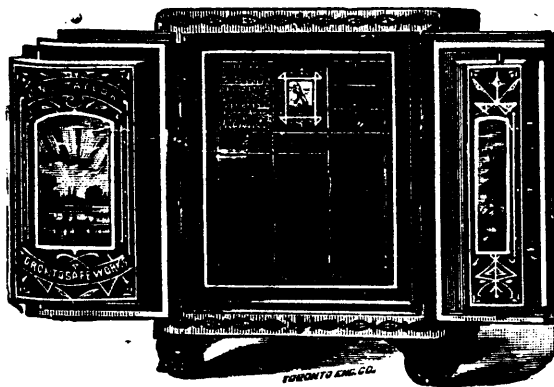


AND BEST.

BEAUDRY UPRIGHT CUSHIONED POWER HAMMER

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

MILLER BROS. & MITCHELL, Sole Makers for Canada, **MONTREAL.**



J. & J. TAYLOR'S

Double Tongue
and Groove
FIRE-PROOF

SAFES

(Patented
January 14th,
1886.)

Established 33 years.

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

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

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 Baie des Chaleur, Province of Quebec, also for New Brunswick, Nova Scotia, Prince Edward, Cape Breton and the Magdalene 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 50 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.

Canadian-European Mail and Passenger Route.

Passengers for Great Britain or the Continent, leaving Montreal on Thursday morning, will join outward Mail Steamer at Rimouski the same evening.

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 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

N. WEATHERSTON,

Eastern Freight and Passenger Agent, 93 Rossin House Block,
York Street, TORONTO.

RAILWAY OFFICE, MONCTON, N.B., June 18, 1890.

IMPROVED WOOL WASHER

BUILT BY

C. G. Sargent's Sons

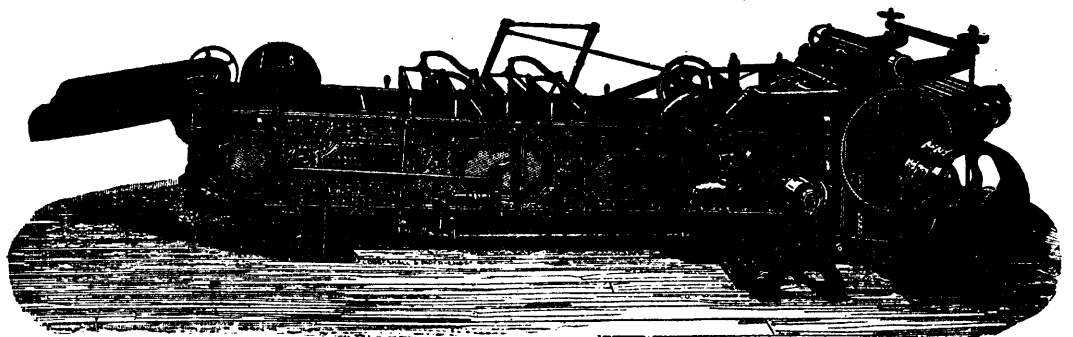
Graniteville, Mass.,

U.S.A.

