

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

Coloured pages/
Pages de couleur

Covers damaged/
Couverture endommagée

Pages damaged/
Pages endommagées

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

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

Cover title missing/
Le titre de couverture manque

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

Coloured maps/
Cartes géographiques en couleur

Pages detached/
Pages détachées

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

Showthrough/
Transparence

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

Quality of print varies/
Qualité inégale de l'impression

Bound with other material/
Relié avec d'autres documents

Continuous pagination/
Pagination continue

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

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

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

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.

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

Additional comments:/
Commentaires supplémentaires:

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
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
12X	16X	20X	24X	28X	32X

HAMILTON, ONT. FOUNDRY FACINGS FOUNDRY SUPPLIES, ETC.

THE TORONTO JUNCTION FOUNDRY CO. (LTD.) MANUFACTURERS OF SUPERIOR MALLEABLE & GRAY CASTINGS, BICYCLE STEEL CASTINGS A SPECIALTY.

CANADIAN MANUFACTURER

AND INDUSTRIAL WORLD.

DEVOTED TO THE MANUFACTURING INTEREST OF THE DOMINION

6543

Vol. 34.


TORONTO, JANUARY 1, 1897.

No. 1.

THE
BARBER & ELLIS CO.
(LIMITED)
MANUFACTURERS OF

Envelopes,
Papetries
— AND —
Note Papers.

NOS. 43, 45, 47, 49 BAY STREET
Toronto, Ont.



NILINE

DOMINION DYEWOOD & CHEMICAL CO.

LIZARINES

PRODUCTS OF
The Farbenfabriken vorm F. Bayer & Co.

DOMINION DYEWOOD & CHEMICAL CO.

SOLE AGENTS FOR CANADA TORONTO.

HAMILTON ENGINE PACKING CO.
Sole Manufacturers of



Sectional Piston Ring Sectional Pipe Covering

CLAPPISON'S
IMPROVED RING AND COIL PACKINGS
ALSO CLAPPISON'S
STANDARD ASBESTOS, MAGNESIA, SECTIONAL
PIPE AND BOILER COVERINGS

Asbestos Cement, Packing, Paper, and Sheet.
Special Covering for Hot Air and Hot Water
Pipes—cheaper and better than hair felt.

Rainbow and other sheet packings. Eclipse and
Smith's Adjustable Gaskets, etc., etc.

56 ALANSON STREET, HAMILTON, ONT.

HAVE YOU TRIED FLEXIFORT? THE BEST BACKING

... YET ...

No Stretch. Polished, Hardened and Tempered Steel Wire. Requires no Re-drawing on. Never Grows Hard. Impervious to Oil. Out-wears Leather. Samples and Prices on application.

THE J. C. McLAREN BELTING COMPANY

Factory, Montreal 22 FRONT EAST, TORONTO

CHARLES F. CLARK, Pres. ELM. F. RANDOLPH, Treas.
ESTABLISHED 1819.

THE BRADSTREET
MERCANTILE AGENCY

THE BRADSTREET COMPANY - Proprietors
NEW YORK

Offices in the principal cities of the United States, Canada, the European Continent, Australia, and in London, England.

The Bradstreet Company is the oldest, and financially, the strongest organization of its kind—working in one interest and under one management—with wider ramifications, with more capital invested in the business, and it expends more money every year for the collection and dissemination of information than any similar institution in the world. Toronto Offices:—

36 Front St. E., and 27 Wellington St. E.
THOS. C. IRVING, Superintendent



THE GUTTA PERCHA RUBBER CO.

HOWARREN, OF TORONTO LTD. CHICAGO, ILL.
PRINCIPAL OFFICE: 61 & 63 FRONT ST. W. TORONTO.

THE....

Walkerville
Malleable Iron
Co., (Limited)

Manufacturers of..

REFINED AIR FURNACE
Malleable Castings

ALSO LIGHT GREY IRON CASTINGS

WALKERVILLE, ONTARIO

RIDOUT & MAYBEE

J. G. RIDOUT (Late C.E.) J. EDW. MAYBEE
Barrister, Solicitor, Etc. Mech. Eng.

SOLICITORS of and EXPERTS in
PAMPHLET ON PATENTS SENT FREE

103 Bay Street, Toronto

Patents

McARTHUR,
CORNEILLE & CO.

Manufacturers

.. AND ..

Importers . . .

310-316 St. Paul Street

.. AND ..

147-151 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,

GREASES, MILL SOAPS, ETC.

.. ALSO ..

CHEMICALS, DYE STUFFS

DYE WOODS, EXTRACTS, ETC.

SOLE AGENTS IN CANADA FOR

St. Denis Dyestuff & Chemical Co., Paris
A. Poirrier, President.

Aniline Colors, Archil Extract, Cachon de
Laral, Etc.

British Alizarine Co., London
Paste and Dry Alizarine.

Stamford Manufacturing Co., New York
Dyewoods and Extracts.

Coignet & Co., Paris
Glues, Gelatines,
Etc.

Watson, Walker & Quickfall, Leeds
Indigo Extracts.

Millerton, Tanquin Extract Co.
Hemlock Extract.

Maintain Large Stocks, fully assorted, and
will always be pleased to furnish
quotations and samples.

**Wrapping
Papers**

IN A VARIETY
OF
MAKES, SIZES AND
WEIGHTS.

MADE TO WEAR.
MADE WITH CARE.
HARD TO TEAR.

The E. B. EDDY CO.

(LIMITED)

HULL, MONTREAL, TORONTO.

HARVEY HUBBELL
Machinery and Tool Mfr.
Improved Tapping Machines
SCREWS
Machine Screws for electrical purposes.
Sample box free.
BRIDGEPORT, CONN., U.S.A.

Largest Manufacturers
of STEEL and BRASS
STAMPS in Canada

**PRITCHARD
& ANDREWS**

OTTAWA, ONT.

Rubber Stamps
Stencils, Seals, Etc.

SEND FOR PRICES



BROWN & CO.



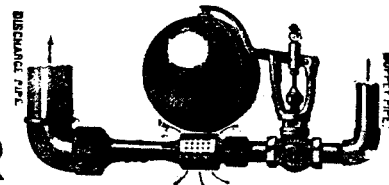
Manufacturers of
Square and Hexagon
HOT PRESSED NUTS

PARIS, - ONT.

THE BRAENDER

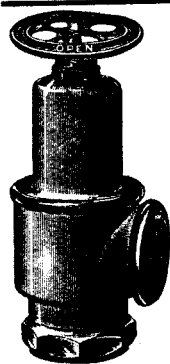
**JET PUMP, WATER ELEVATOR
AND CELLAR DRAINER**

Patented
May 8, 1891.



This automatic device for removing water from Cellars, Excavations, Trenches, Wheel pits, or any depression where water accumulates, either from Springs, Surface Water, Leakages, or Tide Water, is so constructed as to be not only reliable at all times, but will, with a very small amount of water under moderate pressure, remove a large body of water and discharge it to a higher level. It will prevent the accumulation of water, and its construction is Strong, Durable, Uncorrosive, and is so simple, that it will last for years without attention. *Send for Catalogues and Price Lists.*

AGENTS AND MANUFACTURERS
GARTH & CO., 536 to 542 Craig Street, MONTREAL.



**CROSBY STEAM GAGE
AND VALVE CO.**

Sole Proprietors and Manufacturers of
Crosby Pop Safety Valves, for all kinds of Boilers, Water Relief Valves including
the Underwriter, which is fully approved by the Associated Factory Mutual
Insurance Companies; Crosby Steam Engine Indicators, with Sar-
gent's Electrical Attachment; Crosby Improved Steam
Gages, Recording Gages and Patent Gage Testers.
Original Single Bell Chime Whistles.

BRANDEN PATENT PUMP VALVES

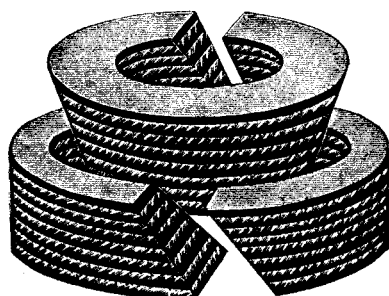
CLARK'S LINEN FIRE HOSE AND ADJUSTABLE COUPLINGS

All Kinds of Pressure and Vacuum Gages used in the Various Arts

Gold Medal Paris Exposition, 1889
Ten Highest Awards Columbian Exposition, 1893

Main Office and Works..... **BOSTON, MASS., U.S.A.**
Branch Offices at New York, Chicago, and London, Eng.

ENGINEERS' FAVORITE RING PACKING



Rainbow Sheet Packing, Eclipse Gasket Packing
Sheet Rubber and Plumbago,
Square Flax, Hemp and Soapstone,
Asbestos Cement and Pipe Covering,
Sutton's Boiler Compound,
Albany Grease.

WILLIAM C. WILSON & CO.

LUBRICATING OILS AND GREASES

24 FRONT STREET EAST, TORONTO

ROCK FACED
BRICK
WRITE FOR PRICES AND
CATALOGUE
THE PEDLAR METAL ROOFING CO. BSMAWA ONT.

The Pulsometer
STEAM PUMP

OFTEN IMITATED BUT NEVER EQUALLED

◆◆◆
The hardest simplest and most efficient steam pump for general Mining, Quarrying and Contractors' purposes.

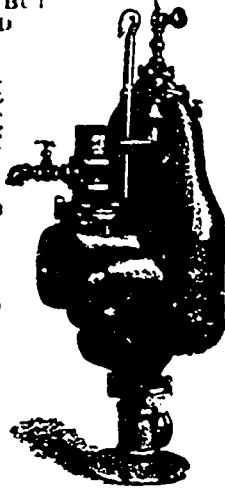
◆◆◆
Muddy or Gritty Liquids Handled without wear.

◆◆◆
Descriptive Catalogue with prices furnished on application.

◆◆◆
PULSOMETER
Steam Pump Co.
New York, U.S.A.

A. R. Williams Machinery Co.

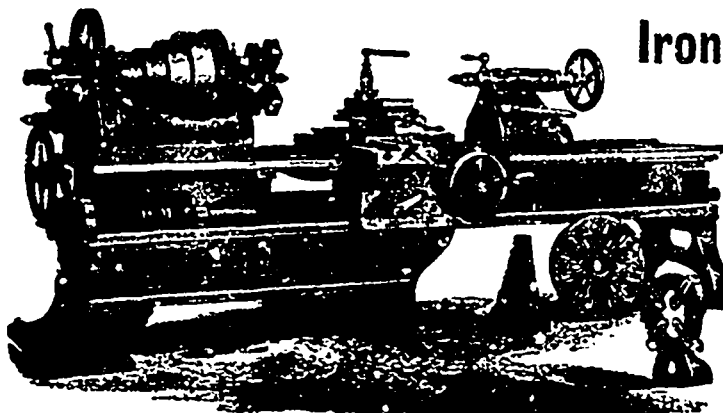
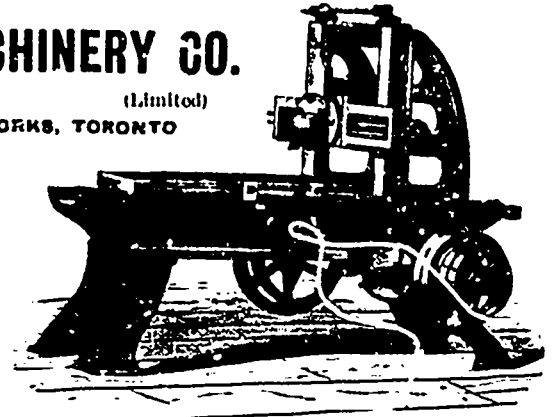
Toronto and Montreal,
Selling Agent for Canada.



THE ...
A. R. WILLIAMS MACHINERY CO.

(limited)
Head Office, BOND MACHINE WORKS, TORONTO

Manufacturers of and Dealers in
High Class Iron Tools,
Wood working Machinery,
Engines, Boilers
Motors, Wreter Wheels,
General Machinery
and Supplies



Iron Tool Works

At London.

BRANCHES

193 Colborne St
BRANTFORD

345 and 347
St. James St.,
MONTREAL

Send for Circulars,
Referring
to this Advt

THE STURTEVANT SYSTEM

OF

Heating and Ventilating

APPLICABLE TO ALL CLASSES OF BUILDINGS

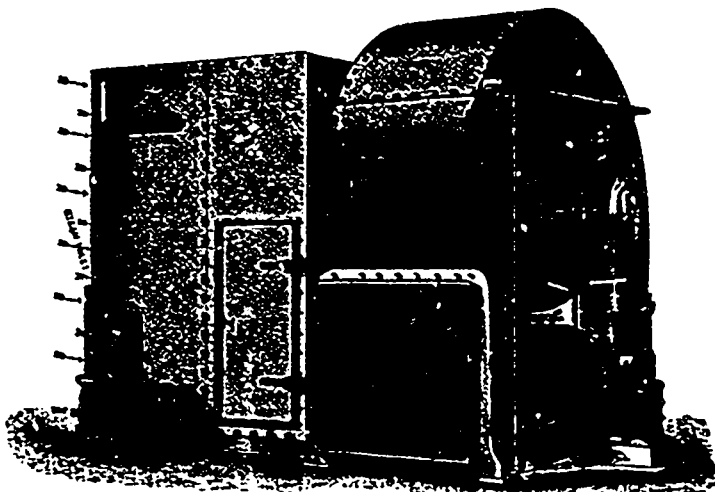
Has had a THOROUGH TEST in the Dominion
AND THE
Northern Portion of the United States.

Over 200 Plants in Successful Operation in
this Cold Climate

Send for Catalogue No. 67, Describing this System
and No. 73, Showing 500 Representative
Buildings Heated and Ventilated

B. F. STURTEVANT CO.

BOSTON, MASS., U.S.A.



The Sturtevant Steam Heating and Drying Apparatus

A. R. WILLIAMS MACHINERY CO., Ltd.

General Canadian Agents

Toronto, Brantford, Montreal

For . .
Drying

This Apparatus is unexcelled for Lumber, Cotton, Wool, Hair, Brick, Pottery, Glue, Soap, Cloth and all Textile Goods.

DOMINION BRIDGE CO.

(LIMITED).

MONTREAL AND LACHINE LOCKS, P.Q.

Steel Bridges for Railways and Highways,
Steel Piers and Trestles, Steel
Water Towers and Tanks, Steel
Roofs, Girders, Beams, Columns,
for Buildings.

A Large Stock of....

**ROLLED STEEL BEAMS, JOISTS, GIRDERS
CHANNELS, ANGLES, TIES, Z BARS
AND PLATES ALWAYS ON HAND**

IN LENGTHS TO THIRTY-FIVE FEET

Tables, giving Sizes and Strength of Rolled Beams
on application.

Post Office Address, - - MONTREAL.

J. H. MCGREGOR, Agent, Canada Life Building
TORONTO, ONT.

THE

CANADIAN MANUFACTURERS' ASSOCIATION

ALBERT E. KEMP, President.

J. J. CASSIDY, Secretary.

GEORGE BOOTH, Treasurer.

Secretary's Office, *McKinnon Building*

Cor. Jordan and Melinda Streets, Toronto

Tel. 1274.

THE OBJECTS OF THIS ASSOCIATION ARE:

To secure by all legitimate means the aid of both Public Opinion and Governmental Policy in favor of the development of home industry and the promotion of Canadian manufacturing enterprises.

To enable those in all branches of manufacturing enterprises to act in concert, as a united body, whenever action in behalf of any particular industry, or of the whole body, is necessary.

To maintain Canada for Canadians.

Any person directly interested in any Canadian manufacturing industry is eligible for membership.

Manufacturers desiring to hold meetings for the promotion of their business are invited to avail themselves of the Board Room of the Association for the purpose, which is offered to them free of charge.

J. J. CASSIDY, Secretary

BENT RIM WOOD SPLIT PULLEYS

← REID'S PATENT →

*The Strongest, Lightest and Best Belt Surface
in the World*



No Glue, no Nails in Rim, like Segment Rim Pulleys, to be affected by Steam Dampness or Moist Temperature.

Every Pulley Guaranteed

The Reid Bros. Mfg. Co., Ltd., TORONTO
ONT.

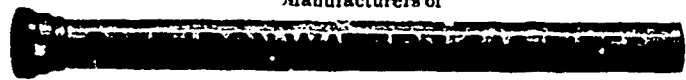
The Attention OF WOOLEN MANUFACTURERS IS CALLED TO

The Torrance Patent Self-Acting Balling Machine

and positive Creel feed for Wool cards. The latest, best and only feed on the market that will make yarn positively even. These machines are built by **The Torrance Mfg. Co.**, Harrison, (East Newark), N.J., U.S.A., for the States, and by **The St. Hyacinthe Mfg. Co.**, St. Hyacinthe, Que., Canada for the Canadian market.

DRUMMOND-McCALL PIPE FOUNDRY CO. (Ltd.)

Manufacturers of



"Specials," Hydrants, Valves, Etc.

Offices: New York Life Building, MONTREAL.

WORKS: LACHINE, QUEBEC.

"CAMEL"

HAIR

BELTING



W. A. FLEMING

57 St. Frs. Xavier St.
MONTREAL24 Front St. East
TORONTOVictoria Chambers
OTTAWA

Any Advertiser may occupy this space at the
rate of 75 cents per issue.

The Royal Electric Co'y

MONTREAL, QUE.

Western Office.... TORONTO, ONT.

S.K.C. Two-Phase Alternators

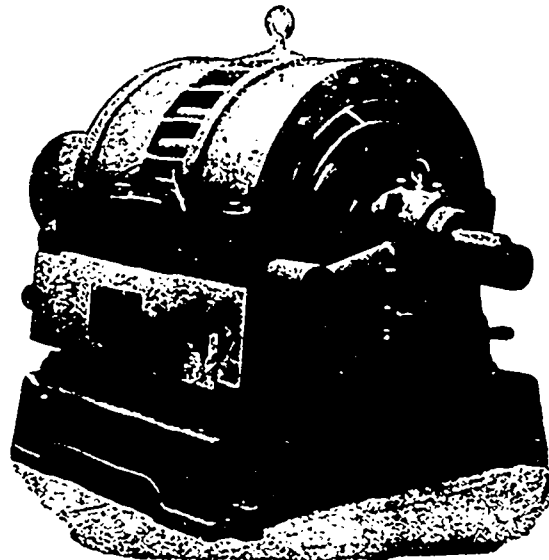
Incandescent Light, Arc Light and Power from same Dynamo and Circuit.

Highest Efficiency

Best Regulation

Slow Speed

Least Attention



No Collector

No Moving Wire

No Exposed Parts

No Compounding

S.K.C. 50 Kilowatt Two-Phase Generator

KAY Electric Manufacturing Co.

255 James St.N., Hamilton, Ont.

Makers of.....

ELECTRIC MOTORS

Transformers

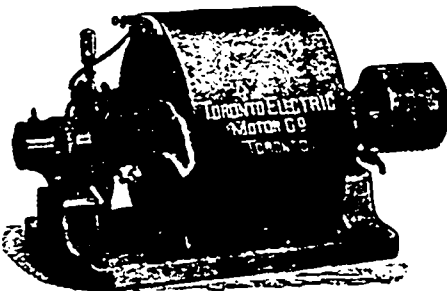
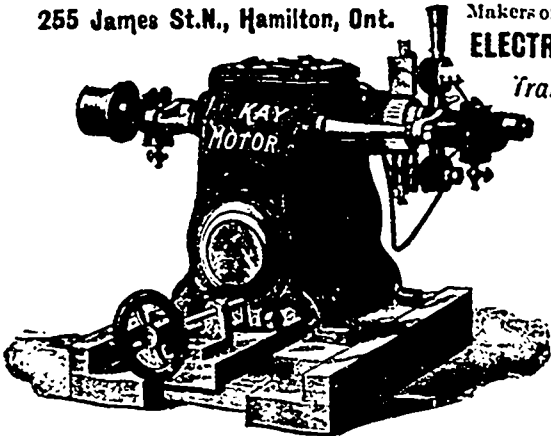
DYNAMOS

**PLATING
MACHINES**

ETC.



Please let us know your requirements. Write for latest prices and testimonials.



OUR NEW 4-Pole Motor

In sizes down to 6 h.p. and speed down to 125 revolutions per minute.

At this speed it is especially adapted for direct connection. We have over 300 motors running in Toronto.

Our Sales in Toronto for the past three years exceed the combined sales of all others.

Apply to

TORONTO ELECTRIC MOTOR CO.

103 105, 107, 109 Adelaide Street West, Toronto, or to

R. E. T. PRINGLE, Room 57, Imperial Building, Montreal, Que.

ESTABLISHED 20 YEARS.

A. KLIPSTIEN & CO.

122 PEARL ST., - NEW YORK.

**ANILINES, DYESTUFFS, AND
CHEMICALS**

Of every variety, of the best quality and at the lowest prices. Delivery made at New York, Montreal or Hamilton

WRIGHT & DALLYN, Agents,
HAMILTON, ONTARIO

The Wellington Mills, LONDON, ENGLAND

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, Skilful Manufacture, Sharpness, Durability, and Uniformity of Grain.

Manufacturers....

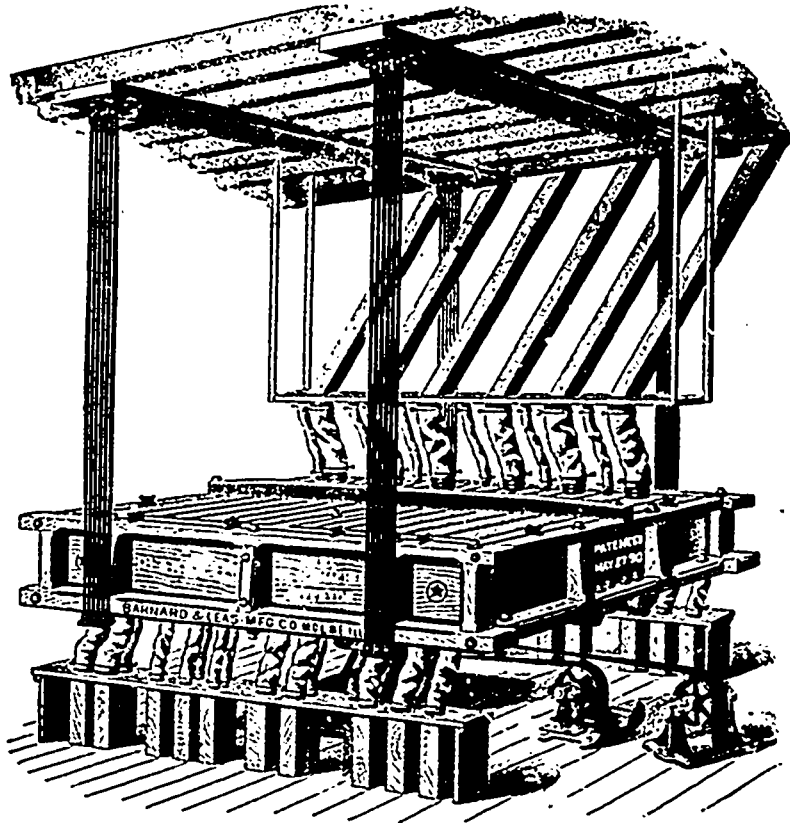
JOHN OAKEY & SONS, Ltd., Wellington Mills, Westminster Bridge Road, London, Eng.

Inquiries should be addressed to

JOHN FORMAN, 650 CRAIG ST., MONTREAL.

THE PLANSIFTER

This wonderful machine will Scalp, Grade-off Coarse Middlings, Grade-off Fine Middlings, and Bolt the Flour from each Reduction, whether on Wheat or Middlings.



It Saves Space
It Saves Power
It Saves Cloth
Makes Better Separations
Makes Purer Stock
Makes Better Flour

Makes Better Clean-up
Makes Closer Finish
Makes Larger Yield
Makes Milling Easier
No Vibration
No Noise

No Dust
Easily Controlled
Insures Uniform High Grade
Increases Capacity
Must Come into General Use

ONE PLANSIFTER AND TWO LITTLE WONDER REELS

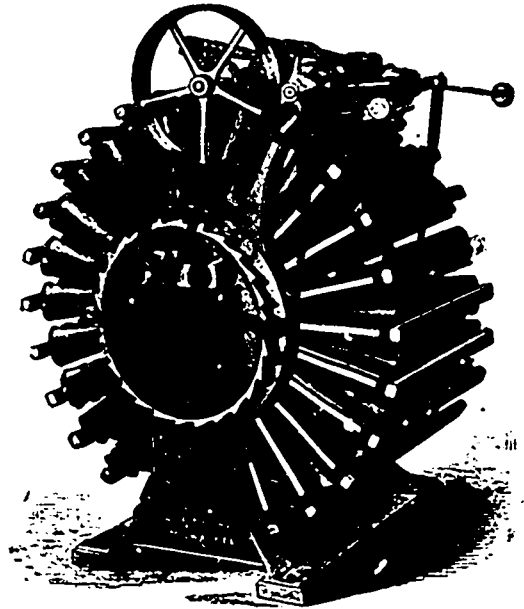
Will do all the Scalping and Bolting in any mill from 25 to 100 Barrels' capacity.

TWO PLANSIFTERS AND TWO LITTLE WONDER REELS

Will do all the Scalping and Bolting in any Mill from 125 to 200 barrels' capacity. The size of these machines varying according to capacity required.

Big Mills Cannot Afford to do Without them, and they do Charming Work in the Smallest Mills.

- THE - "PERFECTION" DUST COLLECTOR



The Only Machine with a
Perfectly Automatic
Cloth-Cleaning Device

WE GUARANTEE it to be the only dust collector to work on all material and under all conditions, if connected right.

WE GUARANTEE it to collect absolutely all the dust, and discharge the air free and clean.

WE GUARANTEE that the PERFECTION DUST COLLECTOR will do better work than any other machine made for such a purpose.

