

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

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

Title page of issue/
Page de titre de la livraison

Caption of issue/
Titre de départ de la livraison

Masthead/
Générique (périodiques) de la livraison

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	12X	14X	16X	18X	20X	22X	24X	26X	28X	30X	32X
									<input checked="" type="checkbox"/>		

ROYAL OIL CO.

TORONTO
MONTREAL

CYLINDER
DYNAMO
ENGINE

OILS

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

THE HOME COMMERCE
THE RICHER IT IS
NATION THAT
MANUFACTURES FOR ITSELF

Vol. 33.

TORONTO, NOVEMBER 20, 1896.

No. 10.

Canada Chemical Manufacturing Co.

Manufacturers of

Sulphuric, Nitric, and Muriatic Acids—Commercial and Chemically Pure. Mixed Acids for Explosives. Liquid Ammonia, Glauber Salts, Copperas, Muriate Tin, Tin Crystals, Acetic Acid, Nitrate Iron, Bisulphite Soda, Acid Phosphate for Baking Powders and General Chemicals. Fertilizers, etc.

LONDON
ONT.

ANILINE LIZARINES
DOMINION DYEWOOD & CHEMICAL CO.
TORONTO
TRADE MARK
PRODUCTS OF
the Farbenfabriken vorm. F. Bayer & Co.
DOMINION DYEWOOD & CHEMICAL CO.
SOLE AGENTS FOR CANADA TORONTO.

HAMILTON ENGINE PACKING CO.
Sole Manufacturers of



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

22 FRONT EAST, TORONTO

Factory, Montreal

CHARLES F. CLARK, Pres. EDW. F. DANFORTH, Treas.
ESTABLISHED 1849.

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, especially, 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—

35 Front St. E., and 27 Wellington St. E.

THOS. C. IRVING, Superintendent

THE GUTTA PERCHA & RUBBER MFG. CO.
INDIA RUBBER GOODS
WAREHOUSE & 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. C. RIDOUT (Late C.E.)
Barrister, Solicitor, Etc.

J. EDW. MAYBEE
Mech. Eng.

SOLICITORS of and EXPERTS in
PAMPHLET ON PATENTS SENT FREE

103 Bay Street, Toronto

Patents

THE LONDON JUNCTION FOUNDRY CO. (LTD.)
TORONTO JUNCTION, ONTARIO.
MANUFACTURERS OF
BICYCLE STEEL CASTINGS A SPECIALTY.

CAK TANNED BELTING
Reeds - Mill Supplies

Card Clothing ROBT. S. FRASER
3 ST. HELEN ST., MONTREAL
Sheets and Fillet Stock in Montreal

McARTHUR,
CORNEILLE & CO.

Manufacturers
AND
Importers

310-318 St. Paul Street
AND
147-151 Commissioners Street
MONTREAL

OFFER AT LOWEST PRICES

PURE OLIVE OIL
WINTER PRESSED LARD OIL
EXTRA FINE SPINDLE OIL

And a full Assortment of Other
Lubricating Oils.

GREASES, MILL SOAPS, ETC.

CHEMICALS, DYE STUFFS

DYE WOODS, EXTRACTS, ETC.

SOLE AGENTS IN CANADA FOR

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

Aniline Colors, Archil Extract, Gachon de
Lard, Etc.

British Alizarine Co., London
Pasto and Dry Alizarine.

Stamford Manufacturing Co., New York
Dyewoods and Extracts.

Colquet & Co., Paris
Gixes, Gelatins,
Etc.

Watson, Walker & Co., Leeds
Indigo Ext. &c.

Millerton, Tannin Extract Co.
Homocok Extract.

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

Best of the West Ontario
Best - the first ocean steam - arrived
Riding postage stamps were used in
Canada.
Wholesale and Retail Canadian Distributors.

E. B. Eddy's
Matches

Well known throughout Canada,
as they are new,
and the best matches made.

Leitch & Turnbull
Office Elevator Works,
Queen and Peter Streets, Hamilton, Ont.

Phone 27, Station
Hydraulic
Ramp and
POWER ELEVATORS
Telephone Connection.

THE BRAENDER
JET PUMP, WATER ELEVATOR
AND CELLAR DRAINER

Patented
May 8, 1891

This is a valuable device for removing water from Cellars, Excavations, Trenches, Wharves, etc.
so convenient, as to be not only portable, but will, with a very small amount of power,
in moderate pressure, remove a large body of water and discharge it to a height of 100 feet.
Accumulation of water, and its construction is strong, durable, and is so simple in construction
that it can be used for years without attention. Send for Catalogues and Price Lists.

GARTH & CO., 536 to 542 Craig Street, MONTREAL



CROSBY STEAM GAGE
AND VALVE CO.

Sole Proprietors and Manufacturers of
Crosby Port Safety Valves, all kinds of Boilers, Water Relief Valves, etc.
The Underwriters, who are fully approved by the Associated Factory Mutual
Insurance Companies Crosby Steam Engine Indicators, with safety
Gages, Mechanical Attachments, Crosby Improved Steam
Gages, Recording Gages and Patent Gage Testers
in light Single Bell Curve 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
Branch Offices at New York, Chicago, and London, Eng.

ENGINEERS' FAVORITE RING PACKING

Rainbow Sheet Packing, Rubber Gasket Packing
Sheet Rubber and Plumbago,
Square Pack. Hemp and Soapstone,
Asbestos Cement and Pipe Covering
Suttons Boiler Compounds
Albany Grouse

WILLIAM C. WILSON & CO.
LUBRICATING OILS AND GREASES.
24 FRONT STREET EAST, TORONTO.

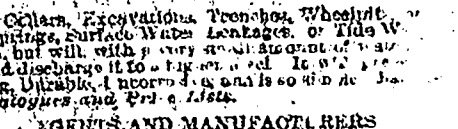
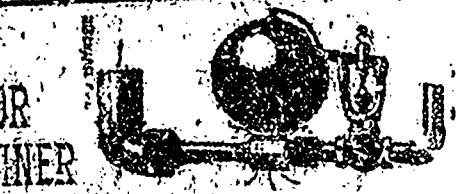
Largest Manufacturers
of **STEEL and BRASS**
STAMPS in Canada

PRITCHARD
& ANDREWS
OPTAWA, ONT.

Rubber Stamps
Stencils, Seals, Etc.
SEND FOR PRICES

Send for Catalogue and Price
List to
THE JOHN MORSEY MACHINE SCREW CO.
INCORPORATED
170, 172, 174, 176, 178, 180, 182, 184, 186, 188, 190, 192, 194, 196, 198, 200, 202, 204, 206, 208, 210, 212, 214, 216, 218, 220, 222, 224, 226, 228, 230, 232, 234, 236, 238, 240, 242, 244, 246, 248, 250, 252, 254, 256, 258, 260, 262, 264, 266, 268, 270, 272, 274, 276, 278, 280, 282, 284, 286, 288, 290, 292, 294, 296, 298, 300, 302, 304, 306, 308, 310, 312, 314, 316, 318, 320, 322, 324, 326, 328, 330, 332, 334, 336, 338, 340, 342, 344, 346, 348, 350, 352, 354, 356, 358, 360, 362, 364, 366, 368, 370, 372, 374, 376, 378, 380, 382, 384, 386, 388, 390, 392, 394, 396, 398, 400, 402, 404, 406, 408, 410, 412, 414, 416, 418, 420, 422, 424, 426, 428, 430, 432, 434, 436, 438, 440, 442, 444, 446, 448, 450, 452, 454, 456, 458, 460, 462, 464, 466, 468, 470, 472, 474, 476, 478, 480, 482, 484, 486, 488, 490, 492, 494, 496, 498, 500, 502, 504, 506, 508, 510, 512, 514, 516, 518, 520, 522, 524, 526, 528, 530, 532, 534, 536, 538, 540, 542, 544, 546, 548, 550, 552, 554, 556, 558, 560, 562, 564, 566, 568, 570, 572, 574, 576, 578, 580, 582, 584, 586, 588, 590, 592, 594, 596, 598, 600, 602, 604, 606, 608, 610, 612, 614, 616, 618, 620, 622, 624, 626, 628, 630, 632, 634, 636, 638, 640, 642, 644, 646, 648, 650, 652, 654, 656, 658, 660, 662, 664, 666, 668, 670, 672, 674, 676, 678, 680, 682, 684, 686, 688, 690, 692, 694, 696, 698, 700, 702, 704, 706, 708, 710, 712, 714, 716, 718, 720, 722, 724, 726, 728, 730, 732, 734, 736, 738, 740, 742, 744, 746, 748, 750, 752, 754, 756, 758, 760, 762, 764, 766, 768, 770, 772, 774, 776, 778, 780, 782, 784, 786, 788, 790, 792, 794, 796, 798, 800, 802, 804, 806, 808, 810, 812, 814, 816, 818, 820, 822, 824, 826, 828, 830, 832, 834, 836, 838, 840, 842, 844, 846, 848, 850, 852, 854, 856, 858, 860, 862, 864, 866, 868, 870, 872, 874, 876, 878, 880, 882, 884, 886, 888, 890, 892, 894, 896, 898, 900, 902, 904, 906, 908, 910, 912, 914, 916, 918, 920, 922, 924, 926, 928, 930, 932, 934, 936, 938, 940, 942, 944, 946, 948, 950, 952, 954, 956, 958, 960, 962, 964, 966, 968, 970, 972, 974, 976, 978, 980, 982, 984, 986, 988, 990, 992, 994, 996, 998, 1000

BROWN & CO.
Manufacturers of
Square and Hexagon
HOT PRESSED NUTS
PARIS, - ONT



FIRE PROOF ROOFING
 STEEL ROOFING
 WRITE FOR CATALOGUE
 PEOPAR METAL ROOFING CO. OSHAWA, ONT.

The Pulsometer STEAM PUMP

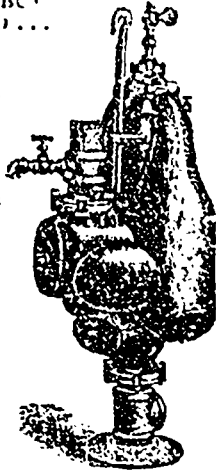
OFTEN IMITATED BUT NEVER EQUALLED...

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

... Muddy or Crispy Liquids Handled without wear

... Descriptive Catalogue with prices, furnished on application.

PULSOMETER Steam Pump Co.

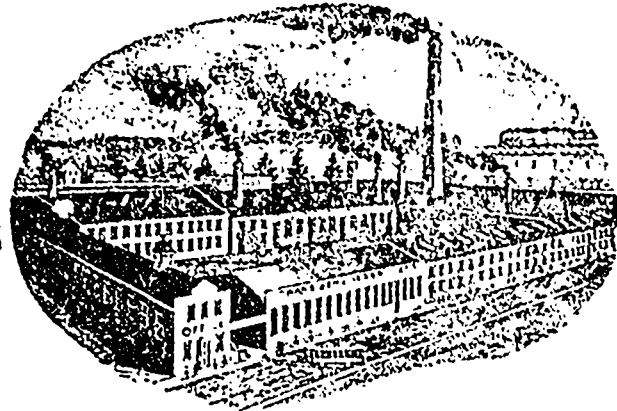


A. R. Williams Machinery Co.

Toronto and Montreal,
 Selling Agent for Canada.

COWAN & CO., GALT, ONTARIO
 Manufacturers of
- Woodworking Machinery -

Cortiss and
 Slide Valve
 ENGINES
 BOILERS



MOFFAT'S
 Patent -
 - Heaters
 SAWMILLS

Old Wood Tools, Engines and Boilers taken as part pay on now. 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



HAMILTON, CAN.

Catalogue on Application.

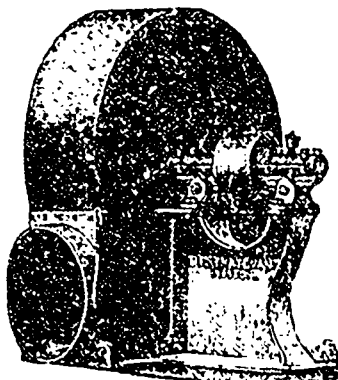
The Sturtevant Progressive Lumber Dry Kiln

Complete .
 Plans . .
 Furnished .
 With . .
 Each . .
 Apparatus.



MANUFACTURED BY
B. F. Sturtevant Co.
 BOSTON, MASS., U.S.A.

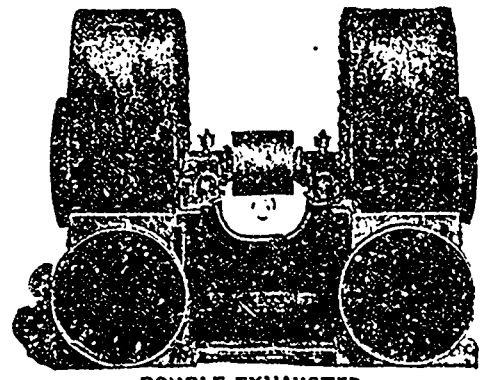
Absolutely
 Safe . .
 AS A
FIRE RISK
 QUICK DRYING
 Economical in use of steam.



THE STURTEVANT Steel Plate Exhaust Fans

For Removing Refuse from Wood working Machinery
 SEND FOR CATALOGUE

A. R. WILLIAMS MACHINERY CO.
 GENERAL CANADIAN AGENTS
 TORONTO, BRANTFORD, MONTREAL



DOUBLE EXHAUSTER

Above
all

COMPETITORS

Coal is money, why not save it by using the

T.J.C. INJECTOR

the most economical boiler feeder in the world.

20 Per cent.

saved in coal over any other make. Absolutely automatic. Easily attached. Applicable to all kinds of boilers.

NOT EXPENSIVE

Will outwear any other make and is simple in construction. It is easy to operate, and is the most powerful feeder in the world.

The T. J. C. Injector

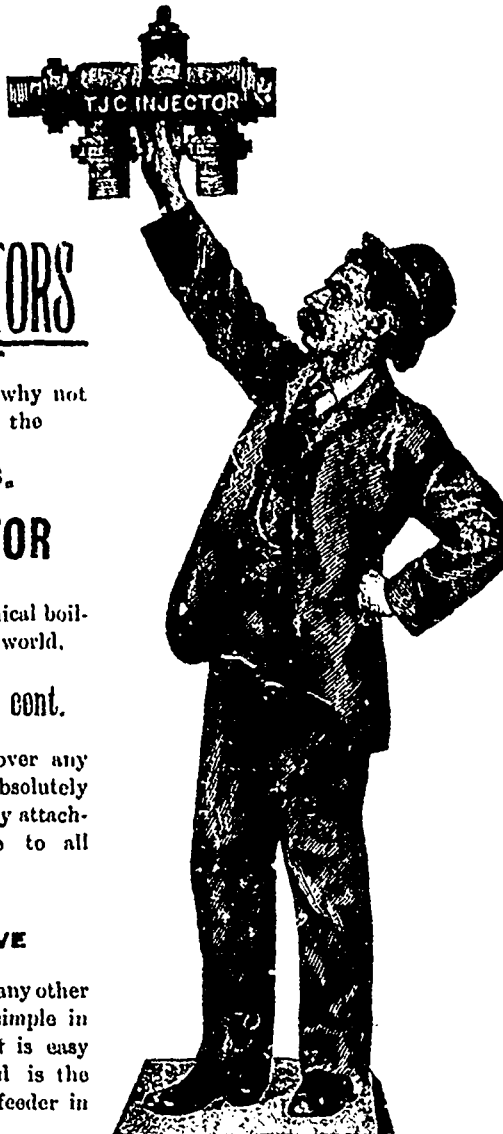
is the best because you cannot possibly go wrong with it. With high or low steam the result is equally satisfactory.

It combines the utmost simplicity with perfect efficiency, and any boy can operate it.

PRICE LIST :

No.	Price.	Horse Power.
7	\$7 00	4 to 8
10	7 00	8 to 16
15	10 50	16 to 40
20	15 00	40 to 72
25	22 50	72 to 120
35	36 00	120 to 220
45	52 00	220 to 300

HAMILTON BRASS MFG CO.
LIMITED
HAMILTON, - ONT.



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.

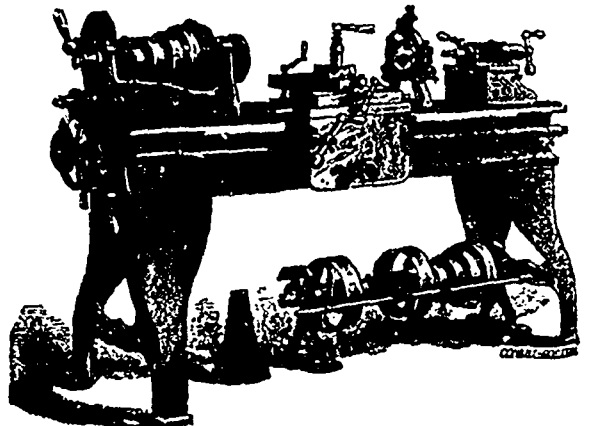
← ESTABLISHED 1850 →

Robert Gardner & Son

Manufacturers of

FINE TOOLS, LATHES, PLANERS

Shafting, Hangers, Pulleys, etc.



Nazareth, Brennan and Dalhousie Streets, MONTREAL

BELTING
W.A. FLEMING
57 ST. FRAS. XAVIER ST. | 24 FRONT ST. E. | VICTORIA CHAMBERS.
MONTREAL | TORONTO | OTTAWA.

Wanzer Lamp and Manufacturing Co.
WILLIAM WOODS, Proprietor
134 KING STREET EAST
HAMILTON, ONT.

The Caldwell Standard Water Tube Boiler

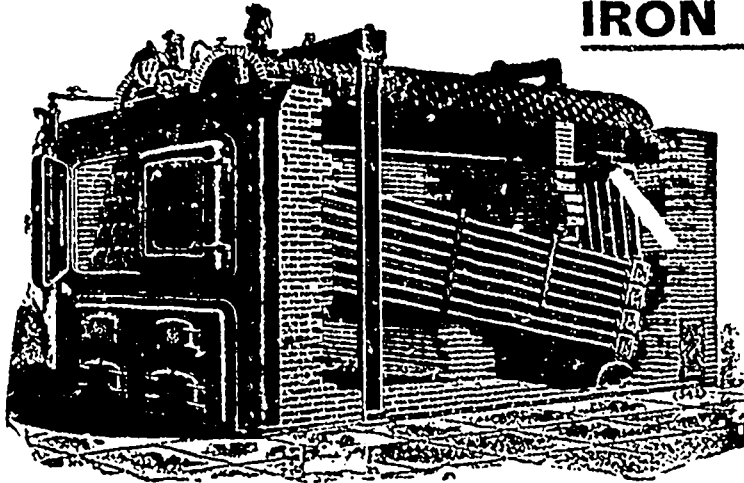
THE BEST WATER TUBE BOILER IN THE MARKET.

IRON FOUNDERS

BOILER MAKERS

MACHINISTS

ENGINEERS, Etc.



General and Manufacturing Agents in Canada for the famous Worthington Pumps, Hydraulic Machinery, Water Meters, Water Works' Supplies and Condensers.

Worthington Pumps are unequalled for Efficiency and Economy.

JOHN McDOUGALL

CALEDONIAN IRON WORKS, Office, Cor. William and Seigneurs Sts., Montreal

Kay Electric Manufacturing Co.

255 James St.N., Hamilton, Ont.

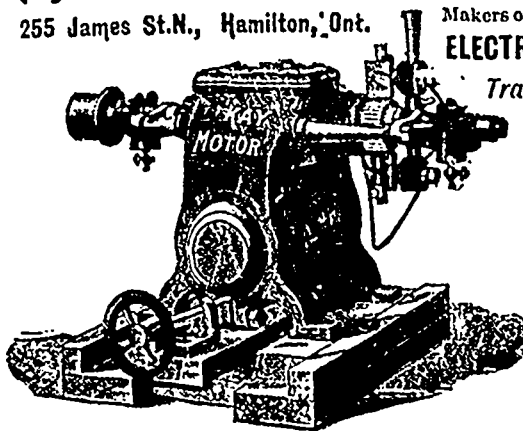
Makers of.....
ELECTRIC MOTORS

Transformers

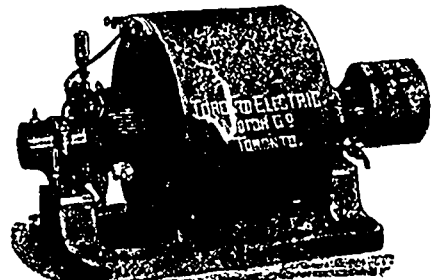
DYNAMOS

**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.

3 103 105, 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....