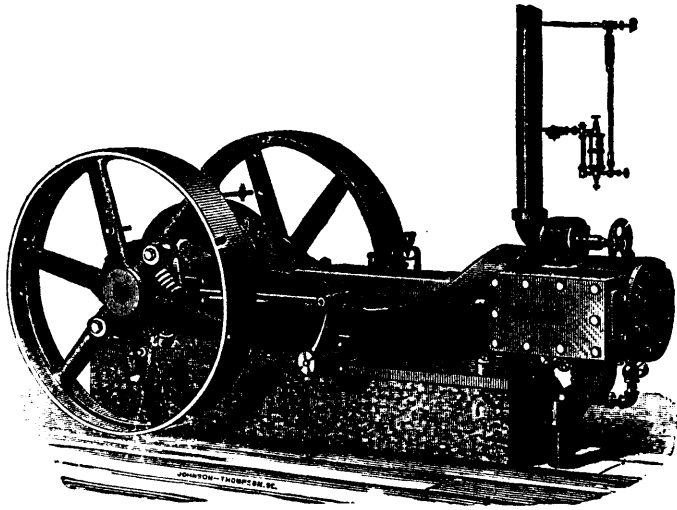
Builders of Wool Washers,

Burr Pickers, Wool

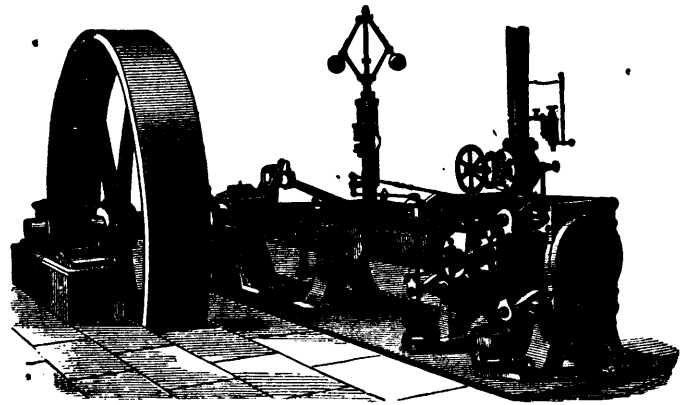
Dryers, etc.



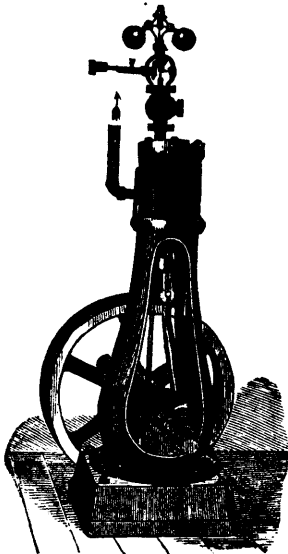
The above represents our New Hydraulic Wool Washer, superior to Rake Machine. Send for Illustrated Catalogue.



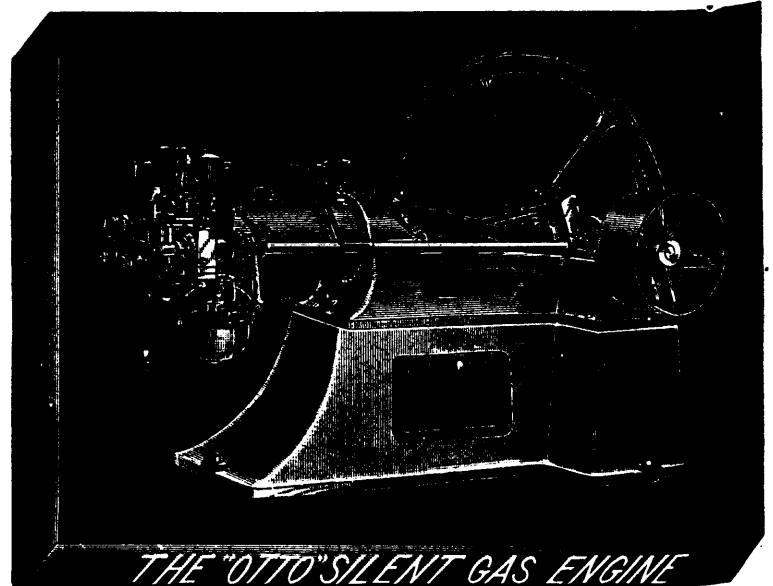
Armington & Sims Electric Light Engines.



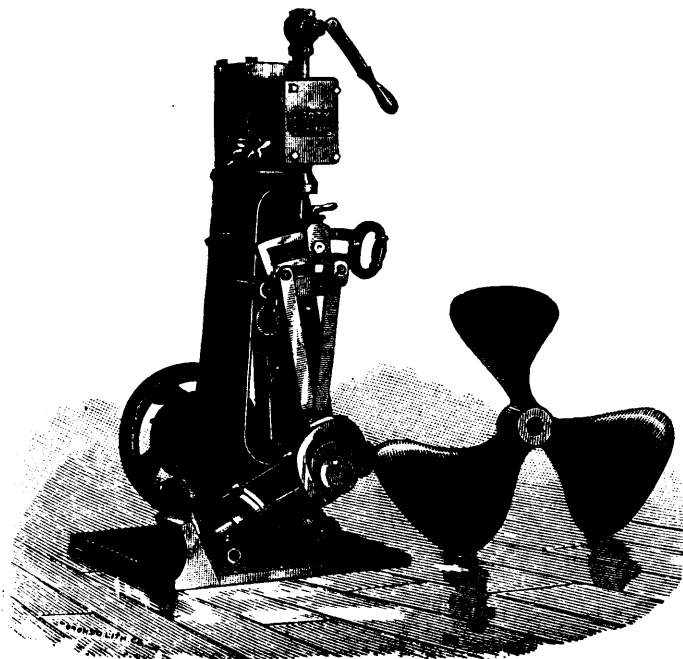
Reynolds-Corliss Engine.