SOLE LICENSEES AND MANUFACTURERS FOR CANADA

WM. & J. G. GREY, 2 Church St., TORONTO

**RAILWAY and
Contractors'
Supplies.**

BOILERS

ENGINES

HOISTS

OF ALL

Descriptions

"BLAKE"

STONE-CRUSHER

Sole Makers in
CANADA of the

BABCOCK & WILCOX
Water Tube Steam Boiler.

Write for Catalogue.

The G. & J. BROWN MFG. CO., Ltd.
50 YEARS
BELLEVILLE, ONT.
EST. 1846

"Mannocitin"

The Only Absolute and
Lasting Rust
Preventative Composition.

Rust on Bright Metal Surfaces, Tools,
Guns, Cycles, etc., absolutely
prevented.

WRITE FOR BOOKLET.

Jas. W. Pyke & Co.,

SOLE AGENT FOR DOMINION
OF CANADA

35 St. Francois Xavier St., Montreal

Welland Vale Manufacturing Co.

LOCK No. 2 ST. CATHARINES, ONT.
Manufacturers of.....

**AXES, SCYTHES, FORKS, HOES
RAKES and EDGED TOOLS**

W. H. STOREY & SON

ACTON, - - ONT.

Manufacturers of . . .

Fine Gloves and Mitts

in Every Variety and Style.

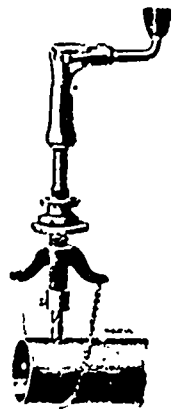
MOCCASINS

Ripans Tabules cure bad breath.
Ripans Tabules cure biliousness.
Ripans Tabules: one gives relief.
Ripans Tabules cure indigestion.

A GREAT SUCCESS

The MEWER DRILLER

The most complete and only AUTOMATIC DRILLER in the market. Bores holes from 0— $\frac{1}{2}$ inches, without having to put any pressure on the breast-brace. Is sold for \$3.00, which enables every mechanic and manufacturer to provide himself with one. SENT ON TRIAL.



**RELIANCE WORKS,
MONTREAL.**

DARLING BROS.



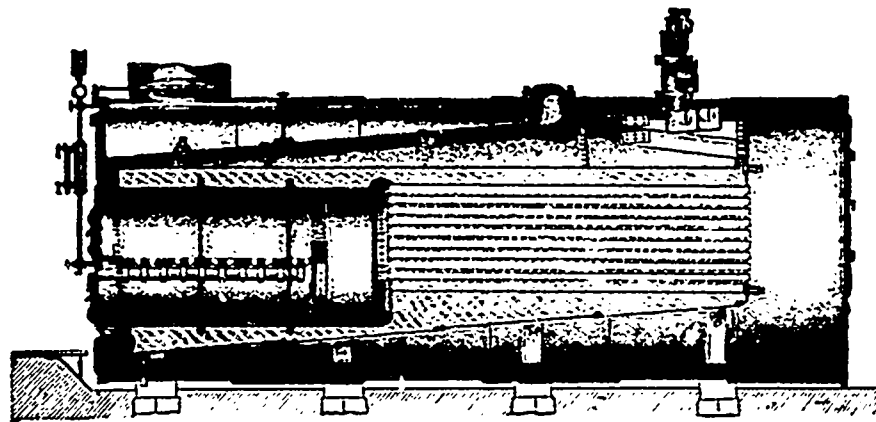
ECONOMY produces PROFIT
The World-Recogned

PENBERTHY

AUTOMATIC INJECTOR

Is the most economical and durable boiler feeder on the market. Catalogue free.

Penberthy Injector Co., 132 Seventh Street
Detroit, Mich.
Largest Injector Manufacturers in the World. Branch Factory—
Windsor, Ont.



The Monarch Economic Boiler

Is Portable

Has an outer casing and requires no brickwork. Leaves our Shop mounted on skids ready for use.

Saves Fuel

Some tests show a saving of 30 per cent. over a common brick-set boiler. We guarantee at least 10 per cent.

ROBB ENGINEERING CO., Ltd., AMHERST, N.S.

WILLIAM MCKAY, Seaforth, Ont., Traveller

BRUNNER, MOND & CO., (LTD.), Northwich, Eng.

MANUFACTURERS OF

PURE ALKALI

GUARANTEED 88 DEGREES

BLEACHING POWDER AND CAUSTIC SODA, 70% 74%, & 76%

The Strongest and Cheapest Form of SODA ASH for the Manufacture of . .

SOAP, GLASS, PAPER, WOOD PULP AND COLORS

Also for Printers and Bleachers



Winn & Holland, Montreal

SOLE AGENTS FOR THE DOMINION OF CANADA.

WM. J. MATHESON & CO., Ltd.

NEW YORK

BOSTON

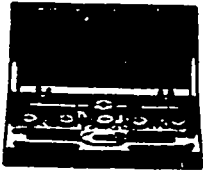
PHILADELPHIA

PROVIDENCE

CHARLOTTE, N.C.

MONTREAL, CANADA

DYE . . . STUFFS

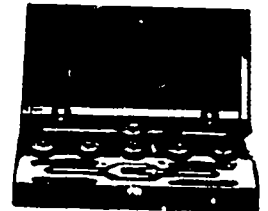
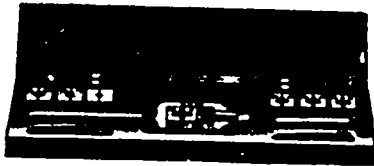


Bicycle Plates in all the most desirable sizes and threads. Taps and Dies of Every Variety



BUTTERFIELD & CO.

ROCK ISLAND, P.Q.



Shafting, Hangers, Pulleys, Etc.

We now carry a full line of Power Transmission Machinery, including High-Grade Turned and Polished Steel Shafting in any length or diameter.

HANGERS of entire new design, any drop, with either plain or our new patent capillary Self-Oiling Bearings.

Friction Clutch Pulleys and Couplings, Rope Driving, Etc.

PROMPT DELIVERY.

LOW PRICES.

DODGE WOOD SPLIT PULLEY COMPANY

Office . . . 74 YORK STREET, TORONTO

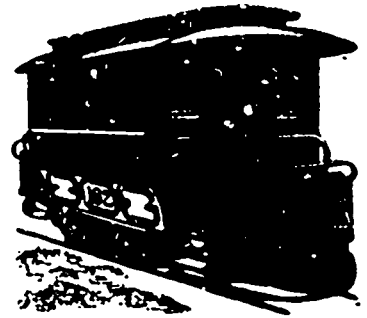
PATTERSON & CORBIN

Fine Electric Cars

.. OUR SPECIALTY ..

ST. CATHARINES, - ONTARIO

HORSE and TRAIL CARS OF EVERY DESCRIPTION



THE IMPERIAL OIL COMPANY, LTD.

HIGHEST AWARDS AT THE WORLD'S FAIR, CHICAGO, UPON

Lubricating, W. W. Illuminating Oils, Paraffine Wax, etc.

WE MANUFACTURE ALL GRADES OF OILS, GREASES, SOAP : TOOKS, CANDLES, WOOL STOCKS, LEATHER AND TANNERS' OILS, FUEL GAS, MACHINERY, CYLINDER OILS, Etc.,

And Solicit opportunity to compete against any Oil on the Market.

✉ Write for Prices and Samples.

THE IMPERIAL OIL COMPANY, (Ltd.), Head Office, - PETROLEA, CAN.

....BRANCHES... .

HALIFAX, N.S. HAMILTON, ONT. QUEBEC, QUE. LONDON, ONT. TORONTO, ONT. WINNIPEG, MAN. ST. JOHN, N.B.
GUELPH, ONT. MONTREAL, QUE. CHATHAM, ONT. PETERBORO', ONT. VANCOUVER, B.C. MONCTON, N.B.
STRATFORD, ONT. KINGSTON, ONT. WINDSOR, ONT.

JOHN BERTRAM & SONS

DUNDAS, ONTARIO

SECOND-HAND LIST

IRON TOOLS

LATHE, No. 250.—Montreal make, 16 inch swing; 13 feet between centres; gap, 10 inch wide, 30 inch swing; screw feed, screw cutting, face plates. 16 inch chuck.

LATHE, No. 251.—American make, 29 inch swing, 10 feet between centres; screw feed; cone, 4 steps; 3 inch belt; 24 inch chuck.

LATHE, No. 252.—McKechnie & Bertram make, 20 inch swing; 10 feet bed; 7 feet between centres; screw feed, screw cutting, steady head, countershaft.

LATHE, No. 253.—American make, 26 inch swing; 16 feet bed; countershaft.

LATHE, No. 254.—London make, 14 inch swing; 6 feet bed; 3 feet between centres; plain rest; rod and screw feeds.

BRASS LATHE, No. 25.—Montreal make. Hand Brass Lathe, 14 inch swing. Square arbor tail stock set over movement; hand rest; countershaft.

BRASS LATHE, No. 26.—Dundas Tool Co.'s make. 14 inch Fox Lathe; monitor head; square arbor tail stock; chaser bar; compound rest.

PLANER, No. 11.—Waterbury Foundry make. Table, 12 inch long, 29½ inch wide; 37½ inch wide, 32½ inch high between standards; one tool block, power down feed.

PLANER, No. 12.—McKechnie & Bertram make. Geared pattern. 30x30x8 feet table. First-class condition.

PLANER, No. 13.—McKechnie & Bertram make. 30x30x10 feet table. Geared pattern. Good order.

COMBINED PUNCH AND SHEAR, No. 60.—McKechnie & Bertram make. Good order. For ½ inch plate.

MILLING MACHINE, No. 61.—No. 2 Plain (Lincoln) Pattern. Page 133 catalogue. In good order.

ACME BOLT CUTTER, No. 62.—1½ inch. Replaced by a larger machine. Trip chuck, dies and taps.

Write for Prices.

Correspondence Solicited

NORTHEY MFG. CO. LTD.

TORONTO, - ONTARIO

Steam and Power

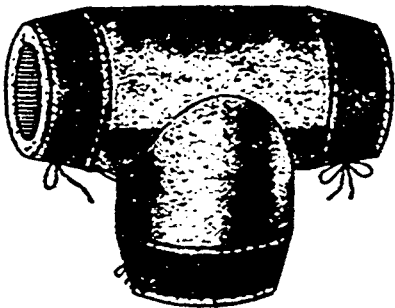
Pumps

& HYDRAULIC
MACHINERY

FOR
ALL
DUTIES

MICA BOILER AND STEAM PIPE COVERING

THE CHEAPEST IN THE MARKET. DURABLE, FLEXIBLE, AND A MAGNIFICENT NON-CONDUCTOR OF HEAT



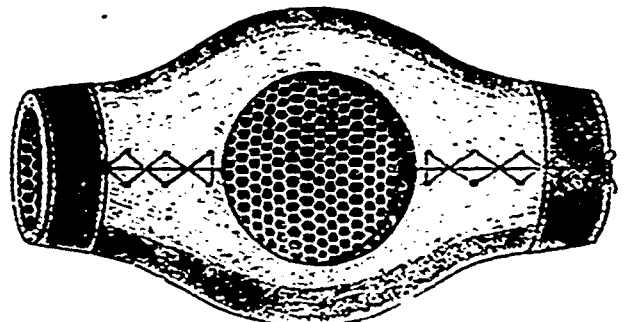
TEE

Made in Sections to fit all sizes of Pipes, and can be removed and replaced as often as desired.

Adjustable Mica Coverings for all kinds of fittings.

Mica Covering cannot be affected by vibration, and will not shift or sag.

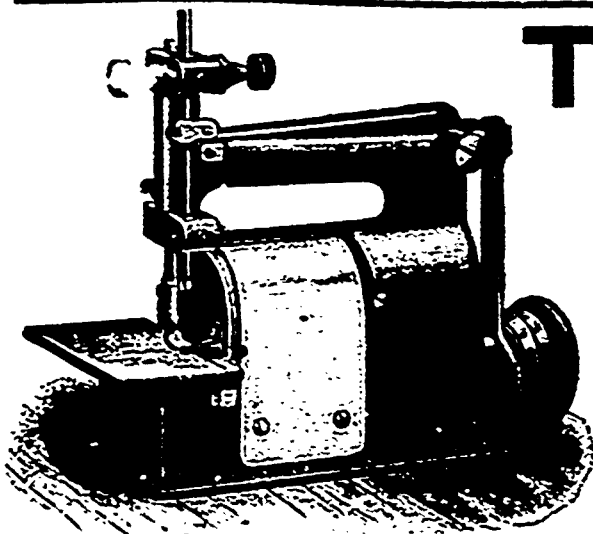
Write for reports of trials, testimonials, etc., to



GLOBE VALVE.

THE MICA BOILER COVERING COMPANY, Limited

9 JORDAN STREET, TORONTO.



The Merrow

High Speed Crochet
and Scallop Machines

For finishing the raw edges of Knit Goods, Horse Blankets, Bed Blankets, Crochet or Marseilles Quilts, Comforters, and in fact any Fabrics.

Over thirty styles of Machines especially for edge finishing.

Machines and Finishes Patented in the United States and Foreign Countries.

FOR CATALOGUE AND SAMPLES, ADDRESS--

The Merrow Machine Co.
HARTFORD, CONN.

Branch Offices

Cohoes, N.Y., AND
Philadelphia, Pa.



ESTABLISHED IN 1880.

PUBLISHED ON THE FIRST AND THIRD FRIDAYS OF EACH MONTH

J. J. CASSIDY, Editor.

Subscription, - \$1.00 Per Year.

ADVERTISING RATES:

\$12.00 Per Column inch per year; Thirty inches to Page.

The Canadian Manufacturer Publishing Company, Ltd.

McKinnon Building, Cor. Melinda and Jordan Sts., Toronto.

J. J. CASSIDY, - - President and Treasurer.

J. C. GARDNER, - - Manager and Secretary.

OFFICERS OF

THE CANADIAN MANUFACTURERS' ASSOCIATION

President,	A. E. KEMP.
First Vice-President,	D. W. KAHN.
Second Vice-President,	J. F. ELLIS.
Treasurer,	GEORGE BOOTH.
Chairman Executive Committee,	H. W. ELLIOT.
Chairman Tariff Committee,	W. K. McNAUGHT.
Secretary,	J. J. CASSIDY.

SECRETARY'S OFFICE: McKinnon Building, Cor. Melinda & Jordan Sts., Toronto.

CANADIAN INDUSTRIAL LEAGUE.

President,	JAS. KENDRY, M.P.
Secretary,	J. J. CASSIDY.

WOOLEN MANUFACTURERS' ASSOCIATION

President,	H. ROSAMOND, M.P.
Vice-President	JAS. KENDRY, M.P.
Secretary,	J. J. CASSIDY.

KNIT GOODS MANUFACTURERS' ASSOCIATION

President,	JOHN PENMAN.
Vice-President,	J. HEWTON.
Secretary,	J. J. CASSIDY.

CARPET MANUFACTURERS' ASSOCIATION

President,	JAMES P. MURRAY
Vice-President,	ROBERT DODDS.
Secretary,	J. J. CASSIDY.

CLOVE MANUFACTURERS' ASSOCIATION

President,	W. H. STOREY.
First Vice-President,	JOHN MACLAREN.
Second Vice-President,	A. R. CLARKE.
Secretary,	J. J. CASSIDY.

REPRESENTATIVES TO

TORONTO INDUSTRIAL EXHIBITION ASSOCIATION

H. W. ELLIOT.	GEORGE BOOTH.
W. K. McNAUGHT.	SAMUEL MAY.
J. J. CASSIDY.	

COLONIAL DEMAND FOR BRITISH MERCHANDISE.

In the report given in our last number of the Statement furnished by the delegates at the recent Congress of Chambers of Commerce of the British Empire, the following table was furnished as indicating the importance of the Canadian demand for British goods:

Exports 1883	To Foreign Countries.	To British Countries.
Total Cotton Manufactures	£31,094,330	£23,605,037
" Glass	350,383	415,557
" Iron and Steel	10,210,499	6,113,413
" Leather	506,227	1,513,128
" Linen	4,010,178	764,962
" Machinery, etc.	10,136,080	3,781,463
" Silk	866,684	648,119
" Woollens and Worsteds.	12,047,033	4,357,002
" Manufactured Exports	£94,922,148	£4,357,002
" partially Manufactured Exports	£25,997,779	£4,190,784

It will be seen at once from a perusal of the above figures that there has been a typographical error in the total of manufactured exports sent to British Countries, which should be given as £61,376,134. The difference is an important one as the total of the manufactured exports and the partially manufactured exports to foreign countries will amount to £120,000,000 and those to the colonies to £65,000,000, thus proving that the colonies and dependencies of England actually take at the present time one-half of her total industrial export. To Great Britain this is a very important fact in connection with the question of preferential trade, and we are glad that Mr. Castell Hopkins has drawn our attention to the mistake and thus enabled us to bring out still more clearly the importance of colonial trade with the mother country. It was this side of the question which the delegates wished to present to the Tariff Commission when recently in Toronto. The Canadian side and the Canadian benefits under a preferential arrangement are so freely admitted that they very properly considered it unnecessary to deal with that phase. But the Liberal leaders have always declared themselves extremely sceptical of the possibility of such a policy being adopted by Great Britain, and have often declared that it would not be in the interests of the motherland to do so. Hence the great importance of these figures.

RECIPROCITY OR PREFERENTIAL TRADE—WHICH!

At no time since Canada undertook the construction of the Canadian Pacific Railway, have there been such or so many pressing demands upon Parliament as at present for the prosecution of important public works designed to promote the development of our resources, and to increase our internal and foreign commerce. Among other projects may be mentioned the earliest possible completion of the St. Lawrence canal system; the improvement of the channel between Montreal and Quebec; the fast Atlantic steamship service; ocean cables; cold storage; extension of the Intercolonial Railway; a railway through Crow's Nest Pass; a bridge across the St. Lawrence at Quebec; together with demands for Government aid for local railways, for enlargement and improvement of the Victoria bridge at Montreal, for development of our mineral resources, etc. With respect to many of these enterprises, it is obvious that their importance or necessity must largely depend upon the decision arrived at with respect to the direction in which our trade policy may be framed, whether towards the United States through a measure of reciprocity, or towards Great Britain under a policy of preferential trade. Even if it should prove impracticable to accomplish either of these policies, it will be incumbent on Parliament to consider well the present tendency of our commerce, and its probable

future tendency, and having arrived at a good understanding on this point, estimate the necessity and value of our projects accordingly. It is generally believed that there is a larger and more influential representation of our commercial interests in the present House of Commons than there has been for many years. It is to be hoped that their experience and business ability may over-rule the efforts of machine politicians, who are more anxious to adopt the popular views of trade policy than to investigate and impartially decide in favor of such measures as may be shown to be most conducive to the best interests of the country. There is considerable danger to be apprehended from the fact that in the discussion and consideration of the above two policies, some members of the Government and many members of the House will find themselves strongly biased by their former speeches and pledges in favor of reciprocity with the United States, which they have so frequently represented as absolutely necessary to the progress and prosperity of the Dominion. It is universally admitted that the period embraced under the old reciprocity was one of wonderful prosperity in Canada. It has been much easier to persuade the people, especially the farming community, that reciprocity now would produce a similar state of prosperity, than it has been to show that the conditions existing in the two countries at the present time are so different from those of forty years ago, that a policy which was then so beneficial might now prove actually injurious. It is hardly worth while to go into any discussion as to the proportions in which the prosperity of Canada during the term of the old reciprocity treaty was attributable to the co-terminous events—the Russian war; Grand Trunk and other railway construction; the war of secession, etc.—but admitting that a large measure of the success was due to reciprocity, the main consideration is, whether under existing conditions, a like result should now be anticipated from a similar policy. The figures showing the increase of the commerce between Canada and the United States from 1854 to 1866 are apt to prove very misleading, as that commerce consisted largely of exports through United States channels to the Maritime Provinces and to Great Britain and other countries; also of imports from Europe, the West Indies, China, etc.; the bulk of the export and import trade of Upper Canada being then transported over American routes.

This leads to the consideration of a very important change in the conditions as to transportation now and then. During the old reciprocity treaty, the channel of navigation through the lower St. Lawrence was so defective, the harbor accommodation at Montreal so insufficient, the Gulf navigation so full of risk, and the St. Lawrence canals of such small capacity, that rates of inland and ocean transportation and insurance, via the St. Lawrence route, were so high that the longer route via the Oswego and Erie canals and New York to Europe, was actually cheaper. As this is an important point in the way of comparison, the following figures are given, showing the rates of freight by canal from Buffalo and Oswego to New York for the following years; the figures being the average for the different seasons, per bushel of wheat:

	Buffalo to New York. Cents.	Oswego to New York. Cents.
1857.....	15.39	10.69
1858.....	12.52	7.45
1859.....	12.80	10.72
1860.....	14.94	10.77

	Buffalo to New York. Cents.	Oswego to New York. Cents.
1861.....	15.75	11.11
1862.....	15.84	11.05
1863.....	15.39	10.89
1864.....	18.78	13.09
1865.....	16.84	12.31
Average.....	15.36	10.90

During all these years, and up to 1870, New York State was obtaining a large direct revenue from canal tolls on all merchandise, equal to about three cents per bushel on wheat, and a much higher rate on general merchandise. Now, the Canadian water route, via Welland and St. Lawrence canals to Europe is so much improved, that a far greater value and bulk of United States produce is now moving through Canadian channels than there ever passed of Canadian produce through the United States routes. In two more years the whole of our canal system will be complete, and a still greater superiority and cheapness over American routes attained. In this respect there is no analogy between existing conditions and those of forty years ago.

Equally striking are the changes in the conditions of the two countries with respect to the great staple of wheat. During the existence of the old reciprocity treaty, the cities of the Eastern states were largely dependent upon Canada for the supply of wheat and flour, especially white winter wheat of the superior quality which was then produced here. At the beginning of the treaty term, during the year ending August 31st, 1855, the total exports of the United States to Europe, in wheat and flour, were:—182,972 barrels of flour, and 329,399 bushels of wheat. Is it any wonder that all the eastern cities favored free trade in wheat and flour? In the last year of the treaty, ending August 31st, 1866, the exports of wheat and flour from the United States to Europe were:—151,853 barrels of flour, and 1,589,321 bushels of wheat. During the year ending June 30th, 1866, Canada exported to the United States 855,558 barrels of flour, and 2,339,588 bushels of wheat. Under these conditions, the United States market was of much value and importance to Canada. How is it now? During the year ending June 30th, 1895, the United States exported 15,268,892 barrels of flour, and 76,102,704 bushels of wheat, and during the year ending June 30th, 1896, 14,620,854 barrels of flour, and 60,650,050 bushels of wheat. Under such conditions, is it not a piece of mischievous imposture to attempt to delude farmers with the idea that reciprocity could possibly furnish them with a profitable market for their wheat in the United States? Is it not clear that if at any time the Canadian market should be higher than in the United States it would at once be flooded, if under free trade, with part of the enormous surplus of the western states.

This journal proposes to discuss some other features of reciprocity in next issue.

THE CONTINENT TO WHICH WE BELONG.

The Toronto Globe gets up a Christmas re-hash of the continent to which we belong business as follows:

A large part of the prosperity which the United States, with some unfavorable intervals, has enjoyed results not from protection but from the free trade which exists among the various parts of the Union. Using the protectionist argument, says the Boston Herald, there is no reason why a barrier should not be raised where Massachusetts abuts upon

New York for the purpose of having a duty imposed upon, say, every basket of grapes that is sent from the other side of the Hudson into Massachusetts. On their side, the New Yorkers should impose a tax upon the fish, salt or fresh, that is sent from Gloucester and Boston to Albany and other interior cities. At present people of the Bay State are obtaining a luscious and beautiful fruit at an extraordinarily low price, in place of the poor fruit which, for climatic reasons, would be the result of our own raising, while the people of New York State obtain at relatively low prices fresh and salt sea fish as a welcome change from their accustomed diet. The Herald says that the Canadian market is naturally just as accessible to the citizen of Massachusetts as the New York market; the Massachusetts market is naturally just as accessible to the Canadian producer as it is to the New York producer, and it believes that the sooner trade between the Dominion and the Republic can flow back and forth as freely as it does between the States the better it will be for all the people upon the American continent.

For reasons good and sufficient unto themselves the British colonies that are now comprised in the United States, after achieving independence from the Mother Country, attempted to maintain an inter-independence among themselves to the extent of attempting to obtain revenues for carrying on their several governments by imposing import duties upon merchandise brought into their several territories from the others. There were no political ties that bound them to Great Britain, and the ties that bound them together were weak and intangible, and promised no substantial good; nor could they see how they were to reap the full benefit of their political independence under what was only a confederation of weak, and to a certain extent, helpless states. In fact they were in much the same condition that we now observe in some of the Central and South American republics. Their strength came to them, and their importance became a strong factor in the affairs of the world, when their confederation was merged into a union, and when the individual states for the sake of establishing their nationality, surrendered to a central or general government all of their previous rights that conflicted or might conflict with the power of the general government to maintain itself as a unit in the family of nations. This surrender of state rights was to the extent only of making every state as free as every other state, and the rights and privileges granted by any state to its citizens equally free to the citizens of all the other states. There could be no barriers raised between states nor the citizens of the different states; and the only power to impose import duties upon foreign merchandise reposed in the general government.

How foolish, then, for the Boston Herald, to suggest that, using the protectionist argument, or any other argument, there is no reason why a tariff barrier should not be raised where Massachusetts abuts upon New York. How foolish, too, for that respectable journal, and for the Toronto Globe, to suggest that, there being a law forbidding the levying of interstate tariff duties within the United States, it would be equally wrong to maintain a tariff barrier in Canada against the United States, and in the United States against Canada. The situations are entirely dissimilar.

It should not be supposed that because in the last century Massachusetts and New York and the rest of the thirteen colonies found it to their interest to cast their lots together, Canada should be forced to join her political fortunes with them. The barriers that have always existed between them and us are the price of our separate nationalities, and unless these

distinct nationalities are to be abandoned, the one swallowing and absorbing the other, the barriers must remain. The German market is naturally just as accessible to the citizens of France, and the French market naturally just as accessible to the Germans, as is the Canadian market to the citizens of New York and New England; and the American market to the citizens of Canada, but The Globe surely would not argue that the trade between Germany and France can be brought to flow back and forth between those countries as freely as it does between the different states of the American union, or that it would be better for all the people upon the European continent that such a condition should prevail.