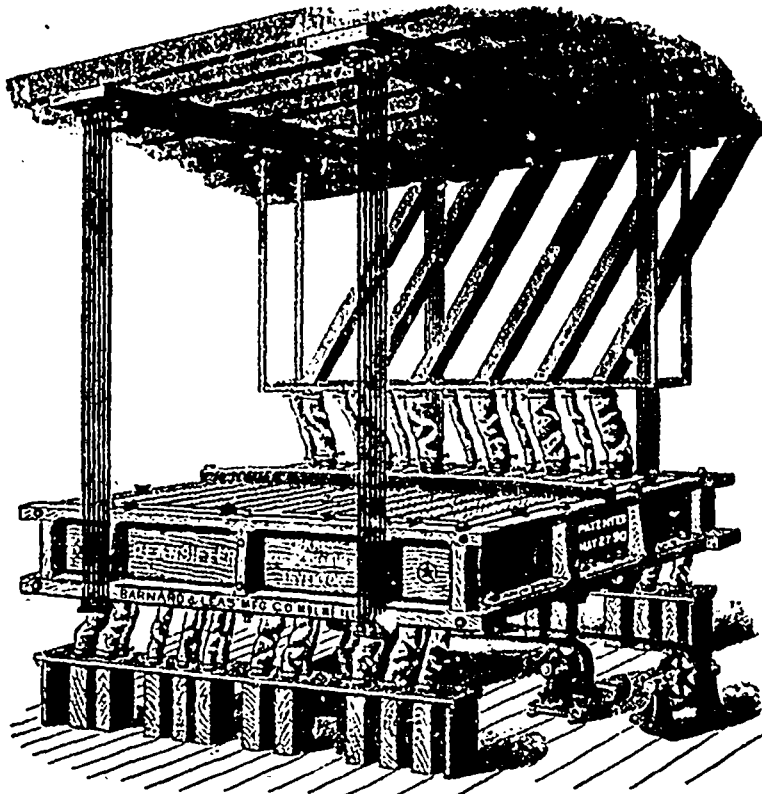
JOHN OAKEY & SONS, Ltd., Wellington Mills, Westminster Bridge Road, London, Eng.

Inquiries should be addressed to

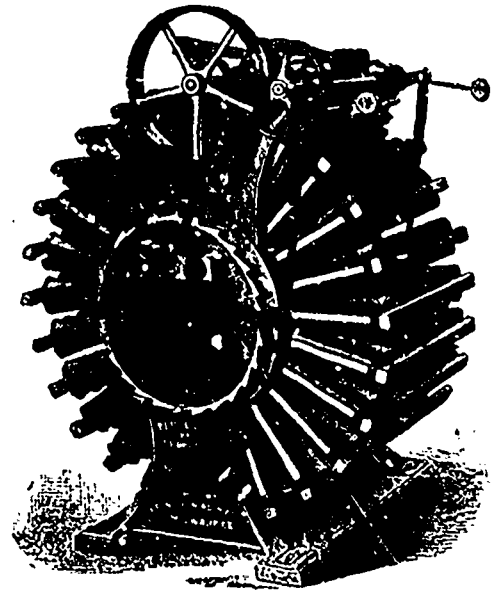
JOHN FORMAN, 650 CRAIG ST., MONTREAL.

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.



- 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.

It Saves Space	Makes Better Clean-up	No Dust
It Saves Power	Makes Closer Finish	Easily Controlled
It Saves Cloth	Makes Larger Yield	Insures Uniform
Makes Better Separations	Makes Milling Easier	High Grade
Makes Purer Stock	No Vibration	Increases Capacity
Makes Better Flour	No Noise	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 those machines varying according to capacity required.

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

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.
ESTD. 1840. BELLEVILLE, ONT. 50 YEARS

- JAMES W. PYKE -

....MERCHANT IN....

IRON AND STEEL

**BOILER PLATES
AND TUBES
WROUGHT IRON
STEAM AND GAS PIPE
COTTON WASTE
STEEL FORGINGS**

**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.

MOCOSINS

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

EXHAUST STEAM UTILIZATION TO EFFECT ECONOMY

OR INCREASE OF POWER AND HOW?

Before Buying any type of Feed Water Heater and Purifier, or Separator for Steam and Oil

Consider Tests the efficiency, simplicity, construction and prices of those we manufacture..... and complete information forwarded by request upon the.....

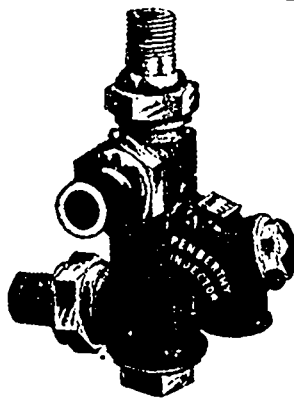
Webster "Vacuum" Feed Water Heater and Purifier, and..... Separators for live and exhaust steam.....

Guarantees and efficiency fully established by suitable trial, and hundreds in use throughout the United States and Canada.

Also the WEBSTER SYSTEM OF STEAM HEATING, without back pressure on engines—guaranteed. Can be attached to existing plants with great economy.

Manufactured by

DARLING BROTHERS, 112 Queen St., Montreal



The World-Renowned

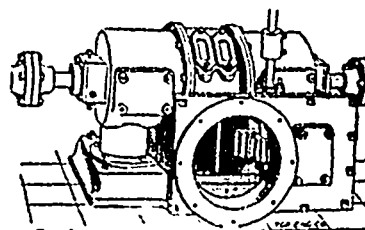
PENBERTHY

- Automatic Injector -

Most Economical Boiler Feeder. Works on Wider Range, Longer Life and Hotter Water than any other Automatic Injector.
LARGEST INJECTOR MANUFACTURERS IN THE WORLD.

Penberthy Injector Co., 182 Seventh Street Detroit Mich.
Branch Factory Windsor, Can.

**"LITTLE
GIANT"
TURBINE**



One Type of Horizontal.

Built in 17 Standard Sizes and 27 Special Sizes, making a range of 44 different wheels in vertical and horizontal cases.

Wosolicit correspondence from those interested in developing or improving water power.

...ADDRESS...

J. C. WILSON & CO., Glenora, Ont.

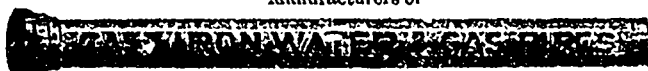
The Attention

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-McGALL
PIPE FOUNDRY CO. (Ltd.)**

Manufacturers of



"Specials," Hydrants, Valves, Etc.

OFFICES:

New York
Life
Building, .
Montreal

WORKS.

Lachine,
Quebec..

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

MANUFACTURERS OF

PURE ALKALI

GUARANTEED 88 DEGREES

BLEACHING POWDER AND

CAUSTIC SODA, 70% 74%, & 76%

Winn & Holland, Montreal

SOLE AGENTS FOR THE DOMINION OF CANADA.



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

SOAP, GLASS, PAPER, WOOD PULP AND COLORS

Also for Printers and Bleachers

WM. J. MATHESON & CO., Ltd.

NEW YORK

BOSTON

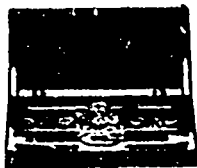
PHILADELPHIA

PROVIDENCE

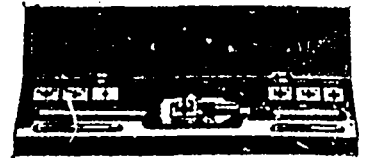
CHARLOTTE, N.C.

MONTREAL, CANADA

DYE . . . STUFFS

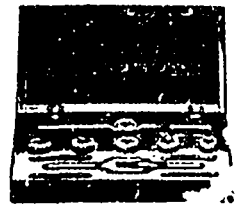
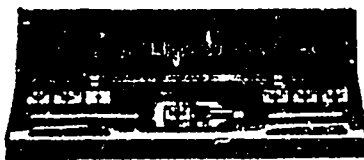


Bicycle Plates in all the most desirable sizes and threads. Taps and Dies of Every Variety



BUTTERFIELD & CO.

ROCK ISLAND, P.Q.



DODGE WOOD SPLIT PULLEYS For Mills and Factories - OUR -

WE CLAIM TO MAKE A HIGH-CLASS PULLEY ONLY

PATENT WOOD SPLIT PULLEYS ARE INDISPENSABLE

Everything is Good About Our Pulley - - - - We Guarantee Them

IF YOU USE PULLEYS WRITE US FOR CATALOGUE AND DISCOUNTS

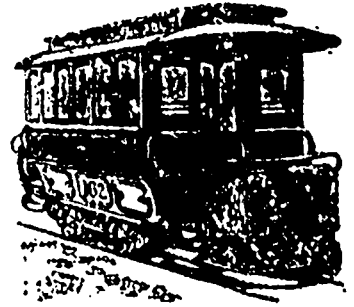
DODGE WOOD SPLIT PULLEY COMPANY

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 STOCKS, 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. T. JOHN, N.B.
 GUELPH, ONT. MONTREAL, QUE. CHATHAM, ONT. PETERBORO, ONT. VANCOUVER, B.C. MONKTON, N.B.
 STRATFORD, ONT. KINGSTON, ONT. WINDSOR, 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

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.

NORTHEY MFG. CO. LTD.

TORONTO, - ONTARIO
Steam and Power

Pumps

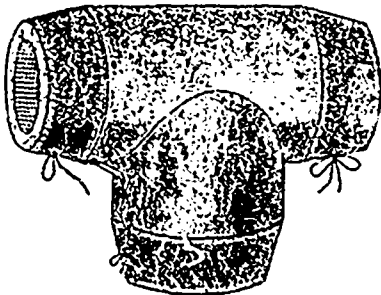
& HYDRAULIC MACHINERY

FOR
ALL
DUTIES

MICA BOILER AND STEAM PIPE COVERING

THE CHEAPEST IN THE MARKET. DURABLE, FLEXIBLE,

GNIFICENT NON-CONDUCTOR OF HEAT



TEE

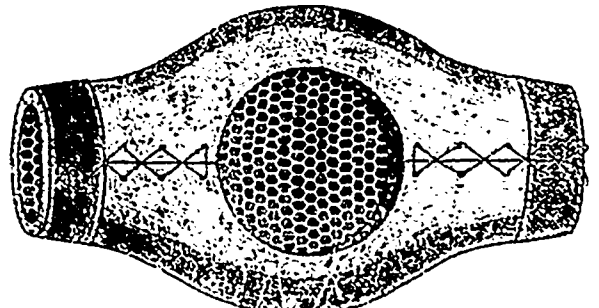
Made in Sections to fit all sizes of Pipes, and can be removed and replaced as often as desired.

A. justable 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.

ROSAMOND WOOLEN COMPANY

ALMONTE, ONT.

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

FERGUSON & PATTINSON

PRESTON, - - ONTARIO.

MANUFACTURERS OF

FINE AND MEDIUM TWEEDS

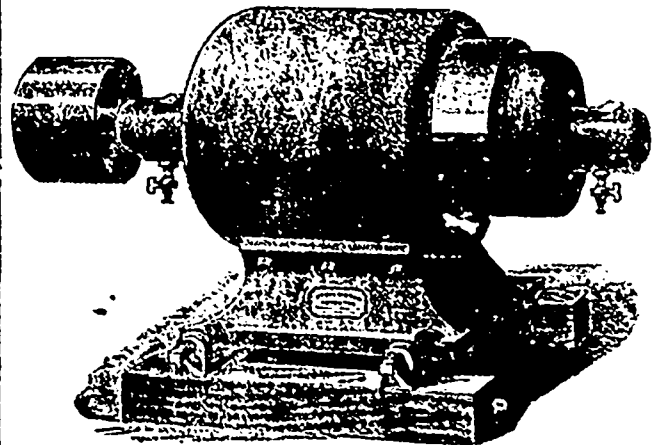
Babbitt Metal.



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.

The STOREY MOTOR and DYNAMO



Send for Catalogue.

MANUFACTURED BY

The STOREY MOTOR and TOOL CO.

John St. North, Hamilton, Can., and Philadelphia.



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,	R. 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.

WOGLEN MANUFACTURERS' ASSOCIATION

President,	B. 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.

GLOVE MANUFACTURERS' ASSOCIATION

President,	W. H. STORRY.
First Vice-President,	JOHN MACLACHEN.
Second Vice-President,	A. R. CLARKE.
Sec. Clary,	J. J. CASSIDY.

REPRESENTATIVES TO

TORONTO INDUSTRIAL EXHIBITION ASSOCIATION

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

WHICH POLICY ?

Commenting on the statement that "the Westinghouse Company, the great manufacturer of railway safety appliances, has taken steps to establish a branch factory at Hamilton," the Gazette says that "the N. P., though somewhat battered, is still able to do its work." Does the Gazette mean that hitherto the railway companies desiring to equip their roads with appliances to ensure the safety of the lives, limbs and property of their patrons, have been under the N. P. heavily taxed for their pains? Does it mean to say that the N. P. is to be hailed as a sacred piece of legislation, be-

cause it has exacted a license fee for obedience to the dictates of simple humanity? This is what its paragraph seems to imply. -Montreal Herald.

Without desiring to speak for The Gazette we would respectfully suggest that The Herald does not seem to know what The Gazette implies when it says that the N. P. is still able to do its work. The Herald does not seem to comprehend the fact that as far as the ability of Canadian railroads is concerned to manufacture safety appliances, such as those made by the Westinghouse company, they are as well prepared, or could soon be quite as well prepared to manufacture such appliances as the Westinghouse people themselves; but it seems to have escaped the attention of The Herald that with the hundreds of thousands of miles of railroads in the United States, and their ability to produce any sort of apparatus or machinery they may require, there is no railroad in that country that make their Westinghouse appliances.

Perhaps it is that neither of our Montreal contemporaries quite fully comprehend this fact, nor understand why neither Canadian or American railroads manufacture their Westinghouse appliances. We will inform them. It is because the Westinghouse company own and control all the patents involved in the production of those appliances. The company's works in Pennsylvania have capacity to meet all the demands that may be made upon them, not only from railroads in the United States, but from Canadian railroads also, and would most assuredly supply their Canadian demand from their Pennsylvania works if it were not that in sending their appliances into Canada, they would be compelled to pay the Canadian duty thereon. This they do not want to do. They desire to enjoy the benefit of the Canadian market, but they do not want to pay the Canadian duty, therefore they are compelled to erect works in Canada. This is what is meant by The Gazette when it says that the N. P. is still able to do its work.

It is quite evident that if the Westinghouse company were permitted to bring their appliances into Canada duty free, they would not have started a branch of their works in Canada. Will The Herald say that Canada is not benefited in the transaction? If Canada is benefited, then the credit of that benefit should be accorded to the N. P., for it is certain that nothing but the N. P. could have accomplished it.

Another feature in this transaction that both The Herald and The Gazette seem to have lost sight of, is the reason why no American railroads, nor Canadian railroads, have ever attempted to manufacture for themselves such most necessary safety appliances in the operation of all railroads as those made by the Westinghouse company. We have already shown that reason, and this emphasizes the fact that where patents are involved the patent itself is of greater value as a method of protection against competition than any tariff law that was ever made. This is why, as in the case of the Massey Company, they seem to care so little for the N. P., and declare that they would not feel any serious inconvenience if the duty upon agricultural implements were either greatly reduced, or removed, if, at the same time the duty upon pig and bar iron and steel were removed. They know that they have a good thing in the protection afforded them in the rights which they exclusively hold in the seventy or more patents which cover their products. They know that even under free trade, or unrestricted reciprocity between Canada and the United

States, no American manufacturer could sell in Canada any such implements, because it would be a violation, not of our tariff law, but of our patent law. And so it is with the Westinghouse people—the patent law of the United States gives to them the exclusive privilege of manufacturing their appliances in that country, and because those appliances are meritorious, and must be used upon all railroads, they have a lead-pipe cinch in that country which is of more value to them than any tariff that McKinley could possibly dream of. They have the advantage of a similar patent law in Canada, and were it not that they would be compelled by our tariff law—our N. P.—to pay duty upon their appliances coming into Canada, they would never have started a branch of their works in this country.

It is quite certain that the present rate of duty upon Westinghouse appliances virtually prevents their entry into Canada, and therefore the revenue of the Dominion is not increased by the importation of them, but it is equally certain that if it were not for the protective duty we would not now have a branch of the Westinghouse concern established in Canada, giving lucrative employment to several hundred expert workmen. On the other hand if our tariff were formed for revenue purposes only, the Westinghouse company would feel, no doubt, that they could better afford to pay a low duty than invest their capital in a Canadian works. In one case, under a protective tariff, we are minus the revenue but plus the investment of capital and the employment of labor. In the other case we would be plus a small revenue but minus the investment of capital and employment of labor.

Which policy would be of the greatest advantage to Canada?

EXPERIENCE VS. LOGIC.

The Toronto Globe is one of the most incorrigible Bourbons that ever lived. It never forgets its old and oft exploded free trade fallacies, and it never learns wisdom from the every day events that are constantly transpiring within range of its vision. Another contemporary, discussing the probable course of the Republican party when it comes into power under Mr. McKinley next year, said:

By imposing sufficiently high duties they can make work plentiful and keep wages high in the centres of manufacture. In that way they can stop the extension of the silver heresy from the west and south to the east. Also, as the manufacturers thrive, the home market for the farmers must improve. To whatever extent it does improve it will check the growth of discontent among the agricultural classes.

The Globe objects to this and makes several very wild declarations. It tells us that by Mr. Bryan's scheme the prosperity was to spread from the farmer to the manufacturer instead of from the manufacturer to the farmer, as suggested by others; but that the expectations founded upon either scheme, i.e., Bryanism or McKinleyism, are equally ridiculous, but that of Mr. Bryan the more excusable. Currency debasement and tariff taxation, in the opinion of The Globe, are alike condemned by economic research and common sense, and that Mr. Bryan's perseverance in his folly is the more pardonable because it has not been recently exposed by the test of experience.

Our contemporary is blind, indeed, if it cannot comprehend that, admitting the necessity of a country for a certain commodity, and that that commodity can be produced there-

in, if it is thus produced the process of production must give employment to labor there, thereby making work more plentiful, with a tendency to keep wages high in the centres of production. If then, in the production of the commodity remunerative employment is afforded to manufacturing labor, it is evident that agricultural labor—those employed in producing food stuffs—will be benefited by this condition; for if, as The Globe has often told us, the farmer has to bear the cost of transportation of his products to the consumer, the closer to his own door he finds that consumer the greater the net profit he receives for his industry. Why should a Canadian farmer be compelled to market his chickens and eggs in Buffalo, New York, rather than in Toronto, Canada, or his wheat in Liverpool rather than to Toronto flouring mills? He must reach the consumer of his products, and that consumer is very greatly the employee in a workshop or factory. If Canadian workshops and factories are kept open and give employment to such large numbers of workmen that all the chickens and eggs that the farmer can produce are required for their sustenance, there would be no necessity for him to go to Buffalo to dispose of them. As the manufacturer thrives and gives employment to large numbers of people whose cravings require three good meals each day, even so the farmer thrives by the more valuable demands of his nearby home market.

It is remarkably absurd for The Globe to arrange currency debasement and tariff protection in the same category, and to declare that both are alike condemned by economic research and common sense. If we observe we will discover that the most important and enlightened nations of the earth indulge in no currency debasement, and also that, possibly excepting Great Britain, all these nations have adopted and practise tariff protection. Do not these two policies go hand in hand, the one a complement of the other? When The Globe makes its economic research, and finds that honest money is the system practised in all the most flourishing nations of the earth, does not its common sense teach it that tariff protection is also a strong element in that prosperity? Why should it be said that in the same nation common sense prevails as regards its currency, and that the people are fools for practising protection? Surely The Globe might learn from experience what it has failed to learn from logic. If it continues to hold to its heresies in spite of the lessons of experience, its course cannot but be condemned by all possessors of common sense.

THE SPECTATOR'S CATECHISM.