Vertical Engines.



THE "OTTO SILENT GAS ENGINE"



Yacht Engines.

John Doty Engine Co.

TORONTO, ONT.

MANUFACTURERS OF

Engines & Boilers

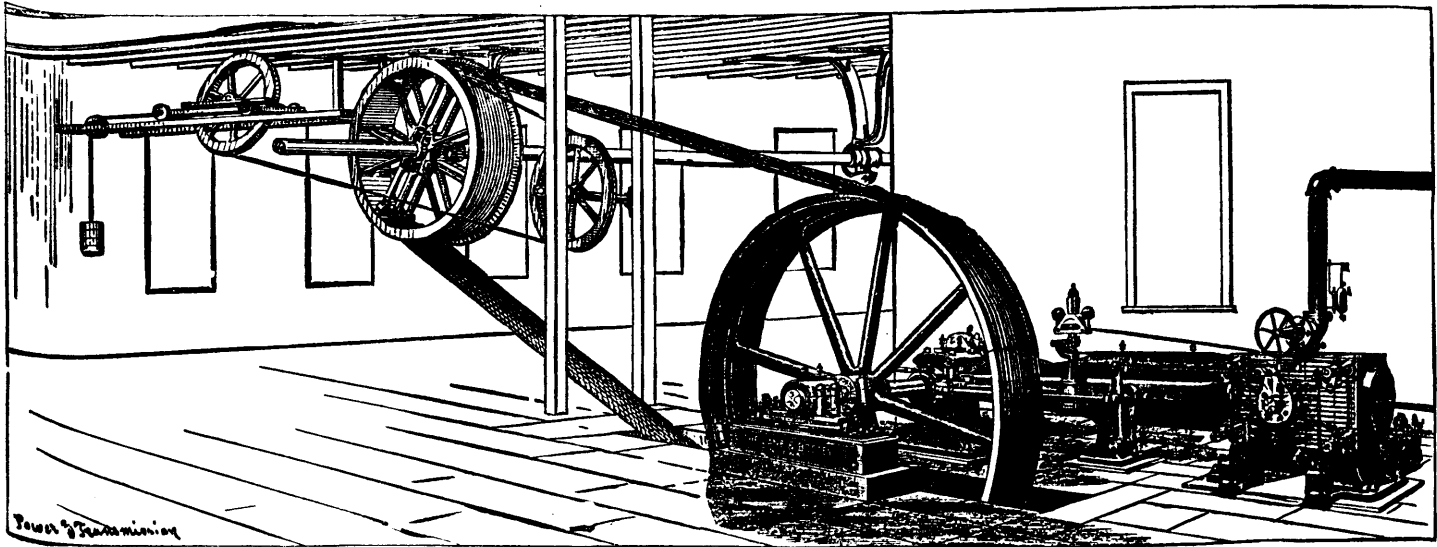
OF EVERY DESCRIPTION.

SEND FOR CATALOGUES.

DODGE "PATENT" SYSTEM

— OF —

ROPE TRANSMISSION OF POWER



The above cut represents one of our "Engine" Drives, a great many of which are now in use throughout the Dominion. (Letters of endorsement sent on application.)

In this case the iron fly-wheel has been grooved by builder, and the balance of the Drive, consisting of driven pulley, carriage and winder pulleys, also carriage track and rope, have been furnished by ourselves.

To all intending putting in New Engines, or overhauling present Main Drives, we would recommend them to investigate the merits of the Dodge Rope Drive System. Thousands in use throughout the largest plants in the United States, and many in Canada.