AD VALOREM AND SPECIFIC DUTIES.

The iron men are not alone in their protest against the faulty classification of the present tariff. The dry goods dealers on Wednesday presented a strong case for the simplification of the schedules affecting the articles in which they are interested. The uniformity of the demand for simplification is a striking testimony to the incapacity of the framers of the present tariff. Let us hope that the present Government will be able to enact a tariff which, at least, its own friends may defend.—Montreal Herald.

The protestant alluded to by The Herald against the faulty classification of the present tariff are not manufacturers, but importers of iron and dry goods, their desire being, chiefly, that all specific duties in the tariff be abandoned. This is the old, old cry. These importers cannot be happy unless they make unusual profits which would be impossible with specific or even compound duties. We commend to them a careful reading of the following views of the New York Dry Goods Economist which most forcibly express its opposition to ad valorem duties. It says:—

No stronger arraignment of the ad valorem method of levying customs dues can be found than the statement contained in the annual report of the Board of United States General Appraisers, extracts from which will be found on another page. The report shows an increase in the number of reappraisements for the year ending September 30, 1895, of no less than 5,101 compared with those of the twelve months ending October 31, 1894, which almost fourfold increase is described by the Board as chiefly due to the enlargement of the scope of ad valorem rates of duty by the existing tariff law. The only other reason assigned for the increase—the better diligence and efficiency of appraising officers, to which the Board says the increase is in some measure due—may be put aside as complimentary and the Board's statement may be fairly read as attributing the increase wholly to the greater scope of ad valorem duties.

The loss of time and annoyance caused to merchants by these 7,000 reappraisements it is impossible to estimate, nor can any one calculate the loss in actual dollars and cents arising from delay in passing upon the cases and the consequent inability of the importer to dispose of his goods. And yet, in spite of all this, no actual security is given to the domestic manufacturer against unfair competition resulting from undervaluation—if 7,000 cases, why not 7,500? Who can tell how many entries have been passed with an erroneous appraisalment?

Ad valorem duties have had a thorough trial during the past two years and have been found fatally wanting. They offer a premium to double dealing not only on the part of the importer, but by the domestic manufacturer. The Economist has been informed, for instance, of cases where entries have been advanced not because the goods were undervalued, but as the result of influence exerted by domestic concerns. With unfair methods of this kind the appraiser cannot escape complicity.

A series of specific duties, for which The Economist has long contended, is the only one to which men who are practical as well as honest can subscribe.

WAR SHIPS ON THE GREAT LAKES.

Congressman Burton, of Cleveland, is to take a hand in the effort to overcome the treaty memorandum with Great Britain, which prevents the building of vessels of war on the lakes. He has gone a step further than any of the other representatives who have taken an interest in this subject, as he has introduced a joint resolution requesting the President and Secretary of State "to enter into negotiations with the Government of Great Britain to secure, if possible, the abrogation of so much of the treaty of 1817, as forbids the building of warships at ship yards located upon the great lakes." By reason of an experience of several terms in Congress, and in view also of his full knowledge of all matter pertaining to the lakes, Mr. Burton can exert considerable influence in directing the attention of Congress and the executive to the importance of this question, and it is to be hoped that all other representatives from lake states will join him in trying to bring about some action at the present session.—Cleveland, O., Marine Review.

No doubt it would be of advantage to American lake cities to have national navy yards, dry docks, arsenals, and building sheds, and to have war vessels built there, but would it be desirable? Suppose that Great Britain should accede to the abrogation of that clause of the treaty of 1817 which forbids the having or maintaining of war vessels on the great lakes, and there was no treaty restriction upon the United States doing as Congressman Burton desires, our neighbors ought to know that the policy of Great Britain would be to always answer the call of a rival and for every keel laid, or gun boat or war ship launched on the American side, and place an equally effective vessel afloat on the adjacent water. Why not let well enough alone? From a British standpoint perhaps it would be well to use the lakes as reservoirs in which to store and keep a liberal portion of the vast number of war vessels that are in commission in the British navy. It might serve to suppress some of the bumpiness of our neighbors who incline to imagine that all the continent is theirs and the fullness thereof. It might be interesting to them to understand that should they slop over at any time and embroil themselves in a quarrel with Canada or any other British possession, their immense fleets of lake freight carriers and passenger steamers, of which they feel so justly proud, would resemble rats in a trap, to be sent like McGinty to the bottom of the sea, while every American lake city would be forced to pay heavy ransom to be allowed to exist, or else be battered into ruins by British cannon. Congressman Burton and his unwise friends had better proceed slowly in their endeavor to abrogate the treaty.

It is an open question whether the United States has not already abrogated the treaty of 1817, or has fully determined to do so in the construction at Cleveland, of the revenue cutter Gresham, and the proposal to construct two other such vessels at Cleveland or some other lake port. In a trial trip a few days ago the Gresham attained for a short run a maximum speed of 18.25 knots, equal to 21.01 statute miles per hour. Regarding these American war vessels in the great lakes the Marine Review says:

It is plain now that when these vessels are completed the revenue cutter service will have on the lakes three steamers that will be susceptible of quick and easy conversion into effective fighting ships. It is certainly fitting that the work of improving this service should begin on the lakes, where there is about 6,000 miles of coast line—nearly equal to the whole length of the Atlantic seaboard. The regular armament in

the new vessels, as in Gresham, will consist of one six pound, rapid-fire gun mounted on the fore-castle deck; but in case of naval co-operation they are so designed and constructed that each may carry a main battery of six four inch rapid-fire guns and an auxiliary force of eight or ten six-pounder guns. So armed, they would prove valuable dispatch boats, blockaders or effective commerce destroyers; and in these steamers there is to be also, as in the Gresham, a bow torpedo tube, which can readily be fitted with the mechanism for handling and launching torpedoes.

Principal dimensions of the two new cutters are: Length over all, 205 feet 6 inches; length between perpendiculars, 188 feet; breadth of beam, extreme, molded, 32 feet; mean draft, 10 feet 9 inches; normal displacement, tons, 927; maximum indicated horse power, 2,000; speed in knots per hour, 16. The boats will be built of steel throughout, will be rigged as fore-and-aft schooners and will carry a spread of steady sail only.

Each vessel will have a single screw of manganese bronze, 10 feet in diameter, which will be driven by a vertical direct-acting triple-expansion engine, having high, intermediate and low-pressure cylinders, respectively of 25, 37½ and 56½ inches diameter, with a uniform stroke of 30 inches, and a turning speed of 160 revolutions a minute when developing the required indicated horse power of 2,000 and inducing the contract speed of 16 knots. Steam at a working pressure of 160 pounds to the square inch will be supplied in each boat by four Scotch boilers of the return fire-tube type, in diameter 11½ feet by 10 feet long. Each boiler will have two 3½ foot Fox corrugated furnaces, and a structural peculiarity of the boilers will be in the use of but two steel plates in their longitudinal construction, by which added strength with a limited number of seams is secured. The boilers will be worked from a common fire room and two large blowers, exhausting directly into the ash pits, will induce forced draught. By this means the pressure under each boiler will be under independent control, admitting of economical service when running at cruising speed.

The normal coal supply will be about 225 tons, promising a radius of action of 2,000 miles at a cruising speed of 10 knots an hour. Steam steering gear, steam windlass and capstan, an electric lightning plant and hydro-pneumatic ejector for ashes are other modern features to be provided in these vessels. There is, of course, ample room in which to provide quarters for a complement of about sixty persons aboard each of the vessels.

DON'T MONKEY WITH THE BUZZ SAW.

Few of the tariff witnesses desire protection. But most of them demand the simplification of the existing measure. The late Administration framed a tariff which not even the friends of that Administration can defend in detail. It is easy to believe that a measure which is so far out of gear in detail may be radically wrong in principle. After the present Government has straightened out the details it may not find it so hard to convince people of the error in principle.—Montreal Herald.

It is quite remarkable that the editor of The Herald does not read the news columns of his own paper, for if he did he would not have said that but few tariff witnesses desired protection. He had better investigate, and if he does he will discover that at least nine out of every ten persons who have testified before the Tariff Commission requested that there be no change in the policy of the Government regarding protection. Pray begin, dear Herald, at the opening testimony before the Commission at Toronto, follow it closely at Hamilton, Brantford, London, Petrolca, Woodstock, St. Catharines and elsewhere on to the temporary adjournment at Montreal, and you will discover that Canada is not either ready or will-

ing to abandon protection. We quite agree that the existing tariff needs simplification in many respects, and for that simplification many of its friends have long and frequently petitioned. But because the objectionable details were not corrected is no reason why the principle upon which the tariff was formed should be abandoned. And why is it easy to believe that a measure that may be out of gear in some of its details should be, for that reason, radically wrong in principle? This is no argument. If under a certain form of government there should appear objectionable features, surely The Herald would not contend that the form, for that reason, was wrong and should be abandoned. Our respected contemporary will find that when the present Government has straightened out the objectionable details of the tariff it will be entirely disinclined to deviate from the general course mapped out for the management of the fiscal affairs of the country by the founders and supporters of the National Policy. The present Government were not elected to power to destroy the National Policy, nor will it be destroyed. The people will not allow it to be destroyed. There is no error in the principle involved in the National Policy. There must be no monkeying with the buzz saw.

EDITORIAL NOTES.

A Happy and Prosperous New Year.

THE CANADIAN MANUFACTURER wishes health, happiness and prosperity to Canada and all who love Canada.

The first issue of THE CANADIAN MANUFACTURER was on the first Friday of July, 1880, ever since which time it has been issued regularly on the first and third Fridays of every month. It is devoted to the manufacturing industries of Canada and to maintaining the great principle of tariff protection to our manufacturing industries.

Dear Mr. Foster:—You and your political friends had a lead pipe cinch on the Government of Canada, and could have retained it if you had not allowed your attention to be drawn away by the ignis fatuus of remedial legislation. The advocacy of that chimera exploded you. Now let that matter rest in the grave in which it has been buried. Give the new hands a chance and let the dead past bury its dead.

An interprovincial conference of Canadian mine owners and mining engineers has been called to assemble in Montreal during the first week in February proximo, under the auspices of the Canadian Institute. The notice calling the meeting announces that special subjects for discussion will be (a) "The total Abolition of the Duty on Mining Machinery" and (b) "The Removal of the Duty on Explosives." If it were not that as good and efficient mining machinery, and also explosives, can be and is manufactured in Canada as can be produced anywhere else, there might be some shadow of a pretext for Canadian mine owners and mining engineers to advocate placing these articles in the free list. Is it characteristic of these gentlemen that they desire to destroy valuable and well established Canadian industries to enable them, as they imagine, to accumulate a few more dollars into their pockets? It would seem so. Our manufacturers should keep the proceedings of this conference in view.

The Montreal Herald erects a monument upon which is the following inscription:

To the memory of the Manitoba school question, born 1890, died June 23, 1896, after a tempestuous career, during which it destroyed one national administration, sowed the seed of religious hatred, provoked animosity here friendship had prevailed, and retarded the development of the Dominion. Buried in Cornwall, December 19, 1896 "Unwept, unhonored and unsung." This shaft is raised by a wearied country to mark its relief and satisfaction at the demise and burial of the question, and as a warning to the politicians of the future that to wrest religious prejudices to partisan gain is to invite their own destruction.

The Montreal Herald has the following morceau in its editorial page:

It is a curious fact that a maker of anything in Canada comes and tells us that he makes a fine article, and the man who uses it comes along and says that it is no good—Fielding.

The credit of this brilliant epigram is given to a Minister of the Dominion Government, and one of the Commission to obtain information relating to the tariff. The idea intended to be conveyed is, that no Canadian manufacturer can produce a really excellent article. Mr. Fielding does not excite any great admiration for himself, nor does he demonstrate his fitness for the position he occupies by such unseemly remarks.

American journals that think Canada can be coerced into annexation by a refusal on the part of the United States to improve trade relations surely do not understand that Canadians are pure bred Anglo-Saxons.—The Globe.

And yet The Globe is constantly telling us that we can never be truly happy until we obtain free access for our products into the United States. We produce nothing which the United States does not produce in kind. What is the use of sending our coals to Newcastle? We have the facilities for manufacturing for ourselves, but The Globe wants the United States to manufacture for us. Why should we become hewers of wood and drawers of water for our neighbors?

We direct attention to a communication to be found in another page from a correspondent who is a well known Canadian now residing in Sydney, N.S.W. He discusses matters of much interest to our manufacturers and others who are interested in Canadian-Australian trade, a noticeable feature of his letter having reference to the inadequate steamship communication between the two countries. It gives us pleasure to say that this matter is being remedied, as we learn that the Department of Trade and Commerce has been advised that the date of sailing from London of the steamer Aorangi, the new vessel of the Huddart line, which is to ply between Sydney and Vancouver, has been fixed for March 17. She will therefore make her first trip from Sydney to Vancouver in April. The addition of a third steamer to the line will allow of more frequent trips, and will also be taken advantage of for the purpose of enabling New Zealand to participate in the advantages of the service. Hope is expressed at the department that Canadian shippers will embrace the opportunity of the sailing of the Aorangi from London, as they will be able to obtain favorable rates across the Atlantic. This vessel will relieve the congested state of freight accommodation between Vancouver and Australia, which at present is such that steamers of the Canadian-Australian line are coaling at Honolulu in order to save the 450 tons of space required by extra fuel.

More development and less devilry would be a good motto for this country.—The Globe.

Right you are for once. But The Globe has exhibited an excess of devilry in retarding the development of the manufacturing and other resources of Canada. It tells us that the United States market is absolutely essential for the development of our agricultural industries, while our sales to that country are decreasing, and our sales to Great Britain increasing every year; and its devilry impels it to desire that our Canadian market shall be thrown open to the manufacturers of the United States, well knowing that to do so would destroy the fuller development of our own manufacturing industries. Now let the devilry of The Globe cease so that the development of the industries of Canada be not retarded.

The result of the recent election in Cornwall should satisfy the members of the late Government that Canada is sick and tired of the Manitoba school question, and of all the unhappy controversy that has grown out of it. Happily for the country the question has been settled, and is now dead and buried, and he is no friend to Canada, certainly not to the manufacturers, who persists in endeavoring to resurrect the corpse. The late Conservative Government was not elevated to power to agitate the Manitoba school question, or any other question calculated to excite creed and similar hatreds. It was elected to maintain and uphold the National Policy, but it forgot its trust and therefore lost its grip upon the power it held. The people did not hand the sceptre of power to Mr. Laurier because they were dissatisfied with protection, but because they were tired of having the school question interfere with the prosperity of the country. If Mr. Laurier would be wiser than his predecessors were he will, having disposed of the school question, look after the material interests of Canada by maintaining and upholding the National Policy.

The Methodist Magazine and Review for January begins its forty-fifth volume with a vigorous number. A splendidly illustrated article describes The Children's Crusade, in which 100,000 boys and girls set out for Palestine, most of whom met with a tragic fate by famine, or shipwreck, or slavery. Another article, with many illustrations, is in the Black Belt, describing especially the negro preaching and the strange, weird, pathetic camp-meeting melodies. The music of several of the most striking of these is given. The Boer's Daughter is a stirring illustrated story of the British war in South Africa. An article of great interest is that by Dr. Abel Stevens, on Mary Somerville, the most remarkable woman scientist who ever lived. A popular science paper throws much light on the antiquity of man. The tricks of spiritualism are exposed with illustrations. A well illustrated account of the gold fields of Ontario, and up-to-date departments of the World's Progress, Current Thought, Popular Science and the like, make up a splendid number. Rev. Wm. Briggs, Toronto. \$2 a year.

Outing for January, wears the handsomest dress of all the popular monthlies. The great polar bear proudly posed upon a mass of glittering ice is a most seasonable fancy, which is admirably set off by a wealth of gold and frosting. More important to the reader are the contents, which prove to be well chosen, superbly illustrated and most readable throughout. They include Redcoat and Continental, by Sara Beaumont Kennedy; The Game Fishes of Florida, by Hy. Guy Carleton; A Tramp on Snowshoes, by Ed. W. Sandys; Bicycling in Japan, by Andrew MacPhail, M. D.; Quail Shooting in Snow, by Dwight Huntington; After Caribou on Snowshoes, by Paul Van Dyke; Christmas with Trapper Lewis, by Ed. W. Sandys; Iceboating on Beaver Dam Lake, by E. Elliott; Lenz's World Tour Awheel, and the usual editorials, poems and records of all important sporting events.

When the Prince of Wales was in America, in 1860, he was a young

man of nineteen and unmarried. Naturally, the American girl^s were deeply interested in him, and a period of the most romantic excitement ensued in all the cities. Every subterfuge to dance with the young Prince was resorted to, and members of his party were bribed to arrange a waltz with the Heir Apparent. On every hand it was a season of excitement, and balls, dinners, fetes and receptions ruled. One of the Prince's party was Stephen Fiske, the journalist, who was delegated by the elder James Gordon Bennett, of The New York Herald, to remain with the Prince while he was in America. Naturally, Mr. Fiske saw all the incidents of His Royal Highness' tour. Taking a liking to the American journalist the young Prince saw that he was present on all occasions. Now Mr. Fiske has written out the whole story, and it forms the January installment of The Ladies' Home Journal's series of Great Personal Events. Illustrations of some of the scenes have been made, and these are given with the article in the January Journal.

The Cultivateur, the paper of which the Hon. Mr. Tarte is editor, a few days ago, published the following item: The year that is now drawing near to a close will remain a red letter date in the annals of the Montreal Witness as being the one in which the fiftieth anniversary of its foundation occurred. Since the month of December of last year, the Witness did not pass a single week without devoting at least one page every Saturday to the celebration of its jubilee year, and the beauty of it is that the subscribers themselves have, in every case, furnished the elements for that page. The historical or literary contributions of these occasional contributors were so much the more interesting that, for the most part, they referred to events contemporaneous with the foundation of the paper. If the public found a real intellectual treat in that original publication, the Witness itself must have found in the feeling which inspired it and nurtured it every week, a very sweet consolation, that of knowing that it has the love of its readers, a love such as yet no other Canadian journal has been able to secure.

The January number of Scribner's Magazine marks the beginning of its second decade with an entirely new dress of type. The plans for 1897, are the most extensive and attractive ever prepared for this magazine. Both of the serial stories are by American authors—Richard Harding Davis and W. D. Howells. Charles Dana Gibson, will contribute a series of articles on London—contributing both the text and illustrations. There will be notable series of articles also on The Conduct of Great Businesses in America, and on Undergraduate Life in American Colleges. In many ways the most remarkable article that has appeared in months is A Bystander's Notes of a Massacre by a writer whose accurate observation and authority the publishers can vouch. Never since the Bulgarian atrocities has there been such a crushing revelation of the relentless cruelty of the Turks. The article is a complete refutation of the apologists who claim that the massacre of 4,000 Armenians, in Constantinople, in August last, consisted of a few mild riots and disorders for which there was abundant provocation.

(Our Australian Correspondent).

CANADIAN MANUFACTURERS AND AUSTRALIAN TRADE.

To The Editor of THE CANADIAN MANUFACTURER:

SIR,—You were good enough to ask me, on leaving for this hemisphere, to give you any information I could as to what Canada is doing here. This, I find, is not as easy to answer as one might at first sight imagine. I notice that a return of the Canadian Government shows that the exports to Australia have more than doubled in three years. This, however, is not all the story. It is doubtful, I find, whether the Canadian returns give all the trade. Those of these colonies admittedly do not. For example, goods are ordered from Canada through New York firms. These goods, though undoubtedly for Australia, are shipped by the manufacturer to New York city, and if an export entry is obtained the export is entered as one to the United States. In some cases the manufacturer is not informed for what point his goods are destined and can make the entry in no other way.

Prior to the establishment of the line of steamers from Vancouver the Canadian exports to these colonies appear to have been in a bad way. They had fallen from \$661,208 in 1889 to \$288,352 in June 1893. This was before the financial collapse here affected the trade to any great extent, for while our trade was thus tumbling to pieces the exports from the United States had diminished by less than eight per cent. In 1893 the panic seriously affected the trade of the United States and all nations except Canada, which began to improve. The returns of this colony show that while the total imports have diminished by nearly twenty-five per cent., the imports from Canada had gone up from £10,655 to £61,174.

The trade of the United States had taken a turn the other way, and had fallen from £823,522 to £624,268. Prior to the beginning of what may be termed the direct trade policy, the large exports were timber and fish. These are sometimes termed the indigenous industries of Canada. How these were effected are shown by these figures:—

	1891.	1893.
Exports of fish from Canada.	\$225,466	\$22,302
Exports of timber from Canada.	253,938	124,322

How the figures stand to-day, I cannot say, but I am informed that while we are recovering something of our lost ground in these articles, yet, they are now, not only not the whole, but they are not the chief articles of our exportations to these colonies. The returns of this colony show that the two together do not constitute one-half of the importations from the Dominion.

Two good things have been accomplished; both the value and the variety of our exports have been increased. Something has been done in produce. Wheat and flour have come in quantities, although Canadians were slow to take advantage of the market. Oats could have been brought here with profit, but there was no shipping. Onions and fruit were solicited and other vegetables at the right season can find a market from at least British Columbia. Good apples are selling here just now at \$3 to \$3.75 per bushel, and scarce at that. Hops, and probably malt, are other articles that will find their way from Canada when Canadian enterprise is awakened.

In manufactures the trade in agricultural implements, cottons and bicycles have reached large figures. Saw mill machinery, rubber goods, suspenders, carriage wheels, woodwork, springs, axles, bodies, tops, dashes and other parts; musical instruments, buggies, waggons, glassware, bolts, tweeds, shovels and spades, paints and varnishes, furniture, drugs and dye stuffs, manufactured tobacco, window blinds, wall paper, leather and some other lines have been introduced but the trade cannot be regarded as fixtures yet. It will be noticed that no attempt has been made to introduce what should become one of the leading industries of Canada, paper pulp, paper and its allied businesses. Correspondence has been going on and Australian manufacturers' agents have gone to Canada, but the manufacturers show little inclination to branch out this way just yet.

I have asked the Canadian Commissioner to give his reasons why some goods have succeeded while others are not making headway. In some lines Canadian manufacturers are not yet in a position to compete with the world here, from varied causes. Take the case of barb wire and kerosene, for instance. The comparative dearthness of the raw material and small value of the labor put on the product puts competition out of the question. In others the reason is that the demand is decreasing. The Canadian manufacturers of cabinet organs have been active in their efforts to secure a market, but though they are getting their share of the trade, the business is declining. The popular taste in music has changed. The cheap German piano that can be bought retail at \$150 and less has replaced the organ as a domestic instrument, and the churches are not in a position to buy. The tendency of the trade is shown by the fact that last year, the average value of 168 organs and harmoniums, brought in from the United States, is given in the customs return at \$9.75 each. With better times there will be a better demand but just now it cannot grow into large proportions.

In some cases it is attributed to the lack of effort to introduce the goods. Goods are sold here as in Canada by personal persistence, push and the expenditure of a little money. Six Canadian bicycle manufacturers have put forth some effort to get into Australia, three have succeeded, three have not. Apart from the open question as to the merits of the machines the success is attributable to the fact that proper means were used in the successful instances, and the success has just been in proportion to the effort put forth. It is believed that the sales of a certain Canadian made bicycle exceeds that of any other single machine sent here. The same principle will hold good, but not to the same extent, in regard to many other lines.

There are goods for which this will be a market for surplusses rather than for profit. In these cases it would not do to go to such expense. In some, the quantity that could be sold would not warrant a large outlay but some effort should be made. The seller here, as elsewhere, must seek the buyer.

Another obstacle to the extension of trade has been the neglect of orders when sent. It is the exception to find any one who has begun trade with Canada who does not complain of delay in answering letters and greater delay in filling orders. This is much more serious at the initiation of a business than after it has become established. The Canadian Commissioner has letters from Australian firms stating that their business has been so injured by these delays in receipt of Canadian goods that they had been compelled to place their orders elsewhere. Some of the delays are ex-

plainable and unavoidable, but surely this cannot be the case when there was a lapse of nine months between the sending of an order, accompanied by a draft in payment, and the acknowledgment of its receipt.

The chief difficulty is in the matter of freight. The Canadian-Australian steamers latterly have not been able to accept the freight offered. This is being remedied. More serious still is the fact that even if carried below actual cost of carriage the long over-land haul prevents laying down the goods from the East as cheaply as competing goods are landed here. Canadian manufacturers have given little heed to this freight matter, but it is quite as important as the price they ask for their goods. What boots it to the Canadian if the quality and price in Canada compares favorably with those of rivals in the United States, while the freight adds forty per cent. to the cost of his goods here, while those of his rivals can be laid down at an advance of only twenty per cent? This applies more particularly to less than car lots, and as the early orders are certain to be less than car lots it puts an embargo upon trade at the outset.

What are the pecuniary results of the trade so far? Here is the answer of a few firms doing trade to some extent, I am sorry I am not permitted to give names:—

"Don't know, been engaged in seed sowing and expenses heavier than they will be, but looks all right."

"Just making bank interest on the capital invested."

"No profit whatever, just clearing ourselves."

"We are satisfied."

One firm actually says, "Profits, so far, better than in Canadian sales."

To the question of "why continue the business if there is no profit?" The answer was given:—"At the price at which we are selling in Canada, now, it is necessary to keep our machinery steadily at work and the home market won't enable us to do it. It is therefore better for us to sell here, if we clear ourselves, than to shut down. Then we hope something of the future." There can be no doubt that if there is not much direct profit to the manufacturers there is a profit to the workmen engaged in the factory and the producer of the raw material which enter into the goods sent here. One favorable point is that so far there appear to have been no bad debts save where small quantities of goods were consigned to persons to whom not a cent of credit would have been given in Canada, and against whom warnings had been sent out.