The Hamilton Spectator becomes quite nervous and fretful because this journal has explained why protectionists have usually voted in favor of the Conservative party in Dominion politics but have not felt it their duty to vote with that party in Ontario politics. In a recent issue, discussing this question we said:—

Sir Oliver Nowat, while premier of Ontario, comprehended this condition when he received a large and influential deputation from the Canadian Manufacturers' Association, who interviewed him to ask that some substantial assistance might be given towards the establishment of the iron industry in this province, and he was quick to respond to the wishes of the Association when he promised a provincial bounty of \$1 per ton upon all pig iron made in the province from ore

mined in the province. As a result of that interview, and the subsequent action of Sir Oliver, we now have a plant in operation in Hamilton with capacity to manufacture 150 tons of pig iron per day.

In replying to this *The Spectator* says:—

Sir Oliver Mowat was forced by public opinion to give a bounty on iron. And while he did right we have no respect for the man who recognizes one branch of industry with one hand, and undertakes with the other hand to ruin not only that branch, but all others. Sir Oliver Mowat knew, and *THE MANUFACTURER* knows, that the publicly declared policy of the Grit party is to wipe out the last vestige of protection, and yet Sir Oliver, who gave a bounty to iron makers, allied himself to the Dominion party, which had publicly declared against protection, and did all in his power to defeat the government whose principal plank was protection.

The *Spectator's* nervousness is very acute, and, approaching a climax, it becomes hysterical because we said:—

We can assure *The Spectator*, and also the Conservative party and its leaders, that that party can never accede to power in Ontario, nor regain power in the Dominion, without the active aid of the protectionists, and we can also truthfully say that whichever political party most honestly and sincerely advocates and upholds the cause of tariff protection, will undoubtedly have the voting support of the protectionists of Canada.

It starts a catechism. It wants to know things. It enquires if the Conservative party has ever given the slightest reason to suppose that it is to abandon protection. We do not deny that the Conservative party has been very persistent in declaring its adhesion to protection, and, now that *The Spectator* is so very anxious for a statement, we can but apply the adage that actions speak louder than words. We will cite a couple of instances where a very decided deviation was made. In the revision of the tariff in 1894 Mr. Foster made a very obvious departure from the principle of protection; and we commend to *The Spectator* a perusal of the speech of the Finance Minister on the occasion of his introducing his bill at that time amending the tariff. We hope our contemporary will reproduce in its columns the opening sentences of that speech. It was an occasion when any sincere advocate of protection might lament that the Conservative party, by the very mouth of the Finance Minister, who had authority to speak for it, gave a very strong reason for the belief that in that respect at least, that party had abandoned the spirit of protection. That was an instance where profession and practise did not harmonize. The catechism also enquires "Is there any shadow of a reason for supposing that the Conservative party contemplates even the removal of protection from the first place in the list of party principles?" *The Spectator* thinks not. We think—nay, we know, that the party, or, more correctly speaking, the leaders of it, placed protection far in the background, and at a most fearful disadvantage, when it brought the Manitoba school question to the front, far in advance of everything else, and upon that question forced a conflict that could not but prove disastrous, not only to the party, but to protection. The Conservative party was not placed in power upon any school or religious issue; and when it acquiesced in the disturbing whims of some of the party leaders it became liable for whatever might follow from the injection of that inadvisable move into the issue of the recent election. And yet *The Spectator* asks for items, It should know that its party would never have acceded to power in any election ever held in Canada, had it not been

upon the special issue of tariff protection. It should know that in every election since the formation of the Dominion save one, up to that of June last, tariff protection was the shibboleth of their victory, and it should know that protection was not the shibboleth in the June election, but rather shibboleth, otherwise coercion of Manitoba, was the fatal signal for the defeat of what would otherwise have been a victorious party. And still *The Spectator* asks for items. Will it kindly say if, in this respect, there is no reason for the declaration that the Conservative party abandoned protection by removing it from first place in the list of party principles?

This journal does not put up the vote of the manufacturers of Canada at auction to be bid upon by the Grit or any other party, as *The Spectator* intimates. It has no authority, neither does it desire to do so, but we feel quite safe in declaring that when the Conservative party deserts the manufacturers, as we have shown, they are able, and quite prepared to look out for themselves. The adhesion of the manufacturers will be to the party that most closely adheres to their interests.

REDUCTIO AD ABSURDUM.

(1.) The effect of ever high duty on imports is to make work scarce. (2.) The immediate result of a duty is an increase in the price with a proportionate shrinkage in the quantity consumed. (3.) If the consumption of a dozen articles gives employment to as many men, a reduction of the number consumed to nine would deprive three men of employment, however much the price might be increased. . . . (4.) The effect of higher duties will be to make work scarce and wages low.—*The Globe*.

(1.) "The effect of a high duty on imports is to make work scarce." Illustration:—Imports in this sense means merchantise. It requires "work," otherwise labor to produce merchantise. If, therefore, merchantise is imported from abroad, ready for consumption, according to *The Globe* it makes work plentiful. Per contra, if the merchantise is manufactured in the country, requiring the services of labor, according to *The Globe* the production at home makes work scarce. This is *Globe* logic.

(2.) "The result of a duty is an increase in the price with a proportionate shrinkage in the quantity consumed." Illustration:—The Canadian farmer is a producer of wheat, and the Canadian people are consumers of flour. The duty upon wheat is fifteen cents per bushel, and upon flour seventy-five cents per barrel, and yet bread is as cheap in Canada as in the United States or Great Britain. The duty upon wheat has not raised the price of bread, neither has the duty upon flour; nor has it caused a proportionate shrinkage in the consumption. Just as much wheat, flour and bread are consumed in Canada per capita under the present tariff system as before. Then why the duty? The duty upon wheat keeps out foreign wheat, and gives the home market to the Canadian farmer. If there was no duty the Canadian farmer would be handicapped by the competition of the foreign farmer. The duty upon flour gives the Canadian miller the benefit of the home market. If there was no duty the Canadian miller would be handicapped by the competition of the foreign miller. Both the farming and the milling industries in Canada give employment to large numbers of laborers, while the competition among those employed in these industries tends to and does keep prices from becoming exorbitant. Neither wheat,

flour nor bread would be any cheaper under free trade, but the foreign producer would share the market with the home producer, and the home producer would be injured to that extent. The *Globe's* argument is in a directly contrary direction, which is *Globe* logic.

(3.) "If the consumption of a dozen articles gives employment to as many men, a reduction of the number consumed to nine would deprive three men of employment, however much the price might be increased." Illustration:—If the consumptive requirement of the country amounts to a dozen articles, these articles must be produced either at home or abroad. If abroad, employment is afforded to a dozen foreigners, and a dozen natives are deprived of that labor. If the foreign competition is so keen as to force the retirement of three natives from the business, it is certain that it supplies work for three foreigners. Depriving natives of their employment does not necessarily mean any increase or decrease in the price of the merchandise in the manufacture of which they had been engaged. But it does mean that the producers of food stuffs and other necessities that had previously been required by the unemployed, would find their market narrowed to that extent. The *Globe's* logic is bad.

(4.) "The effect of high duties is to make work scarce and wages low." Illustration:—The effect of high duties is to keep out foreign goods and to encourage the production of domestic goods. Production of merchandise means the employment of labor, and the employment of labor means good wages. Therefore, according to The *Globe*, if we remove high duties and thereby encourage the importation of foreign goods, in the production of which employment is given to foreign labor, employment to home labor is made more abundant and wages are increased. A queer argument, but this is *Globe* logic.

It is a most remarkable feature in so-called high class, intelligent journalism, such as The *Globe* is an exponent of, that in four consecutive sentences in a leading editorial such illogical and ridiculous postulates should be advanced.

TO BE OR NOT TO BE.

Discussing an editorial in this journal in which allusion was made to the recent Conservative conference in Toronto, and in which attention was directed to the fact that Sir Oliver Mowat, while Premier of Ontario, had acceded to the request of the Canadian Manufacturers' Association to give some substantial assistance towards the establishment of the iron industry in this province, to which he was quick to respond by promising a bounty of \$1 per ton upon all pig iron made in the province of ores mined in the province, The *Ottawa Citizen* comes to the conclusion that this journal "supports the Ontario Government on the ground that it is a protectionist government." It tells us that the Ontario Government is a protectionist government in fact: that it has actually given the bounty mentioned for the manufacture of pig iron, and that in that one practical case it has acted upon protectionist lines. But it qualifies its remarks by declaring that in so doing the Ontario Government has stultified the profession of every member of the government, of every newspaper that supports it, and of the party in the Dominion to which it belongs.

The reason why The *Citizen* thinks this journal in the wrong

in commending Sir Oliver Mowat for bestowing an encouraging bounty upon the Ontario pig iron industry is that the Ontario Liberals are a wing of the Dominion Liberals; that for federal purposes they profess a belief in free trade; that they declare on the hustings and in the press that protection means the robbery of one class for the benefit of another; that it fosters the growth of artificial industries; that it stunts and mangles those that are proper to the country, that it cuts down our foreign trade and maims commerce, and a lot more of such objectionable things; and that, in the unique and classic language of Sir Richard Cartwright, one of the sacred principles of the Liberal party is that protected manufacturers are scoundrels. The *Citizen* tells us that this journal is oblivious to these facts—to this phase of the question—and is favorable to the Ontario Government because of its practical adhesion to protectionist principles in the matter of pig iron; and it volunteers the suggestion that if the success of the Ontario Government means the continuance in power of the Liberals at Ottawa, the cause that this journal has at heart will have little to be thankful for.

It is really distressing to be thus lectured by The *Citizen*. It harrows our feelings to a most poignant degree. It breaks our heart, or words to that effect, and causes us to lose much sleep. In fact we lay awake at night grieving to think that the Liberals are such naughty fellows, and that we have been found in company with them. But blows upon our devoted head do not come singly, for The *Hamilton Spectator* lends a willing hand in the infliction simply because we said that Sir Oliver, whatever his political profession may be, had acted the role of a protectionist in the pig iron matter. It seems to be a staggering blow to these protectionist journals that such a pronounced free trader as Sir Oliver should have so far demeaned himself as to steal protection thunder. The failure of the political party to which The *Citizen* and The *Spectator* are attached, to do all that might have been done in the direction of protection, might have been the inducement for Sir Oliver to help along the neglected cause, but is it not rather unkind of them to denounce the man who supplied the deficiency, and the journal that patted him on the back for so doing? The *Spectator* goes to the rabid extent of saying that the Ontario Government has properly nothing whatever to do with political questions, by which it means to say that the encouragement of the manufacture of pig iron in Ontario, being a political question, Sir Oliver should not have meddled with by bestowing a bonus upon it; and that sooner than see such an act performed by a Liberal, it would have been better pleased, and it would have been better for the interests of Ontario, had it not been performed. We are thankful to say that in this respect our views are widely different from those of The *Spectator*. In this connection, however, it might be pertinent to remark that The *Spectator* never lost an opportunity to berate Sir Oliver because he did not interfere to prevent the export of Ontario pine logs to the United States, which question is undeniably one that does not come within the scope of the legislation of Ontario, but of the Dominion. The *Spectator* abuses Sir Oliver because he sold Ontario timber limits to whoever would pay the most for them, but it had but little chidings for the Dominion Government because it did not, and does not, prohibit the export of pine logs.

The *Spectator* tells us that "the Ontario Government iden-

tifies itself with the Grit party of the Dominion and does what it can in the interest of that party;" and that the Mowat (Ontario) government made itself a donkey engine to be worked in the interest of the Grit party of the Dominion. We do not discuss to what extent this may be true, but if it is the policy of the Grit government of Ontario to foster the pig iron industry in the province by giving a liberal bonus upon the production of the article, we hope that they may be brought to appreciate the necessity of performing other and kindred acts in the interest of other industries; and we also hope that if this spirit of protection, as exemplified by Sir Oliver's pig iron policy, is to become a donkey engine in Dominion politics, it will be of sufficient power to effect much good in that direction.

DON'T THROW STONES.

This journal has stirred up quite a hornet's nest of Conservative newspapers because we have declared our approbation of the action of Sir Oliver Mowat, while premier of Ontario, in promising a bounty of one dollar per ton upon pig iron made in the province of ores mined in the province. Sir Oliver's action in the matter was so identical with what might have been expected of Sir John Macdonald or Sir Charles Tupper, under the same circumstances, that we could not but declare that in that action at least, Sir Oliver was quite as good a protectionist as either of the other gentlemen named, whom we are all pleased to look upon as the fathers and founders of the National Policy.

The great trouble with our esteemed contemporaries is that while they are, perhaps, good enough Conservatives, and, as such, declared supporters of the National Policy, they are not willing to have the co-operation of any in upholding and practising the National Policy unless they declare their adherence to the Conservative party. They barricade the doors of their party against any who might be willing to act with it in the very life and spirit that is supposed to characterize it, if in all things compliance is not made with the demands of the bosses of the party; and this bossism is brought to bear upon both he who, not being a declared Conservative, acts in the spirit of the National Policy, as Sir Oliver Mowat has done, and upon those who, being believers in the National Policy, venture to express approbation of what Sir Oliver did.

Actions speak louder than words, and to our mind the Liberal who, by his actions, shows himself to be a supporter of the National Policy, is more to be commended than the Conservative party and Conservative newspapers, who do nothing more than disclaim in favor of that policy and nothing more. Whether is it better for a man to declare that he is opposed to the theory of protection and at the same time do all he can to sustain protection, or to perch upon the pinnacle of the temple and proclaim the beauties of protection, and at the same time scold at and berate the man who practices protection although he may not belong to the party. There is no consistency in this, and if Sir John Macdonald were alive he would hold up such doings to ridicule. Which character is to be commended the most? We are told that a certain man had two sons, and he said to the first: "Son, go work to-day in my vineyard," but the son said, "I will not," but afterwards he repented and went; and he came to the second son and said likewise, and he answered and said, "I go, sir,"

but went not. Which of the twain did the will of his father? If Sir Oliver, declaring that he is not in favor of protection, practises protection, is he not to be praised for so doing rather than professional protectionist politicians and professional protectionist political newspapers that accomplish nothing for protection? We commend the study of our parable to those of our esteemed contemporaries who are inclined to throw stones at us.

THE BURDEN ON THE WORKINGMAN.

There is much food for thought in a statement recently made by Mr. T. A. Meysenburg of the Tudor Iron Works, St. Louis. In estimating the damage done to the iron industry by the silver agitation he said:

"There is not a product that influences labor as much as iron and steel. The iron ore in the mines probably represents a value of 50 cents per ton; labor spent upon the mining, handling and carrying to consumption is equal to about \$3. To reduce the iron ore costing \$3.50 into pig metal, fuel and limestone are used, representing in their cost 90 per cent. of labor, so that a ton of pig iron, using ore at \$3.50, and costing \$11.50 per ton, means about \$10 paid to labor.

"Converting pig metal into steel and iron again represents mainly labor, so that from a ton of steel or iron, costing from \$20 to \$23 per ton, labor receives not less than \$18 or \$21.

"It is useless to follow this matter any further than to say that many dollars go to labor for making iron or steel into utensils, stoves, knives, springs, etc., for every ton produced.

"Bearing these facts in mind one can readily see to what extent paralyzation of the iron business affects the labor of the country, since every ton not produced deprives the workingman of about \$20, or \$20,000,000 for every 1,000,000-ton contraction. The production of iron has decreased at the rate of about 5,000,000 tons per annum, representing to labor the round sum of \$100,000,000."

The estimate made by Mr. Meysenburg is entirely within bounds, says The Iron Age. Not only is the labor lost to which he refers, but by following the line of reasoning still further one is almost dazed in the contemplation of the loss to labor by the diminished activity in the form of transportation, distribution and remanufacture. A labor loss of \$20,000,000 on every 1,000,000-ton contraction in the annual output of finished iron is conservative. Corresponding contractions in other branches of productive industry carry with them similar results, although not so great as in the case of iron and steel, whose production and manipulation involve so much labor. Hundreds of millions have thus been lost by labor in the past few months by the senseless agitation of the change of our monetary standard. Capital has suffered keenly, but labor has borne a heavy share of the burden. Capital, however, will in time repair the ravages made, but labor will never make good its waste. The workingman only has his labor to sell, and every day he passes in idleness he consumes a part of his earning power which can never be replaced.

Mr. George Johnson, the Dominion Statistician, is compiling figures in regard to the pork packing industry of Canada, which were desired by the Pork Packers' Association at Toronto.

EDITORIAL NOTES.

The Tariff Commission have been in session in Toronto this week. A condensed report of the testimony, and comments thereon, will appear in our next issue.

The Editor is in receipt of a letter from Capt. John Swainson, editor of *The Marine Record*, Cleveland, Ohio, in which he says:—

Permit me to congratulate you on the success of THE CANADIAN MANUFACTURER under your excellent editorial management. THE MANUFACTURER is always newsy, spicy and well edited, and among our most valued exchanges. THE CANADIAN MANUFACTURER has done noble work for the industries of the Dominion during its career, and I sincerely trust that as we progress onward and upward it may be in the van in all industrial affairs.

Amid the turmoils and bustle of life it is exceedingly pleasant to encounter those who so considerably have kind words to say to a brother laborer.

Regarding the great wealth in the undeveloped resources of British America, Mr. Phillips, of the London Paper Maker, who recently visited Manitoba, as well as other portions of Canada, is quoted as saying:

"There is absolutely a colossal mine of untold wealth in the forests and water power streams of Canada, from the point of view of the pulp and paper maker. I know of no country in the world in which the raw material, as well as the natural facilities for utilizing it, are so abundantly and so conspicuously existent. I have travelled around the globe in search of just such a field as Canada presents in this particular. We hold the key of the situation," he said, "and if we do not throw away the advantages we possess, the United States and Great Britain will have to come to us for their supplies.

The United States, which sell us \$58,000,000 worth of goods yearly, propose to increase their tariff wall so that we will not be able to trade with them.—*The Globe*.

The merchandise that we purchase from the United States consists largely of things that we cannot conveniently produce at home—raw cotton for instance—upon which there is no United States export duty nor Canadian import duty. If our neighbors increase their tariff wall it will be upon things that they themselves produce, agricultural products for instance. Why should Canada lower her tariff wall against American manufacturers when we produce just such articles ourselves, for the poor privilege of sending Canadian products, such as agricultural products into the United States which is an enormous exporter of such products?

The *Mail and Empire* tells us that the offer of the Toronto Board of Trade authorities placing their rooms at the disposal of the Minister of Trade and Commerce and the Controller of Customs has been accepted. The Ministers were to have started from Ottawa on the 16th instant on a tour of the provinces to procure the views of leading merchants regarding proposed tariff changes. The *Mail and Empire* does not say that it is the desire of the Commissioners to interview the manufacturers also, neither does it tell us who the "leading merchants" are. Some small amount of curiosity is expressed as to whether in the current visit of the Ministers the door of

the Board of Trade is to be tyled by the secretary of that institution, admittance to be gained only by a card from him, and the limit of time of interview stated thereon.

At the general meeting of Toronto Typographical Union No. 91 held a few days ago the following resolution was passed:

"Whereas, it has come to the knowledge of this union that the Presbyterian Assembly of Canada had determined to issue a new and amended edition of hymn books of various sizes; and whereas, this union has also been informed that the contract for the printing and binding of said hymnals has been awarded to a firm of printers in England, and that the amount to be expended for this purpose comes to a very considerable sum; be it resolved, that Toronto Typographical Union, No. 91, in general meeting assembled, does hereby express its regret that the Presbyterian Assembly should have thought fit to go outside their own country to have this work done; that this union is decidedly of opinion that the execution of the printing and binding of these hymn books could be accomplished equally as well and equally as cheaply in Canada as in the Old Country; and, taking into consideration that the several purchasers of the hymnals will be Canadians, this union condemns the sending this large amount of hard cash out of the country where so many men are vainly looking for work; and, further, hereby professes its profound indignation at the slur cast on Canadian workmen by the unpatriotic action of the Presbyterian Assembly; also resolved, that a copy of this resolution be forwarded to the Presbyterian Assembly and to the press."

We hope that the Dominion Government will give due attention to this grievance of Canadian printers. The trouble is that through a mistaken idea of the proprieties such publications as the Presbyterian hymn book are admitted into Canada virtually duty free. This class of merchandise can be manufactured in Canada about as cheaply as in any other country, and there can be no good reason why the work should not be done here. In this respect the printers are good National Policy men.