For full information and illustrated treatise, apply to

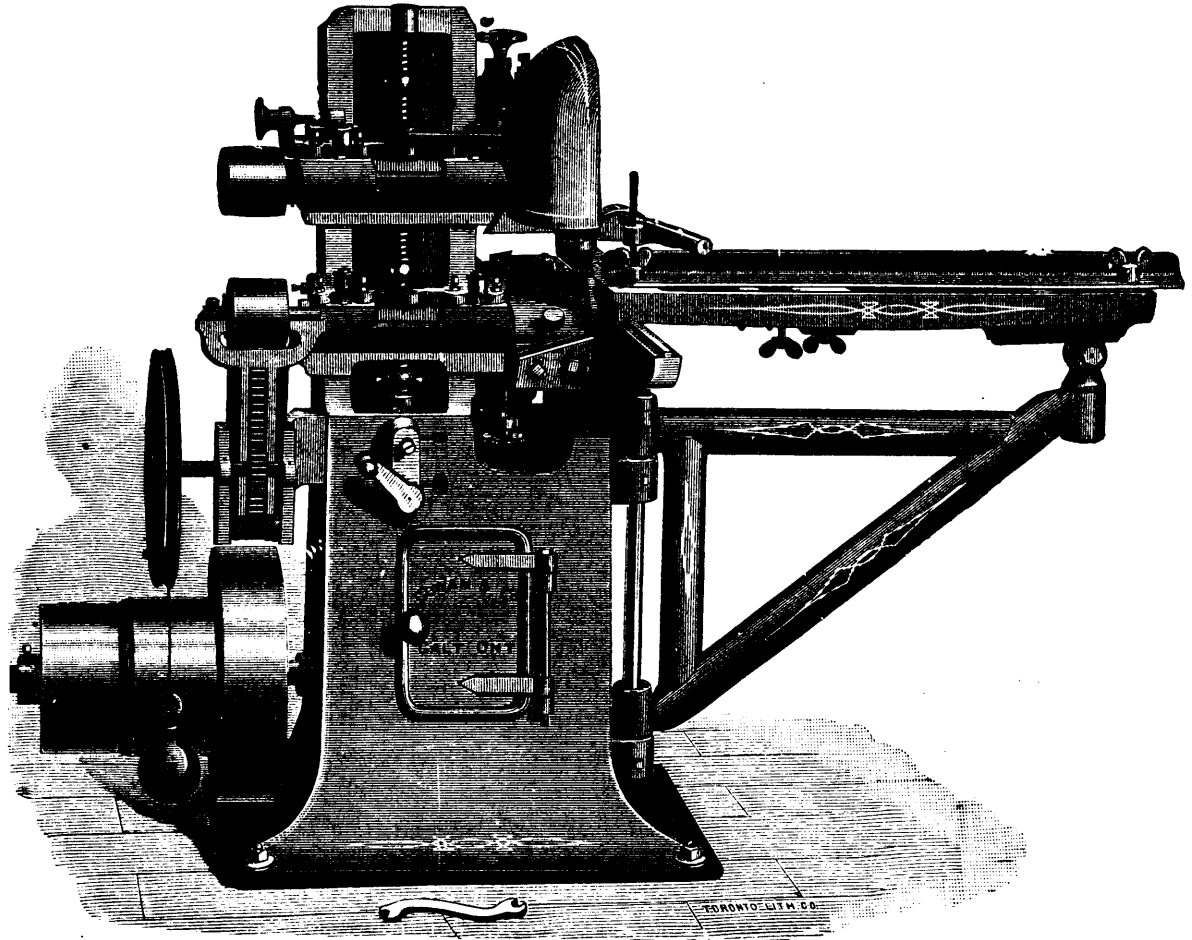
THE DODGE WOOD SPLIT PULLEY CO.

OFFICE,
88 KING ST. WEST.

TORONTO, CANADA.

Telephone
2080.

NEW AND IMPROVED
Pedestal Tenon Machine.



This is an entirely new style of Tenon Machine. The frame is cast in one piece, and the working parts stand solidly on a pedestal, avoiding all vibration.

The Cutter and Cope Heads are connected and are moved all together, or separately, as required. The Upper Head and Boxes also adjust horizontally to suit shoulder of tenon, the Cope Knives moving with the Heads to prevent re-adjustment.

A special feature in this machine is the Bed, or Carriage, which is at once light and strong. The outer end works on rollers and is moved very easily.

In cutting the tenon the Bed and Carriage move entirely past the Heads and Cutters, the operator having full control of the work. It has also the advantage of leaving the Heads and Cope Knives clear, and of ready access by the operator.

The Carriage is so arranged that it cannot tip over the Slides nor be thrown into the Cutters, and is also supplied with extension bar for long stuff, as in all Tenoning Machines.

This Machine is supplied with single or double Copes, as ordered, and for furniture work it is without Copes, and with an adjustable cut-off Saw.