There can be no doubt but that there is an opening for many lines of Canadian goods, some of which have not yet been tried. Others have been tried and failed because badly introduced. I have taken up too much space to dwell on what should be done to extend our trade. I would recommend, first of all, to write to the Canadian Commissioner here for all the information he can give you, giving him all the information necessary to enable him to do it, such as character of goods, freight rates, via Vancouver and any other way, and sending, if possible, samples.

Then if you make up your mind that the prospect warrants you to act, do so vigorously and promptly. If it is good enough, send out a first-class man to open up the trade. If not get the Canadian Commissioner to put you into communication with a good manufacturer's agent. When satisfied he is capable and honest, help him along. Don't delay answering his letter for three months and sending his samples for six.

Organize export houses as is done by other nations. All manufacturers are not merchants, particularly merchants so far away, but they could do a good business if a proper mercantile organization would undertake to sell the goods for them. Just as Messrs. D. Morrice, Sons & Co., do for the cotton trade, some organizations should do for other lines.

Look into freight closely and arrange for the cheapest method of getting here. The C.P.R. and steamers from Vancouver give Canada a better route for quick delivery and goods that will stand the charge, than is enjoyed by any other nation, but for other lines direct sailing vessels from the St. Lawrence appear to be necessary. In this way goods from Ontario, Quebec and the Maritime Provinces could be laid down here as cheaply as from the United States or Europe. Ninety-five per cent. of the United States trade is done by such vessels from New York and San Francisco. Can Canadian goods compete unless they have like advantages?

SYDNEY, N.S.W., November 19, 1896.

A CANADIAN.

THE TARIFF COMMISSION AT HAMILTON.

The Dominion Tariff Commission held a session of their investigation in Hamilton, Ont., beginning November 30, 1896. The testimony obtained was as follows:—

MANUFACTURES OF PIG-IRON.

The Hamilton Iron and Steel Company, who are owners of the

only blast furnace in Ontario, were represented before the Commission by Mr. John Milne, the president and other gentlemen interested in the enterprise.

Mr. Milne said that it was of the greatest importance to have the mineral resources of this country developed. Canada possessed ores of as good a quality as were to be found in the United States, but they were difficult to get out owing to lack of railway accommodation. Good iron was now being produced at the Hamilton blast furnace, and the manufacturers in this country were using it largely. The establishment of this furnace had forced the American companies to lower prices, and as the price of the Hamilton product was also low, he was well within the mark in saying that Canada was getting cheaper iron to-day than ever before. When running at its utmost capacity the Hamilton furnace could turn out 200 tons a day, and required 400 tons of material to feed it. As yet, however, it had not been run to its full capacity, but on the average about 120 tons a day had been produced. Henceforward, by reason of better shipping facilities, the Hamilton blast furnace expect to be supplied with ores from the Lake Superior district. The ores would be conveyed by boat to Hamilton, and would thus greatly add to the carrying trade of the lakes. Up to the 20th November last 10,000 tons of Canadian ore had been used, which represented about \$3.50 a ton. Nearly \$35,000 had been expended in the purchase of ores from Hastings county and other parts of Canada. During the time the Hamilton furnace had been in operation 21,000 tons of pig iron had been turned out. Of this amount 10,000 tons had been placed on the market, and 4,000 tons had been booked for sale. For freights inward on the ores there had been \$66,000 paid to the railways, and for outward bound freights \$7,000. In addition to these sums spent, either directly or indirectly, in Canada, the furnace has paid in wages an average of \$1,150 per week; or, in all, about \$46,000 since operations began. The number of hands employed in producing iron in Hamilton was 125. The furnace plant cost \$400,000, and about three-quarters of a million dollars in all had been invested in the industry in that city without a dollar of advantage to the capitalists having yet been reaped. He hoped the Government would recognize that fact, and give the industry a fair chance of being established by not interfering with the iron duties for at least another five years. If the iron duties were removed it would be a long time before capitalists would be ready to invest in blast furnaces here again. Great importance was now attached to gold mining, but iron was more useful than gold, so numerous were the manufactures into which it entered. The consumers would not benefit by the discontinuance of the duties. By means of the blast furnace in their midst Canadian consumers were getting cheaper iron than ever before. At present the Hamilton furnace produces pig iron only, and it could produce more than was consumed in this country, but if the Government granted encouragement it was intended to go in for the manufacture of steel as well as iron. Were this anticipation realised probably 500 men would be employed instead of a hundred.

Mr. Wood, M.P., read figures showing the importation of pig iron into Canada of recent years. In 1895 about 35,060 tons were imported.

Sir Richard Cartwright enquired whether the Hamilton furnace was not at a disadvantage in the matter of coal.

Mr. Milne replied that a great many people took that view, but he did not concur in it. The Southern furnaces, for example, were very far from the base of consumption, and so were disadvantageously situated. The Carnegie furnaces at Pittsburg used Lake Superior ore, and its conveyance to that city involved a railway haul of a 180 miles from Erie, where it had to be re-shipped from the lake vessels. Conditions were similar in the case of the furnace at Buffalo. On the other hand, the Hamilton furnace was now getting its ore from Hastings county. One mine it controlled there showed 15,000 tons of ore. So far as the Buffalo furnaces were concerned, they were at a disadvantage by reason of the extra haul from Hamilton to Niagara Falls. The Buffalo smelters had also to get the stone required for their operations from Canada. On the whole, things were pretty evenly balanced as between the Canadian furnaces and those of the United States. A furnace could produce 150 tons of iron with the same labor that was required for 100 tons. Where the Tonawanda and Buffalo furnaces had the advantage was that they could produce so much more iron than the works here, by reason of their larger plant. At present only foundry iron was turned out in Hamilton, but if a steel plant were added the manufacture of iron would alternate weekly with that of steel. There was more steel than pig-iron used in this country. It was a remarkable fact that all the steel rails required in Canada had to be imported from foreign countries.

Mr. Fielding desired to know whether the market would be ample if all the manufacturers were to increase their output.

Mr. Milne—As to that we have all got to take our chances.

Mr. Fielding—Then it's a case of the survival of the fittest, is it?
Mr. Milne—I don't know that; there's plenty of consumption. There is ample room for the consumption of the product of all the furnaces in Canada to-day.

Mr. Milne went on to explain, as showing the market for steel in this country, that the Grand Trunk annually used 25,000 tons of steel rails for repairing and renewing its roads. The Hamilton furnace had used 31,000 tons of American ore.

Mr. Fielding—Do you think that is developing the mineral wealth of Canada very largely?

Mr. Milne—No; I do not; but I want you to bear this in mind, the mineral wealth of this country had been neglected. There has been no demand for ore, and people have not been willing to put money into smelting enterprises. We have only been in existence for nine months, and in that time have made every effort to get the mines opened up.

He went on to say that there was a large proportion of the Hamilton iron used in Ontario. The Grand Trunk and the Canadian Pacific railways were consumers, and also many foundrymen in Montreal and Toronto. In time it was expected to get all the ores from the Lake Superior district for the Hamilton furnace.

Sir Richard Cartwright pointed out that the manufacturers of iron received protection to the amount of \$6, made up of a duty of \$4 a ton and a bonus of \$2 a ton. Iron was a raw material which passed through many hands, and the effect of the iron duties was much heavier on the consumer than in the case of other duties of a nominal character.

Mr. Milne rather dissented from the classification of pig-iron as a raw material. He was inclined to regard it as just as much a manufactured article as the finished product from other manufactories.

This drew forth a remark from Mr. Fielding, who said that in that case the term was delusive, and there was no such thing as raw material.

Again Mr. Milne dissented. You might call pig-iron raw material or not, just as you viewed it. For his part he called it the finished product, and if its production were encouraged it would materially advance the prosperity of Canada. Continuing, he said with respect to the prices elsewhere that Scotch pig-iron, laid down in Montreal, was worth \$19.20 a ton. Deduct from this amount the duty and the freight, and you would get the selling price in England. The consumer in Hamilton got his iron for \$15.65 a ton, or nearly \$2 cheaper than he could get it laid down for in the same city from outside points. The freight was added to the Hamilton iron sold in Montreal, so that there the price would be about \$17.50.

Mr. Fielding—You say you are selling iron \$2 cheaper than it can be obtained for elsewhere. Is that in consequence of the protective policy?

Mr. Milne—In consequence of the furnace being started here.

Mr. Fielding—Because, if you prove the reduction in cost is a result of the protective policy, you have only got to increase the protection and you eventually get your iron for nothing.

Mr. Milne—The American people at one time largely controlled this market, and a great deal of their iron has been used here. When this furnace was started the Americans knew they had got to keep their iron down to low figure in order to sell any iron here at all. Accordingly they lowered the price. We can afford to sell cheaper iron as long as there is any profit. We want to introduce the iron into the market, and are satisfied with a fair price. We have sold iron as low as \$13 a ton to consumers in Montreal and Hamilton.

Mr. Wood, M.P., declared that he was interested in the furnace, and would like the Minister to visit the works and see them in operation. They could then witness for themselves the advantages of having a furnace of such a description in the country, and realize the importance of the industry. It was decided that the Ministers would inspect the furnace before they left Hamilton.

ROLLING MILLS.

Messrs. C. E. Doolittle and C. S. Wilcox, of the Ontario Rolling Mills Co., Hamilton, presented a type-written document setting forth in detail their wishes.

They manufacture iron and steel bands, cut nails, etc. They have over \$300,000 invested in plant, and 500 men are employed when the works are running at full time. The materials used in manufacture are scrap iron, steel billets, puddled bars, and coal. At the revision of the tariff in 1894 the duty on bar iron and steel was reduced to \$3 per ton, while the duty on scrap iron was increased to \$2 per ton. In both cases the changes made were against the interests of the manufacturers. During the last few years the iron business of the world had undergone great changes. At first, competition came from Great Britain. Now it was entirely from the United States, where they were able to produce iron and steel cheaper than anywhere else in the world, and from which

country shipments were made even to Great Britain. The result of the manufacture of iron in Canada was that higher prices had to be paid for scrap iron here than were paid in the United States. If the rolling mills in Canada were closed up, this material would be practically useless, as the high duty and freights would exclude it from going into the United States, and Canadian manufacturers would lose accordingly. The present tariff had been arranged by the late Government upon the representations of the blast furnaces, with a view of causing the manufacture of iron and steel from Canadian ores. That policy had been tried for a number of years, under varying conditions, and had failed, and the deputation did not believe it could succeed unless the Government desired to increase the duty on finished bar iron and steel very much above the present rate. With a view of encouraging the rolling mill interest and also securing lower prices to the consumers of iron and steel, as well as increasing the revenue, it was suggested that the Government should make considerable reductions in the duties upon raw materials. Under the present tariff it was impossible to import scrap iron with profit, and but a small quantity of steel billets. With reduced duties on these materials and on bituminous coal, the rolling mills could import larger quantities and increase the revenue to that extent. One very important point urged was that if the duties on the finished product of the rolling mills were changed they should be of a specific and not an ad valorem character. This was rendered necessary by the extreme fluctuation in the price of goods in the United States, and also because freights on the raw materials used by the rolling mills formed a large part of the cost of the product, and were, in fact, a specific tax upon the industry.

It was asked that a conference of representatives of rolling mills with the Government should be granted, when the details of the manufactory could be gone into. To this suggestion the Commissioners raised no objection.

In the course of the discussion it was stated by the deputation that the duty on scrap iron was intended to make the rolling mills use puddled bars made in this country. It had not had that effect, but it had increased the cost of bar iron to the consumer. The duty on scrap iron was \$4 a ton net, and on bar iron \$10 a ton.

TACKS AND WIRE NAILS.

Mr. F. H. Whitton, appeared for the Ontario Tack Co., Hamilton, and made a very strong plea for a continuance of the present duties on imported goods in their lines. He showed samples of tacks, sold at retail in Canada for five cents a package, and for which the makers received but 1½ cents. Nor would it make any difference how much cheaper they were sold by the makers, the price to the consumer would be the same. Then on the boxes in which the tacks were marketed, and which could not be made in Canada, apparently, there was a duty, and also on the steel plate used in manufacture. As for wire nails, there was no country in the world that produced the same quality of nail that is produced in Canada, and in the nail business particularly it was necessary that there should remain some protection. The methods of the American manufacturers were such that prices there fluctuated in ways that made it very dangerous for Canadians in the business unless they were protected. In the States every little while a war of extermination was started, and prices went away down, the manufactured article being sold at prices away below actual cost of the raw materials used in its manufacture. It made no difference how good goods were. The first temptation to the consumer was price, and quality came afterwards. One of the greatest values of the association was the betterment in the quality of the goods turned out. It was no use to look to export trade as that was already monopolized by the United States.

Mr. Fielding—There is an American duty on your goods?

Mr. Whitton—There is and is likely to be.

Mr. Fielding—But if they can sell so cheaply and have the foreign trade, do you not think they could very well take off the duty?

Mr. Whitton—No, for the reason that they need the home trade to be able to quote lower rates for export purposes. He believed there was sufficient business in Canada to keep the factories now in existence reasonably busy.

FOUNDRYMEN AND STOVEMAKERS.

A deputation of foundrymen and stovemakers appeared, consisting of Messrs. W. J. Copp, W. A. Robinson, William Burrows, and O. G. Carscallen. Mr. Copp, who voiced the wishes of the deputation, stated that they made their request on the basis of no interference with the iron duties. It was desired that the duty on stoves should remain at 27½ per cent.; that stove patterns, now rated at one cent per pound, and twenty-five per cent. ad valorem, should be dutiable at 27½ per cent., and that the same rate of duty should apply to stove rods, which are now subject to duties of one cent per pound and twenty-five per cent. ad valorem; that emory

wheels, dutiable at twenty-five per cent., should enter at export prices; that sheet iron and sheet steel, subject to a duty of five per cent., and rated as 'No. 17 and up,' should be rated down to No. 14; that the duty on stove patterns, if they cannot be admitted free, be placed at six cents per pound; that ordinary tile used for stove or grate purposes should be subject to a duty of 27½ per cent., instead of thirty-five per cent., as at present; that designs, for which a fee of \$5 is exacted, and which only stand for five years, should be made good for a period of fourteen years.

A number of the firms present stated that they were using large quantities of the iron turned out at the Hamilton works, and it proved quite satisfactory.

Mr. Copp declared he would be quite willing for the American manufacturers to enter the Canadian market if he could gain access to the market of the United States. The American duty on stoves, however, was thirty-five per cent. At the same time he warned the Commissioners against lowering the duties in this country, and weakening the Canadian manufacturers, unless there was a prospect of obtaining equally favorable terms for Canadian stoves entering the United States markets.

MACHINE TOOLS.

Messrs. John Bertram & Sons, of the Canada Tool Works, Dundas, was represented by Mr. John Bertram. Formerly, Mr. Bertram said, American machines, though much higher in price, were in demand in Canada, but now his firm were turning out machinery which was thoroughly abreast of the times. The regular prices of the productions of the two countries were almost the same now, but the American manufacturers had an export price for the purpose of competition in foreign markets. Mr. Bertram said that lately the firm were trying to work up export trade. They had had several inquiries from Japan and they had sent almost twenty per cent. of their catalogues to that country. They had also entered into a contract with a house in Chili. He thought that it might be advisable for the Government to send an agent to second their efforts in the foreign markets. At the last revision of the tariff the duty on machine tools were reduced from thirty per cent. to 27½ per cent., though no interest had asked for it. However, he would like to have the present duty maintained so that they would not have to fight the American low export prices. Sir Richard Cartwright told Mr. Bertram that he would be glad to hear that there was an opening for trade in his line in Japan.

WIRE, AND MANUFACTURES OF.

Messrs. S. O. Greening, of the Greening Wire Co., C. A. Birge, of the Canada Screw Co., and F. H. Whitton, of the Ontario Tack Co., all of Hamilton, testified. Mr. Birge said that there were seven or eight wire manufacturers in Canada, and no change in the present duty was desired, on the ground that it was already insufficient. In view of the difficulty of meeting American competition, he mentioned the fact that in Pittsburgh prices were practically the same on wire as on wire rods, the raw material from which wire was made. No change in the duties on wood screws and iron and copper rivets was wanted, but the duties should be specific wherever practicable. He complained, as other manufacturers had done, of manufacturers sending their surplus products into Canada at prices very much below those in the United States domestic market. He intimated that he had received a communication from a manufacturer across the line containing a statement which should give food for reflection. It was that there were too many manufacturers in the United States, and they had to secure foreign markets for their surplus. "We," said the writer, "naturally look to Canada as the first market to conquer."

The witness underwent a long cross-examination from Mr. Fielding, as a result of his statement that there was an association of manufacturers, and they had an agreement with the merchants regarding prices. This was not for the benefit of the manufacturer, but was done at the request of the merchants, in order that prices should be fixed that would yield a margin of profit to the merchants. He would send the Ministers a copy of the agreement. There was no combine but an association. Personally, he cared nothing for protection, and when prices were normal could hold his own. The duties were necessary when trade in the United States was so demoralized that the manufacturers there were prepared to sell at prices from ten to fifteen, and even twenty-five per cent. below the cost of production. This state of affairs set in at the time of the Wilson bill, and was not ended yet. The Canadian Association, which had been referred to, not only fixed the prices for the manufacturers, but the merchants also. If a merchant persisted in cutting the prices, the association would go to pieces, and they would have to get along as best they could. The merchant was asked to sign an agreement that he would maintain prices. If he did not do so a penalty was enforced.

Mr. Fielding was on the lookout for combines and he seemed to think he had found one in the screw industry, but from Mr. Birge's

standpoint the association was purely for the protection of the users of the products of the factory.

Mr. Greening pointed out that there was only a small margin of protection on the goods manufactured by his company, such as wire cloth, wire rope, perforated sheet zinc, perforated copper and brass, and perforated steel, etc., and any lowering of the duty would be disastrous to the industry, as they could not successfully hope to meet foreign competition with less protection than now enjoyed. In the case of wire cloth there was only a difference of 2½ per cent. between the duty on the finished article and that on the raw material.

TINNED WARE.

Mr. J. C. McKeand, represented Messrs. E. T. Wright and Co., Hamilton, manufacturers of stamped ware, including bird cages, lanterns, lamps, etc. He drew attention to an evident mistake in the tariff. In the last revision tinned wire cloth should have figured under the item "wire cloth, brass copper, and tin," dutiable at twenty per cent. Unfortunately it appeared as "tin wire cloth," and as there was no such article made, the local appraiser classed it as "wire not elsewhere specified," and exacted a duty of thirty per cent. On goods made of the same material the duty was only 27½ per cent. It was now desired to revert to the twenty per cent. duty, which ought properly to be imposed.

TINNERS' TOOLS.

Mr. J. M. Brown, of Brown, Boggs & Co., Hamilton, manufacturers of tinner's tools, asked that the goods made by his firm should be classified in the Customs list. He had no objection to the tariff, as it now stood, in connection with his business.

VEHICLE WHEELS.

Mr. John G. Hore, of F. W. Hore & Son, wheel manufacturers, Hamilton, said the duty was twenty-five per cent. on spokes, shafts, etc., and thirty-five per cent. on wheels. He had to go to the States for raw material, but he did not care to see the duty lowered on carriage woodwork. He roughly estimated the cost of production as being seventy-five per cent. raw material and twenty-five per cent. labor.

THE CANNING INDUSTRY.

The Canadian canning industry was next heard from. It was represented by Messrs. W. P. Innes, Simcoo, W. A. Ferguson, Delhi, President of the Cannery Association; W. A. Miller, ex-M. P., Picton; D. Marshall, Aylmer; Thomas Nihan, St. Catharines. With the cannery were Mr. W. C. Breckenridge, of the Norton Manufacturing Co., Hamilton, representing the tinplate interest, and Mr. P. D. Carse, representing the industry of producing the labels. Mr. Innes said that previous to 1878, when the duty on fruits and vegetables was 17½ per cent., there were only a couple of factories in Canada. Now there were twenty-seven in Ontario and Quebec, one each in Nova Scotia and New Brunswick and one or more in British Columbia.

The investment represented \$500,000. About 3,000 people were directly employed and as many more indirectly in gathering and preparing fruits and vegetables. There was annually paid to farmers and other growers about \$500,000, and a large sum for tins, cases, labels, etc., all produced in the Dominion. In 1878 canned goods came in at 17½ per cent. About five years later the duty was advanced to two cents a pound on vegetables and three cents a pound on fruits. It remained at these figures until 1895, when it was reduced to a cent and a half a pound on vegetables and two cents a pound on fruits. During the last two years, Mr. Innes said, competition amongst the Canadian cannery had been so keen that they had all found it difficult to save themselves from loss. Four factories had either closed up voluntarily or been closed by the sheriff. They were now selling a superior quality of goods at a much lower price than they obtained for an indifferent article in 1878, when the bulk of the goods consumed in the country came from the United States. The request was made that the duties on canned fruits, vegetables and meats should be allowed to remain as they are at present; that tin plates and ingot tin be left on the free list as at present, and that the duty on evaporated fruits be changed from twenty-five per cent., ad valorem to a specific duty of seven and a half cents a pound. Mr. Ferguson explained that the proposition to increase the duty on evaporated fruit was based on a desire to harmonize the fresh and evaporated fruit duties. The duty on fresh fruit was one cent a pound. The difference in favor of evaporated fruit in the United States was three and a half cents a pound, as it took five pounds of fresh fruit to produce one of evaporated fruit. He said that the production of canned goods was in excess of the demand of the country and the factories must find markets elsewhere. Railway freights from southern Ontario to New York, Boston and other seaports was twenty-one cents a hundred weight on apples. From Rochester and thereabouts it was twelve cents. This put the Canadian canner at a disadvantage

on the English market, and Mr. Ferguson was of the opinion that Great Britain offered a good field for trade if the disadvantages of the freight rates could be overcome.

Mr. Breckenridge asked that the present duty on tin cans be maintained, and Mr. Carse expressed his satisfaction with the present tariff arrangements as to fruit-can labels.

COPPER WIRE.

Mr. H. E. Job, representing the Kay Electrical Works, Hamilton, asked that soft copper wire, when imported for electrical purposes, be put on the free list.

CASH REGISTERS.

The claims of a new Canadian industry were brought to the attention of the Commission. It was the manufacture of cash registers, which in the past has been almost entirely monopolized by companies in the United States. The Capital Cash Register Company of Ottawa, was represented by Mr. E. A. Oliver, and the Hamilton Brass Company by Mr. R. C. Henders. The case was stated by Mr. Oliver. He said that there was at present no classification of cash registers other than as office furniture. The deputation asked that they be classified as cash registers, and that the duty be raised from thirty to thirty-five per cent., as it formerly was. Mr. Oliver said that his company had put in a plant at Ottawa and expected to have the first lot of cash registers out by the beginning of the year. He accused the Americans of undervaluation. Their price, he said, for customs valuation of a machine sold in the United States for \$300 was \$195. The duty should be collected on the selling price of the machine, which was \$300. Mr. Oliver claimed that the American company manufactured a special machine or "knocker" to meet the competition of a new company. Mr. Henders endorsed what Mr. Oliver said. The American duty on cash registers is forty per cent.

SEWER PIPE.

Messrs. Henry New of the Hamilton and Toronto Sewer Pipe Company, and A. D. Harris and Robert Campbell, of the Ontario Sewer Pipe Company, asked for the imposition of a specific duty of \$5 a ton upon sewer pipe in lieu of the present average ad valorem duty of thirty-five per cent. In the event of not imposing a specific duty it was desired that the duty be levied upon a value of seventy per cent. off the American list instead of 77½, as at present. Mr. New pointed out that the change would exclude second-class sewer pipe, which was at present being brought in and sold as the first-class article. Double strength pipe was often admitted as ordinary standard pipe, although it should be twenty per cent. dearer. Fuel and labor largely entered into the cost of the manufacture of sewer pipe. The manufacturers in the United States got their coal for a dollar and frequently seventy-five cents a ton, while it cost \$3.25 here. This made a difference of eighteen per cent. in the cost. In the United States wages amounting to \$1.15 a day were paid, while here the average was \$1.40. In the matter of freight rates, the advantage was largely on the side of the American manufacturers. Prices of pipe were a little higher in this country than in the adjoining republic, but the American manufacturers sold their goods 25 per cent. cheaper in this country than in their own market. There were five factories in Canada, but there was no association for keeping up prices. As good a quality of pipe was made in Canada as anywhere else.

Sir Richard Cartwright pointed out that the Canadian manufacturers had succeeded in reducing the importation in three years from \$90,000 to \$20,000. That seemed to show that they were in a pretty independent position.

POTTERY.

It was to ask that no reduction be made in the present duty on pottery that Messrs. R. W. Campbell of Hamilton, S. F. Glass of London, and Fred. Chalcraft of Brantford, appeared before the Ministers. They make yellow-ware linings for coal stoves and furnaces, glazed tile, salt-glazed stoneware and Bristol ware. They assured the Ministers that there is no agreement as to prices or production. Goods they send were sold to the customer at as low a price consistent with quality as any other market. The duty on stoneware is three cents for gallon size and on stone lining twenty per cent.

FIRE BRICK.

Mr. Edward New, who is just starting a fire brick factory in Hamilton, the first concern of the kind in the country, as he claims, asked that a duty be imposed upon fire brick.

CONVICT-MADE BRUSHES.

John Black, representing the Journeymen Brushmakers' Association, of Hamilton, said their industry was feeling the hardship of competing with prison-made goods from Germany and Austria, although it was difficult to prove that they were made by prisoners.

Mr. Fielding pointed out that the law prohibited the importation of prison-made goods, and Sir Richard Cartwright pointed out

that the imports from Germany three or four years ago were very small.

Mr. Black explained that the goods did not come directly from Germany, but from England, through New York or Montreal, the goods being of alleged English manufacture. They were sold so cheaply that the Hamilton manufacturers could not compete with them. He was satisfied that what he said about the prisoners of Germany making brushes was correct, and he wished the Government to send a detective to the old country to ferret the matter out.

The Commissioners thought that the Government records of Germany should show whether Mr. Black's suspicions regarding convict labor were correct or not, and they promised to look into the matter. Sir Richard Cartwright said the Government blue books showed that the importation of brushes from the States was larger than that from France and Germany.