One of the rumors circulated by the Republican press in the United States is that the new tariff is to be framed so as to exclude the Canadian farmer from United States markets. It may be permitted to Canadians to cherish the hope that this rumor may be exploded.—*Montreal Herald*.

Why cherish hopes that are certain to be exploded? Republicanism in the United States exists not to make tariffs in favor of the Canadian farmer, nor of any important Canadian industry, but in favor of American industries, and of those who place the Republican party in power. When will *The Herald* learn this fact? The sooner we realize that Canada has nothing to gain by any Yankee legislature that may be made except by the sacrifice of infinitely more valuable privileges on the part of Canada, the better for Canada.

Referring to the interview on the Sudbury coal question Prof. Bell desires to correct any impression that the albertite of New Brunswick was anthracite. On the contrary, he says, it is a highly bituminous substance, but was found in a vein like the Sudbury mineral. As to a suitable name for anthracite occurring in the veins, he thinks that carbonite, which was proposed by the late Dr. Sterry Hunt, might be the best to adopt.

The largest cargo of sugar that has ever entered the port of Montreal is now on the way up on board the steamship *Assaye*. The cargo consists of 42,000 bags, which figures up to the enormous quantity of 9,000,000 pounds. The *Assaye* is from Hamburg and the sugar aboard is of the German beet variety. The nearest approach in size to this cargo came in this season on the steamship *Aladdou*, and was something like 36,000 bags. The steamship *Romulus* also with a cargo of raw sugar is on her way to this port.—*Montreal Star*.

Here we see that in three vessels the receipts of raw sugar at the port of Montreal in one week amounts to more than 20,000,000 pounds. Consider the amount of labor that was employed in Germany in cultivating the beets and converting it into sugar involved in the transaction; and consider the further fact that no sugar is made in Canada, although our soil and climate is excellently well adapted to the industry. Why not produce our own sugar? Why pay German labor and foreign ships the cost of laying down this sugar in Canada when we might produce it ourselves?

The plant of the Canadian Elastic Web Company, at Niagara Falls, Ont., a branch of an American concern, which has for some time been offered for sale without a purchaser, will be moved in a few weeks to a town in Massachusetts. This factory has been in operation in Canada for some eight years, giving employment to an average of fifty hands. A foolish compliance by Mr. Foster, the then Minister of Finance, with an insane demand from the politicians of the other party induced him, in 1894, to change the tariff affecting this industry, with the result above shown. Mr. Foster's change in the tariff did not put any more money into the Federal treasury nor did it affect the price of the goods, but it served to kill off a valuable industry and to throw a number of Canadians out of employment. It is to be hoped that our new Minister of Finance will profit by this lesson and restore the status of the old tariff.

A beet sugar factory that has just been started at Eagle, Wisconsin, is manufacturing sugar from beets grown during the past season on ten thousand acres of land in that vicinity. The farmers are delivering the beets to the factory at the rate of fifteen hundred wagon-loads per week. If in Wisconsin, and in Kansas, and Nebraska, and California, why not in Canada—in Ontario? It is to be hoped that Mr. Laurier's Government will look more favorably upon this possible Canadian industry than has heretofore been done. Behold what is being done in this direction in France, Austria, Russia, Germany and other European countries.

"You may have leaders," said Sir Charles to the Conservatives in Montreal, "you may have standard-bearers as able, as eloquent as you please, but unless they are sustained by the great body of the intelligent electors belonging to their party, and heartily sustained, it is comparatively little that they can accomplish in the interests of their country." The *Montreal Herald* says that in these words Sir Charles set his finger on the cause of the defeat on the 23rd of June. What he omitted to explain was how they lost the vote of the intelligent electors, and how they propose to recover the same.—*Toronto Globe*.

The *Hamilton Spectator* tells us one day that "The Conservative programme has the National Policy as its first number; it has nailed the protection flag to the mast-head,"

and the next day it tells us that during the last campaign "the tariff wasn't the issue." Question:—Was the National Policy the first number on the programme during the last campaign, or did the Manitoba school question occupy that position? If the latter, how did it occur? Who did it? Did the leader of the party do it?

The *New York World* publishes a list of industrial changes, showing that in four days after the Presidential election factories employing 164,635 men either re-opened or greatly increased their working force.—*The Globe*.

The owners of the factories employing this large army of workmen, being protectionists, and satisfied that no changes in the tariff injurious to them would be made, opened the throttle and steamed ahead. Not only to these manufacturers, but to their employees also, tariff protection is something tangible.

Canadian markets for Canadian manufacturers and producers.—*Toronto Globe*.

Canada for Canadians.—*Toronto Globe*.

THE CANADIAN MANUFACTURER extends the right hand of fellowship to *The Globe* upon its pronouncement of such good protectionist sentiments. Only a protective tariff can give the Canadian market to Canadian manufacturers and producers. Canada for Canadians—so say we all of us.

The *Montreal Herald*, alluding to the recent address of Sir Charles Tupper to the Conservatives in that city, in which he discussed the defeat of the party in June last, says that he omitted to explain how the party lost the vote of the intelligent electors. We will enlighten our contemporary by saying that as far as Ontario was concerned, the loss occurred through Sir Charles and the other leaders of the party allowing the Manitoba school question to be forced to first place on the programme. If they had ignored that question, or at least kept it far in the background, and had made the National Policy the rallying cry, and tariff protection the watchword, all would have been well. Will *The Hamilton Spectator* kindly take notice of this fact?

At a recent Session of the North-West Assembly at Regina the following resolution was passed unanimously:—

"That the House takes the liberty to draw the attention of the Federal Government to the imperative necessity for immediate construction of the Crow's Nest Railway, and that unless this is done the trade of the Kootenay district may be permanently deflected into American channels; that the Crow's Nest Pass contains large areas of bituminous and cannel coals of a cooking quality; that with these valuable coals the erection of smelters and refineries may be expected to follow; that the existence of this railway will at least permit these territories to compete with eastern Washington in the supply of the necessary large amount of food products required in the mining regions of south-eastern British Columbia; that heretofore the construction of railways in these territories has been carried on without due regard to vested interest of existing towns, and the Assembly trusts that in considering this important subject the Federal Government will be pleased to see that the town sites of Lethbridge and MacLeod are not overlooked, provided the construction of the railway in question through these towns in no way interferes with the general purposes which makes its construction a necessity."

We learn from American sources that the incoming McKinley administration will lose no time, when they accede to power, in enacting a new tariff which will raise revenue adequate for the support of the Government. An extra session of Congress, we are told, will be called without delay after March 4th, when it is intended to pass a tariff bill that will restore the McKinley strong protective tariff on wool, woollens, etc.

It seems to be settled that the new tariff legislation by the United States Congress, under the McKinley regime, will include an increase of duties upon agricultural products, especially intended as a recognition of the loyalty of the Republican farmers of the states bordering on Canada, whose products come directly in competition with those of Canada.

Just before the recent election in the United States, Hon. B. F. Jones, of Pittsburgh, the President of the American Iron and Steel Association, being asked by the New York Herald his opinion of the effect which the election of McKinley and Hobart would have upon the business of the country, transmitted the following reply: "The triumphant election of McKinley and Hobart, which now appears to be assured, will relieve the country of the paralysis caused by the threatened change of the policies of the Government by the Administration elected in 1892 and the continuous agitation of vital questions since that time. It will restore the confidence that then prevailed, liberate millions of money that have been hoarded and hidden, will give employment to brain and muscle that have been wasting in idleness, will restore the unprecedented prosperity that we then enjoyed. It will show that the institutions founded by the fathers and upheld by the sacrifices of innumerable lives are to endure. It will bury Bryanism and all that it implies so deep that it cannot be resurrected until we shall again forget our God and our country."—The Bulletin.

The revival of business in Canada is surprisingly like that now going on in the United States, and from identically the same cause. Our people comprehend that the perpetuity of what is sometimes known as McKinleyism in that country precludes the probability—perhaps the possibility, of any material changes in the Canadian tariff.

The Canadian Gazette, London, Eng., produces the following:—

"The success of the Barnardo boys in the farming life of the Canadian North-West has made Western Australia envious of Canada's good fortune in securing this well-trained young life. In the Legislative Assembly of that Colony last month the following motion was adopted:

That it is desirable that the Government should put themselves in communication with Dr. Barnardo, with the view of his sending young people to the Colony."

We most sincerely hope and trust that Dr. Barnardo will listen to the invitation of the Western Australia Legislative Assembly, and forthwith change the current of his benevolence from Canada to that colony. If Western Australia desires to become the dumping ground of the waifs and strays of the alms of London and other English cities, and the progeny of the vice, debauchery and misery that Dr. Barnardo has been so persistently foisting upon Canada, for God's sake let it have them. We do not want them here.

A wealthy American concern who operates big departmental stores both in Chicago and New York, have made the following offer to Mr. Bryan, the recently defeated candidate for president of the United States:—

You have so thoroughly demonstrated your ability in the present campaign that we would like to know if you would accept an offer of \$25,000 a year to manage a law department in our store.

If big departmental stores are to become engaged in every other branch of business why not include legal business also? And why not include medicine? We know that respectable departmental stores are prepared to put up physician's prescriptions most accurately, and that they sell patent and proprietary medicines much cheaper than what they can be bought for in the regular drug stores, to the great advantage of the public; and why not have a department for supplying legal information? It would be immense for a big store to employ a boss lawyer and an array of counter jumper youngsters of the profession who would otherwise starve, to be ready at all times during business hours to supply legal information at sight, cash down, to all comers. It would simplify matters very much. Of course the next step would be for these departmental stores to employ clergymen, including all denominations, who would, on bargain days, expound the law and the prophets to whoever would listen. The whole scheme of the departmental store business partakes somewhat of advanced socialism, which it would be in its entirety and perfection when the Government take over and run such institutions.

Careful observers will notice that there is not a nation "on earth or in the heavens above the earth" that is struggling to become a republic at the present time. Canada is not worrying to be taken into this political lunatic asylum, which poses before the world as a republic.—Wade's Fibre and Fabric.

It is very sweet of The Shareholder to speak of a recent event in the United States as follows:

We look upon the result of the election as a benefit to Canada, and we trust that friendly feelings will continue to be cultivated between the people of the two countries. There is no reason why Republicans and Democrats should not reciprocate our feelings. We trade largely with them and they with us. They impose restrictions which are annoying and from which no advantage is derived. Let the object be to remove these restrictions, and while we each may rival the other in loyalty and devotion to its constitution and flag, let us enjoy rather than regret the fact that Providence has made us neighbors. In this they will prove their appreciation of our sympathy and congratulations on their success.

A result of the recent elections in the United States will undoubtedly be to re-build the old McKinley tariff wall where it has been torn down or lowered by the more recent tariff, and in doing this, The Shareholder says, Canada is to be benefited. We quite agree in this that the restoration of the McKinley tariff will make it impossible for Mr. Laurier's Government to tear down or materially reduce the Canadian tariff.

Two new blast furnaces which are at present in course of erection near Stettin, in Germany, are not only to be lighted by electricity, but all the machinery and apparatus connected with the furnaces are to be operated by means of electro-motors.

There is not much sense in the jeers of Conservative newspapers as to the high living in which Mr. Tarte is charged with indulging himself on his tour of the west. All who know the man know him to be of an admirable abstemiousness. He eats little more than a bird could eat, and of strong waters takes none at all. He will get as much comfort out of a glass of milk and a crust of bread as other men would enjoy in a barmecidal feast. Mr. Tarte's personal excesses would never disturb either his own digestion or the national balance sheet.—Montreal Herald.

What sort of a bird is it to which The Herald compares Mr. Tarte? We have heard of birds that enjoy a bountiful feast upon a small spoonful of canary seeds, and of other birds that require the carcass of a sheep wherewith to satisfy the hunger of a day.

Free Trade is a two-edged sword and strikes a double blow. It not only opens our ports to foreign goods and takes our home market from American producers to give it to foreigners, but it decreases the value of our home market by decreasing the power of the American people to consume. The pouring in of foreign goods causes the shutting down of many of our factories and the reduction of wages in all. Hundreds of thousands of people are thrown out of employment and hundreds of thousands of others have their wages reduced. The purchasing power of all is decreased by the loss of wages and there is less demand for the products of the factories still open; less demand for the goods in the hands of merchants and importers and less demand for farm products. More factories are forced to close; more business houses fail; the wages of the fortunate few who still have employment drop still lower, and so it goes on and on, in "an endless chain" until industry is completely paralyzed.—American Economist.

The politicians boldly spake,

Their loyal friends amid:

"BEHOLD WHAT WE INTEND TO DO"—

And this is what they did. ○ ○ ○

In an editorial entitled "Combines and Profits" the American Miller says:

Of course it makes a difference whose ox is gored. Here is a grocer's paper exulting in the collapse of what it calls the "big millers' trust." It refers to the failure of the spring wheat millers to maintain the agreement as to minimum prices. We suppose, from the grocer's standpoint, any sort of an arrangement which tends to prevent destructive competition between millers is a "trust," while an agreement between grocers not to sell flour at less than a certain advance over the wholesale price would only be a rational business arrangement. In fact, if we remember rightly, the grocer's paper in question, which rejoices in the inability of the millers to maintain prices, advised its readers not long since to decline to handle flour unless they could make a profit per barrel amounting to more than all the average profits on the raw wheat accruing to all the handlers of the wheat, including the miller, up to the time that the flour reached the grocer. In other words, it thought the service rendered the consumer by the grocer in selling him a barrel of flour was greater than that of the farmer, the grain buyer, the banker, the railroad, the commission man and the miller. Naturally, any such view of what is right and proper in the business world, would resent any attempt on the part of producers or other handlers to get a living

profit out of the business and call it a "trust." The fact that the millers only attempted to maintain a narrow margin of a few cents between the selling price and actual loss, would cut no figure. Any movement designed to interfere with the absorption of the entire profit on wheat from the farm to the oven, by the jobber and greener, is a nefarious combine. Of course it is. The grocer who carts the flour a thousand feet is a greater benefactor than the railroad that carries it a thousand miles. The jobber is a bigger man than the farmer, the grocer than the miller, the grocer's clerk than the cooper or elevator man. Down with the trusts that put up the price of flour on the jobber and grocer! Hurrah for cheap flour—for the greener to sell at a profit that would make the miller delirious with joy.

The Department of Trade and Commerce is in receipt of a report from Mr. John Dunn, its agent at Bristol. He states that steamers from Montreal and Quebec have brought to that port cattle, sheep, cheese and butter in large quantities, and the trade in these seems to be established on a firm basis. So long as Canadian shippers study the requirements of the English market, and keep up the quality of the goods which they desire to send, they can easily hold their own against the Continental merchants and competition from Australia and New Zealand. Shipments like the above are profiting well, and later no doubt there will be further shipments. The prices are bound to improve. Canadian hay has come in largely of late, and the British merchants are in direct communication with the fodder merchants in Canada. He hopes to see the trade assume larger dimensions. There were three or four consignments of Canadian tomatoes this year, but at the time of their arrival in Bristol the local market was simply glutted with tomatoes from the Channel islands and France. They only realized from one-and-half to two pence per pound wholesale, and this would scarcely cover the cost of transit. The marvellous crop of mushrooms has been killing the tomato trade, and he regrets that the consigners had not notified him before shipping, as arrangements might have been made for their more profitable sale. Apples from Montreal have been selling at from ten shillings to twelve shillings a barrel at public auction. The English apple crop has been a total failure, and in addition recent storms have simply ruined the orchards. During the early part of this month the English crop must all be put on the market, as it will not keep, and later on prices will be better. There is one thing to be remembered, that the demand is limited, and any extravagant shipments to load up the markets will certainly be attended with loss. On no account must rubbish be sent, but the very best picked fruits.

Industry must come first. Labor precedes all else. It is the foundation of all wealth. Its active employment puts money into circulation and sends it coursing through every artery of trade. The mints don't distribute it in that way. Start the factories in full blast, and the money will flow from bank and vault. The lender will seek the borrower—not, as now, the borrower the lender. Start the factories and put American machinery in operation, and there will not be an idle man in the country who is willing and able to work; there will not be an American home where hunger and want will not disappear at once—and there will not be a farmer who will not be cheered and benefited by his improved home markets and by the better and steadier prices for his products—William McKinley.

Sir Richard Cartwright, Minister of Trade and Commerce, has received a communication from the Quebec Board of Trade urging the Government to include Italy in the Franco-Canadian treaty, and to take steps next session of Parliament to associate Italy with the other countries which are given the advantages of the French treaty. By the term of this French treaty wines, and certain other articles, are granted special fiscal privileges when imported into Canada, to the great damage of the grape-growing and wine-making industry of this country.

Le Temps, of Ottawa, claims that McKinley has never been opposed to freer trade relations between Canada and the United States. With Sir Richard, he would have no difficulty in coming to an agreement on the plan of a continental union. This would, of course, be a blow to England and all other nations, as far as free trade with Canada would be concerned. The Dominion Parliament, it thinks, may not meet until after March, so that Canada will be in a better position to know what policy is followed at Washington, and that in the meantime the Canadian tariff will remain at what it now is. Our contemporary has sized up the situation very accurately. Of course, neither the Republican or the Democratic party in the United States has ever opposed the freest sort of free trade relations with Canada, with the proviso always, that Canada should adopt the American tariff, which means the most ultra discrimination against not only Great Britain but the rest of the world. This fact being known at this time there can be no reason in delaying the assembling of the Dominion Parliament to gain further information. It will be all right, however, to delay indefinitely making any change in our tariff.

In our last issue allusion was made to the fact that a deputation of citizens of Port Hope, Ont., had waited upon Mr. Hardy, Premier of Ontario, with reference to the stoppage of the binder twine factory in that town, because of the competition of the binder twine factory in Central Prison, operated by convict labor. There is also a similar factory in Brantford, Ont., similarly circumstanced, and *The Courier* of that town tells as follows regarding it:—

A deputation consisting of Mayor Elliott and Ald. Montgomery, chairman of the manufacturers' committee, yesterday interviewed Premier Hardy, Hon. Mr. Davis and Hon. Mr. Harcourt, of Toronto, in compliance with the resolution passed at the last meeting of the city council to try and effect an arrangement whereby the Continental Cordage Company in West Brantford could be started up again on full time.

It was thought advisable that the manager of the company should be interviewed in regard to the position it occupies with the Ontario Government, and what arrangements could be made to carry on the works here rather than at the Central Prison. Mr. Heddle, who was in Toronto, was therefore sent for and was present at the interview.

The matter was clearly set forth by the deputation in the interest of the city. It was explained that the product of twine was overdone, and that there was a large stock on hand from last year which necessitated a curtailment of the output. If the government would undertake to close the Central Prison works for the next six months the Continental Company would, on the other hand, undertake to start the Brantford factory without delay.

Premier Hardy stated that while the government would like to see Brantford interests looked after they had previously made a large contract and were bound to protect the interests

of the Province. It would be a serious matter to make a change that might invalidate the contract with the Central Prison, which was made for five years, and had four years yet to run.

This fact was admitted, but at the same time it was set forth that it was better that convicts should not take away the daily employment of good subjects.

It was explained that a proposition should come from the contractors that would recompense the government for any loss they might sustain by closing the Central Prison works. The government were fully disposed to be as lenient as possible under the circumstances.

It is expected such a proposition will be made. In the meantime developments will be watched with interest.

How long, oh! how long, is our honest, free labor to be thus handicapped by convict labor?

The Hull Lumber Company, Hull, Que., has been incorporated with a capital stock of \$600,000.

The Anchor Wire Fence Company of Canada, Brantford, Ont., is being incorporated with a capital stock of \$90,000.

The Oxford Manufacturing Company, Oxford, N.S., is being incorporated with a capital stock of \$66,000, to manufacture woolen and cotton goods, etc.

The Canada Milk Condensing Company, Antigonish, N.S., is being incorporated with a capital stock of \$20,000.

Advantage of the water-power recently developed by the Town of Drummondville, P.Q., is being taken by the McDougall Foundry people to start up their furnaces which have been closed for two or three years, and the Jean Reuse Cigar Making Machinery Company, Montreal, have completed arrangements for establishing a factory there.

It is reported from Magog, Que., that the Taylor air compressor, manufactured by the Taylor Air Compressor Company of Montreal, and in use for several months in the Dominion Cotton Mills Company's factory at Magog has proved a success.