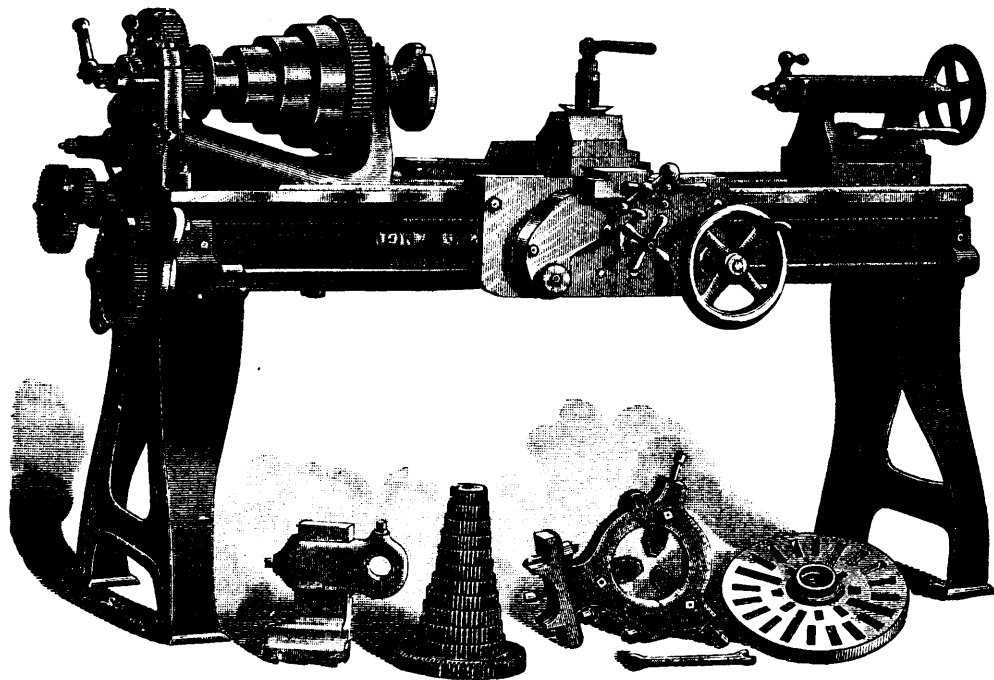
COWAN & CO.

"Galt Foundry" Engine and Machine Works, GALT, ONTARIO, CANADA

Canada Tool Works,

John Bertram & Sons,

DUNDAS, ONT.



16-in. LATHE.

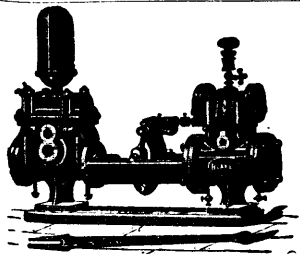
Manufacturers
of
Machinists' Tools
and
**Woodworking
Machinery.**

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

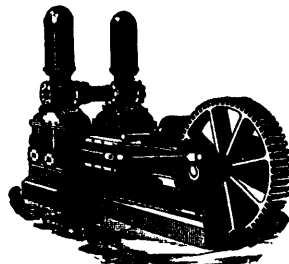
Locomotive and Car Machinery, Special Machinery, Price List and Photographs on application.

Warerooms: Permanent Exhibition, Toronto; Polson Engine Co., 38 Yonge St.; Machinery Supply Ass'n, Montreal.

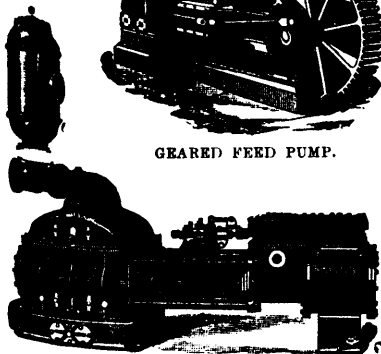
Geo. F. Blake Manufacturing Co.,



BOILER FEED PUMP.



GEARED FEED PUMP.