SOAP.

Mr. W. H. Judd of Judd and Company, soap manufacturers, Hamilton, opposed a reduction in duty. Boxes of soap that formerly sold for \$4.30 now brought only \$1.50. The reduction was due to the tremendous competition. The Canadian makers were turning out four or five times the supply, and a further reduction in prices meant the extinction of the Canadian soap industries. There were pork-packers in Chicago—Fairbanks, for example—who had gone into the soap-making business. With cheap tallow and grease at their disposal such manufacturers were able to overcome all competition. If the tariff were lowered and the Americans were allowed to make a slaughter market of Canada, it would drive half the Canadian manufacturers out of business.

GLASS.

The Diamond Glass Company, Hamilton, was represented by Messrs. George Rutherford and John Watt. The company manufactures bottles and fruit jars principally, but no window glass. Mr. Rutherford said that the company desired that in the revision of the tariff no change should be made in the existing duties. They contended that no injustice was done to the consumer. Mr. Rutherford stated that a reduction of duty would mean a loss of revenue, because there was a large importation of goods that could not be manufactured in Canada. He assured the Ministers that there was no combine in the glass industry, although there was an agreement between the Montreal factory and the Hamilton factory that they should make separate lines. These factories had to meet domestic competition from New Glasgow and Wallaceburg. Outside competition came largely from the United States. There was some from Germany, some from Belgium and none from England.

SPICES.

Mr. J. L. McLaren of the Hamilton Coffee and Spice Company, suggested that a specific duty of not less than two cents a pound be imposed on ground spice in addition to whatever ad valorem the Government might decide to put on unground goods, instead of an extra ad valorem duty as at present. He claimed that this would not increase the duty on a high grade of goods and would protect the consumer against adulterated spices. The existing duties were twelve-and-one-half per cent. on unground spices and twenty-five per cent. on ground goods.

BLACKING, SHOE POLISH, RUBBER CEMENT, ETC.

Blackening, shoe dressing, stove polish, inks, mucilages and cements were represented by Messrs. E. A. Dalley, J. D. Trenaman and H. E. Rolston. Mr. Dalley, the spokesman told the Commissioners that the late Government had reduced the tariff on blackening, from thirty per cent. to twenty-five per cent., which he considered a low rate of duty. He asked that the Customs Department should collect the duty on American blackening on the basis of the selling price in the country of production. Shoe dressings paid a duty of twenty-five per cent. The bottles were taxed thirty per cent. This product contained fifty per cent. of methylated spirits, for which the Canadian manufacturers had to pay the Government \$1 a gallon. If they could get their spirits at the same price as the American manufacturers they would be satisfied. In regard to ink and mucilage Mr. Dalley said that the principal cost of production was in the bottles, on which there was a duty of thirty per cent. Mr. Rolston asked that the customs valuation on imported stove polish be the value in the country of production, and that the duty on crude plumbago of ten per cent. and twenty-five per cent. on ground plumbago be removed. Mr. Trenaman of the Domestic Specialty Company advanced strong reasons for a rearrangement of the duties on rubber cement used in the bicycle and boot and shoe industry. There were, he said, about 6,000 barrels used in Canada annually. While there was a protection of only twenty-five per cent. on the finished article, they paid almost a hundred per cent. on the raw material. An important element in the manufacture of this article is naphtha, on which the duty is seventy-two per cent. He did not ask that the raw material be reduced, but he asked

that the duty on cement in bottles be thirty-five per cent. and that in bulk it be thirty per cent. and six cents a gallon.

BAKING POWDER AND MUSTARD.

Mr. W. G. Dunn of Messrs. Dunn and Company, Croyden, England, and Hamilton, Canada, manufacturers of baking powder, mustards, spices, etc., asked that the duty upon his products be allowed to remain as they are.

SAND PAPER.

The Dominion Flint Paper Company, Hamilton, was represented by Mr. James A. Patterson, who wanted a measure of protection to the extent of thirty-five per cent. by way of encouragement for a new industry. His company is just beginning operations in the manufacture of sand paper and other similar lines.

JEWELRY AND SILVERWARE.

When the Commission sat in Toronto the jewellers and silversmiths of that city stated their views and the trade in Hamilton expressed themselves in identically the same language with respect to the duties on watch cases, watch movements, clocks, jewelry, and precious stones. The deputation was composed of Messrs. J. G. Parker, representing the Meriden Britannia Company, manufacturers of plated ware; A. S. Levy and W. E. Boyd, representing the wholesale jewellers; G. H. Lees, of Lees and Company, manufacturers; and W. Davis, T. Lees, F. Claringbowl, retailers. Mr. J. E. Parker acted as chief spokesman, and made the following statement on the subject of plated ware:—

"The tariff now exacted on paper boxes, jewellery boxes, boxes with satin or plush lining, is thirty-five per cent. For the past three or four years manufacturers of plated flat ware in the United States have been exporting that line of goods to Canada put up in plush and satin lined boxes, without extra charge, and on which duty is paid by the importer. We would therefore respectfully suggest that the duty on table flat ware, such as knives, forks, spoons, ladles and like articles, imported in boxes lined with plush, satin or similar material, be thirty-five per cent., and we think the request reasonable in view of the fact that we have to pay thirty-five per cent. duty on all the paper we import for the aforesaid boxes, and also thirty per cent. duty on the plush, silk or satin lining for the same. We also desire to call your attention to the fact that the duty on silver and gold plated ware is now thirty per cent., but through misinterpretation by the appraisers and collectors in many of the ports of Canada, the duty on silver and gold plated coffin handles, coffin plates, screws and other plated ware used as trimmings on caskets have been ruled that they should be entered as parts of caskets at twenty-five per cent. duty although up to within two years the duty collected has been at thirty per cent. as plated ware. We are large manufacturers of coffin trimmings, and have heavy investments in moulds, dies and tools for the manufacture of the above lines, and hope you will consider the above complaint not only in our interest but in the interest of the several other companies who are manufacturing this line of goods in Canada, although perhaps not so extensively. We would like to see the duty exacted on the above line of goods, as originally intended, as plated ware at thirty per cent."

Messrs. Boyd, Lees, Levy and Davis spoke upon the necessity of making diamonds free from duty, in view of the impossibility of preventing smuggling. To show the ease with which diamonds could be smuggled, one of the gentlemen produced a paper containing \$20,000 worth of diamonds, which he took from his vest. Another witness said he had carried \$100,000 worth of diamonds in his vest when buying in Antwerp and London.

Mr. Davis spoke of the necessity of protection for Canadian watch cases, and was questioned by Mr. Paterson regarding the merits of the American Watch Case Company and the Doll controversy.

Mr. George H. Lees volunteered the statement that he was prepared to pay full prices for the goods of the American Watch Case Company. He had handled lots of their watch cases and had always found them to be up to the guarantee.

READY-MADE CLOTHING.

Senator W. E. Sanford, of the Sanford Manufacturing Company, who was accompanied by Mr. John Calder, of Messrs. J. Calder & Co., Hamilton, gave the Commissioners a splendid object lesson in ready-made clothing. He showed two coats—a Canadian coat guaranteed to wear from three to five years and wholesaled at \$3.75, and an American coat, made of cotton waste, worse than shoddy, and so made that it would not stand even wet weather. This coat was sold in New York at \$1.30. To keep this cheap clothing out and protect the people he asked that there be no change in the tariff. The result of protection to the Canadian mills has brought about an immense change in values. Canadian tweeds as now made are not now to be excelled in value in any part of the world. He referred to the marked decrease in the

cost of goods in the past five years, made possible by the protective tariff and development of Canadian mills. The request was that the tariff in the matter of clothing should not be changed. In response to a question from Sir Richard Cartwright, Mr. Sanford stated that in the clothing industry from 3,000 to 3,200 people were employed, and were paid about \$600,000 year in wages. He did not care to state just what the output of his factory was, but was backed by Mr. Calder in his statement that the factory turned out about twice as much work in a year as any other concern in Canada.

Mr. Sanford showed samples of military clothing, comparing it also with a sample of English military clothing.

Mr. John Calder who accompanied Senator Sanford, assured the Ministers that cloths were sold at the same prices for like weights by the mills without any understanding or agreement.

NURSERY STOCK.

Mr. Edward Morris, representing Morris, Stone & Wellington of the Fonthill nurseries, gave reasons why the present duties on fruit trees should be maintained. He said that the business had increased during the past twenty years, but that over-production in the United States had so demoralized the trade that a removal of the tariff would drive the Canadian nurserymen out of the business, and would probably entail a loss of the money they had invested in it. A source of injury to the Canadian nurserymen and the Canadian farmers as well was the trade carried on by bogus dealers from the United States. Mr. Morris remarked that no duty was imposed by the United States on the large majority of the lines of nursery stock, but there was no exportation to the United States. That which passed between the two countries came from the United States to Canada.

Mr. Fielding—Why?

Mr. Morris—Because there is not enough stock grown in Canada to leave a surplus.

Mr. Fielding—Therefore you have a market for all you can produce.

Mr. Morris—Yes; all we want is a fair price.

Mr. Morris went on to say that the price in Canada was higher than in the United States, but the difference was not so great as the duty imposed under the tariff. His business, he said, did not return two per cent. on the investment.

Mr. R. C. Brown, representing Brown Bros. of Rochester, N.Y., and Ridgeville, Ont., made a statement. He began by asking that the twenty per cent. duty on small stock—grapevines, raspberries, blackberries, etc.—be raised, claiming that it was too low to afford an adequate protection.

Mr. Fielding—How will the farmer, who wants to buy these goods, view this proposition?

Mr. Brown—I do not think he will have any objection to it, because it had been shown that when the duty is taken off the people buy the goods no cheaper. During the period when there was no duty on goods coming into Canada the price lists remained the same on this side. While the wholesale price of goods in Canada was now higher, goods are sold no higher at retail. You can buy Canadian goods as cheap as American goods.

Mr. Fielding—You say if you take off these duties the goods would not be changed in price?

Mr. Brown—Yes.

Mr. Fielding—Mr. Morris has just told us that the price here was greater than in the United States.

Mr. Brown—He was talking about the wholesale price. There are no goods sold at wholesale to the consumers. Mr. Brown said that his firm had come to Canada to save the duty.

Mr. E. T. Smith advanced as an argument the probability that the nurserymen of the southern States would wipe out the Canadian nurserymen if the duty were removed.

THE FRUIT GROWERS.

A deputation of Canadian fruit growers was headed by Messrs. E. D. Smith of Winona, and D. J. McKinnon of Grimsby, Ont. Mr. Smith said that the fruit-growers interested had met and formulated the changes which they wished made in the tariff, and which were few. They were well satisfied with the fruit duties generally. In regard to plums and pears they asked that the ad valorem duties of twenty-five and twenty per cent. respectively be changed to a specific duty of one cent a pound. The growers also found that a great deal of Canadian fruit was driven out of the market by the importation of bananas. They therefore asked that an import duty of half a cent a pound be placed on bananas; also that a duty of two cents a pound be placed on dried peaches, a large quantity of which was imported. These changes, he said, were desired not only to protect the Ontario markets, but more particularly to retain the northwest market and that of other parts of the Dominion. Mr. Smith said that tons of grapes were left hanging on the vines this year on account of the importation from New

York State. If the Canadian growers had the home market to themselves they would be able to get along. Large amounts of money had been invested in fruit-growing in the belief that the Canadian market would be retained for Canadians.

To Sir Richard Cartwright Mr. Smith said that the fruit crop of the United States, say as far south as New Jersey, was about two weeks earlier than in Ontario. That applied particularly to berries. New York berries were generally done before Oakville berries came in. In regard to plums there was not much difference in time of marketing.

Mr. McKinnon, following Mr. Smith, said the grape tax would be a tax on luxury only. It would apply only to the early grapes, which are consumed only by the rich. After the Canadian grapes come in they are sold as low as a cent a pound, while the duty is two cents. There was, therefore, no importation after the Canadian grapes came in. This argument, Mr. McKinnon said, applied only to parts where grapes are grown abundantly. In the Maritime Provinces grapes are sent in from the United States because that country has fast refrigerator car service, while the Canadian service is slow and the grapes are apt to become "mussy." If there was a fast and efficient service it would be different. Mr. McKinnon asked that the Government bring about "reform, not revolution."

A FRUIT DEALER'S VIEWS.

Mr. William Dixon, of Dixon Bros., fruit dealers, Hamilton, raised an objection to the proposed tariff on bananas, suggested by the fruit growers. He also argued against the present system of inspecting Malaga grapes. The duty on cranberries, he thought, should be lowered. He said he could not understand why the fruit growers were wanting protection against the United States in their line. A better thing for them would be reciprocity or free trade.

UNDERTAKERS' SUPPLIES.

Mr. J. J. Eval, of Semmens and Eval, undertakers' supplies, Hamilton, asked that the duty on his raw and unfinished materials be reduced. The only things used in the manufacture of coffins purchased outside of Canada were the things not to be procured in Canada, and it was on those things a duty was being levied. In reply to a question from Mr. Fielding, Mr. Eval said that he did not fear American competition, and would be satisfied if there was no duty on the American coffin. All he wanted was a reduction on the raw material.

IMPORTED ROOFING SLATE.

The duty on slate was a subject which Mr. James Finlay, a Hamilton contractor, brought to the Commissioners' attention. He said the duty used to be eighty cents per square, but it was subsequently changed to twenty per cent. ad valorem, and at the last revision was fixed at thirty per cent. He asked that the duty again be reduced to twenty per cent. The source of supply was chiefly in the United States. There was one quarry in Quebec, but the material, he said, is of inferior quality.

MAGIC LANTERN SLIDES.

The camera section of the Hamilton Association, represented by Mr. S. Briggs and Mr. Eastwood, explained the system under which lantern slides are interchanged between Canadian and American members of the lantern slide interchange. Slides coming into Canada are subjected to a duty of twenty-five per cent. The deputation asked that the slides be allowed to enter Canada free of duty, as they were not a revenue-making investment, but were purely educational, and, after being exhibited in Canada, were returned to the United States or other foreign countries.

THE COPYRIGHT LAW.

Mr. R. T. Lancefield laid before the Commissioners a memorandum urging that section 780 of the customs act be amended so as to prohibit the importation of works of which the copyright is subsisting in the United Kingdom, which have also been copyrighted in Canada, but which have been printed or reprinted out of the United Kingdom. Such amendment would make the customs act conform more clearly to the intent of section six of the Canadian copyright act, by prohibiting the importation of Canadian copyrighted works printed elsewhere than in the United Kingdom. The memorandum presented by Mr. Lancefield was signed by Messrs. Buntin, Gillies and Company, paper makers, and by the proprietors of the leading printing offices in Hamilton.

WHOLESALE GROCERS.

The Wholesale Grocers' Guild of Hamilton appeared before the Commissioners to ask that the imposts on several important articles of food be reduced. The deputation was composed of Messrs. Alex. Turner, of James Turner & Co., H. N. Kittson, of W. H. Gillard & Co., St. Clair Balfour, of Balfour & Co., T. H. Macpherson, M. P., of Macpherson Glass Company, G. E. Bristol, of Lucas, Steele & Bristol, and A. F. Wood, M. P., of Wood, Val-

lance & Co. Mr. Bristol presented the views of the grocers to the Ministers. He first called their attention to the duty on rice, an article of large consumption in Canada. There were, he said, only two cleaning mills in Canada, one in Montreal and another in Vancouver, controlled by the same people. Grocers could get rice in England laid down in Hamilton for 11s. 9d. per hundred weight, which was equal to 2.56 cents per pound. Taking the duty on uncleaned rice, which was thirty cents a hundred, that would make the figure 2.86 a pound. A similar rice in Montreal would cost 4.50 cents a pound, which made a difference in favor of the English price, allowing for the duty, of sixty-eight per cent. While the mill men were of the opinion that they were entitled to a certain protection, the grocers thought this was too much. The present duty is 1½ cents a pound on cleaned rice, and on uncleaned rice three-tenths of a cent.

Mr. Turner said that his firm had imported some "B" rice, for which the Montreal price was 27.8 cents a pound, at a figure below that amount. Little of this cheaper grade of rice was imported because of the high duty.

Mr. Bristol mentioned the case of syrups next. He said that since the present duty had been imposed on syrups the wholesale grocers had not been able to supply their customers. There was only one refinery in Canada making syrups—the Acadia—and it had been offering only bright syrup until lately. Lately it had turned out a dark syrup. On a common syrup, selling in New York for ten cents a wine gallon, the duty would be equal to ninety per cent. On another grade of syrup, worth in New York sixteen cents a wine gallon, or 19.20 cents an Imperial gallon, the duty would be 9.90 cents. Not only had the refiners enjoyed this high protection but the grocers have not been able to get the syrup from them. It was only lately that they had been able to get any dark syrup in Canada. The high duty had done the refiner no good and it had been an injury to the consumers. Because of high prices and the absence of syrup from the market many farmers were boiling down sugar and making their own syrup. The grocers thought the protection on syrup was excessive. They asked that the duty be reduced that they might have access to other markets. Then Mr. Bristol spoke of the molasses duty. At present, he said, it was largely one of test. A grocer now had to send samples of molasses to Ottawa to have it tested. The duty was 1½ cents a gallon when testing by polariscope forty degrees or over, and for every degree less than one cent a gallon in addition. On behalf of the grocers he urged that the test, which occasioned trouble and expense, be done away with, and that a uniform duty be imposed.

The next article mentioned was sugar. Mr. Bristol said that the grocers were of the opinion that the protection given to the refineries was too great. Their granulated sugar was always good and plentiful, but their other sugars were sometimes good and sometimes the reverse. He claimed that the grocers had not been able to get from the refiners the sugars that were desired by the trade. Yellow sugar was at this time in demand in many households and there was only one refinery making it. Ten days ago merchants could not even get that sugar. Considering that there were four hundred million pounds of sugar imported into the country in 1895, they were of the opinion that the protection of sixty-four-hundredths of a cent should be reduced in the interest of the people. The refiners had not only a monopoly of manufacturing but of speculating in sugar as well. They had control of the whole market, and the grocers had to take what they gave them, whether they felt like it or not. Mr. Bristol suggested that the duty on show cards which foreign manufacturers used to send into Canada be reduced.

Mr. Balfour informed the Ministers that at present there is a specific duty on raisins and currants, and an ad valorem duty on dates and figs. He asked that a specific instead of an ad valorem duty be imposed on dates and figs and like articles of food. He pointed out that there were two or three concerns in the Dominion making a line of goods the result was that one or two brands were turned out which the grocers had to handle at no profit at all. They wanted to be able to buy where they chose. They desired to carry on business as merchants, and not merely as agents.

Mr. Bristol stated that at a meeting of the wholesale grocers of the Dominion recently held in Toronto, a resolution was passed declaring that the protective duty on sugar was too high, and appealing to the Government to reduce it. The meeting was unanimous, with the exception of four gentlemen from Montreal, who were opposed to it.

A GRAIN BUYER.

Mr. James Dunlop, grain buyer and miller, of Hamilton, asked the Ministers to take temptation out of the way of those who might be weak enough to yield to it. The corn duty, he said, was an incentive to men to break the law. He paid 7½ cents a bushel on ordinary corn when it was to be used for feeding purposes.

Yellow and white corn came in free when used for seed. When he ground corn into meal for human food he got a rebate of ninety per cent. of the duty. Now, if a person came along and wanted to buy corn for feeding purposes and he happened to be out of it, the temptation to break the law by giving him what he had in stock was great.

Another anomaly mentioned by Mr. Dunlop was that seed corn was cheaper under this arrangement of the duty than feed corn, and in consequence people had been known to feed seed corn to their chickens. He suggested that seed corn be taxed as well as feed corn, and that the provision as to the rebate be continued.

A FARMER.

Mr. W. O. Sealey, of Hamilton, who is not now a farmer, suggested that if the tariff could not be so arranged as to increase the price of wheat the farmer had to sell it, it be so reduced as to lessen the cost of what he had to buy. Farmers were in very much worse circumstances to-day than ten or twenty years ago. If the manufacturers had prospered under the high tariff, they had done so at the expense of the farmers. If protection was a good thing for the manufacturer it should be an equally good thing for the laborer, and if the manufacturer was to be protected in the way of increased price for the goods supplied to the laborers and expect the laborers to compete with the labor markets of the world it was to the disadvantage of the latter, and if a retaliatory tariff were good for the manufacturer surely a retaliatory labor law would be good for the laborer. Mr. Sealey said that he was a farmer until five years ago, but the business became so dull that he had to rent his farms and take a situation. If the outlook improved he would return to the farm.

CANADIAN SEEDS.

Messrs. F. C. Bruce and Robert Evans, representing seed interests, asked that the present duties on seeds be allowed to continue. Canadian seed was superior in quality to American, and the wholesale introduction of American seeds would work harm to the farmers, whose crops would thus be injured.

THOSE WHO WERE UNHEARD.

When the hour arrived for the closing of the investigation at Hamilton, there were quite a number of manufacturers of that city who had not been heard, but they promised that they would send a memoranda of their views to the Commissioners at Ottawa. Included in these were the Gurney Scale Co., the Westinghouse Mfg. Co., the Hand Fireworks Co., G. T. Sim, and R. S. Wallace.

The next session of the Commission was to be held at Brantford, Ont.

THE TARIFF COMMISSION AT BRANTFORD.

The Tariff Commission held a session at Brantford, Ont., on December 3rd.

WIRE NAILS.

Mr. J. E. Waterous, speaking for the Waterous Nail Works, expressed his entire satisfaction with the tariff upon that commodity. He told the Commissioners that if the tariff were reduced the nail-makers would have to close their factories, as they could not hold their own against the manufacturers of the United States. At the present time things were in such a state owing to the failure of the nail trust in the United States that the market was flooded with nails by jobbers who had large stocks on hand. If the Americans were to get into this country with their nails they would simply make a slaughter market of it. Mr. Waterous said that nails were very cheap in Canada now. A single pound of nails could be bought for four cents, or by the hundred pounds at from three to 3½ cents. The duty on wire, the raw material of the nailmaker, is twenty-five per cent., and on nails one cent a pound. Mr. Waterous suggested that if the tariff was to be adjusted, it be adjusted on the raw material as well as the finished articles. He said that he was aware that there was a combination among the nailmakers, but he was not a member of it. Efforts had been made to induce him to enter the combine, but he could not see anything in it for himself. When he declined to go in they tried to get control of his factory by leasing it and shutting it up. They offered to pay him for remaining idle, but he would not yield. Then they came with greater inducements on the same line, but Mr. Waterous could not see any great advantage that would come to him out of the combine which had given him very severe competition. When he opened his factory in Brantford merchants in the city were offered a five per cent. discount more than was allowed the customers in outside places.

IRON MACHINERY.

Mr. C. H. Waterous, of the Waterous Engine Co., Brantford, expressed to the Commissioners his concurrence with what had been said to them at Hamilton, by Mr. John Bertram, of Messrs.

John Bertram & Sons, of Dundas, Ont. He did not expect to get raw materials free when the manufactured product was taxed. Some measure of protection ought to be granted to enable mining machinery to be manufactured in Canada, especially as there was a duty on pig iron, bar iron, and steel. This fact would militate against the development of the manufacture of mining machinery were such machinery allowed to come in free. There were establishments in Canada that could turn out a large portion of the mining machinery required. Orders for such machinery, if received now, could be filled in the spring. He was preparing to engage in that kind of work.

PLOWS.

Mr. Henry Cockshutt, of the Cockshutt Plow Company, and Mr. R. H. Verity, of the Verity Plow Company, both of Brantford, showed the Commissioners that the raw materials used by them in their manufacture are excessively taxed. The materials entering into the construction of a plow for the Manitoba trade, which sells wholesale at Brantford for \$10, bears duty of sixty-four cents. The freight rate to Winnipeg is seventy-five cents a hundred pounds, which makes the plow cost at that point \$11.39. The American plow, for which the regular wholesale price at Minneapolis is \$10, sells for the western Canadian trade at \$9. The duty of twenty per cent. amounts to \$1.80 on the plow and the freight rate to Winnipeg is only forty-five cents, which makes the value of the plow at Winnipeg \$11.25. There is, therefore, a difference against the Canadian manufacturer of fourteen cents on the western plow. Mr. Cockshutt said that with freer trade, including free raw materials, he would be satisfied.

Mr. Verity handed to Mr. Fielding the invoice of an importation of nuts used in plow-making, which cost \$489.85 and on which the duty was \$20.14, or seventy per cent. Fuel oil is largely used in place of coal oil. The duty is three cents a gallon, and last year, when the commodity was cheaper than at present, it represented 100 per cent.

STOVES.

Mr. William Buck, of the William Buck Stove Company, concurred in everything that Mr. J. C. Copp had said to the Commission in Hamilton. As a manufacturer of stoves he thought that pig iron should be free. The Dominion Government now paid the blast furnace people \$2.5 a ton bounty and the Ontario Government \$1.12 a ton on reduced ores. The people of Canada seemed to be willing to pay the bonus. He had never bought any Canadian iron without paying the duty of \$4.48. He had made an effort to get the Hamilton and Nova Scotia men to divide the duty with him, but they could not see it in that way. He advocated the abolition of the duty, and if necessary the increase of the bounty on pig iron. Speaking generally of the trade conditions in the country, he said that it was not so much a question of the Canadian manufacturers not being able to stand on their own feet, and not so much that the Americans had come in here and cut prices, as that this was a very limited market. If equitable trade relations were established between Canada and the United States he thought Canada could hold her own. Canadians were, in his opinion, as smart as Americans. He was inclined to think that he was about as well protected under the 17½ per cent. tariff of 1878 as he was under the present duty of 27½ per cent. with a heavy impost on his raw material. This opinion he expressed subject to the explanation that he had not gone into the figures. He thought that the manufacture of pig iron should have been deferred until there was a population of ten millions in Canada.

CARPET YARNS.