H. R. Ives & Co.'s foundry, Montreal, was damaged by fire Nov. 16th, to the extent of about \$10,000.

The Canadian Pacific Railway Company some time ago discovered natural gas at Medicine Hat, N.W.T., and the expert who was sent to investigate reports a fair supply of gas. The Company will be recommended to develop the field.

The Buffalo Forge Co., Buffalo, N.Y., have recently been awarded a contract for two 15x15 buffalo center-crank automatic horizontal class "A" engines, to be direct connected to car's generators for the Lakeside Hospital, Cleveland, O. The plant also involves the use of one 2x8 for belt connection to a smaller dynamo.

The Kingston News says that a local company has purchased the right for Canada to manufacture the emergency fire extinguisher, and will make Kingston the headquarters. Operations are to be begun at once.

H. Pyper's shingle and grist mills at Manotick Station, Ont., were destroyed by fire a few days ago. They will be rebuilt.

The Swansea Forging Company have finished their order for the spikes and track bolts for the Metropolitan Railway Company's extension to Richmond Hill.

Twenty-one cars lumber, paper and pulp were a recent week's shipment from the Royal Paper Mills Company's yard, East Angus, Que., and the company also received twelve car loads of paper machinery from Scotland.

A boiler in Robinson Brothers' saw mill, Parkhill, Ont., exploded Nov. 16th, completely wrecking the building. Loss about \$5,000.

The Harris Glue and Fertilizer Works, Toronto, have developed into an extensive business, employing upwards of 60 men and the products are now shipped to all parts of the country.

T. A. Harrison's evaporator at Napanee, Ont., was burned Nov. 14th. Loss on machinery \$1,500.

The James Cooper Manufacturing Company, Montreal, is being incorporated with a capital stock of \$99,000, to manufacture mining and other machinery.

The Ontario Mines Development Company, Toronto, has been incorporated with a capital stock of \$50,000.

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 Methodist Church at Wellington, Ont., was burned Nov. 3rd. Loss about \$7,500.

It is reported from Kingston, Ont., that the test gas well being put down at Fredericksburg, Lennox County, is likely to be a success, gas was struck at thirty feet, and at fifty feet the flow was very strong.

The Smith Woolstock Company's premises Toronto, were damaged by fire Nov. 10th, to the extent of about \$1,000

The Rat Portage Gold Mining Company, Rat Portage, Ont., has been incorporated with a capital stock of \$1,000,000.

The Knechtel Furniture Company, Hanover, Ont., are building an addition to their factory 50x100 feet, three stories in height. The company employ 150 hands.

The Buffalo Forge Co., Buffalo N.Y. recently received an order for an apparatus to be used for what is probably the largest glue dryer in the world. It involves the use of three steel plate fans, 170 feet tall, having inlets 79 feet in diameter, outlets 63½x70 feet wide. The wheels inside the fan casings are 120 feet diameter x 66½ feet wide at periphery. Each one of these fans is driven by a 12x14 horizontal self-contained center crank engine of the Buffalo Forge Co.'s make. Each one of these fans will deliver at its outlet 150,000 cu. ft. of air per minute at 1 oz. pressure. Each fan is to be supplied with a heater of appropriate size. When it is taken into consideration the combined capacity of these fans is 450,000 cu. ft. of air per minute, it may at once be seen that the size of the glue dryer is, undoubtedly, the largest one ever erected. The outfit will be installed in the works of Delaney & Co., Philadelphia, Pa., under the specifications of Francis Bros. & Jellett, the well known engineering firm of Philadelphia, Pa.

The Canada Milk and Condensing Company, Antigonish, N.S. is being incorporated.

The Grimsby Gold Mining Company, Grimsby, Ont., is being incorporated with a capital stock of \$200,000.

The Sudbury Gold and Coal Mining Company, Sudbury, Ont., is being incorporated with a capital stock of \$1,000,000.

The Algoma Coal Mining Company, Toronto, is being incorporated with a capital stock of \$1,000,000.

The Royal Electric Company, Montreal and Toronto, recently installed an electric light plant for Sussex, N.B.

Mr. McGrady, Crown Timber Agent for the Ottawa District in Quebec, has just finished his report of the logs and square timber taken from his territory during the season of 1895-96. The report shows a slight increase in the quantity taken out from that of the year previous. There were fewer logs, but the difference is made up in a larger output of the square timber. The increase in timber is attributed to the prospects of a favorable demand in the English market, which has been realized, according to reports received during several weeks past. The cut in the district was as follows:—Logs, 2,800,000; flat timber, 14,000 pieces; square timber, 13,000 pieces; railway ties, 75,000 pieces; long cedar, 9,000 pieces; dimension timber, 75,000 pieces. The pulp wood shows a considerable increase, 12,000 cords having been taken out. The logs average a little over 100 feet so that they represent three hundred million feet. The firms operating in the district are: J. R. Booth; Bronson & Weston; Buell, Hurdman & Co.; W. C. Edwards & Co.; Gilmour & Hughson; Shepard & Morse; Bryson & Fraser; Thomas Mackey; A. & P. Whitte. Pembroke; W. Mason & Sons; Gillies Bros., Braeside; McLachlan Bros., Arnprior. The reports of what is taken out are sent to Mr. McGrady by the different firms, and are based on those sent in by the foreman of the shanties and the cutters and the measurers. These are checked for the Government by reports forwarded to them by the bush rangers who form an estimate of what is taken out in each shanty from their observations while on their tours of inspection. Mr. McGrady stated to a Citizen representative that the reports of the bush rangers and the firms seldom differ to any great extent, but when a glaring discrepancy occurs on either side, it was customary to have the logs and timber counted while coming down the river.—Ottawa Citizen.

Mr. Romaine Callender goes to England to commence a telegraphic business between that country, France, Germany, etc., and the United States. Mr. Callendar has invented a new system of telegraphy making it possible to turn out over half a million words in less than 28 seconds, and it will be possible by this invention to transmit the whole contents of a newspaper, a new book, etc., or the whole contents of a revised Bible or any similar amount of matter in a few minutes time and at almost nominal prices.—Brantford (Ont.), Courier.

The J. C. McLaren Belting Company, Montreal and Toronto, call attention to their belting, hose, lacing, etc., on a neat card

and price list printed in colors, which they are sending to the trade.

Mr. J. S. Larke, writing from Australia, gives some valuable and re-assuring information as to the position of certain of the Australian banks. Payments for Canadian goods have been prompt and satisfactory. There is good demand for Canadian flour, but the arrangements for handling are not satisfactory. He has had enquiries for carriages and carriage bodies in white, but says he knows of no Canadian manufacturers in that line.

Mr. Arch. Lamont, Chatham, Ont., a large pork packer, has been at work on an important invention, and has just secured a patent for it. The invention is an apparatus for transforming railway freight cars into refrigerator cars. It is, in brief, an adaptation of the principle used in cold storage warehouses to these conveyances. At present cold storage cars are cooled by ice, which has frequently to be replenished. Mr. Lamont's idea is to secure power from a connection with the axle of the car, and by means of compressed air and a small engine generate frigidify from ammonia, doing away wholly with the use of ice.—London Advertiser.

Some ore brought down from the coast north of Vancouver, and assayed for gold or silver, has been pronounced by the assayer to be cassiterite or tin ore. Himself a Cornish man, the assayer compared the ore with samples he had from the Dolobath mines in Cornwall, and found them to be identical in character, and he is satisfied that a deposit of tin ore has been discovered. How large the deposit is will not be known until the ground has been more fully prospected, as the discoverer, being ignorant of the value of the mineral found, did not investigate closely until he had the sample assayed.

Within a month or so work will begin on the construction of the new smelter at Vancouver, B. C. All financial arrangements have been completed. Those who are lacking the enterprise are eastern parties, chief among them being C. D. Simpson of Scranton, Pa., the largest miner of anthracite coal in that state. The smelter will have a capacity of about 250 tons a day. It will contain refineries for both copper and lead. Ore will be received from Trail Creek, the Slovan, Cariboo, Alberni and other regions.—New Denver, B.C., Ledger.

The Berlin News has an extensive descriptive article relating to the Simpson Manufacturing Co., who have one of the largest furniture plants in Canada. The number of hands employed is 100. The factory is now being run fifteen hours each day.

D. Hehner's furniture factory at Berlin, Ont., was destroyed by fire Nov. 11th. Loss about \$35,000.

Summerside P.E.I. is agitating for a system of waterworks and sewerage.

Alfred Dickie, Stewiacke, N.S., has purchased the valuable timber lands of the Acadia Coal Co., Hopewell, N.S., and will lumber extensively there this winter.

The Jarvis Bicycle Saddle Company, Toronto, has been incorporated with a capital stock of \$20,000.

The Gold Mining Company of Sudbury, Ont., has been incorporated with a capital stock of \$100,000.

A sample of corundum found in Carlow Township has been sent to the Bureau of Mines by Dr. George Dawson, director of the Ontario Geological Survey. The Doctor says that the vein in that neighborhood is about 300 feet wide and is exposed for a length of 700 feet. This would indicate an almost inexhaustible supply of the metal, as it is well known that such large supplies are produced from the veins in the United States, which vary in width from but three to seven feet. When it is also known that the find is of the very highest quality on the market, the ore selling for ten cents per pound, and when it is calculated that the deposit will be sufficient to supply all the emery needed for Canadian use for centuries, it will be understood how inestimably valuable this location will prove to the province.

The London and Petrolia Barrel Company recently shipped three carloads of barrels to Hull, Que., to be used in shipping pork to Europe.

The bridge of the Drummond County railway at Maddington Falls, Que., which was carried away by a freshet, is to be replaced by a steel structure. The contract has been awarded to the Dominion Bridge Co., Montreal, and the cost of the work will be \$26,000.

The C.P.R. car shops at Perth, Ont., have been busy for some months turning out a new series of box cars of increased standard capacity. 35 feet long and carrying 60,000 pounds.

Incorporation will be sought at the approaching session of the British Columbia legislature for a company to construct waterworks and supply water to Rossland and Trail, that province.

A despatch from Vancouver, B.C. says that the Cinnabar Mining Company, of Savonas, near Kamloops, is working large bodies of quicksilver ore in what is stated to be the only mine of quicksilver operated in the British Empire. There seems to be no limit to Canada's mining resources.—London Advertiser.

Messrs. Dymont & Sons, of Barrie, have secured the premises in St. Thomas, Ont., formerly occupied by the London Planing Mill Company, and will go into the manufacture of builders' supplies.

The Great Northern Mining, Exploration and Development Corporation of Ontario, Toronto, is being incorporated with a capital stock of \$475,000.

The National Electrotpe and Stereotype Company, Toronto, has been incorporated. Mr. A. W. Croil, president of the company, continues as manager.

"Do you want any?" And opening the folder another pertinent question, "Why not get the best?" Both queries have reference to the leather belting manufactured by Messrs. Robin, Sadler & Haworth, of Montreal and Toronto, and are printed, together with a couple of aphorisms, on a handsome folding card, making one of the neatest things in the shape of a card that has been issued by this enterprising firm.

The Rainy River Gold Mining Company, Rat Portage, Ont., has been incorporated with a capital stock of \$1,000,000.

The Golden Fissure Mining Company, Toronto, is being incorporated with a capital stock of \$1,000,000.

The Algoma Coal Mining Company of Ontario, Toronto, is being incorporated with a capital stock of \$1,000,000.

The Auburn Power Company, Peterborough, Ont., is being incorporated with a capital stock of \$99,000, to produce electricity for light, heat and power.

The Brodie Manufacturing Company, Hespler, Ont., are erecting a two-storey stone addition to their works.

The Sarnia (Ont.) Observer says that two good oil-producing wells were recently struck about eight miles from Sarnia.

The Metropolitan Street Railway is being extended to Richmond Hill, sixteen miles from Toronto.

An explosion in the premises occupied by the Paterson Manufacturing Company, Toronto, manufacturers of building paper and tar roofing material, wrecked the building. Paterson Manufacturing Company's loss about \$2,200.

The Cobban Manufacturing Company have removed to their new building, corner Lake and Lorne Streets, Toronto.

Eddy's mills at Eddy's Station, near Portrolia, Ont., were burned Oct. 7th, loss about \$10,000. The Trott Mill, at Oil City, Ont., was burned same day. Loss about \$14,000.

The Toronto Whip and Novelty Company, Toronto, has been incorporated with a capital stock of \$24,000.

The Yum-Yum Gold Mining Company of Ottawa, Ont., is being incorporated with a capital stock of \$1,000,000.

Messrs. Cowan & Co., Galt, Ont., recently shipped a large engine to St. Thomas, for the Electric Light Works there.

The Blatchford Organ Company, at Elora, Ont., expect to have their factory in operation soon, some of the machinery having already arrived.

Messrs. J. R. Jackson & Co., Guelph, Ont., have equipped a factory to manufacture bicycles.

The McEachren Heating Company, Galt, Ont., have been awarded the contract to put in their heating system into the Demill Ladies' College.

Burnett Bros., proprietors of saw mills at Appin and Melbourne, Ont., have dissolved. D. S. Burnett continues at Appin, and George Burnett at Melbourne.

The firm of May & Adcock, millers, St. Thomas, Ont., have dissolved, and have been succeeded by Adcock & Barnard.

The Hawkesbury Lumber Company, Hawkesbury, Ont., recently sold 20,000,000 feet of lumber at a fair advance on last year's prices.

A contract for twenty-five air compressors and twenty-five air receivers, of medium and small sizes, has been closed by the Clayton Air Compressor Works, Havemeyer Building, New York, with one company, delivery of the entire order to be made within six months from date. They also report sales of five air compressors of standard pattern during the first week of November, and the indications point to a decided revival of trade in Air Compressors, many orders having been held in abeyance, pending the result of the election.

The Ogilvie Milling Company Winnipeg, Man., has received orders from Australia for 800 tons Manitoba flour.

The new Roller Mill at Fort Saskatchewan, Alberta, is about completed.

Petrolia is putting in a system of waterworks taking water from Lake Huron. The Gurtshoro-Thompson Pipe and Foundry Co., Hamilton, are supplying the pipes.

The Brussels carpet factory in Elora, formerly owned and operated by Messrs. Talbot, Cockroft & Harvey, has been purchased by Mr. Dresser from Sherbrook, Que., who has assumed management.

At a recent meeting of Brantford, Ont. Board of Trade it transpired that Brantford sent \$102,042 worth of bicycles to other countries for the year ending Oct. 1st., against none during the previous year.

A contract has been granted to the Hamilton Bridge Company for the construction of one of the bridges over the Trent Valley Canal at a point called Auburn.

The Lake of the Woods Milling Co. has booked another order for Australia for 5,000 barrels (500 tons) of Manitoba flour. It will be shipped from the company's Portage la Prairie mill.

It is announced that an arrangement has been entered into with the Ontario Government, whereby the Continental Cordage Company Works in Brantford will be started in full blast within a short time.

The Pembroke Lumber Co., Ltd., Pembroke, Ont., have received an order for 2,000,000 feet of lumber and are running day and night to complete the order before frost interferes.

An estimate of the cut of lumber in the Ottawa district this year places this season's sawing at 550,000,000 feet. This is about the same figure as last year, although the cut at the Chaudiere mills is smaller.

A sign of prosperity in the States is evidenced by an order just received by the Pontiac and Pacific Junction Railway to be prepared to ship ten carloads of iron ore daily from the Bristol mines, Quebec, to Pittsburg, Pa. The mines have been worked under lease by Ennis & Co. of Philadelphia for some years.

Orders are coming in rapidly to the Hamilton Iron and Steel Company. In the past few weeks orders have been received for 2,000 tons of iron.

The following mining companies are being incorporated in British Columbia:—The Big Chief Mining Company, Vancouver, capital stock \$1,000,000; Lloyd Gold Mining and Development Company, Rossland, capital stock \$1,000,000; Fattie Gold Mining Company, Rossland, capital stock \$1,000,000; Mincot Gold Mining Co., Rossland, capital stock \$1,000,000; The Pick-up Mining and Smelting Company, Rossland, capital stock \$1,000,000; Buffalo Gold Mining Company, Rossland, capital stock \$1,000,000; The Red Point Gold Mining Company, Rossland, capital stock \$1,000,000; The R. E. Lee Gold Mining Company, Rossland, capital stock \$2,000,000; The Lorindale Gold Mining Company, Nanaimo, capital stock \$300,000; The Old Flag Gold Mining Company, Rossland, capital stock \$1,500,000; Almeta Gold Mining Company, Victoria, capital stock \$1,500,000; The Silver Bow Quartz Mining Company, Victoria, capital stock \$1,000,000; Winnipeg and Euroka Mining Company, Rossland, capital stock \$1,000,000; Gold Range Exploring and Mining Company, Vancouver, capital stock \$750,000.

The Cooper Manufacturing Company Quebec, is being incorporated with a capital stock of \$99,000 to manufacture mining machinery.

The Danish Government is asking for information with regard to Canadian pulp wood. Norway has hitherto supplied the Danish market, but the supply is becoming exhausted and prices are high.

One of the best exhibits at the recent exhibition in St. John was that of the London Iron Co., Ltd., in Machinery Hall, in that it enabled the visitor to grasp to some extent the importance and vastness of the iron industry of Canada. Ore was shown in the raw state, just as it was mined, and in all the various grades to be found in Nova Scotia. Some fine samples of coke made from Springhill, Acadia and Drummond coals were shown, also a glass jar filled with ore, coke and limestone, just as they are put in the blast furnace, with an engine and two cars loaded with iron and slag as produced from the above combination. Alongside of the ore, flux and fuels, were samples of all the grades of pig iron produced from the blast furnace. In the centre of the company's space, neatly arranged on a handsome frame made especially for the purpose, were seven sizes of water pipe, from 4 to 16 inch. These pipes are each put to a test of 300 pounds water pressure and are subjected to the hammer test while under this pressure. All sizes of pipes are manufactured by the company up to 36 inches. There were also shown an assortment of water works specials, such as hydrants, valves, sluice gates, etc., varying in weight from thirty pounds to two thousand. Few people in this part of Canada have any conception of the extent of our mining and iron industries. The plant of the Londonderry Iron company alone when in full blast gives employment to about 800 men, and can produce 22,000 tons of pig iron, work into puddled bars 10,000 tons and rework into finished bar iron 6,000 tons. Their foundries can produce 4,000 tons of water pipes and 2,000 tons of special castings. From their machine shop they can turn out all kinds of structural work, also

machine work of every description.—St. John (N.E.), Sun.

Mr. Aube, representing the new French Pottery Syndicate in St. John's, had a conference with the town council, sitting as a committee of the whole, on Monday evening last, in reference to the progress of the organization and other matters connected with the pottery industry in this town. Mr. Aube explained the difficulties that had arisen to prevent the satisfactory completion of the work of organization, both here and in France, but he confidently anticipated an early adjustment of all these matters, and trusted soon to be in a position to take over the potteries and commence operations on a large scale. Incidentally he made allusion to the prospective change in the tariff, and said it would be almost impossible to continue manufacturing crockery here if the duties should be lowered. Even the present rate of 25 and 30 per cent. left competition with the English potteries anything but an easy task. Mr. Aube spoke as a practical business man. He is no doubt thoroughly acquainted with the pottery industry, and appears most anxious to establish his company here on a legitimate basis. His interview with the council was very satisfactory. In our opinion his caution is one of the best auguries of his ultimate success.—St. John's (Que.), News.

We are informed by Mr. John Fox, Lucan, Ont., that it was not his grain elevator that was recently destroyed by fire, as reported in our last issue.

The Sydenham Glass Company's Works at Wallaceburg, Ont., are running full blast and the furnaces are kept burning night and day.

CANADIAN OIL.