DUPLEX COMPOUND ENGINE

BUILDERS OF

SINGLE AND DUPLEX

Steam and Power

Pumping Machinery



BOSTON,

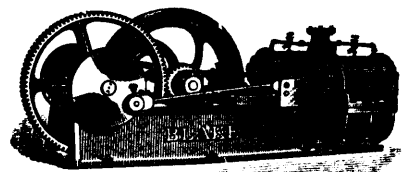
FEDERAL STREET

NEW YORK

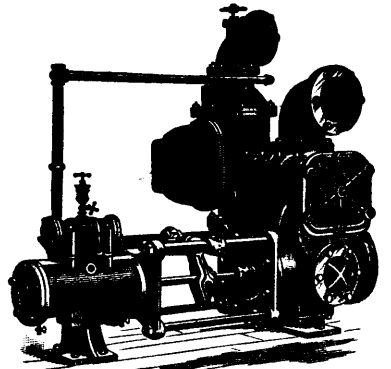
95 & 97 LIBERTY STREET.

SEND FOR ILLUSTRATED CATALOGUE.

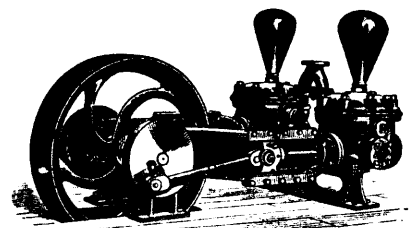
These goods may be seen at the Permanent
Exhibition 63 to 69 Front Street West, Toronto.



AIR COMPRESSOR.



AIR PUMP AND CONDENSOR.



BELT PUMP.

Nova Scotia Steel Co., Limited,

NEW GLASGOW, NOVA SCOTIA

(Only Steel Works in Canada),

MANUFACTURERS OF

Hammered *and* Rolled Steel

MADE BY THE

SIEMENS-MARTIN (OPEN HEARTH) PROCESS.

ROUND MACHINERY STEEL for Shafting, Spindles, etc. MILD STEEL for Rivets, Bolts, Thresher Teeth and many purposes where Norway Iron is now used.

SPECIAL SECTION PLOW BEAMS, MILD STEEL CENTRE AND SOLID MOULD BOARDS,
COULTER STEEL HARROW DISCS,
AGRICULTURAL STEEL CUT TO PATTERN, SPRING, SLEIGH SHOE, TYRE, TOE CALK AND CROSS BAR STEEL
STEEL NAIL PLATE.

☐☐ *Binder Bars, Z and other Special Sections.*

STEEL MOWER BARS.

Particular attention given to the manufacture of Rake, Cultivator and Harrow Teeth, and other Agricultural Spring Steel Forgings.



113 FEDERAL STREET, BOSTON.

93 Liberty St., New York.

Warren, Mass.

FOR SALE BY THE

Polson Iron Works Company, 38 Yonge Street, Toronto, Ontario.

WHERE MANY SIZES MAY BE SEEN IN STOCK.

SEND FOR ILLUSTRATED CATALOGUE.

Cobban Manufacturing Co'y Factory & Head Office: Toronto.
 Branch: 148 McGill Street, Montreal.

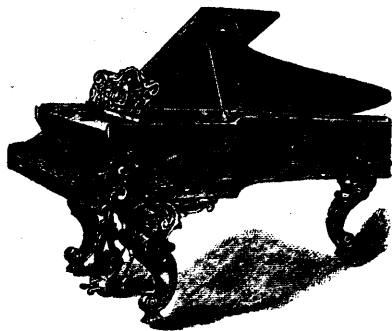


MANUFACTURERS OF
 Mantles, Over Mantles and Mirrors in Finest Hardwoods. Mouldings, Picture
 Frames and Looking Glasses. Mirror Plates: British, French, German,
 Shocks. Plate Glass Beveling and Silvering a Specialty
CLOSE PRICES. LIBERAL TERMS.

TORONTO.
MONTREAL.

HEINTZMAN & CO.

MANUFACTURERS OF



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

SEND FOR ILLUSTRATED CATALOGUE.

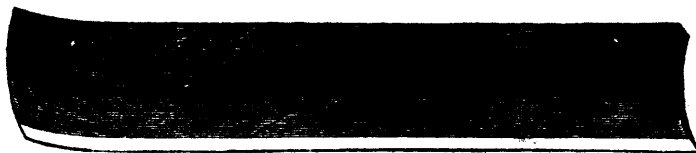
Warerooms, - 117 King St. West,
TORONTO.

GALT MACHINE KNIFE WORKS.

PLANING MACHINE
 KNIVES.



STAVE CUTTER KNIVES.



STAVE JOINTER KNIVES.