Mr. Joseph Ruddy, Secretary of the Slingsby Manufacturing Company, makers of yarns and blankets, handed to the Commissioners a written statement, which he requested should not be publicly read. He supplemented the statement by quoting figures to disprove the statements made to the Commission by the carpet manufacturers at Toronto. His firm made yarns for the manufacture of carpets, and it was not correct to say that the duty on the finished carpets was not equal to that on yarns which formed their raw material. He gave figures with a view of showing that the carpet manufacturers enjoyed ample protection at present, even if they had to import American yarns and pay the duty. They did not have to do that, however, because the price of Canadian yarns was less than the American with the duty added. Mr. Ruddy made a contrast upon the cost per square yard of American and Canadian carpet, that the statement made by the carpet manufacturers that they had no protection was erroneous. They had this protection that they had referred to. The Slingsby Company would be in favor of reducing the duty upon their goods, because they were of opinion that the present duty was unnecessarily high. They imported their wools to make carpet yarns. They employed about ninety hands just now, and one-

fourth of them were male workers. Men earn from \$1 to \$2, and the women from sixty cents to \$1.25. Boys get from \$3 per week to \$5. They would average ninety cents a day and work ten hours.

Mr. Charles Duncan, a carpet importer, also took exception to the statements of the Toronto manufacturers. The cheaper carpets used by the poorer people, he said, paid the heaviest duty. The Dundee carpets, made in Dundee, Scotland, were charged thirty per cent., which was a pretty high one. The story that carpets sent into Canada from the United States were old goods dumped upon our markets, and which were poor goods in the United States, was not true. The manufacturers had said this, but it was not true. The duty upon union and wool carpets was too high, and he would like to see a reduction. He would recommend a duty of twenty per cent. on jute carpets, and an ad valorem duty of twenty-five per cent. upon all other carpets outside of jute. He would do away with any specific duties. A twenty-five per cent. duty would be ample protection for any carpet-maker in Canada. He had not much to say about furniture. The rate of thirty per cent. was rather high. They might be satisfied with a twenty-five per cent. duty. Many of these furniture makers had told him that they would be able to get along and compete with the United States if there was free trade between the countries.

STARCH.

The starch manufacturers assured the Commission that they could not stand any reduction in duty. The delegation was composed of Messrs. George Foster, D. Lowrey, A. Robertson, and A. Murray of the Brantford Starch Company; George F. Benson and J. D. Reid, M.P., of the Edwardsburg Starch Company; A. Hutchison and J. Gray of the St. Lawrence Starch Company, of Port Credit. Mr. Foster made a statement in behalf of the delegation, requesting that the Government give the starch manufacturers no less a degree of protection than was granted at present. The duty had been reduced to such an extent that it would not allow of any further reduction if the manufacturers were to continue to operate their factories. Previous to 1879 the duty on starch was two cents a pound, with corn on the free list. From 1879 until 1894 the duty on starch was two cents a pound, with corn taxed at the rate of 7½ cents a bushel. In 1894 the duty on starch was reduced to 1½ cents a pound, and corn was allowed to remain at 7½ cents a bushel. The duty on a starch selling at 4½ cents a pound equals thirty-three per cent.

SPICES.

Mr. R. M. Fullerton of the Snowdrift Baking Powder and Spice Manufacturing Company, Brantford, asked for more protection on spices. The duty on raw ginger, cloves and articles of this kind was 12½ per cent., and on the finished product it was twenty-five per cent. There was apparently a protection of 12½ per cent., but it was more apparent than real. The protection, he claimed, should amount to twenty or twenty-five per cent. He pointed out the expense the firm was put to in purchasing sixty-five degrees over proof alcohol at \$4.10 a gallon, used in the preparation of this product.

WAGGONS AND CARRIAGES.

Mr. T. H. Wiley, speaking on behalf of the Brantford Carriage Company, expressed satisfaction with the present duties on their finished products. He submitted an invoice of screws imported from the United States, showing that on a purchase of \$176 the duty amounted to \$132.80, about eighty per cent. That same invoice, he said, if purchased in Canada, would cost \$25.85. Reducing twelve and one-half per cent., which was the wholesalers' profit, it would have cost \$25. The cost of the American screws, including duty, was \$76. He was buying these screws cheaper in the United States and paying eighty per cent. duty than he could get them in Canada. The duties on bolts and nuts figured up to forty and fifty per cent., while the manufacturer of wheels, bent wood and shafts got his raw material in free, he had a protection of thirty-five per cent. on his finished articles. Mr. Wiley asked for relief on his raw material.

Representatives of the Brantford Waggon Company of Woodstock; the Chatham Manufacturing Company, Chatham; Adams and Sons, Paris; Spreight Wagon Company, Markham; the Snowball Manufacturing Company, Saint George; the Woodstock Waggon Manufacturing Company; the William Milner Manufacturing Company, and John E. Patterson of London formed a deputation of waggon-makers, who asked the Government not to disturb the present duty of twenty-five per cent. The duty formerly was \$10 per wagon and twenty-five per cent.

SLATE AND GRANITE.

Mr. G. W. Brown, representing G. W. Brown and Brother, Brantford, dealers in roofing and other kinds of slate, stated that the native quarries could not supply the demand. The duty now

is seventy-five cents per square on black slate and ninety cents on all other colors. He suggested that slate blackboards for schools be admitted free and that the duty on slab be placed at twenty per cent., or not to exceed forty cents per square.

Mr. Joseph Read, marble cutter, wanted the duty removed from American granite. He said that the marble cutters could stand free trade with the United States and make money.

SADDLERY.

Messrs. R. J. and Frank Smith, representing James Smith, Son and Company, expressed their satisfaction with the existing duty of thirty per cent. on saddlery. Saddlery hardware is 32½ per cent., and they thought the duties on the finished product and the raw material might be made uniform.

DRY GOODS IMPORTERS.

The dry goods trade was heard from through Mr. E. D. Crompton of the firm of Crompton, Appelbee and Company. He suggested that it would be a matter of convenience to the trade and benefit to the public if the specific duties on woollens, manufactured clothing, buttons, haberdashery and hosiery were wiped out, and that ad valorem duties only were applied.

THE WINE INDUSTRY.

The Ontario wine industry was represented by Messrs. E. Girardot, Sandwich; J. S. Hamilton of the Pelée Island Wine Company, Brantford; R. L. Haskins of the Haskins Wine Company, Hamilton; and George Barnes, St. Catharines, presented a grievance with respect to the use of spirits in the fortification of wines. French wines entering Canada under treaty are fortified up to twenty-six degrees overproof, whilst the native Canadian wines are only fortified up to sixteen degrees. Owing to the high price of spirits for fortifying, the wine-growers in this country cannot use them advantageously in order to come up to the standard. Several suggestions were therefore made to local growers to meet foreign competition. It was suggested that the provisions of the French treaty, in so far as the importation of wine is concerned, be rescinded, or that the domestic growers be permitted to fortify sweet wines up to twenty-six degrees. The deputation stated that the impression was that they enjoyed a protection of twenty-five cents a gallon. In reality the protection was only nine cents, by reason of the high price paid for spirits.

CIGARS.

Messrs. W. K. Hallam and H. B. Gardner, Brantford, manufacturers of cigars, asked that the \$6 excise duty on tobacco be reduced to \$3, and that the duty on Havana cigars be raised. This, Mr. Gardner said, would give the Government as much revenue as is now collected, and skilled cigarmakers will be given employment in the manufacture of ten-cent goods. Another reason advanced by Mr. Gardner was that the Cuban makers had subscribed \$50,000 for the Spanish Government, in return for which the Spanish Government had prohibited the exportation of all tobaccos. The imposition of a higher duty on Havana cigars would compel the Cubans to send their unmanufactured tobacco here, as they would not be liable to send in any but their best lines of cigars. Mr. Hallam, who is a dealer as well as a manufacturer, advocated a change in the system of licensing cigar manufacturers. At present all factories, great and small, are charged \$75. He claimed that this system imposed a heavy burden on the small factory, while it occasioned no particular inconvenience to the large one. He suggested that a fee be graded according to the size of factory upon the principle that the malsters are now dealt with, and that licenses ranging in price from \$50 to \$200 be issued. He suggested that a duty of \$1.50 be imposed on cigars, and that the departmental regulation requiring the destruction of cigar boxes after they are empty be rescinded.

COAL.

An evasion of the law was called to the attention of the Ministers by Mr. John Mann of John Mann and Sons, coal dealers of Brantford. He said that there had been considerable want of uniformity in the prices paid in duty on slack coal or soft coal screenings. Slack coal pays a duty of but twenty-five per cent., while on the soft coal the duty is sixty cents a ton. The complaint was that some dealers had to pay sixty cents per ton duty on coal that was passed as screenings for others, and this placed them on a basis of inequality. Mr. Mann favored the abolition of all duty on soft coal.

A FARMER'S EVIDENCE.

Mr. Thomas A. Good, farmer, of the township of Brantford, though not appearing in a representative capacity, addressed the Tariff Commissioners in behalf of the agricultural community. Mr. Good made out a case in favor of such a revision of the tariff as will place the consuming masses in a better position. He began

by saying that he had no quarrel with any body or class of individuals, but he did quarrel with the majority of the people for putting in a Conservative Government year after year to enforce a protective tariff. He made it plain that he was not finding fault with the late Government for having given the country protection. That was what they were elected for, and if they had given the people free trade instead of protection they would be recreant to their promise. The Liberal Government had been put in power for the purpose of reducing the tariff and giving the consumers relief. If they did not do that they would be recreant to their promise. Mr. Good exhibited to the Ministers Bengough's cartoon depicting the National Policy as a huge elephant. He likened the policy to a devil-fish fastening its tentacles upon the country, or a vampire sucking the life's blood out of the country. The farmers in his part of the country, he declared, were almost ruined and land had depreciated fifty per cent. in value. There was a farm three miles from his place which a few years ago would have been considered cheap at \$70 an acre. Three years ago the owner ran away from it because there was upon it a mortgage of \$30 an acre. There were farmers around his district who could scarcely make both ends meet, though they and their families worked fourteen and fifteen hours a day—from four o'clock in the morning until dark at night. "We want relief, and I want to show how I consider we can get relief," said Mr. Good. "I want to see the duties on iron of all kinds, more especially on raw material, taken off. We have a duty of \$4 a ton on pig iron and \$10 a ton on bar iron. This handicaps our manufacturers.

"We have been given a protective duty of twenty per cent. on agricultural implements, but that will not compensate for the impost on their raw material. Who pays that duty? It is the men who buy agricultural implements. You make iron free and I will almost guarantee that the Watrous, or any other iron manufacturing company, will be able to compete with the Americans. Is it fair to the settlers in the North-West that they should be compelled to pay these enormous duties in addition to the large freight rates exacted from them? We would not need to pay the twenty per cent. duty if we had free iron."

Mr. Good went on to point out that the tariff discriminated against the poor man, and he instanced the duty of 56½ per cent. on the low grade blanket of the poor man, whereas the high grade article is taxed 45.75 per cent. He also illustrated the point by mentioning the case of window shades. The duty is thirty per cent., but not less than five cents a square yard. An importer in Brantford bought a cheap line of shades costing ten cents a piece. They were ten yards in size and the duty was ten cents, or 100 per cent. The duty on a fifty cent shade would be fifteen cents, and one costing a dollar thirty cents. Mr. Good told the Ministers that he was interested in observing the solicitude of the porkpackers and millers for the farmer in their representation to the Commission at Toronto in favor of maintaining duties. The millers have said that they paid the Canadian farmer more than the American farmer for wheat. The Canadian farmer, they had declared, had fifteen cents a bushel protection on wheat.

Mr. Good took up last week's market report and quoted some very suggestive figures. White wheat, which was the same as the Canadian wheat, sold at Detroit at ninety-three cents cash. At Toronto the street price for white wheat was 87½ cents to eighty-eight cents. Mr. Good could not understand where the protection came in. The millers should have paid the farmer more for his wheat, not eighty-eight cents, but \$1.05. There was a duty of ten cents a bushel on oats, but when oats were selling at Brantford for fifteen cents a bushel they were bringing twenty cents at Detroit and Chicago.

Coming now to the question of pork, he said that the packers were especially solicitous to keep the duty of \$1.50 a hundred-weight on live hogs, and last week live hogs sold at Toronto at from 35.5 cents to 37 cents a pound, in Buffalo they sold for \$3.60 live weight. That was fifteen cents under the Toronto price, but it must be borne in mind that the Canadian farmer had \$1.50 of a protection. Adding \$3.60 and \$1.50, the result was \$5.10. If the farmers were protected the packers should have paid them \$5.10. These men must think the farmers were all fools, and he would say that they had proved themselves to be such in the past on the tariff question. Mr. Good recommended, in the interest of the manufacturer, that corn be added to the free list. "The Liberal Government," he said, "was put in power last June to give us tariff reform, and if they don't give us tariff reform there will be a kick at the next election." Mr. Good advocated the abolition of the duty of 7½ cents a bushel on corn in the interest of stock feeding. We have to send our cattle and pork away to be sold and we want cheap food to enable us to compete with the Americans, Australians and others in the European markets. He denied the statement made by Mr. Fearman that the packing industry was a necessary adjunct to the dairy industry.

CAPTAINS OF INDUSTRY.

The following items of information, which are classified under the title "Captains of Industry," relate to matters that are of special interest to every advertiser in these pages, and to every concern in Canada interested in any manufacturing industry whatever, this interest extending to supply houses also.

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

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

The Willson Carbide Works Company of St. Catharines, Ont., have been incorporated with a capital stock of \$200,000.

The Mica Boiler Covering Company, Toronto, have opened a branch in Montreal at 22 St. John street; A. R. Bostwick, agent.

The Toronto Tire Company, Toronto, is being incorporated with a capital stock of \$50,000.

An exploring party was fitted out in October by the Owen's Lumber Company of Montebello, Que., to examine the mineral deposits on their limits, near Lake Innethaka. They struck two veins, carrying asbestos in large quantities. Regular operations have been carried on since the find, on one of the discoveries. A large output of

very rich ore has already been made, and the development of the mine, within the limited time since the find, proves it to be one of the richest of the kind in the province.

During the month of December the Toronto Electric Motor Company, Toronto, have filled the following orders for dynamos and motors: 300 light plant for Walkerton, Ont.; 300 light plant for Park Laval, Que.; 150 light plant to Campbelltown, N.B.; McDonald Bros., Winnipeg, Man., one motor and one dynamo; Robert Simpson, Toronto, forty horse-power motor; Brown Bros., Toronto, one motor; Miller Bro. & Toms, Montreal, one motor, being the fourth order from this firm; Granby Last Manufacturing Co., Granby, Que., eight horse-power motor;

Berlin Gas Co., Berlin, Ont., one motor; Range Cycle Co., Toronto, one motor; R. Anderson, Ottawa, thirty-five light dynamo; W. J. Fletcher, Alliston, Ont., thirty light dynamo; two dynamos and one motor to A. R. Williams Machinery Co., Toronto; motor to Edward Membry, Toronto; motor to George Sterrett, Toronto; Collegiate Institute, Harbord street, Toronto, one dynamo; Mr. Pudivan, Toronto, eight horse-power motor; Harvie Manufacturing Co., Toronto, six horse-power motor; Fensom Elevator Works, Toronto, six horse-power motor. It might be mentioned here that a practical test has been made by Prof. Rosebrugh of the School of Practical Science, Toronto, between one of the Toronto Electric Motor Co.'s machines and one of United States manufacture. This test showed that the Toronto Electric Motor Co.'s machine did the same work as the United States machine with less than one-third the current.

The Nonsuch Manufacturing Company, Toronto, is being incorporated with a capital stock of \$20,000, to take over the business of the Nonsuch Manufacturing Company.

The Ontario Radiator Company, Toronto, is being incorporated with a capital stock of \$300,000.

For some time the Toronto Junction Foundry Company, Toronto Junction, Ont., have been experimenting upon a new process of manufacturing edge tools with such success that they have decided to go into the business extensively. Axes, adzes, planing, moulding and striker knives, etc., will be manufactured by their patent process. These are cast directly into the form of the tool, and only require tempering and sharpening.

THE BEST BELTING DOES THE MOST WORK

IT RUNS THE STRAIGHTEST

STRETCHES THE LEAST, AND LASTS THE LONGEST

THIS IS THE KIND WE MANUFACTURE

Sadler & Haworth

FORMERLY

ROBIN, SADLER & HAWORTH

MANUFACTURERS OF

OAK TANNED LEATHER BELTING

TORONTO AND MONTREAL

The Packard Electric Co., St. Catharines, Ont., inform us that owing to their rapidly growing business, they will during the coming summer double the capacity of their plant for the manufacture of electric lamps and transformers. They say that their business thus far this season is one hundred and fifty per cent. greater than it was for the corresponding season a year ago. Their transformers have been brought up to the highest stage of perfection, and in efficiency, core loss and regulation, they are the equal of any in the market. They report that the sale of their Scheeffler wat meters as being very large.

The Royal Electric Co., Montreal, are installing an electric lighting plant for Wm. Irving, of Sundridge, Ont. They are furnishing one of their latest type two phase "S.K.C." twenty-five K.W. dynamos. Contracts have already been secured for about 200 lights, and also for one motor to run off the same two phase alternating circuit.

The River Range Oil Company, Toronto, is being incorporated with a capital stock of \$10,000.

The B. Greening Wire Company, Hamilton, Ont., have sent us their office calendar for 1897. To say that it is fully equal to any sent out by them in previous years would be saying a good deal. We are pleased in saying that this, in our opinion, is the best yet sent out by this concern. They have retained the clear bold type that can be seen across any ordinary sized office, using the blank spaces for advertising the goods they manufacture, such as wire rope, wire chain, wire cloth, perforated metal, etc. Three portraits are given of Nathaniel Greening, founder of the present business in England

in 1799, B. Greening, founder of the business in Hamilton in 1859, and S. O. Greening, president of the present company.

Nova Scotia's only paper mill, that at Hartsville, on the line of railway between Windsor Junction and Windsor, and on the St. Croix river, was opened but a few months ago and seems to be doing a brisk business. It is known by the name of the St. Croix Mill. It is owned by H. McC. Hart, formerly a lumberman and manufacturer of wood pulp at Sheet Harbor. The products of the mill are wrapping papers, box board, cardboard, paper barrel heads, etc. The sulphite consumed comes from Chatham, N.B., mills, and the ground pulp from the mill at Sheet Harbor. In the spring it is intended to erect a pump mill on the St. Croix near the paper mill. Most of the output of the mill is sold in Halifax and St. John.

The Edmonton Herald publishes the following description of the new flour mill at Fort Saskatchewan, Alberta:—The building is thirty-two by forty feet and forty-two feet high, and has besides a stone basement of eight feet, engine house thirty-six by thirty, and the whole covered with steel siding, the studding in the lower storey is two by twelve and the upper two by ten, the whole being as complete and strong as it could be built, and a credit to any place. The machinery was supplied by Goldie & McCulloch, of Galt, Ont. The purifiers in the mill are a new patent, they have also an automatic flour packer that works to perfection and will fill a forty-nine pound or ninety-eight pound sack to an ounce, the only thing the man has to do is to lift the full sack off the platform and place an empty one there. The

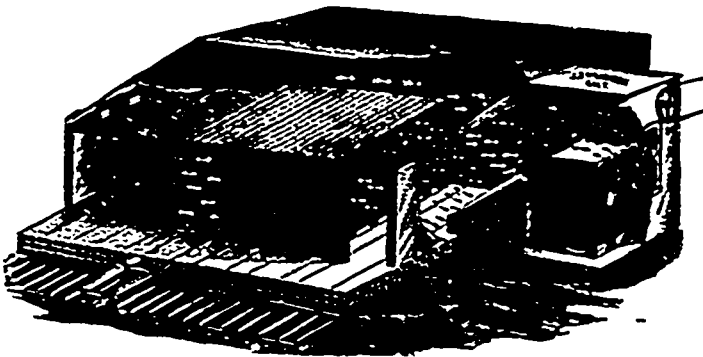
power is supplied by the sixty horse power Wheelock engine, and a seventy-five horse power boiler, and the total cost in round figures is \$12,000. The whole going to make the best and most complete thirty-six barrel roller mill that stands in Canada today. The surrounding farmers bonused the mill to the extent of \$2,500, and to those they exchange wheat that grades sixty pounds to the bushel, thirty-five pounds S. B. flour, ten pounds bran and three pounds shorts. The mill is owned by Percy B. Cunniff, a young Scotchman.

The following Ontario mining companies are being incorporated: The Ego Mining Company, London, capital stock, \$1,000,000; Queen Bee Gold Mining Company, of Ottawa, capital stock, \$1,000,000; The Golden Goblin Mining Company of Ontario, Toronto, capital stock, \$500,000; The Western Canada Gold Mines Company, Toronto, capital stock, \$29,000; Nanki Poo Gold Mining Company of Ottawa, Ottawa, capital stock, \$1,000,000; The Gold Hills Exploration and Development Company of Toronto, Toronto, capital stock, \$2,000,000; The Burley Gold Mining Company of Ottawa, Ottawa, capital stock, \$1,000,000; Bald Indian Bay Mining and Investment Company, Ottawa, capital stock, \$6,000; The Nugget Gold Mining Company of Rat Portage, Rat Portage, capital stock, \$50,000; The Ontario and Kootenay Mining Company, Guelph, capital stock, \$6,000; and The Sovereign Mining Company, Rat Portage, capital stock, \$1,000,000.

The Rat Portage (Ont.), Record, says that Dr. James A. Ogden has completed arrangements to establish ore sampling works at that place.

McEachren's System of Drying, Heating and Ventilating

Under Recent Patents.



In construction and process of drying this Kiln differs widely from all others in use. They have given entire satisfaction where all others Dry Kilns have failed. They will season More Lumber in a Given Time, with a given heating surface and a given quantity of steam than any other Kiln now in the market. Their construction and mode of operating is such as to season lumber without Case Hardening, Checking or Warping. They work equally well on Lumber Right from the Saw and on Air Seasoned Lumber, the only difference being that one takes a little more time than the other. By a Peculiar Arrangement Found Only In Our Dry Kilns we extract the moisture from the heated air, return it through the heater again and thus preserve the heat passing from the Kiln instead of wasting it as is the rule with all other Blast Kilns.

Ventilating Fans, Shaving Fans, Pressure Fans, all sizes.

BLAST HEATING SYSTEM FOR LARGE BUILDINGS

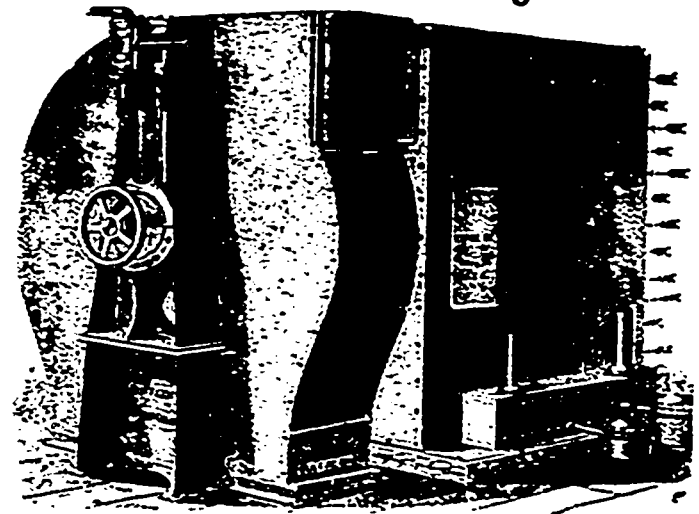
Little Wonder boiler and new Hot Water Heating System half price of usual hot water system. STEAM BOILER CLEANERS, Feed Water Heaters covered by Patents of recent date in Canada and United States.

Second-hand Heaters and Fans made by the best American Manufacturers, only in use a short time, for sale at great reduction. Send for Illustrated Catalogue and Prices to

McEACHREN HEATING & VENTILATING CO.

GALT, ONT.

Buffalo Lumber Dry Kilns



THE LARGEST DRIER IN AMERICA IS EQUIPPED WITH A "BUFFALO" HOT BLAST APPARATUS.

THE OWNERS ARE ENTHUSIASTIC.

All users of Buffalo Kilns write letters similar to this one:

"The Kiln answers every purpose to perfection: the Dry Rooms are run with exhaust steam at mere nothing in the way of cost, compared with the old way. Your arrangement is very simple and easily managed, besides being a money saver in operation. We are able, with the Kiln you sent us, to dry soft woods in three days, and hardwoods in five days. That's good enough for anyone."—SOUTH BROS., Sayre, Penn.

Send for Catalogue.

Buffalo Forge Co., Buffalo, N.Y., U.S.A.

Sold in—Toronto, Ont., by H. W. Petrie.

Brantford, Ont., by Canadian Machinery & Supply Co.

Montreal, Que., by Canadian Machinery Agency.

Chicago Store, 22 and 24 West Randolph Street
New York Office, 28 Cortland Street.

An estimate of the quantity of logs that will be taken out in the Georgian Bay district this winter for rafting to Michigan points places the amount at 175,000,000 feet.

The St. John, N.B., shipments of lumber to South American ports during 1896 exceeded by far those of any recent season. Some 12,000,000 feet of lumber have been exported to River Platte and other ports.

The McGregor, Gourlay Company and Goldie & McCulloch Company, Galt, Ont., will supply the machinery for Mr. D. Hibner's furniture factory, which is being rebuilt at Berlin to replace that burned some time ago.

Mr. James Gow's new carpet factory in Guelph, Ont., is about completed. The looms will be in operation in a few days.

The Dominion Dyewood and Chemical Company, Toronto, have sent us an aluminum desk calendar pad which we shall esteem as much for its beauty as for its usefulness. This company certainly hit upon an effective perpetual advertisement in sending out this useful article with their name cast in the aluminum frame into which a new pad may be placed from year to year ad infinitum.

The Canniff Prairie Fire Guard Company, Winnipeg, Man., has been incorporated.

The ratepayers of Guelph, Ont., will vote on a by-law on January 4th, for the issuing of debentures to the extent of \$20,000, to establish a civic electric light plant.