The annual report of Mr. A. Blue, Director of Mines for Ontario, contains some information as to the oil industry of the Province. The returns received by the Bureau from all the refineries show that the quantity of crude distilled last year was 25,223,785 imperial gallons, and used for fuel 2,213,639 gallons, making a total of 27,437,424 gallons; and that the quantity of illuminating oil produced was 10,924,826 gallons. The products of the refineries in illuminating and lubricating oils for the year were as follows: Illuminating, 10,924,826 gallons, valued at \$1,237,328; lubricating, 2,400,404 gallons, valued at \$205,591. It is satisfactory to note that, through improved processes, the refiners have in the last few years received an augmented supply of illuminating oil from the crude. The proportion of illuminating oils extracted from the crude increased; 4.64 per cent. in the period between 1892 and 1895. The proportion of lubricating oil has decreased 2.84 per cent., and that of all other oils has remained very nearly the same; but the average of all oils extracted from the crude has been raised by 2.53 per cent. At the same time, the director of mines truthfully informs us that the quality of the illuminating oils has been so much improved that they are now little if at all inferior to the best American. The quality of the crude remains as formerly, with its high percentage of sulphur. But for this drawback, the Canadian oil business could be conducted much more advantageously to well owners and to the consuming public than is now possible. The petroleum of the Oil Springs field is of a better quality than that of the Petrolia field, and is quoted usually at two cents per barrel

THE BEST BELTING DOES THE MOST WORK

IT RUNS THE STRAIGHTEST

STRETCHES THE LEAST, AND LASTS THE LONGEST

THIS IS THE KIND WE MANUFACTURE

ROBIN, SADLER & HAWORTH

TANNERS AND BELT MAKERS

ORDERS SENT TO OUR TORONTO OR MONTREAL FACTORY WILL HAVE PROMPT CARE

higher. The yield, however, is so much less than in computing total values the average quotations of Petrolea crude are taken. On this basis, the price of crude last year was 4.209 cents per gallon for the entire yield of 33,351,997 gallons. The lowest price received for crude in the last five years was ninety-two cents per barrel, paid in January, 1894; the highest was \$1.70, paid in December last; the average price, \$1.47 1-3.

Last year, the total number of wells in the Petrolea district was 6,787, and in the Oil Springs field 3,176, making a total of 9,963. There has been vigorous developments in various fields since Mr. Blue's report was compiled. Wells have been put down in Plympton township, in Bothwell, and on Pelee Island, and many new wells have been drilled in the original oil field, so that today there are considerably over 10,000 wells in this oil field. The contract price for drilling a well in the Petrolea field is about \$110, the oil being usually reached at 460 to 465 feet. Forty sets of tools were running last year in the territory, much greater activity being shown since the price of crude went up. One rig, working in day time only, will complete a well in two weeks, and the average number of wells drilled is about eighty per month. About 100 wells are abandoned every year, but this is owing to local obstructions and not to failure of oil, it being found cheaper to drill a new well than to clean out an old one. In the early days of the industry many wells were abandoned which now would be regarded as first-class yielders; and as none of these wells were plugged the gas was allowed to escape freely, the result of which has been, in the opinion of some careful observers, a reduction of pressure upon the oil held in the rock

and a consequent falling off in the daily production. New wells will average one to one and half barrels for a month or six weeks, when they gradually fall off to the rate of eight or ten barrels per month. But there are, Mr. Blue points out, exceptions. In July, 1873, Mr. W. K. Gibson drilled a well upon a five-acre lot on Durham Creek, lot 14, con. 10, Enniskillen, which for a long time pumped forty to fifty barrels per day, and after a period of two years he was shipping from it 900 barrels per month. In 1890, when Mr. Gibson sold the property, this well was producing 105 barrels per month, and he states that the present yield is seventy-five barrels per month. The Barnes wells, which occupy forty-eight acres of lot 9, con 14, Enniskillen, were bored in June, 1893, and began with a yield of seventy-five barrels per day. In May, 1895, the property was purchased by Mr. John Fraser, and he informed the director of mines that the yield of the two wells is now 550 barrels per month. It is Mr. Englehart's belief that if wells were bored down to reach the Trenton formation oil would be struck to rival that of the Ohio fields. In 1881 his company sunk one well to a depth of 1,505 feet, but abandoned the work before reaching the Trenton. Salt was stuck at 1,087 feet, and the drill went through three or four beds until at 1,380 or 1,390 feet it reached one of pure solid salt, continuous to 1,505 feet, without getting through it. Ten years ago it was the custom to hold in stock about 500,000 barrels of crude, for which purpose underground tanks were constructed sixty feet deep and 300 feet in diameter, sunk in an impervious blue clay and lined with a wooden curb. Now the stocks are very light, not exceeding 50,000 barrels.

Improvements have recently been made in lubricants. By filtering through charcoal, the refiners produce a grade of oil which is required for dynamo machines and other fine purposes. It has been demonstrated by tests at the Imperial Oil Works that Canadian oils thoroughly desulphurized give better light and burn longer than the best American. Mr. Jenkins, a leading Petrolia oil man, indeed, claims that one gallon of Canadian oil will last as long as one-and-a-third gallons of American. What is needed to produce the best result in lighting with our oil is a lamp which gives a good supply of oxygen, and thus increases combustion. The class of lamps that suits United States oil will not prove effective with Canadian oil.

The Imperial works now use from 50,000 to 60,000 barrels a year. Formerly these were made chiefly of oak, but as this timber is now growing scarce, elm is used in its stead and is made oil-tight by giving it a double coating of glue. A smaller percentage of empties comes back now than was the case in past years, as many are being used as packing cases for the nickel and copper matte shipped from the smelting works at Sudbury. The National Company is adopting steel barrels for shipping its products. It produces oil for use in the manufacture of binder twine, which must be free from all acids, must not evaporate under 250 degrees Fahrenheit, and is required to contain 50 per cent pure paraffine wax. Mr. Fairbank, M.P., a leading refiner, owns the greatest number of wells of any one producer. He controls 300, but there are hundreds of individual owners of wells, all interested in finding a market for their products.

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

THE DOMINION COAL COMPANY.

The Boston Industrial Record has an illustration which represents a 4,000-ton steamer at the International pier at Cape Breton, N.S., loading with the product of the great mines of the Dominion Coal Company, and interests its readers in showing the remarkable development of the properties, and the increase in trade in the United States which the company has gained since it was organized about four years ago.

The Dominion Coal Company, with headquarters in Boston, Mass., was incorporated in the county of Cape Breton in February, 1893, to carry on the business of mining, transporting and selling bituminous coal; and is the consolidation of half a dozen companies owning mines in that county. Among the mines are the "Little Glace Bay," the "Gowrie," the "Caledonia," and the "International." At that time the mines were worked but six or seven months of the year, the ports being closed to navigation, owing to the ice, causing transportation impossible. The Dominion Company, however, shortly overcame that difficulty by establishing a railway system between the mines and the large shipping port at Louisburg, Cape Breton, which port is open to navigation the year round; and the company is now able to operate its mines the full twelve months. Besides the pier at Louisburg and the one at Sydney, the company has acquired wharfage at Glace Bay, Gowrie and Victoria. Agencies have been established in various localities in Canada, including one in Newfoundland.

With rare enterprise, the Dominion Coal Company has proceeded with the development of these great coal veins. The expand-

ing production keeps even pace, at least, with the increasing popularity and market sale of the product. The following table shows the annual shipments since the incorporation of the company:

	Tons.
1893.....	741,571
1894 (14 months).....	958,698
1895.....	814,579
1896 (7½ months).....	868,436

The company hopes to have produced by the close of the current year, between 1,100,000 and 1,200,000 tons.

Most encouraging, however, is the increasing demand for these coals by consumers within the United States.

Although handicapped by a duty of 40 cents per ton, the Dominion Company, by superior management, is capable of supplying a growing market, particularly that of New England, where railway, manufacturing and street lighting corporations are becoming more fully convinced of the peculiar adaptation to their requirements of the coal from over the border. No greater proof of this can be obtained than is offered by the following table showing the annual shipments to New England since the inception of the company:

	Tons.
1893.....	11,348
1894 (14 months).....	62,382
1895.....	63,519
1896 (7½ months).....	135,724

The quality of these Dominion coals and their value as a steam producing agent are becoming more appreciated, as is fully substantiated in the fact that they are meeting with such abundant favor by that most

severe of critics—the American consumer. The condition of the entire property owned by the company meets the ready approval of the expert. Manager Irving A. Stearns of the coal companies of the Pennsylvania Railroad Company, reporting upon his examination of the mines in 1892, declared that the developments made showed the different seams to be remarkably uniform in thickness and quality and unusually free from faults and disturbances of any kind; they are also free from gas and water, both of which are very important factors in the cost of mining.

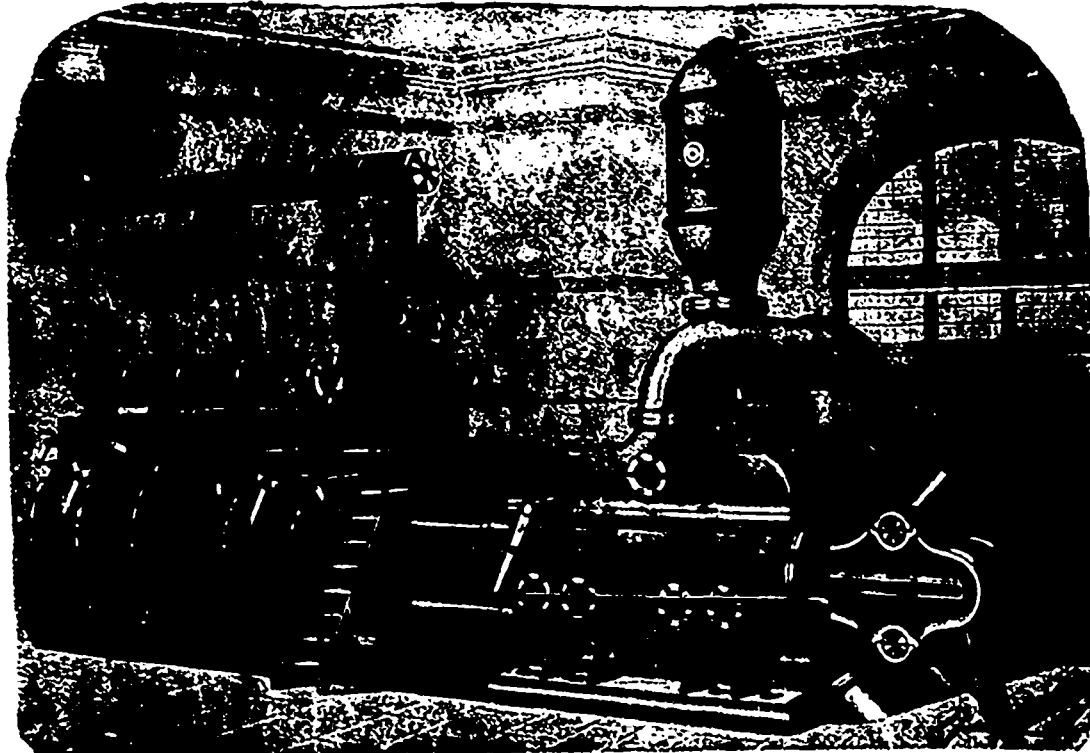
E. Gilpin, Jr., inspector of mines of Nova Scotia, declares the amount of available coal on these several properties to be over 750,000,000 tons. It will be seen then, that, despite the still increasing shipment shown by the foregoing tables, the mines of the Dominion Company offer a source of supply which shall stand inexhaustible for years to come.

The following foreign mining companies have been registered in British Columbia:—
Last Chance Mining and Milling Company, Spokane, Wash., capital stock \$500,000;
The London and British Columbia old-fields, England, capital stock £200,000;
The Arlington Hotel Company, Portland, Oregon, capital stock \$10,000 to conduct a hotel and mining business; **Purcell Mining Corporation**, Spokane, Wash., capital stock \$500,000; **United States and British Columbia Mining Company**, Kansas City, Mo., capital stock \$10,000; **Combination Mining and Milling Company**, Spokane, Wash., capital stock \$600,000; **The Eldon Gold and Silver Mining Company**, Spokane, Wash., capital stock \$1,000,000.

JOHN McDOUGALL

CALEDONIAN IRON WORKS,

MONTREAL, QUEBEC



General Agents
in Canada for

THE FAMOUS

**Worthington
Pumps**

**Hydraulic
Machinery**

Condensers

AND

**Water Works
Supplies**

WORTHINGTON PUMPS ARE UNEQUALLED FOR EFFICIENCY AND ECONOMY

CANADA'S MINERAL RESOURCES.

There is a very exhaustive account in the October number of the London National Review of Canada's mineral resources, written by Dr. Geo. M. Dawson, Director of the Government Geological Survey.

Premising that the value of the minerals produced in Canada in 1895 was over \$22,500,000, Mr. Dawson begins his survey of the field for mining investment with a glance at British Columbia, which promises soon to yield from its mines more than the aggregate output of all the other provinces of the Dominion. It is well known that in the year 1857 placer or alluvial gold was discovered on the Thompson River, and there was an influx of miners thither; five years later nearly \$4,000,000 in gold is computed to have been produced. But gradually the output decreased as the known tracts suited to the rude methods of work became exhausted. In recent years, however, since the requisite facilities for transport were secured, many mining camps have been established in the West and East Kootenay on rich deposits of the yellow and white metals. The principal mining districts organized in West Kootenay are Nelson, Ainsworth, Slocan, and Trail. The three first named yield copper and silver, besides some silver ores and some ores containing gold. The fourth district, Trail, offers the best prospects; its deposits of auriferous pyrrhotites are probably unique, the veins being of extraordinary dimensions and frequency. One of the towns, though but a few months old, has over 3,000 inhabitants. The aggregate yield of the West Kootenay mines last year was \$2,100,000; for the first six months of the present year it has been more than \$2,200,000. For the

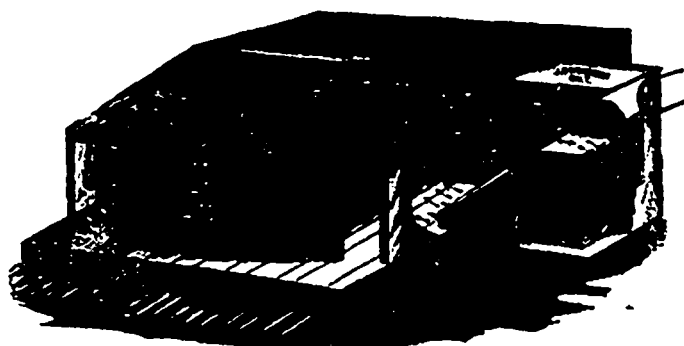
moment the large district of East Kootenay has been to some extent eclipsed, though here, too, many valuable deposits are being opened. Other important districts in the southern part of British Columbia are Boundary Creek, from which comes ores containing tellurium mixed with gold and silver, and in which immense beds of copper ores are found; Okanagan, noted chiefly for free-milling gold-quartz; Similkameen, in which placer gold and platinum are being extracted; and Cayoosh Creek, which has veins of rich gold-bearing quartz. To the north, and as yet 200 miles distant from any railway, Cariboo, which formerly proved a rich find for the placer digger, has again come to the front as the site of extensive hydraulic mining operations. Dredging plants, also, of various types have been placed along much of the length of the Fraser River, which may be regarded as the great natural "ground sluice" of the country, but of which the bed and deeper bars could never be reached by the early miners. Considering the whole of British Columbia in connection with the Yukon district of the Canadian North-West Territory, we observe that they together constitute a section, 1,200 miles long, of the most important metalliferous region of the continent, that of the Cordillera or Rocky Mountain belt. Dr. Dawson points out that this length is equal to that included in the United States from the 49th parallel to Mexico.

Of the coal mines on the coast of British Columbia we need only to say that they now produce about a million tons annually. There are new fields, ready to be opened when needed, not only on the coast, particularly in the Queen Charlotte Islands, but also in the interior, as, for instance, in

Crow's Nest Pass and in Nicola Valley. Leaving British Columbia and turning eastward, we find that a great area in the District of Alberta is underlain with beds of coal or lignite. The amount of coal contained in only one of these beds, as measured by a known outcrop sixty-six miles long, and by an assumed easily workable depth, is estimated at 330,000,000 tons. Proceeding next to the mineral resources of the older eastern provinces, we come, in Western Ontario, on the nickeliferous pyrrhotites of Sudbury, already favorably known to metallurgists, the mines actually in operation fully supply the demand for nickel. The existence of gold-bearing quartz veins in the Huronian rocks of that province has been long known, and of late a few mining and milling plants have been established, chiefly on the shores of the Lake of the Woods. There are good grounds for believing that in the part of Ontario which lies west of Lake Superior might be founded an extensive and permanent gold industry, like that of Nova Scotia as regards the moderate value of the quartz, but on a much larger scale. A reference is also made by Dr. Dawson to the exceptionally rich deposits of silver near Thunder Bay, from which several million dollars' worth of the white metal have already been drawn. Of the southern or peninsular part of Ontario the principal mineral products are petroleum, salt, natural gas, gypsum, and building materials of all kinds. Iron ores of excellent quality abound in many sections of Ontario and Quebec, and they would be mined and smelted in large quantities for export to the United States could they be admitted duty free. As regards asbestos (chrysolite) of the first quality, Quebec stands almost alone as a producer.

McEachren's System of Drying, Heating and Ventilating

Under Recent Patents.



In construction an 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.

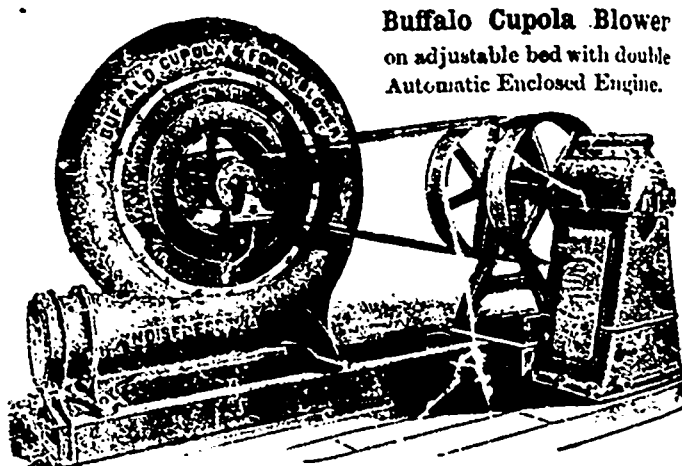
BLAST HEATING SYSTEM FOR LARGE BUILDINGS

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 Cupola Blower
on adjustable bed with double Automatic Enclosed Engine.

Buffalo Dry-Kilns, Shaving Fans, Forges, Blowers, Exhausters, Blacksmith Drills, Etc.

Are described in Sectional Catalogues FREE on application.

Their Efficiency, Smooth Running, and Durability are Unsurpassed.

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

SOLD IN

Toronto, Ont., by H. W. Petrie.
Brantford, Ont., by Canadian Machinery and Supply Co.
Montreal, Que., by Canada Machinery Agency.
Chicago Store, 22 and 24 West Randolph Street
New York Office—26 Cortland Street

COLD STORAGE.

One of the Dominion Cold Storage Company's warehouses is to be located at Hamilton, regarding which the Spectator says:—

It is the intention of the Dominion Cold Storage company to occupy the east portion of the Wanzer building and have it fully equipped for business next spring. Later on the company expects to fit up the Barton street building. Prospects indicate that the whole building will soon be occupied and probably enlarged. The building must first be greatly strengthened and then thoroughly insulated against frost from within or without. The cold air which will be manufactured is expensive, and to prevent waste another building, practically, with hollow walls, must be constructed inside the present one. The floors, too, and partitions must be made cold and heat proof by means of special packing and dead air spaces, so that the temperature in one room cannot be affected by that in another, so that when the midsummer sun is beating upon the outside walls and roof no change of temperature will occur within. The strengthening and insulation of the east wing will cost \$15,000.

The machinery for producing the cold (or, really, for absorbing the heat) is very heavy and expensive, and wonderfully accurate in its work, and very susceptible to manipulation. For the east wing alone it will cost about \$15,000. It will cost to fit up the east or Elgin street wing and the main, or Barton street building, about \$50,000.

A description of the process of refrigeration was given in the Spectator several weeks ago. The large quantity of water re-

quired, which necessitates a special 6-inch pipe from the bay and an independent pumping station, is to keep the condensed and compressed ammonia cool in its miles of piping. The water has nothing to do with cooling the rooms or making ice. No ice will be used by the company. The cooling of the warehouse will be effected by circulating anhydrous ammonia at a temperature of 40 degrees below zero in pipes in the rooms, just as steam is circulated for heating purposes. But steam radiates heat and ammonia absorbs it.