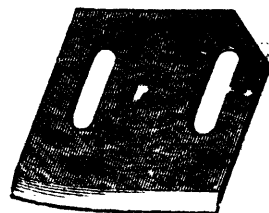


MOULDING, TENONING

MITREING

SHINGLE JOINTER,

And other irregular shapes.



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

PETER HAY, - - - GALT, ONT.

HAMILTON

COTTON COMPANY

MANUFACTURERS OF

THE STAR BRAND

COTTONADES, DENIMS, TICKINGS

- Star Brand—BEAM WARP.
- „ HOSIERY YARN;
- „ BUNDLE YARN.
- „ CARPET WARP.
- „ BALLED KNITTING YARN.

First Prize, Silver Medals, for Beam Warps and Denims
 Toronto, 1881.

General Agents,—

F. McELDERY & CO.

204 MCGILL STREET, MONTREAL.
 22 & 24 COLBORNE ST., TORONTO.

For Sale Cheap.

WE OFFER THE FOLLOWING
ELECTRIC - LIGHT - PLANT

FOR SALE AT LOW PRICE:
All in good order, but recently replaced by the
RELIANCE SYSTEM.

- Two 25-Light Ball Dynamos, Mica Insulation. Almost as good as new
- One 15-Light American Dynamo, in good order.
- One 10-Light Royal Dynamo, with 10 lamps, in first-class condition.
- One 40-Light Royal Dynamo, with 5 lamps, with new armature.

Apply for the above or for new plant to
THE RELIANCE ELECTRIC MFG CO., Ltd.
WATERFORD, ONT.

SPECIAL NOTICE.

Our attention has recently been called to circular quotations by certain dealers purporting to be for "72-hour Connellsville Coke." Investigation showed the dealers referred to were not getting any Coke from the Connellsville Region but were drawing their supplies from works on main line of Pennsylvania Railroad known as the "Letrobe" district. These Cokes are not equal in quality to "Connellsville," are not known by that name, and should not be sold as such. They can be detected by the freight charge, which is 17 cents per ton less than on "Connellsville" Coke when shipped west, and 25 cents per ton less when shipped east. When shipped east from Gallitzin, Mountain, Bells Gap and Clearfield districts, 50 cents per ton less.

Respectfully,

H. C. FRICK COKE CO.

PITTSBURGH, Pa., August 1st, 1890.

THE OSHAWA Malleable Iron Co.

MANUFACTURERS OF

MALLEABLE IRON

CASTINGS TO ORDER

FOR ALL KINDS OF

Agricultural Implements

AND

MISCELLANEOUS PURPOSES.

Oshawa, Canada.

HICKORY PULLEYS.



We make only hardwood bent rim spoke arm split pulley; only small split pulley; only split loose pulley with oilless bearings; only wooden hangers, in the market.



Send for discounts and circulars.
Menasha Wood Split Pulley Co.

MENASHA, Wis.

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.



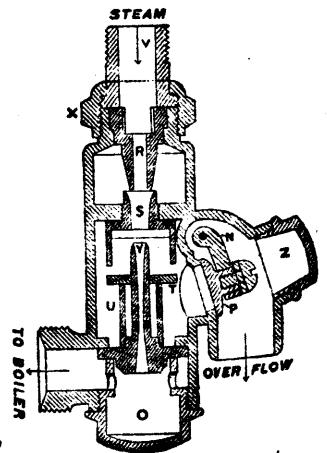
This Space for Sale.

FEED YOUR BOILER WITH A PENBERTHY IMPROVED AUTOMATIC INJECTOR.

10,000 IN USE IN CANADA.



Cheaper than a Pump, takes up Less Room and Feeds the Boiler with Water at nearly Boiling Point.



SIMPLE, ECONOMICAL AND DURABLE.

And the Only Absolutely Automatic Injector in the Dominion.

PROMINENT FEATURES ARE: They start at about 25 lbs. steam pressure and work to 150 lbs. Lift water up to 20 feet, and work from a head as well. They require little watching, as, being automatic, they restart if feed to boiler is broken by air or sudden jarring. The parts are interchangeable and can be removed without uncoupling machine. Send for pamphlet to **PENBERTHY INJECTOR CO.,** Detroit, Mich. Factory at Windsor, Ont. Handled largely also by Waterous Engine Works Co., Limited, Brantford J. H. Taylor, Montreal; S. J. Shaw, Quebec; Park Bros., Chatham; McDonald & Co., Limited, Halifax, N.S.; A. R. Williams, Toronto.