Frank Monger's turning factory, at Union, Ont., was destroyed by fire a few days ago.

E. B. Dolloff's sash and door factory at Fitch Bay, Que., has been destroyed by fire. Loss, \$8,000.

Hon. A. R. Dickey, ex-Minister of Justice, has purchased the lumbering property at Sheet Harbor, East Halifax, N.S.

John Perkins' foundry, Toronto, was damaged by fire Dec. 21st, to the extent of \$11,000.

Messrs. I. Matheson & Co., New Glasgow, N.S., recently shipped two car-loads of mining machinery to Rossland, B.C.

Carleton Place, Ont., has voted \$20,000 to the C.P.R. Company towards the erection there of permanent and extensive work shops.

Mr. C. D. Fuller's grain elevator at Aylmer, Ont., was burned Dec. 15th. Loss, \$8,000.

BREWERS COPPER WORK

Brewing Kettles, Boiling Coils,
Beer Coolers, Attempartors
Spargers, etc., etc.

—THE—

BOOTH COPPER CO.

LIMITED.

TORONTO, ONT.

Established 1854.

VALVES AND PIPE . . . FITTINGS

WRITE FOR LATEST PRICES

RICE LEWIS & SON, Ltd.

Corner King and Victoria
Streets

TORONTO

ALGOMA IRON WORKS

SAULT STE. MARIE, ONT.

Engineers Founders

AND

Machinists

PULP AND PAPER MILL

AND

MINING MACHINERY

DESIGNED; CONSTRUCTED and
REPAIRED

ECO MAGNETO Watchman's Electric Clock

WITHOUT BATTERIES.

Write for descriptive circular to

ECO MAGNETO CLOCK CO.

Room 71, 620 Atlantic Avenue,
BOSTON, MASS.

MONTREAL ELECTRIC CO.'Y.

Agents for Province of Quebec

302 ST. JAMES STREET.

John Starr, Son & Co., (Ltd.)

HALIFAX, N.S.

Agents for the Maritime Provinces.

RHODE ISLAND HORSE SHOES

Cut Nails

Bar Iron and Steel

Railway Spikes

Pressed Spikes

Washers

ABBOTT & CO.

MONTREAL

Canada Chemical Manufacturing Co.

Manufacturers of

Sulphuric, Nitric, and Muriatic
Acids — Commercial and
Chemically Pure.

Mixed Acids for Explosives.

Liquid Ammonia, Glauber Salts,
Coppers, Muriate Tin,

Tin Crystals, Acetic Acid, Nitrate
Iron, Bisulphite Soda,

Acid Phosphate for Baking Pow-
ders and General Chemicals.

Fertilizers, etc.

LONDON
ONT.

Mr. R. E. T. Pringle, Montreal, agent for the Packard Electric Co., Ltd., of St. Catharines, Ont., has recently opened a large store at No. 216 St. James St., Montreal. Mr. Pringle's largely increased business has necessitated this, as well as affording greater convenience for his customers, and enabling him to carry a largestock of all kinds of electrical material. Besides carrying a full line of Packard lamps, transformers and Scheeffer meters, he will also have a complete stock of Phillips' insulated wire, and both weatherproof and cotton covered magnet wire. Mr. Pringle is also agent for the Toronto Electric Motor Co., and will have a full line of motors on hand constantly. He will also handle the well-known supplies made by the Bryant Electric Co., of Bridgeport, Conn., and in fact, have everything in stock required for lighting and power installations. Mr. Pringle is fortunate in having one of the best located electrical stores in Montreal, and will no doubt largely increase his business.

The Brantford Ont. Electric and Operating Co. have purchased from the Royal Electric Co., Montreal, and now have in operation in their station a 150 K.W. "S. K. C." two phase alternating current dynamo. This company had a number of serious misfortunes with its lighting apparatus, and desired a new machine delivered

there quickly. The order was given to the Royal Electric Co., on December 5th. at five p.m., and on Friday, December 11th, the dynamo was furnishing light to the City of Brantford. It was ready for operation in a little more than five days after the order was given. It was set up in running order in the factory of the Royal Electric Co., in Montreal, had to be dismantled and boxed, shipped to Brantford and there unboxed and put together again, set on foundations and connected to the old systems. The time of transit was from six p.m. Monday, until twelve noon Thursday. The balance of the time was consumed in dismantling and boxing at Montreal and unboxing and setting up in Brantford. It is the intention of the Brantford Electric and Operating Co. to in the future furnish power from the two phase system. In this they are following the lead of a number of the best companies in Canada, who have decided that the power transmission of the future would be by poly-phase, and not direct current. This "S.K.C." dynamo was purchased under the new management of the Brantford Electric and Operating Co., and shows unmistakably that they are prepared to remain in the front rank of the electrical business.

The Buffalo Forge Co. are exceedingly gratified with an unsolicited testimonial that they have received from Capt. John Green,

of Buffalo, who is very well known among lake vessel owners. Capt. Green says: "In accepting of your forced draft plant in the steamer Lewiston, I take great pleasure in stating that the outfit is more than satisfactory. The results have more than surpassed our most sanguine expectations. The saving per trip from Chicago to Buffalo and return is from fifteen to twenty tons of coal, which very soon repaid the cost of the plant. In addition to this, the speed of the boat has been increased a quarter to half a mile per hour over the best previous time. This increase in speed is due to the fact that there is no variation in steam in cleaning fires. The application of the forced draft outfit to the boiler plant has also had the result of obtaining greater steaming capacity of the boilers. I can heartily recommend this system of mechanical draft for lake boats to anyone."

Mr. James Lochrie, Toronto, manufacturer of the celebrated Antelope bicycles, has just returned from a business trip to Europe, while away he was made sole agent for Canada for Messrs. Perry & Co., of England, for their celebrated bicycle chains and parts. The addition of the business growing out of this agency, and the use of the Perry chains, etc., in the Antelope bicycle by Mr. Lochrie, will no doubt add very much to his already well established reputation.

THE
Polson Iron Works
TORONTO, CANADA.

THE BEST EQUIPPED BOILER AND ENGINE WORKS IN CANADA.

— WE MANUFACTURE —

STEEL The BROWN AUTOMATIC ENGINE
MARINE ENGINES-SINGLE, COMPOUND AND TRIPLE

Hoisting and Mining Engines
Steam Yachts and Launches

BOILERS

OF EVERY DESCRIPTION.

GET OUR PRICES BEFORE ORDERING.

ESPLANADE EAST, Foot of Sherbourne St.

TORONTO, CANADA

A. C. NEFF

CHARTERED ACCOUNTANT
AUDITOR, ASSIGNEE, ETC.

28 Wellington St. E., Toronto

Audits and Investigations a Specialty.

WE BUILD

STEAM AND ELECTRIC . . . ELEVATORS

WRITE US FOR PRICES

MAGUIRE & DRYDEN

78 ESSLANADE WEST, TORONTO



THE PARIS ELECTRO-PLATING CO.

Manufacturers of

Stove Trimmings, Organ and Piano Trimmings, also all kinds of Brass and Nickel Plating Done.

Paris Station, - - Ontario

SMITH WOOL-STOCK CO.

219 FRONT ST. EAST, TORONTO

Makers of **WOOL STOCK, SHODDIES, Etc.**

of... All lines of Graded Woolen Regs. Carbonizing and Neutralizing. Is: vers of Wool Pickings. All lines of Hard and Soft Waste.

F. W. HORE'S SONS

HAMILTON, ONT.

Manufacturers of . . .

WHEELS. Wheel Materials. Shafts. etc

W. J. KRAMER
WOOD
& PHOTO
ENGRAVER
17 JORDAN ST.
TORONTO

The Mica Boiler Covering Company, Toronto, recently received a duplicate order from the C.P.R. Co., to equip a large number of locomotives with mica covering.

On December 17th, fire destroyed the dry kilns of the British Columbia Cooperage Company at Victoria, B.C. Loss \$5,000.

The two large train loads of wheat flour sent through to Victoria, B.C., by the Ogilvie Co., bound for Australia, will make an epoch in the colonial trade. The flour-laden freights were the centre of attraction in Vancouver for two or three days, owing to the nicely painted streamers which decorated the cars and which could be seen from every part of the city.

The Liscomb Gold Mining Company, Stellarton, N.S., is being incorporated with a capital stock of \$13,000.

A by-law has been carried at Portage la Prairie, Man., to construct works on the river there for water power purposes, etc., involving a large expenditure.

The Robb Engineering Company, Amherst, N.S., have been appointed agents for that province for the Mica Boiler Covering Company, Toronto.

J. M. Taylor, Portage la Prairie, Man., is making additions to his planing mill, adding new machinery, etc., for the manufacture of sash doors, etc.

D. W. Alexander & Co., Toronto, is being incorporated to take over the business of tanning, manufacture of belting, etc., now carried on by the firm of D. W. Alexander & Co.

The Stanley Piano Company of Toronto, head office Toronto, is being incorporated with a capital stock of \$24,000.

Mr. John M. Eastwood, Loch Winnoch, Ont., is building a new woolen mill.

The Chesley Chair Company, Chesley, Ont., has been incorporated with a capital stock of \$20,000.

The Strathroy Brewing and Malting Company, Strathroy, Ont., is being incorporated with a capital stock of \$11,000.

BRITISH COLUMBIA MINING INDUSTRY.

The following mining companies are being incorporated:—The Golden Wedge Mining Company, Rossland, capital stock, \$1,500,000; The Bruce Gold Mining Company, Rossland, capital stock, \$1,000,000; Peoria Mining and Milling Company, Rossland, capital stock, \$1,000,000; Sultana Gold Mining Company of British Columbia, Rossland, capital stock, \$1,000,000; The Cromwell Mining and Developing Company, Rossland, capital stock, \$1,200,000; the Royal Five Gold Mining Company, Rossland, capital stock, \$1,500,000; The Dardanelles Mining and Milling Company, Kaslo, capital stock, \$1,000,000; Dundee Gold Mining Company, Rossland, capital stock, \$1,000,000; The British Columbia Gold Property Company, Victoria, capital stock, \$250,000; Dundurn Gold Mining Company, Rossland, capital stock, \$1,000,000; Gopher Gold Mining Company, Rossland, capital stock, \$1,000,000; Alpha Bell Gold Quartz Mining Company, Vancouver, capital stock, \$500,000; The Kootenay Iron Works Company, Nelson, capital stock, \$50,000.

The following foreign mining companies have been registered in British Columbia:—Bowen Island Mining Company, Tacoma, Washington, capital stock, \$1,000,000; Quesnelle Mining Company, Chicago, Ill., capital stock, \$1,000,000; Spokane-Kaslo Mining and Milling Company, Spokane, Washington, capital stock, \$900,000; Black Rock Gold Mining Company, Seattle, Washington, capital stock, \$1,000,000; British Columbia Development Association, England, capital stock, £10,000.

The Packard Electric Co., Ltd.

MAKERS OF

Lamps and Transformers

Sole Agents for SCHEEFFER RECORDING WATT METERS ST. CATHARINES, ONT.

Burnham's Percentage
NEW IMPROVED STANDARD TURBINE
BURNHAM BROS., York, Pa.

TURBINE AND CASCADE WATER WHEEL

Adapted to all Heads from 3 Feet to 2000 Feet.
Our experience of 33 YEARS building Water Wheels enables us to suit every requirement of Water Power Plants. We guarantee satisfaction.
Send for a Pamphlet of either Wheel and write full particulars.
JAMES LUFFEL & CO.
SPRINGFIELD, OHIO, U.S.A.

THE ELECTRICAL GAS OR GASOLINE... Engine

WRITE FOR PRICES AND TESTIMONIALS
J. R. BAIRD
WOODSTOCK, ONTARIO

The new power company at Niagara Falls have now in successful operation their new power plant; consisting of four of the Lefel celebrated Niagara type of turbines, each of about 2,200 horse power capacity, or giving in all some 9,000 horse power. These turbines drive eight generators of something over 1,000 horse power each; two generators being connected directly to the shaft of each wheel, one being placed on each side. This comprises the most complete and perfect electric water power plant in the world. The same company have four other of the Lefel Niagara turbines, using in all eight of that style of wheel.

A home-made locomotive is owned by Bell's Asbestos Company, Limited, which is in use at the company's mines, at Thetford, in the province of Quebec. It is used to haul waste rock from the quarries to the dump. This locomotive was made at the works in Thetford, as a matter of economy, as the cost of a Porter or Baldwin locomotive of the same size with the tariff duty of thirty-five per cent., would have cost in the neighborhood of \$4,500, while this one was built at a cost of only about \$1,500, including \$400 for the boiler, and making an allowance of \$400 for the pair of engines. The engines are a pair of Copeland & Beacon's hoisting engines, the frame of which had been broken; the drum was removed and the en-

gines drawn closer together, forming a saddle for the boiler to rest on, where the drum-shaft passed through. The length over all is fourteen feet; the extreme height nine feet ten inches, and the weight about 15,000 pounds. The tank has a capacity of about 250 gallons. The hauling capacity, on a level, in tons of 2,000 pounds, is over 450 tons, and the engine runs at a speed of twelve miles an hour, hauling ten three-ton empty cars, and makes a total of over sixty miles a day. The locomotive has been in service for three years, during which time there have been practically no repairs.

The Consolidated Milling Co., of Peterboro', are having their large mills lighted by electricity. The Royal Electric Co. are furnishing the dynamo and materials, and Mr. J. H. Greer, of Peterboro' is installing the plant. The Consolidated Milling Co. expect to run about twenty-four hours per day, from which it would appear that they have plenty of business in view.

The waterworks and electric light systems of the corporation of Sudbury, Ont., were successfully started a few days ago. This is said to be the first municipal corporation in Canada which has installed a strictly up-to-date electric lighting system. They are operating from their alternating current two phase dynamo, furnished by the Royal Electric Co., of Montreal, over 1,000 sixteen c.p. incan-

descent lamps, sixteen street arc lamps of the Helios type of 2,000 c.p. each, and a number of small motors driving printing presses, meat choppers, etc. The power house in which are erected the pumps as well as the electric light and steam power is a solid brick structure, 2½ stories high in the main part, with a boiler room extension, solid stone basement, cement and hardwood floors, and situated close to the lake on property bought for the purpose. The plant consists of two boilers of sixty h.p. each, made by the Jencks Machine Co., of Sherbrooke, Que., two Northey duplex pumps, with a capacity of 30,000 gallons per hour, made by the Northey Mfg. Co., Toronto, one 125 h.p. Wheelock automatic engine with condenser, made by Goldie & McCulloch, Galt, Ont., and one seventy-five K. W. "S.K.C." generator, with station apparatus complete, by the Royal Electric Co., Montreal. The water is forced by the pumps into a steel tank built on a steel tower, which holds 70,000 gallons. The elevation of the tower gives eighty-two pounds pressure at the hydrants, which is ample to put a fire stream over the highest building in the town. The city fathers and the people in general are highly pleased with the entire plant, and much credit is due to the engineers, Messrs. J. R. Gordon, C.E., and L. V. Rorke, D.L.S., for the first-class manner in which this second plant was installed.

FETHERSTONHAUGH & CO.

PATENT BARRISTERS AND SOLICITORS

ELECTRICAL AND MECHANICAL EXPERTS AND DRAUGHTSMEN

Head Office: Canadian Bank of Commerce Bldg, Toronto, Ont.

Patents

Procured in Canada and all Foreign Countries.

Offices in Montreal, Que., Ottawa, Ont., and Washington, D.C.



...GALVANIZED STEEL FIRE PAILS..

NO HOOPS TO FALL OFF

A Pail that will withstand the action of salt and water.
 More fires are extinguished by pails of water than by all other means combined.
 They are always ready, simple and effective.
 The Official Returns of the New York Fire Commissioners, show that 64 per cent. of the whole number of fires were extinguished by pails of water.
 Galvanized, Painted Red and Stencilled, or Plain Galvanized and Stencilled.

PRICES ON APPLICATION

Kemp Manufacturing Co., - Toronto, Can.

ALEX. GARTSHORE, PRESIDENT.

J. G. ALLAN, SECY & TREAS.

JAS. THOMSON, VICE PRES'T & GEN'L MGR

ESTABLISHED 1870

INCORPORATED 1896

GARTSHORE & THOMSON
PIPE & FOUNDRY CO. LTD.

MANUFACTURERS OF SPECIAL CASTINGS AND ALL KINDS OF WATER WORKS SUPPLIES.
 CAST IRON WATER, GAS, CULVERT & SEWER PIPE

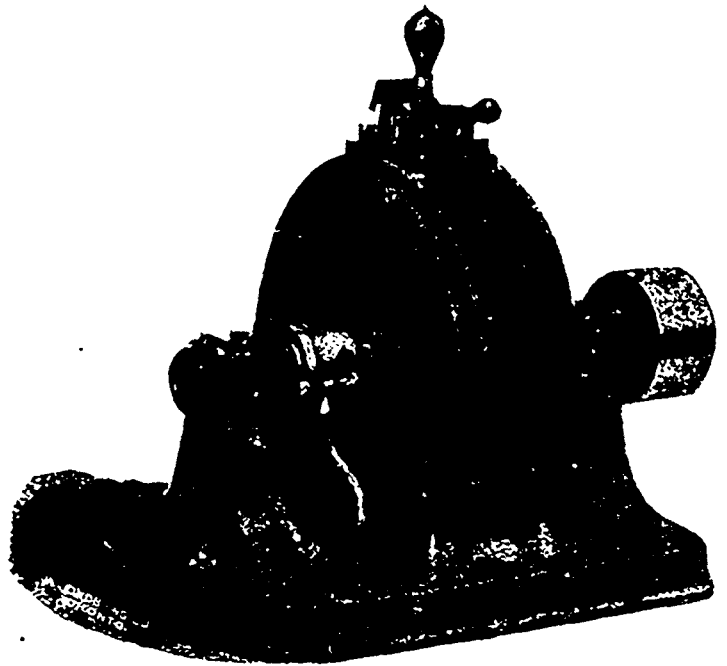
Hamilton, Ont.

ALTERNATING CURRENT MOTORS.

The accompanying illustration is of the self-starting, single-phase alternating current synchronous motor, manufactured by the Toronto Electric Motor Company, Toronto, who supply us with the following facts and claims concerning it:—

Stationary motors for use in connection with direct-current generators are familiar in cities where there is a system of direct-current distribution in operation, and even where the lighting service is supplied from alternating-current dynamos, having a separate power circuit from which direct-current motors are supplied with service, usually under a pressure of 500 volts, a special generator being installed for this purpose and separate lines extended as far as practical; but such a system is limited by the expense of this extension, necessarily paralleling other lines already constructed for lighting service. Under such conditions, a remunerative piece of business is often refused on account of the first cost of the extension necessary to reach the customer.

The many advantages of the alternating-current system have led to its adoption in the great majority of the central lighting stations of the United States, notwithstanding the objections that (aside from a few inefficient fan motors of a fraction of a horse-power) no motors practical for general power distribution were obtainable for use on this system. This objection, however, no longer obtains. The Toronto Electric Motor Company are now prepared to furnish alternating-current motors to operate on single-phase circuits from ordinary lighting transformers, without the use of special starting



JOHN HALLAM
TORONTO
 WHOLESALE DEALER IN
DOMESTIC and FOREIGN WOOLS
 Sumac, Japonica, etc.

BOILERS
 You Want Them
 We Make Them
 WRITE FOR PRICES
BANNERMAN & FINDLATER,
 Boiler Makers, OTTAWA, ONT.

FIRSTBROOK BROS.
 Dovetail and Packing Boxes
 Top-Pins, Side Blocks and Cross Arms. Wood
 Printers, Etc.
 Cigar Boxes. Shipping Cases.
TORONTO, ONTARIO.
 Write for Prices

WRITE TO THE
PATON MANUFACTURING COMPANY
 OF SHERBROOKE, QUE.,
 — FOR —
WORSTED KNITTING
 — AND —
FINGERING YARN.

Montreal Office:—409 Board of Trade Building.
 Toronto Office:—33 Melinda Street.

SPECIALTIES.
 Machinery Brushes for woollen and flour mills, jewellers, shoes, breweries, dairies, planters, foundries, and all machinery work; old rollers refilled.
Frank Wehrle & Co.,
 Brush Manufacturers,
 131 Bay St., Toronto.

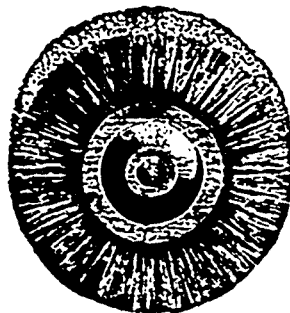
C. G. ELRICK & CO.
 MANUFACTURERS OF
HORN and RUBBER COMBS, Etc.
 FACTORY—Sheppard Street, Toronto.
 MONTREAL OFFICE—Fraser Building.

Reproductions Made for Eight Cents per Square Inch



Half Tones Made Direct from Photos

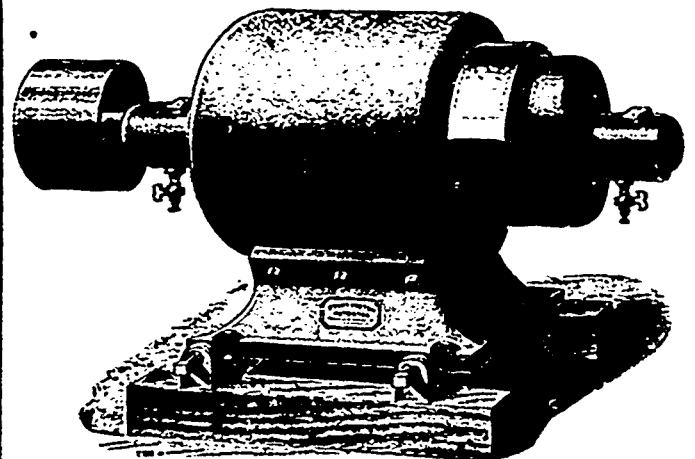
FACTORY BRUSHES AND BROOMS



FOR MILLS, etc., MADE TO ORDER
 ROLLERS REFILLED.
 Special attention given to this class of work at lowest possible prices.

CHAS. BOECKH & SONS
 MANUFACTURERS
 TORONTO, ONT.

The STOREY MOTOR and DYNAMO



Send for Catalogue. MANUFACTURED BY
The STOREY MOTOR and TOOL CO.
 John St. North, Hamilton, Can., and Philadelphia.



Babbitt Metal.
BRASS, BRONZE, PHOSPHOR BRONZE, ALUMINUM BRONZE, COPPER, ZINC and ALUMINUM CASTINGS TO ORDER. Large or Small.
 Write for Prices.. **DEAN BROS., 184 Richmond St. West, Toronto**

devices, condensers or connections, which it is claimed not only equal the best direct-current motors in commercial efficiency, but are superior to them in point of regulation, reliability and freedom from burn-outs. With such a motor, which can also be used as a rotary transformer, the single-phase alternating system has every advantage of the low tension direct-current system, besides which it is much superior in simplicity, flexibility and adaptability for long distance distribution; so that to-day arc and incandescence light, heat and power are distributed from the alternating system at a distance of a fraction of a mile, or at thirty miles or more, controlled, regulated and metered with equal facility and perfect satisfaction to the consumer.

The single-phase alternating-current motor has been to the electrician like the panacea of the alchemist, the cause of almost endless thought and experiment; but the solution of the problem was a most simple one and rests on two well-known principles. Attempts have been made to use induction motors on the single-phase circuits, but it is difficult to start them, and usually very cumbersome and expensive arrangements have been devised, which give but small starting torque. Besides this, in order to make them at all efficient and keep the power factor within reasonable limits, a very small clearance or air gap (often less than one-half

millimeter) must be allowed between fields and armature, so that the slightest mechanical wear or vibration causes trouble. Even under the most favorable conditions it is impossible to construct an induction motor so as to avoid a very considerable lagging or so-called "wattless" current. In such motors the power factor, which is the ratio of the real to the apparent energy, varies from twenty to eighty per cent. That is to say, if the motor has a power factor of fifty per cent. there must be double the current furnished that is actually required to do the work, and while half the current is wattless, yet it uses up capacity in generator, transformer and line wire, with energy consumption due to C²R losses in each, and in long distance transmission the impedance (which is the ohmic drop plus that due to the inductance of the line, and which varies with the current and frequency), cuts such a figure as to make the expense for copper large, in order to keep the working electro-motive force within proper limits.

Pacinotti's discovery of the reversibility of a dynamo applies to alternating-current machinery as well as direct, except that the ordinary alternating-current generator, when used as a motor, must be brought to synchronous speed before it will fall in step with the generator, and further, must have its fields excited—usually from a separate source. It will then operate as a motor, and is the most

Leitch & Turnbull

Canada Elevator Works,
Queen and Peter Streets, Hamilton, Ont.

Patent Safety Hydraulic Hand and **POWER ELEVATORS**
Telephone Connection.

METAL **STAMPS**

SOAP DIES, AND BRASS SIGN MANUFACTURERS
PATTERSON & HEWARD
10 WELLINGTON ST. WEST, TORONTO

FOR SALE

FOUR H.P. EDDY ELECTRIC MOTOR

Guaranteed in First-class Order.
Address

The Barber & Ellis Co., Toronto

D. K. McLAREN

BELTING, CARD CLOTHING
- - - **MILL SUPPLIES**

COTTON AND WOOLEN SUPPLIES
SHUTTLES, PICKERS, HEDDLES
REEDS AND HARNESS

Sole Agent for....

Messrs. Wilson & Ingham
MIRFIELD, ENGLAND

24 Victoria Square, - Montreal

R. C. Jamieson. A. T. Higginson.

R. C. JAMIESON & CO.
Manufacturers of

VARNISHES AND JAPANS | Importers of Oils, Paints, Colors, Turpentine, METHYLATED SPIRITS, Shellacs, Rosins, Glues, Gold Leaf, Bronze, etc.

Office—13 ST. JOHN STREET
Factory and Warehouse—23 to 29 ST. THOMAS ST. | MONTREAL

Penman Manufacturing Co., Ltd.

PARIS, ONTARIO.