The company will arrange for the running of refrigerator cars over the H., G. and B. and Hamilton street railway lines to the warehouse and thence to boats and trains. These cars will carry the ripe fruit as soon as possible after packing to the warehouse to be chilled. The absorbing of the life heat from the fruit will make it firm and keep better in transit and longer in the dealers' hands. In cold storage the fruit can be held from a time when the market is overstocked until it recovers; thus preventing the loss and waste. Chilled fruit can be shipped in refrigerator cars to distant markets which cannot now be reached at all. Niagara fruit growers will be able to take advantage of the excellent market for fruit in Nova Scotia and New Brunswick, which is now supplied by refrigerated fruit from California. Refrigerated cars will soon be run over all railway lines from all parts of the country with produce to cold storage warehouses, and to the markets and export centers; and the supplying of ice for many of these cars will add greatly to the business of Hamilton ice dealers.

Farmers who raise beef, mutton, pork, poultry, etc., can kill as soon as the meat is ready, and store the carcasses till the best time to sell. The meat will improve in cold storage, and the farmer will save the expense of the feeding otherwise necessary to keep his live animals in condition till the market is ready for them. The amount of butter, cheese and eggs stored will be very great, and consequently the price of these goods will be lower than at present in the winter and early spring. Before the company can begin active operations, railway connection is necessary; and negotiations are in progress for a siding which will admit both Grand Trunk and T., H. and B. railways to the Wanzer building.

The Morris-Field Rogers Company, Listowel, Ont., manufacturers of pianos, inform us that their business for October, 1896 was seventy five per cent. greater than in October last year. This is exceedingly gratifying, particularly so to the company, seeing that the National Policy is, to a very considerable degree, to be credited with the prosperity. The company certainly manufacture excellent instruments, and other Canadian manufacturers do the same, and the National Policy keeps the home market for them, consumers receiving full equivalent for their money, and the pianos cost no more than similar instruments cost in the United States. But it is not probable that the business of the company would have increased seventy-five per cent. in a year if they had been subjected to the keen competition of American manufacturers.

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, Shellac, Rosins, Glues, Gold Leaf, Bronze, etc.

Office—13 ST. JOHN STREET
 Factory and Warehouse—25 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.

For SATISFACTION and BARGAINS in
WOOD OR IRON-WORKING MACHINERY,
ENGINES, BOILERS, ELECTRIC MOTORS,
. . . SHAFTING, BELTING, PULLEYS,
or Anything in the Machinery Line
New or Second-Hand

Write or Call Upon

The TORONTO MACHINERY SUPPLY CO.,
164 KING ST., WEST.

Guelph Woolen Mill Co., Ltd.
 GUELPH, ONTARIO
 Manufacturers of

Underwear, Hosiery, Wheeling, Fingering and Worsted Yarns
 RIDERDOWN 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.

An Advertiser may occupy this

space at

75 Cents per issue.

NEWFOUNDLAND IRON ORE DEPOSITS.

Mr. James P. Howley, chief officer of the Geological Survey of Newfoundland, in a recent report, gives the following relative to iron ore deposits there:

To begin with, there is a large deposit of pyrites in Pilley's Island which is chiefly valued for its high percentage of sulphur. Now sulphur is not a valuable component of iron ores, and this sulphur is mainly used in the manufacture of sulphuric acid. But when this is obtained, there still remains a considerable percentage of iron both for forge and foundry work. Of this class of iron ore, there is a great abundance in many parts of Newfoundland. It occurs in all the copper mines of Notre Dame Bay, forming much more than half the bulk of the mineral deposits. At Tilt Cove, there is a mass of pyrites said to be 200 feet thick, but it is at present worked for the sake of about two or three per cent. of copper, and the iron is neglected. At Terra Nova Mine, Bay Vert, and at Port au Port Bay, West Coast, there are also large deposits of iron pyrites. With regard to the more generally useful iron ores, Newfoundland possesses magnetite, chromite, and hematite of several varieties. The deposits of magnetite are very large. One band at Union Mine, Tilt Grove, ranges from four feet to thirty feet in thickness, and is of a very superior quality. It is found in many other places, but the most extensive deposits yet discovered are found on the West Coast, near the Bay of St. George. One enormous mass of this ore has been found about three miles inland from the head of St. George's Bay. It is over fifty feet thick, and the millions of tons of loose ore, which have been detached from the mass, uncumber the bottom of the ravine. The quality of the ore is remarkably good. An analysis made by Mr. W. H. Pike gives the following results:

	Per cent.
Metallic iron.....	65.05
Titanic acid.....	4.00
Silica.....	5.00
Sulphur.....	none
Phosphorus.....	none

An extensive deposit of chromite has been discovered at Port au Port Bay, and is now being worked by an American company. Hematite at the Tilt Cove location is said to contain 69.4 per cent. of metallic iron. Clay ironstone is found in the carboniferous areas of Bay St. George, and this proximity to the coal beds must be of the utmost importance. In one of the sections on Aldery Brook the strata for a thickness of 124 feet are more than half made up of this ore in bands of from a few inches to three feet in thickness.

Bell Island, in Conception Bay, at the southeast corner of Newfoundland, has an area of twelve square miles, but its deposits of iron ore "appear to be enormous," or to use the words of Sir H. Murray, the governor of Newfoundland, they are "practically inexhaustible." A part of the mining rights has been leased to a Canadian company, which has built a tramway across the island and erected a loading pier, but the minerals in the western portion of the island are still unlet, and are said to be in the hands of about four individuals.

A NEW STEAM ENGINE.

A new design in steam engines, patented in Canada, the United States and in Europe, by Cleveland and Peterson, of Brandon, Man., has been constructed in Hamilton at Ritchie's machine works. The boiler, a portable one, to which the engine is attached, was built by the Sawyer-Massey company from drawings embodying the patents by J. H. Killey, who, with the patentees, superintended its construction. During the building of the engine and the preliminary tests in this city great interest was taken in it by Hamilton engineers and mechanics. Last week it was shipped to Toronto to John Abell's engine works, to be tested on the dynamometer at the works, constructed especially for testing portable engines. After a few trial tests there a public one took place to which manufacturers, engineers and others were invited. The tests were conducted by F. C. Beckett, of this city, assisted by J. H.

Killey. The tests were carefully conducted, the data from which realized all that the inventors claimed for the engine as compared with tests made on six portable engines at the Toronto Industrial exhibition, built expressly by different makers. In the matter of fuel consumed, water evaporated and power developed, the engine realized an advantage of nearly 45 per cent. over other makes, notwithstanding the very great furnace draft and the very rapid production of steam from the boiler. During the test there was no back pressure whatever, which in other portables and locomotives absorbs a large part of the steam power; in fact, on this engine steam was so easily kept up that means had to be taken to prevent it blowing off violently during the tests. It is expected that the invention will to a certain degree revolutionize the trade and will likely be adopted on locomotives. The principal embodied is a double piston in a long cylinder to which steam is introduced alternately from either end and exhausts in the middle at a valve automatically opened when each piston reaches a certain point. A remarkable discovery in connection with the test was that there was absolutely no condensation in the cylinder, the steam passing through it dry. The inventor, Mr. Cleveland, of Brandon, is a cousin of President Cleveland. The engine is to be manufactured in Canada.—Hamilton Spectator.

CANADIAN ASBESTOS.

In addition to nickel, there is another mineral which may be described as almost a purely Canadian mineral. This is asbestos, which occupies the peculiar position of being midway between the vegetable and mineral kingdoms, although, scientifically speaking, it belongs to the latter. There are only two countries that produce this mineral, Italy and Canada, but the supply from the former is very limited, so that Canada virtually has a monopoly of the product. Canada is the chief source of supply for the whole world. It is only 25 years since asbestos was put to any practical use. Previous to that time it had been nothing but a curiosity in the scien-

**BREWERS
COPPER
WORK**

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

—THE—
BOOTH COPPER CO.
LIMITED,
TORONTO, ONT.
Established 1864.

**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

tific world. The Canadian product is of a very fine quality. Asbestos has become a necessity of our daily life, and its uses are innumerable. It sheathes our houses, covers our furnace pipes, appears in the form of rugs and blowers before our fire places, takes the place of paper for covering our walls, and finds its way into our kitchens in the form of stove mats, baking paper, and iron holders. Every theatre is required to be provided with a curtain of asbestos. But its most important uses are in mechanical and electrical lines—here we find it as a packing in steam engines, a covering for steam pipes and boilers, firings—in fact, asbestos forms a very important part in railroad equipment. Fire felt for lagging locomotive boilers and covering train pipes is the only material upon the market which fulfills all the requirements of those purposes. It consists of asbestos fibres formed into a felt-like removable fabric

possessing the highest heat-insulating power, unaffected by the excessive vibration, and practically indestructable by moisture or other injurious effects. In combination with other substances it forms the standard electrical insulating material of the world. Electrical heaters are in common use—the “electrotherm,” a flexible heating pad for use in place of hot-water bags and poultices is one of the latest valuable inventions.

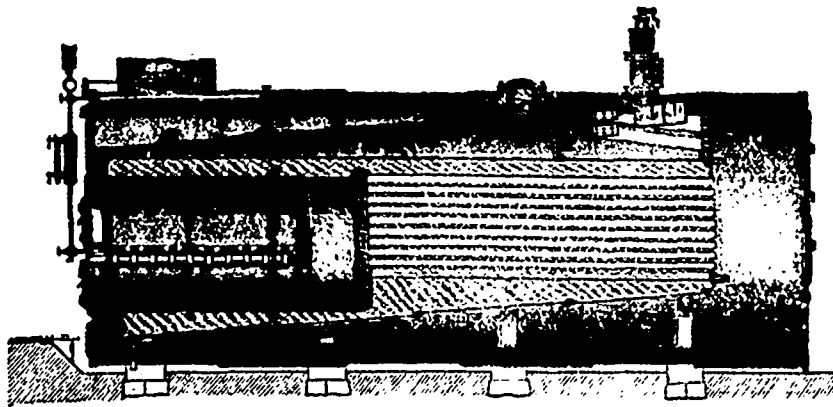
The field for this product is practically unlimited. The output in Canada is increasing from year to year and before long it will reach very considerable proportions.—Toronto World.

ANTHRACITIC CARBON OR ANTHRAXOLITE.

We are under obligations to Hon. J. M. Gibson, Commissioner of Crown Lands for Ontario, for a copy of the report of Prof. A.

P. Coleman, regarding the recent discovery of supposed anthracite coal in the Sudbury district. The report is prefaced by memorandum made by Mr. Archibald Blue, Director of the Bureau of Mines, which explains itself as follows:

“On June 16th last Mr. C. H. Collings of Chelmsford, in the district of Algoma East, reported to the Bureau of Mines that he had found in the township of Balfour a seam of coal of the ‘smokeless’ variety, ten feet in width; and having heard that an offer was made by the Ontario Government for discovery of coal, he wished to know if this was the case. He was answered on the 18th that no reward of the kind was offered by the Government, but was assured that if the discovery was a real one, and if the coal existed in workable quantities, the market for the product would be ample compensation. ‘The finding of coal in Balfour in large quantity,’ he was told, ‘whether of smokeless or any other variety, would be an extraordinary occurrence, and would make the reputation as well as the fortune of an explorer.’ Mr. Collings was asked to send to the Bureau a sample of the article by express. A box containing a few pounds was received on the 26th, and a hasty examination of the mineral was made by Prof. Coleman, who was leav-



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

W. J. KRAMER
WOOD
& PHOTO
ENGRAVER

17 JORDAN ST
TORONTO

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 ESPLANADE WEST, TORONTO

CANADIAN OFFICE & SCHOOL FURNITURE
PRESTON, ONT.
FINE BANK OFFICE, COURT HOUSE & DRUG STORE FITTINGS
OFFICE, SCHOOL, CHURCH & LODGE FURNITURE
SEND FOR CATALOGUE.

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 STREET EAST, TORONTO
Makers of **WOOL STOCK, SHODDIES, Etc.**
of..
All lines of Graded Woolen Hags. Carbonizing and Neutralizing. Bayers of Wool Pickings. All lines of Hard and Soft Waste.

F. W. HORE'S SONS
HAMILTON, ONT.
Manufacturer of . . .
WHEELS. Wheel Materials. Shafts. etc.

ing next day for the gold fields of the Rainy River district. He found the specific gravity to be 1.843, or higher a little than any anthracite mentioned in Dana, and the hardness also somewhat too high. 'It is probably an earthly graphitic anthracite,' he stated; but advised that a sample should be supplied to Dr. Ellis of the School of Practical Science for analysis, when the exact character might be determined. It was arranged that the Professor should visit the property upon his return from the Rainy River country. On the 27th a specimen was sent to Dr. Ellis, and one also to Dr. George M. Dawson at Ottawa, Director of the Geological Survey. On the 29th Dr. Dawson wrote me the following descriptive note: 'The mineral appears to be that called anthraxolite by Prof. Chapman, viz. an inspissated bitumen passing by further metamorphism into anthracitic carbon. This of course occurs in veins cutting the formation, or in little pockets in which bituminous matter has collected. Occurrences of it have frequently given rise to reports of coal near Quebec, and it also has been found in Cambrian rocks in Labrador, Hudson Bay, and near Port Arthur. I have asked Dr. Hoffman to make some examination of the mineral, and will advise you of the result.' On July 2 Dr. Dawson sent on the report of Dr. Hoffman, analyst and chemist of the Survey, who described the mineral as consisting of an association of what is designated as anthraxolite and quartz, 'the latter constituting 55.95 per cent. by weight of the whole.' In commenting on the amount of ash in this case Dr. Dawson properly observed that 'it renders the material entirely useless as fuel, even if present in sufficiently large quantity.' These results were communicated to Mr. Collings, and at a later date to Prof. Coleman at Rat Portage. Dr. Coleman's work in the field was prolonged beyond the usual time; and partly for this reason, but chiefly because the reports of Dr. Dawson and Dr. Hoffman appeared to settle the question of the economic value of the mineral, he did not visit the property when returning home, as had at first been planned. But owing to the discussion in the newspapers and elsewhere as to the charac-

ter of the mineral and its practical value as an article of fuel, it seemed to be necessary that a further and more complete enquiry should be made, and the work was entrusted to Prof. Coleman, whose report is attached. The analysis made by Dr. Ellis was only finished recently, and it is given in Dr. Coleman's paper. The samples applied to Dr. Hoffman and Dr. Ellis were from the same lot; yet the difference in ash as shown by the two analyses is large, and indicates the varied composition of the mineral. Other analyses which have been published show even greater differences than these, and as so much depends upon selection—for fragments of the mineral are almost pure carbon—it may be well to suggest to the owners of

the property that they should have a test conducted upon a commercial scale. Let a ton or a few tons be provided and tried in the forge and under the boiler, and the question of its value as a fuel may be quickly and finally determined. The question of quantity will obviously take a longer time."

PROFESSOR COLEMAN'S REPORT.

"Mr. Archibald Blue, Director of the Bureau of Mines:

SIR,—As instructed, I have examined the supposed coal deposit in Balfour township west of Sudbury, and find it one of much interest. The deposit occurs on lot 10, concession 1, about seventeen miles west of Sudbury, five miles south of Chelmsford, and a

Wm. KENNEDY & SONS, OWEN SOUND, ONT.

MANUFACTURERS OF

HIGH-CLASS

WATER WHEELS,

Electric Water Wheel Regulators,

Machine-dressed Heavy Gearing, Shafting, Etc.

... PROPELLER WHEELS AND MARINE REPAIRS A SPECIALTY....

TURBINE AND CASCADE WATER WHEEL

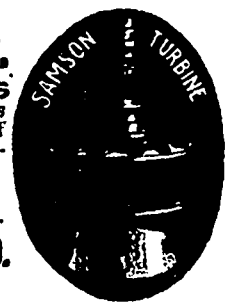
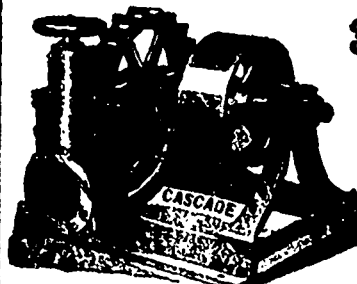
Adapted to all Heads from

3 Feet to 2000 Feet.

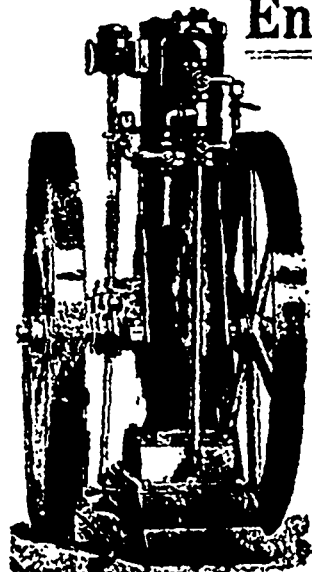
Our experience of 33 YEARS building Water Wheels enables us to suit every requirement of Water Power Plants. We guarantee satisfaction.

Send for a Pamphlet of either Wheel and write full particulars.

JAMES LEFFEL & CO.
SPRINGFIELD, OHIO, U. S. A.



THE ELECTRICAL GAS OR GASOLINE... Engine



WRITE FOR PRICES AND TESTIMONIALS

J. R. BAIRD

WOODSTOCK, ONTARIO

Burnham's

NEW IMPROVED STANDARD TURBINE

11

BURNHAM BROS., York, Pa.



mile and a quarter south of the nearest point on the Canadian Pacific Railway. It is on the property of Messrs J. R. Gordon of Sudbury and J. M. Clark of Toronto; and I have to thank the former gentleman for serving as a guide to the property and for providing a conveyance from Sudbury to the spot and back.

"The coaly material occurs as an irregular vein in black fissile slate, mapped by Dr. Bell as Cambrian. The vein runs about north and south up a somewhat steep rocky hill, turns a little to the east on the hill top and pinches out. Toward the south the lower end of the vein is buried under the boulder clay which covers the valley. The length of the vein exposed is about seventy feet, but further excavation may show that it continues south beneath the boulder clay. In width the coaly matter measures at its widest part twelve feet, but, allowing for the dip, its real thickness is probably six to nine feet as estimated by Mr. Gordon.

"The coaly material does not form a bed as in a true coal seam, but cuts across the slate, which has a strike of about 60 degrees east of north. The slate walls show a dip running nearly vertical to 55 degrees towards the east; and they are somewhat irregular and broken, fragments several feet long lying at one point as 'horses' in the coaly material.

"Up to the present very little work has been done on the property, the only excava-

tion being a pit three or four feet deep, so that there are no data to determine the depth of the deposit.

"The pure mineral is lustrous black, resembles anthracite or albertite in appearance, and forms small plates or irregular cubic blocks, the largest observed being three-quarters of an inch square. Between the plates or cubes there is generally more or less quartz, and in some weathered portions on the surface the quartz remains as a porous, cellular mass. The quartz varies much in amount, specimens from the bottom of the small pit containing less than those from the surface. The only other important mineral present is iron pyrites, which is scattered through parts of the vein, accounting for the sulphur found in some analyses of the material.

"During my visit some of the coaly substance was heaped over a bed of kindling wood on a blacksmith's forge and after some minutes blowing burned with a short, reddish flame, glowed strongly, and gave out a good heat, said to be quite sufficient for working steel. There was some smell of sulphur from the flame, and a large amount of porous reddish ash remained after the fire had gone out.

"In order to determine the character of this interesting material an analysis was made in Dr. Ellis' laboratory in the School of Science, with the following results:

Hygroscopic moisture.....	Per Cent.
Volatilo organic matter.....	2.67
Fixed carbon.....	4.78
Sulphur.....	55.85
Ash.....	1.06
Total.....	36.50
Total.....	100.86

"A select specimen of the pure mineral when burnt gave only 4.10 per cent. of ash. As the specimen analysed came from the surface of the deposit, it seemed probable that the amount of ash might be above the average. On this account assays were made of a general sample of the specimens taken by myself and of a picked sample representing good material from the bottom of the pit. The results are as follows:

Volatile matter (including four percent. of moisture)	Average Sample.	Best Sample.
Fixed carbon (coke).....	5.3	5.3
Ash.....	64.7	74.2
	30.0	20.5
Total.....	100.0	100.0
Specific gravity.....	2.0784	1.8708

"It will be seen that the results of the different analyses vary greatly in the amount of ash, which is less in the sample from the bottom of the pit than in those from nearer the surface.

"For the sake of comparison some analyses of anthracite, or hard coal, may be given.

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.



When Were Your

BOILERS

Last Inspected?

Consulting Engineers—
G. O. ROBB, Chief Engineer
A. FRASER, Secretary-Treas.

JOHN L. BLAIKIE Esq.
PRES.

THE BOILER INSPECTION & INSURANCE CO.