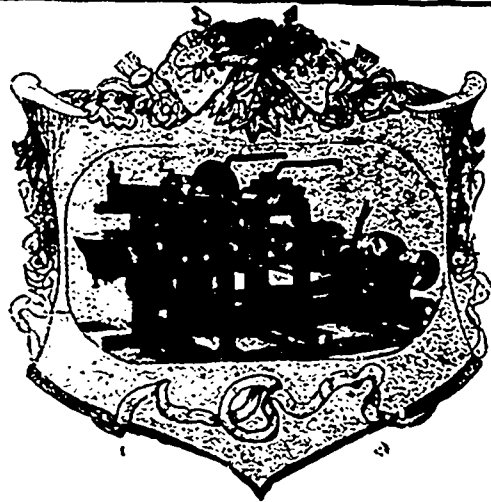
Manufacturers of
HOSIERY, SHIRTS, DRAWERS,
GLOVE LININGS AND YARNS

Selling Agents: D. MORRICE, SONS & CO., Montreal and Toronto.

ROSAMOND WOOLEN COMPANY

ALMONTE, ONT.

FINE TWEEDS, CASSIMERES, AND FANCY
WORSTED SUITINGS AND TROUSERINGS.



Wood or Iron-Working Machinery, Engines, Boilers, Motors, Shafting, Etc.

The Toronto Machinery Supply Co.,
164 King St. W.

Guelph Woolen Mill Co., Ltd.

GUELPH, ONTARIO
Manufacturers of

Underwear, Hosiery, Wheeling, Fingering and Worsted Yarns
EIDERDOWN FLANNEL, ETC.

Selling Agents: Donald Fraser, Montreal E. H. Walsh & Co., Toronto.

AUBURN WOOLEN COMPANY

PETERBOROUGH, ONT.

Manufacturers of Fancy Tweeds, Etc.

Selling Agents, D. MORRICE, SONS & CO., Montreal and Toronto.

THE PARKHILL VENEER CO.

Manufacturers of

Rotary Cut Cheese Box Hoops

HEADING SCALE BOARDS, ETC.

In Car Lots, or less. Write for particulars.

PARKHILL VENEER COMPANY PARKHILL, ONT.

The Factory of this Company for Sale or to Let.

FERGUSON & PATTINSON

PRESTON, - - ONTARIO.

MANUFACTURERS OF

FINE AND MEDIUM TWEEDS

satisfactory motor that can be produced when constant speed is required. Its efficiency is the highest—quite as high as that of direct current motors of equal capacity—while the regulation is perfect. So long as the generator, with which such motor is connected, runs at a uniform speed, the motor must run at a proportional speed, dependent on the ratio of the poles to the alternations, every impulse of the generator advancing the armature of the motor one pole, which can not change its speed any more than if it were mechanically geared to the generator, unless it is overloaded to a point where it is impossible to carry the load, which point is usually about fifty per cent. in excess of the normal capacity of the motor. This is accomplished without the introduction of any lag or power factor, the load being practically non-inductive—like a load of incandescent lamps—provided the proper excitation is maintained. Furthermore, by overexcitation, the synchronous motor may be made to perform the office of a condenser and compensate for lag or inductive load; this can be carried so far as to introduce a negative lag or lead, at the same time raising the electro-motive force of the line.

The drawback to the single-phase synchronous motor, heretofore, has been that it could not be started without some other source of power, and would not carry its load up to speed. This is entirely overcome in the motors here alluded to, which start up under load, and can be specially wound to give much greater torque in starting than in running in synchronism.

This brings us back to the two simple, well-known principles before referred to, which are combined in this motor—the principle of the ordinary alternating-current synchronous motor with that of

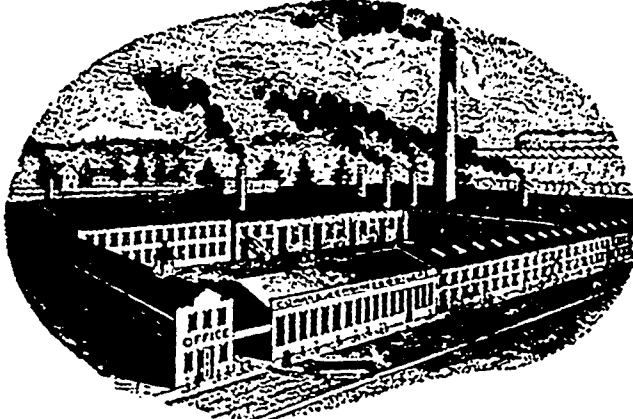
the direct-current motor or generator. The armature has two distinct windings—one, a distributed winding connected to a commutator, similar to that of a direct-current motor or dynamo, which in this motor is used for starting and afterwards for exciting the fields; the other winding is of the shuttle type, wound so as to concentrate distinct and regularly alternating poles in the armature, and perform the regular work of rotating the motor armature, advancing it from one pole to the next, with each impulse of the generator.

An ordinary double-throw switch on top of the motor is used in starting, there being no resistance or other complicated device, as the self-induction of the windings is sufficient to choke back any abnormal flow of current. In starting, the switch handle is depressed so that the lead wires which conduct the alternating current from the transformer are connected through the switch blades to the contacts which lead the current first to one of the commutator brushes, thence through the distributed armature windings, and out through the opposite brushes to a coarse wire winding on the field poles, and back again to the switch contacts and binding posts, these connections being identical with those of a direct-current series motor. As soon as the current is turned on the motor commences to rotate at a constantly accelerating speed until synchronism is reached, which is indicated by the lighting of a lamp located on the switch at a dull red. This is the signal for the reversal of the double-throw switch, which then changes the connections so that the leads from the transformer are cut off from the commutator, and connected to the collector rings and concentrated armature windings, while at the same instant the commutator brushes are

COWAN & CO., GALT, ONTARIO

....Manufacturers of....

Woodworking Machinery



- Corliss and Slide Valve ENGINES
- BOILERS
- MOFFAT'S Patent Heaters
- SAW MILLS

Old Wood Tools, Engines and Boilers taken as part pay on new. We have on hand a number of

Rebuilt Wood Tools Engines and Boilers

which we offer at low prices and most favorable terms. *WRITE FOR TERMS, PRICES AND CATALOGUE*

TORONTO WAREHOUSE:

Toronto Machinery Supply Co., 164 King Street West.

London Electric Motor Co.

Manufacturers of....

CONSTANT POTENTIAL MOTORS

For 110, 220, 250, 500 Volt Circuits.

From One-half to 50 Horse Power

DYNAMOS FOR INCANDESCENT LIGHT

Alternating Fan Motors, Transformers, Switches Resistance Boxes.

Burnt-out Armatures of any System

Renovated and Guaranteed. Also General Repairing.

Office and Factory.. 90 YORK ST., LONDON, CAN.

Toronto Agent

JOSEPH BARRETT, 573 Dufferin St.

... MANUFACTURERS ...

Seeking Locations
Communicate with

**JAMES MORE, Town Clerk
DUNDAS, ONT.**

Liberal Inducements—Good Location
Desirable Buildings

WM. BARBER & BROS.

GEORGETOWN, ONT.

Manufacturers of

BOOK AND FINE PAPERS

**THE TORONTO PAPER MFG. CO.
CORNWALL, ONT.**

Manufacturers of....

Engine Sized Superfine Papers
White and Tinted Book Papers
Blue and Cream Laid and Wove Foolscaps, Account, Envelope and Lithographic Papers, etc.

McLAUGHLIN BROS.

TEASELS

Skaneateles Falls

NEW YORK

BUSINESS ESTABLISHED IN 1832



HAMILTON, - CANADA

CATALOGUE AND PRICES ON APPLICATION.....

THOMAS PINK
PEMBROKE, ONT.

- Split Maple Handles
- Duck Bill Cant Hooks
- Cast Steel Skidding Tong
- Duck and Round Bill Peaveys.
- Car Load or Dozen Lots

Pink Peaveys, Handles, Cant Hooks

connected to the shunt field windings, magnetizing the field with direct current, the only office of the commutator after the motor is started being to supply the small direct current necessary to magnetize the fields.

In starting, the motor will run up to synchronous speed in from five to fifteen seconds, depending upon size, windings, etc., and when loaded, in from fifteen to thirty seconds, taking about the same current in either case, the time factor making the difference in power consumed. The current taken under these conditions amounts to from twenty-five to fifty per cent. in excess of what the motor will require when running in synchronism; but, when only required to start itself or light countershafting, this current may be greatly reduced by special windings.

The direct-current winding delivers a perfectly smooth current, and is not at all pulsating in character. In circuit with the field winding is a rheostat to control the extent of field excitation. This rheostat is located in a recess in the base of the motor, the handle for its regulation being accessible through an opening at the commutator end pedestal. The motor, starting switch, and rheostat are all in one unit, making a most simple and compact combination. All that is necessary to install the motor is to connect the secondary wiring of the transformer to the two binding posts on the motor switch, and it is ready for operation.

We call special attention to the clean-cut, symmetrical proportions of this motor, as shown in the illustration, and the graceful curves sweeping from point to point, which give the machine such a pleasing appearance.

These motors are all fitted with insulating sliding bases, permitting the tightening or loosening of belts while in operation. As they are designed to exert a powerful starting torque, and are capable of standing a fifty per cent. over-load, it is desirable to connect them with transformers of 1,500 watts capacity per horsepower of motor, which has been found sufficient for all possible

contingencies. The secondaries of these transformers should deliver from 100 to 110 volts, for which E.M.F. the motors are wound.

Nothing has been spared in the design and construction of these motors to make them as perfect as possible, and careful attention has been given to every detail that would tend to make it neat in appearance and simple, so that the man without previous training into whose hands a motor usually falls, would have no difficulty in its use.

The mechanical perfection of any piece of machinery is the all-important one, and in this motor has been given the full attention it deserves. The best engineering practice of the day has been followed, and where any departure has been made it has been to make the construction more rigid and capable of resisting over-load and excessive strain. The bearings are of bronze, self-aligning and self-oiling; two small rings travel in recesses in the boxes so that they touch the top of the shaft, the rotation of which carries the rings around, lifting as they turn enough oil from the chamber below the bearings to keep the shaft abundantly lubricated. As the oil is used over and over again a single filling furnishes lubrication for months, and as the oil gets low the rattling of the rings serves as a warning that the oil should be replenished.

The purposes to which these motors are applicable are almost without end, ranging from commercial use in labor-saving devices, such as printing presses, type-setting machines, lathes and machine tools, elevators, laundry and sewing machines, pumps, ice-cream freezers, church organs, coffee mills, sausage machines, etc., down to twirling the ceiling fans in a restaurant where you can enjoy a comfortable meal in the heated months, or to drive a merry-go-round on which the children, and often the older ones, delight to ride.

For further information address the Toronto Electric Light Company as above.

THE - - - -

WM. HAMILTON MANUFACTURING CO., Ltd.

MANUFACTURERS OF

THE "RELIANCE"

**Mining, Milling and
Smelting Machinery**

FOR THE DOMINION OF CANADA

(Under License from The E. P. ALLIS CO., Milwaukee, Wis.)

CRUSHERS, ROLLS, JIGS, CONCENTRATORS

SCREENS, STAMPS, PUMPS, COMPRESSORS

HOISTS, BOILERS, ENGINES, WATER WHEELS, Etc.

Branch Office

VANCOUVER, B.C.

 **PETERBOROUGH, ONT.**

ALBERT MANUFACTURING CO.

Manufacturers of the well-known "HAMMER BRAND"

**Calcined
PLASTER**

....AND....

Patent Rock Wall Plaster

HILLSBOROUGH, N.B., - CANADA

LAW BROS. & CO....



*Caledonia Foundry
and Machine Shops.*

**HYDRANTS, VALVES, WATER WORKS
SUPPLIES, SPECIALS, SHAFTING
and MILL MACHINERY.**

Also Castings of Every Description.

OTTAWA - - - - ONT.



THE STANDARD DRAIN PIPE COMPANY, ST. JOHN'S, P.Q.

Manufacturers of Salt Glazed Vitrified Sewer Pipes, Double
Strength Railway Culvert Pipes, Inverts, Vents, and
all kinds of Fire Clay Goods.

The Standard Drain Pipe Co. of St. John's, P.Q., Ltd. *W. C. President*

REGISTERED..... BRAND

The Samson Brand IS A HIGH
GRADE OF

Portland Cement.

..UNIFORM.. ..FINELY GROUND.. ..RELIABLE..
Quality equal to the best English and German Brands.
Manufactured by the

Owen Sound Portland Cement Co., Ltd.
SHALLOW LAKE, - ONTARIO.

Over 39,000 BARRELS Sold

During 1885, and not a single complaint as to quality.

For Prices and further information address the Manager at Works,
Shallow Lake, Ont., or

JOHN LUCAS, 377 Spadina Ave., Toronto, Ont.
Correspondence Solicited.

Rock **EMERY** Mills

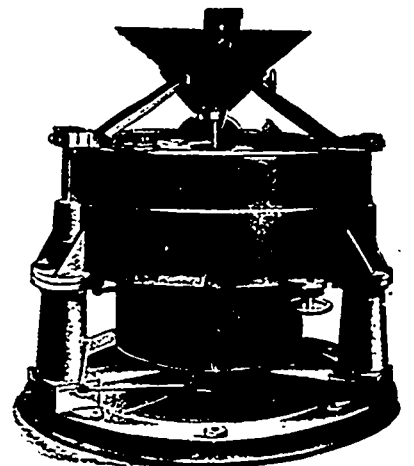
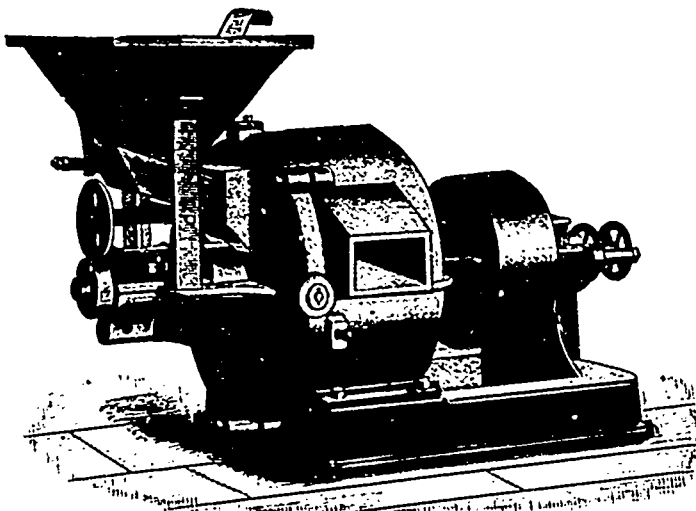
Most Durable, Fastest, Cheapest

Fine Grinders
known.

Value Proved in
over

600

Factories.



Send for Circular

STURTEVANT MILL CO., Boston, Mass.

THE LONDONDERRY IRON CO., Ltd.

A. T. PATERSON,
President and Managing Director.

JAMES PHYMISTER,
Secretary.

.... Manufacturers of.....

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

Office....

MONTREAL

Works ..

LONDONDERRY, NOVA SCOTIA

CANADA IRON FURNACE CO., Ltd.

Montreal, Radnor and Three Rivers

Manufacturers of the well-known

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

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

UNSURPASSED IN STRENGTH BY SWEDISH, RUSSIAN
OR AMERICAN CHARCOAL IRON.

Offices: *New York Life Insurance Bldg., Montreal*

The NOVA SCOTIA STEEL COMPANY, Ltd.

MANUFACTURERS OF

BRIGHT COMPRESSED STEEL SHAFTING

FROM $\frac{1}{2}$ TO 5 INCHES IN DIAMETER. GUARANTEED STRAIGHT AND TRUE TO WITHIN $\frac{1}{100}$ OF AN INCH.

Spring, Reeled Machinery, Tire, Toe Caulk, Sleigh Shoe, Angles, Special Sections
and all Merchant Bar Steel. Sheet Steel up to 48 Inches wide.

RAILWAY AND ELECTRIC RAILWAY CAR AXLES
FISH PLATES, SPIKES AND TRACK BOLTS

Tee Rails, 12, 18, 24 and 28 lbs. per yard

—HEAVY FORGINGS a Specialty—

"FERRONA" PIG IRON, For Foundry Use.

Works—NEW GLASGOW, N.S., and FERRONA, N.S.

Head Office—NEW GLASGOW, NOVA SCOTIA

PICTOU CHARCOAL IRON CO., LTD.

BRIDGEVILLE, NOVA SCOTIA

Works

BRIDGEVILLE, N.S.

Head Office

NEW GLASGOW, N.S.

Manufacturers of all Grades of

CHARCOAL PIG IRON

SUITABLE FOR

Car Wheels, Cylinders, Etc.

SUSPENDER BUCKLES

...AND...

WIRE SHAPES OF ALL KINDS

We have put in a complete plant of Automatic Machinery for
making above articles.

WRITE FOR QUOTATIONS

McKINNON DASH AND HARDWARE CO.'Y

ST. CATHARINES, ONT.

The United Alkali Company, Ltd., of England

CAPITAL EXCEEDS  TRADE MARK \$44,000,000

CAUSTIC SODA, 60°, 70°, 74°, 76°, 77°.
SAL. SODA.

SODA ASH, all strengths.
PURE ALKALI, 58°.

WILSON, PATERSON & CO., MONTREAL, SOLE AGENTS

Importers of

SULPHATE OF ALUMINA
HYPO SULPHITE OF SODA
BICHROMATE OF SODA

SILICATE OF SODA
CAUSTIC POTASH
CRYSTAL CARBONATE

BORAX
COCONUT OIL
PALM OIL

CASTOR OIL
COTTON SEED OIL
ROSIN OIL

ROSIN

ALL CHEMICALS USED BY

SOAP, PAPER, WOOLEN, AND COTTON MANUFACTURERS

New York Office

133, 135, 137 FRONT ST.

Galt Machine Knife Works



Stave Cutter Knives

PLANING . . .
MACHINE . . .
KNIVES . . .

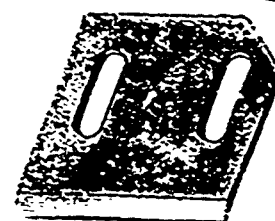


Stave Jointer Knives

SEND FOR PRICE LIST
ALL WORK WARRANTED



Moulding,
Tenoning,
Mitreing

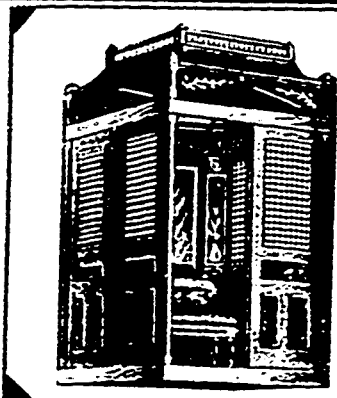


SHINGLE . . .
JOINTER . . .

AND OTHER IRREGULAR SHAPES.

Cheese Box and Veneer, Paper Cutting, Leather Splitting, and any Special Knife made to order.

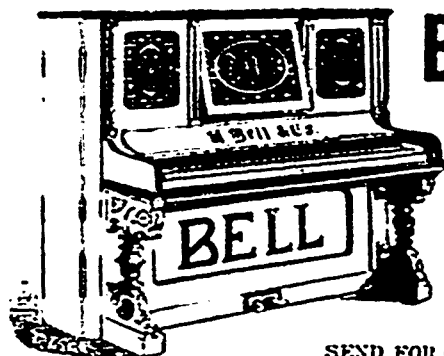
PETER HAY, - GALT, ONT.



ELEVATORS

FENSOM ELEVATOR
WORKS
52-54-56 DUKE ST
TORONTO.

ELECTRIC HYDRAULIC
STEAM & HAND-POWER
PASSENGER & GOODS
ELEVATORS. DUMBWAITERS



BELL -

HIGH CLASS
INSTRUMENTS

Used and
Recommended by

Leading . . .
. . . Musicians

SEND FOR CATALOGUE

THE BELL ORGAN AND PIANO CO., Ltd.
GUELPH, ONTARIO

AUSTRALIA.

Boswell, Son & Gilbert

CANADIAN MANUFACTURERS' AGENTS

Wyonyard Square, Sydney, New South Wales.

All Communications promptly attended to

References { Menzie, Turner & Company, Toronto.
Dominion Suspender Co., Niagara Falls, Ont.

The Goldie & McCulloch Co., (Limited)

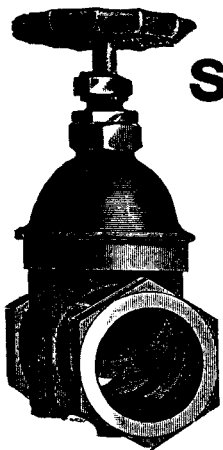
GALT, - - ONTARIO

MANUFACTURERS OF

STEAM ENGINES, BOILERS, WATER WHEELS

Flouring and Saw Mill Machinery, Wood Working Machinery, Wool Machinery.
Fire and Burglar Proof Safes, Vault Doors. Wood Rim Split Pulleys,
Friction Pulleys, Friction Clutch, Couplings, etc.

"Dumfries Foundry," Galt, Ontario, Canada



The WEBBER Patent Straitway Valve

For Steam, Water or Gas.

EVERY VALVE TESTED.

The Kerr Engine Co. Ltd.

WALKERVILLE, ONT.

SOLE MANUFACTURERS FOR CANADA.

SEND FOR PRICE LIST

HAMILTON COTTON CO.

HAMILTON, ONTARIO.

Yarn Manufacturers Dyers and Bleachers

Warp Yarns of all descriptions, in Skein, Chain, or on Beams.
Hosiery Yarns in Single or Double; in Cop, Skein or Cone.
Yarns of all kinds for Manufacturers' use.

Twines, Lampwicks, Webbing, Etc.

Dyeing of all colors, including GENUINE FAST BLACK.

IT LEADS THEM ALL

THE OLDEST THE SAFEST
THE LARGEST THE CHEAPEST

Canadian Life Insurance Company is

The CANADA LIFE ASSURANCE CO.

CAPITAL AND FUNDS OVER \$13,000,000

WRITE FOR PROSPECTUS

A. G. RAMSAY,
President.

GEO. A. & E. W. COX,
Managers for Toronto
and Eastern Ontario.

JAMES A. CANTLIE & CO.

MONTREAL AND TORONTO.

General Merchants and
- Manufacturers' Agents

CANADIAN TWEEDS, FLANNELS, DRESS GOODS
KNITTED UNDERWEAR, BLANKETS, Etc.

Representing in Canada:

F. P. SAVERY & CO.,
Huddersfield, Bradford, England.

Also...

ALONZO KNOPS, I. CUPPER SOHN,
Aachen, Germany. Burtchid, Germany

.....WHOLESALE TRADE ONLY SUPPLIED.....

- PHOENIX - Assurance Company

OF LONDON, ENGLAND

ESTABLISHED 1782. Agency Established in Canada, 1804

PATERSON & SON

General Agents for the Dominion,

35 St. François Xavier Street, Montreal

LEWIS MOFFATT & CO., Agent at Toronto

The Canadian Colored Cotton Mills Co.

1896 ——— FALL ——— 1896

...

GINGHAMS, ZEPHYRS, CHEVIOT SUITINGS, FLANNEL-
ETTES, DRESS GOODS, SKIRTINGS, OXFORDS,
SHIRTINGS, COTTONADES, AWNINGS,
TICKINGS, ETC.

SEE SAMPLES IN WHOLESALE HOUSES

NOW READY

D. MORRICE, SONS & CO., AGENTS
MONTREAL and TORONTO

PLUMBAGO FOUNDRY FACINGS The **DOMINION FOUNDRY SUPPLY CO.**
FOUNDRY SUPPLIES 43 St. Sacrement Street, MONTR. AL.

USE THE HIGHEST STANDARD

SATISFACTION GUARANTEED

McCASKILL, DOUGALL & CO.

Montreal, Que.

ALIZARINES
 —AND—
ANILINES
 FAST COLORS A SPECIALTY.
 Chemicals, Dyestuff, and Acids
 "LOGWOOD EXTRACTS."
**BELLHOUSE,
 DILLON & CO.**
 47 Wellington Street East, Toronto
 30 St. François Xavier Street, Montreal

W. Ltd

**FRICK
 COKE**
 C. FRICK COKE CO. PITTSBURGH, PA.

**The Ontario . . .
 Malleable Iron Co.**
 (Limited)
 . . . Manufacturers of . . .
MALLEABLE IRON Castings to Order for all kinds of
AGRICULTURAL IMPLEMENTS .
 . . . AND . . .
Miscellaneous Purposes
 OSHAWA - - ONT.

Sault Ste. Marie
Pulp and Paper Co.
 SAULT STE. MARIE, ONT.
**GROUND
 WOOD
 PULP**
 FOR DOMESTIC AND EXPORT TRADE

**BRISTOL'S PATENT
 STEEL BELT LACING**
 —ONE HUNDRED SIZES—

 READY TO APPLY FINISHED JOINT
Greatest Strength with Least Material
 EASILY APPLIED and LOW IN PRICE
Saves Time, Saves Belts, Saves Money
 SAMPLES SENT FREE
THE BRISTOL CO.
 WATERBURY, CONN.

**SMITH'S FALLS
 Malleable
 Iron
 Works . .**
 00000
CAPACITY 2,000 TONS
 00000
WILLIAM H. FROST
 PROPRIETOR,
 SMITH'S FALLS
 ONTARIO, CANADA.

Manufacturers of
FINE VARNISHES
Japans—Asphalts—Shellacs
Maple Leaf Brand Coach Varnishes
J. H. FARR & CO.
Armature Insulating Compound
 Insulating Compound for Weather-Proof Wire, Tube Compound, Mica Paste, etc., etc.
 6 to 16 MORSE STREET
 TORONTO

CARRIER, LAINE & CO.
 LEVIS, P.Q.

**ENGINEERS, FOUNDERS, MACHINISTS
 BOILER MAKERS AND
 GENERAL CONTRACTORS**

Montreal Branch . . .
 147 St. James St.
 Quebec Branch . . .
 264 1/2 St. Joseph St.