OF CANADA



EW RATHBUN Esq.
VICE-PRES.

Head Office,

TORONTO

Are You Sure

THEY ARE

SAFE

AND IN

Good Condition?

The first is of coal used in the Waterworks, Toronto:

Moisture.....	3.60
Volatile organic matter.....	8.85
Fixed carbon.....	80.79
Ash.....	8.76

100.00

"The analysis was made in Dr. Ellis' laboratory, School of Science.

"The following table, showing analyses of various anthracites, is taken from Percy's Metallurgy (Fuel), p. 331:

LOCALITY.	Sp. gr.	C	H	O	N	S	Ash.
South Wales, near Swansea...	1.348	92.56	3.33	2.53	.....	.....	1.58
South Wales.....	1.392	90.39	3.28	2.98	0.83	0.91	1.61
South Wales, Vale of Neath.....	.....	87.02	3.14	2.16	0.90	0.67	6.11
Pennsylvania.....	1.462	90.45	2.43	2.45	.....	.....	4.67
"	.....	92.59	2.63	1.61	0.92	.....	2.25
"	.....	84.98	2.45	1.15	1.22	.....	10.20

"The first sample of Pennsylvania coal is from Pottsville, the second from Lehigh Summit, and the third from Mauch Chunk. "It will be seen that the coaly substance from Balfour township has considerable resemblance to anthracite, the main difference being in the large amount of ash. If the pure specimen previously mentioned, which gave only 4.10 per cent. of ash, had been analysed it is probable that the resemblance in composition would have been close. Nevertheless it is better to give this substance a distinct name. Anthracite is found in beds associated with rocks containing carboniferous or later fossils, and is held by geologists to have been deposited as vegetable matter where it is now found; but the mineral here discussed occupies a vein cutting very ancient slates, and must have reached its present position long after these rocks were formed.

"Years ago Prof. Chapman of Toronto University examined specimens of similar material and named the substance anthraxolite. He describes it as—

"Black, lustrous, resembling anthracite in general character, but very brittle. Hardness, 2.25-2.5; specific gravity, 1.35-1.55. Generally decrepitates when heated. Before the blowpipe a small fragment loses its lustre, but exhibits no further change. Composition, essentially carbon, with from 3 to 25 per cent. of volatile matter, including a small amount of moisture. The ash as at present observed varies from nothing to 10 or 11 per cent. When present it exhibits under the microscope no trace of organic structure. This substance, in all probability a product of alteration from petroleum or asphalt, occurs in narrow veins in rocks of various kinds, and in small masses and thin layers or coatings in strata of the Utica and other formations. Occasionally also it is found in the interior of orthoceratites and other fossil shells. As it differs essentially by these conditions of occurrence from anthracite proper, the name anthraxolite has been given to it, but simply as a convenient term for present use. It occurs in narrow veins,

associated with quartz amongst the altered strata of Lotbiniere, in the Eastern Townships; and also in regularly banded veins with quartz and iron pyrites on Thunder Bay, Lake Superior. . . . The substance occurs likewise in narrow broken veins, or filling small cracks, per se, at Acton and other localities in the Eastern Townships, as well as on the island of Orleans, at Beauport and Point Levis near Quebec, and elsewhere in the neighborhood of the latter city. The variable percentage of volatile matter (exclusive of moisture) is evidently due to the greater or less amount of alteration to which the original bituminous matter has been subjected."

"Besides the localities referred to by Prof. Chapman, examples of a similar mineral have been obtained from other points in Canada; one very anthracitic-looking specimen in the School of Science collection comes from the Cambro-Silurian near Kingston.

"It should be understood, of course, that the coals and related substances show wide variations. They are not sharply defined chemical compounds like most minerals; and this fact makes it unwise to be dogmatic or over-precise in naming them.

"Looked at from the economic side, it is probable that the anthraxolite from Balfour may have considerable value as a fuel for local use. Hard coal is sold in Sudbury for \$9 per ton, and this fuel could be laid down in that town for less than half that amount. If it should prove to contain less ash than at present on sinking upon the deposit, the anthraxolite should have the ordinary uses of anthracite. It appears to be too fragile, however, for use in iron furnaces, which require a fuel capable of resisting a considerable crushing force, and the amount of quartz which it contains would necessitate an extra amount of flux, which would probably limit its usefulness for furnace purposes.

"The amount of anthraxolite available can of course only be guessed at. If the vein goes down a hundred feet with its present area of about five hundred square feet, it would contain about 3,000 tons, and two hundred feet would of course double that amount.

"It does not seem probable that the supply is very large as compared with that of coal regions, and it is likely to be worked out in a comparatively short time, as was the case with the somewhat similar vein of albertite in New Brunswick some years ago.

"The source of the anthraxolite is probably to be looked for in bituminous matter contained in the adjoining beds of slate, which carry 6.8 per cent. of carbon. By metamorphic action most of the vegetable matter has been removed from the once fluid or plastic bitumen, leaving the present cracked and quartz-cemented solid anthraxolite.

"As to the age of the deposit, there is no evidence to show that the slates are later than Cambrian, as decided by Dr. Bell; but it is evident that these slates must have been consolidated and fissured, probably also faulted, before the original bitumen flowed into its present position. In what geological age this took place, it would be rash to venture an opinion.

"Other finds of a similar mineral are reported from the Sudbury region, and a very coal-like specimen was given me from Fair bank township, some miles west of the Balfour deposit. An assay showed, however, only 10.3 per cent. of carbon, so that if this is an average sample the material is worthless as a fuel."

School of Science, Nov. 7, 1896.

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, shoos, breweries, dairies, planters, foundries, and all machinery work; old rollers refilled.

Frank Wehrle & Co.,
Brush Manufacturers,
134 Bay St., Toronto.

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

BOILERS

You Want Them. We Make Them

WRITE FOR PRICES

BANNERMAN & FINDLATER,
Boiler Makers, OTTAWA, ONT.

G. G. ELRICK & CO.

MANUFACTURERS OF

HORN and RUBBER COMBS, Etc.

FACTORY—Sheppard Street, Toronto.
MONTREAL OFFICE—Yraser Building.

Reproductions Made for Eight Cents per Square Inch



Half Tones Made Direct from Photos

CANADIAN PATENTS.

The following patents have been issued from the Canadian Patent Office, from August 27th, to September 15th, 1896.

Information regarding any of these patents may be had on application as follows:—

Fetherstonhaugh & Co., Bank of Commerce Building, Toronto.

Ridout & Maybee, 103 Bay Street, Toronto.

C. H. Riches, Canada Life Building, Toronto.

A. Harvey, Central Chambers, Ottawa.

Copies of any American patents can be procured from either of these attorneys for the sum of twenty-five cents each.

- 53,353 Hose Coupler, J. Naud, jr., Montreal.
- 53,354 Filing case, G. H. Richter, Boston, Mass.
- 53,355 Apparatus for teaching arithmetic, H. Rodelsperger, Manchester, N.H.
- 53,356 Mechanical movement, W. H. Dolmetch, Elmira, N.Y.
- 53,357 Signalling apparatus, J. F. Barker, Springfield, Mass.
- 53,358 Lubricant, F. J. Reinisch, Lemberg, Austria.
- 53,359 Dampening and erasing device, W. C. Wilson, Brooklyn, N.Y.
- 53,360 Skate, G. Brinston, Toronto, Ont.
- 53,361 Bed, H. Prufrock, St. Louis, Mo.

- 53,362 Painting cabinet, A. H. Pringle, Preston, Ont.
- 53,363 Bottle labelling machine, A. Seigel and F. Hausman, both of Boston, Mass.
- 53,364 Logging machine, G. T. Glover, Chicago, Ill.
- 53,365 Frame for ladies' bicycles, F. T. Fowler, Chicago, Ill.
- 53,366 Envelope, D. Conrad, Trenton, N.J.
- 53,367 Butter box, W. Rutherford, Montreal.
- 53,368 Hot water boiler, G. C. Morrison, Hamilton, Ont.
- 53,369 Movable support for mirrors, J. F. Hanlan, Concord, N.H.
- 53,370 Package making and filling machinery, H. E. Snyser Germantown, Philadelphia, Pa.
- 53,371 Windmill, J. L. Rust and F. M. Rust, Grant Toup, Gladstone, Ill.
- 53,372 Bicycle crank shaft, The Lackawanna Wheel Co., Scranton, Pa.
- 53,373 Nut-lock, J. E. Ward, H. S. Butte, Waverly, N.Y., and F. W. Kelsey, Orange, N.J.
- 53,374 Art of and apparatus for making vinegar, A. Haaz, Kingston, Ont.
- 53,375 Liquid level indicator, H. A. McGroory, Detroit, Mich.
- 53,376 Box for delivering bottles, D. W. Gagnon, Montreal, Que.
- 53,377 Ice making machine, C. A. Kunzel, Chicago Ill.
- 53,378 Fruit picker, R. Horneck, Toronto.
- 53,379 Oil and gas engine, H. T. Dawson Clapham, Surrey, England.

- 53,380 Wooden box, J. Thibault, St. Thomas, Que.
- 53,381 Safety pin, J. M. Guilbert, Philadelphia, Pa.
- 53,382 Piano plate, F. L. Bathelmes, Toronto.
- 53,383 Game, apparatus, A. Apache, Chicago, Ill.
- 53,384 Automatic vending machine, G. H. Bowie, Ottawa, Ont.
- 53,385 Snap hook, J. T. Nally and A. D. Majors, both of Texas.
- 53,386 Table for drawing, The Laughlin Hough Drawing Table Co., Guelph, Ont.
- 53,387 Porcelain for dentistry purposes, W. L. Mason, Red Bank, N.J.
- 53,388 Rossing machine, A. E. Beals, Norwich, N.Y.
- 53,389 Screen, J. M. Fleming, Ripley, Texas.
- 53,390 Wave-power, W. E. P. Rose, Angel Island, Cal.
- 53,391 Mechanical motor, I. Johnson, Milwaukee, Wis.
- 53,392 Hay-making machine, T. M. Jarmain, Hasely Iron Works, Oxford, England.
- 53,393 Composition for treating fiber, V. P. Travers, New York City.
- 53,394 Clay mould for sanitary ware, F. B. Dakin, Iberville, and C. C. Corneille, Montreal.
- 53,395 Hydro-carbon burner, J. H. Matthews, Canton, Ohio.

ALBERT MANUFACTURING CO.

Manufacturers of the well-known "HAMMER BRAND"

Calcined PLASTER

....AND....

Patent Rock Wall Plaster

HILLSBOROUGH, N.B., - CANADA

LAW BROS. & CO....

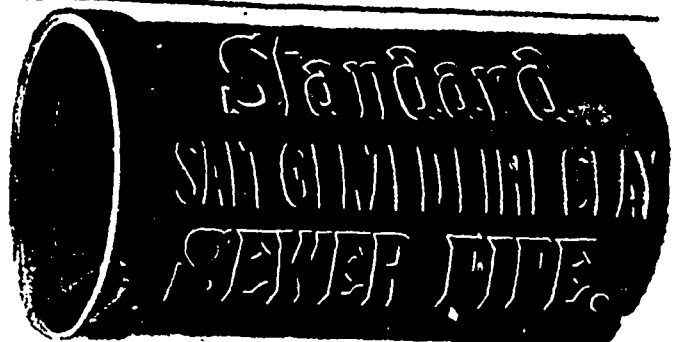


Caledonia Foundry and Machine Shops.

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. TROTTER, 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 1895, 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.

- 53,396 Process of manufacturing tubes of aluminum, F. A. Ellis, Sylvan Grove, London, England.
- 53,397 Bottle stopper, E. Joynson and W. Harrison, both of Liverpool, Eng.
- 53,398 Drying kiln, A. T. Bemis, Indianapolis, Ind.
- 53,399 Box or crate, O. A. Grant, Middleburg, Va.
- 53,400 Brick-kiln, J. K. Caldwell, Minneapolis, Minn.
- 53,401 Gas burner, W. B. Williams, Leigh, England.
- 53,402 Stopper for bottles, T. Burbridge, Brixton, England.
- 53,403 Street sweeper, D. F. Graham, Springfield, Mass.
- 53,404 Corset clasp, Octave Gendron, Montreal.
- 53,405 Multiple fuse switch, The Multiple Fuse Switch Co., Chicago, Ill.
- 53,406 Roller bearings, W. H. Woodcock, East Norwood, England.
- 53,407 Fire-nose throat, J. Lally, Waltham, Mass.
- 53,408 Milking machine, A. Shiels, Glasgow, Scotland.
- 53,409 Hot air cabinet and screen, C. M. Robinson, Toledo, Ohio.
- 53,410 Friction clutch, B. C. Waite, Geneva, N. Y.
- 53,411 Rotary engine, I. N. Forrester, Camden, N. J.
- 53,412 Connecting rod, D. J. Crosby, Black Oak Farm, Kadina, South Australia.
- 53,413 Boiler for clothes, D. Chartrand, St. Cunegonde, Que.
- 53,414 Derailing device, J. Y. Porter, Cleveland, Ohio.
- 53,415 Electric lamp, A. O. Mackin, Anderson, Ind.
- 53,416 Handle bar for velocipedes, J. F. O'Brien, London, England.
- 53,417 String fastener, C. C. Pine, New York City.

- 53,418 Toe clip for bicycles, E. A. Thoin. St. Paul, Minn.
- 53,419 Corset, James Stone, Aurora, Ill.
- 53,420 Crushing machine, J. E. Sutphen, Albany, N. Y.
- 53,421 System of heating kilns, A. T. Bemis, Indianapolis, Ind.
- 53,422 Electric annunciator, T. J. Stansel, Hillsboro, Texas.
- 53,423 Adhesive capsule for bottles, etc., A. Bucknall, Douglas Isle of Man, Great Britain.
- 53,424 Sleigh, A. Taillefer, Quebec.
- 53,425 Flues for kilns, G. Warren, Exmouth, England.
- 53,426 Ball bearing wheel, W. Weeker, Washington Court House, Ohio.
- 53,427 Can labelling machine, W. G. Trethewey, Vancouver, and F. H. Godfrey, Victoria, B. C.
- 53,428 Door lock, E. S. Sutton, and J. Hagan, Snotromish, Wash.
- 53,429 Crank, R. H. Harris, New York City.
- 53,430 Shoe, J. F. Kennedy, and C. E. Slater, Montreal, Que.
- 53,431 Mucilage bottle, C. A. Biorn and J. M. Jones, Piermont, N. Y.
- 53,432 Valve, F. W. Foster, Boston, Mass.
- 53,433 Manifolding tablet, W. Asheton, D. Stewart and C. J. Carroll, all of Baltimore, Md.
- 53,434 Bicycle lamp, F. Rhind and the Bridgeport Brass Co., Bridgeport, Conn.
- 53,435 Tobacco Package or caddy, G. Learmouth, Fitzroy Harbor, Ont.
- 53,436 Rock crushing and grinding apparatus, The Kinkead Mill Co., San Francisco, Cal.
- 53,437 Hangar for coats, etc., H. J. Flegal, Clearfield, Pa.
- 53,438 Apparatus for thawing explosives, Thos. Long, Phillipsburg, Montana.
- 53,439 Pump, A. W. Thierkoff, Redding, Cal.

- 53,440 Bicycle rest, Le Roy B. Thompson and W. Burke, Portland, Ore.
- 53,441 Bicycle support, W. Jenkins, Cashel, Ont.
- 53,442 Rotary cutter, G. D. Gillette, Oswego, N. Y.
- 53,443 Nut-lock, J. M. Martin, Martin, Florida.
- 53,444 Refining stove for photographers, D. R. Van Riper, Paterson, N. J.
- 53,445 Folding bicycle rack, A. F. Temple, Muskegon, Mich.
- 53,446 Foot-propelled sleigh or sled, John Berry, East Toronto, Ont.
- 53,447 Eccentric, Charles Luustrom, Vicksburg, Miss.

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 Appliances of any System
 Renovated and Guaranteed. Also General Repairing.
 Office and Factory.. 90 YORK ST., LONDON, CAN.
 Toronto Agent.....
JOSEPH BARRETT, 573 Dufferin St.

METAL
STAMPS
 SOAP DIES, AND BRASS SIGN
 MANUFACTURERS
PATTERSON & HEWARD
 40 WELLINGTON ST. WEST, TORONTO

... **MANUFACTURERS** ...
 Seeking Locations
 Communicate with

JAMES MORE, Town Clerk
DUNDAS, ONT.

Liberal Inducements—Good Location
 Desirable Buildings

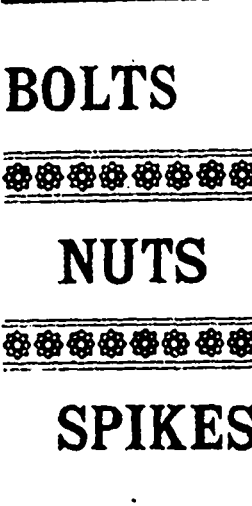
WM. BARBER & BROS.
 GEORGETOWN, ONT.
 Manufacturers of

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 Fool-caps, Account, Envelope and Lithographic Papers, etc.

McLAUGHLIN BROS.
TEASELS
Skaneateles Falls
 NEW YORK
 BUSINESS ESTABLISHED IN 1852

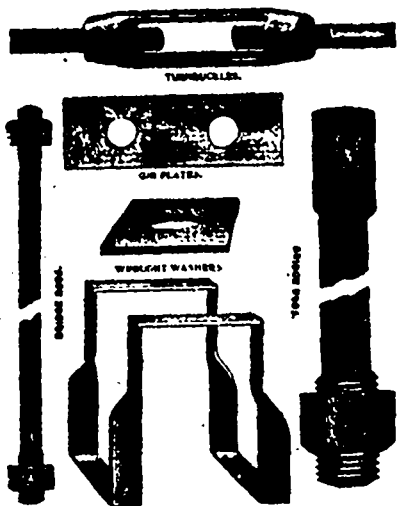
BOLTS



NUTS

SPIKES

TRACK BOLTS



RIVETS

WIRE NAILS

ETC., ETC.

The SWANSEA FORGING CO. Ltd., Swansea, Ont.

THOMAS PINK HEMBROKE, ONT.	Split Maple Handles Duck Bill Cant Hooks Cast Steel Skidding Tongs Duck and Round Bill Peaveys Car Load or Dozen Lids
Pink Peaveys, Handles, Cant Hooks	

- | | | |
|--|---|---|
| 53,448 Ball joint, Carl Kuhn, Berlin, Germany. | 53,460 Coin controlled vending machine, Jos. Mackin, Toronto. | 53,473 Manufacture and storage of inflammable gas, J. A. Wallace, Melbourne, Australia. |
| 53,449 Furnace and apparatus for burning coal dust, F. de Camp, Berlin, Germany. | 53,461 Wheel for road vehicles, F. W. Schroeder and H. M. Clark, both of Newton, New South Wales. | 53,474 Loom, B. Hilbert, Worcester, Mass. |
| 53,450 Horse shoe calk, Henry Sachs, Washington, D.C. | 53,462 Lubricator, F. D. Torre, E. Hammond and A. L. Taveau, all of Baltimore, Md. | 53,475 Permutation lock, S. Bozano, Boston, Mass. |
| 53,451 Sole, Herman Bayer, Bradford, Pa. | 53,463 Car coupler, J. A. Ward, T. J. Hauk and F. A. Hauk, Delta, Idaho. | 53,476 Electric flash light apparatus, W. Bruns, Chicago, Ill. |
| 53,452 Curtain guide, E. T. Burrows, Portland, Me. | 53,464 Adjustable handle bar, J. Galt and A. P. Rankin, Toronto. | 53,477 Steam engine, J. Hardill, B. French and R. T. Harding, all of Stratford, Ont. |
| 53,453 Bicycle frame, R. M. Keating, Springfield, Mass. | 53,465 Imitation of Persian Lamb, Marguerite Boisvert, Montreal, Que. | 53,478 Method of extinguishing electric arcs, The Canadian General Electric Co., Toronto. |
| 53,454 Bottle-filling machine, T. B. Booth and A. Robinson, Boston, Mass. | 53,466 Motor truck, J. A. Brill, Philadelphia, Pa. | 53,479 Welt bevelling attachment for sole sewing machines, J. B. Hadaway, Brockton, Mass. |
| 53,455 Apparatus for telephone switch boards, The Bell Telephone Co. of Canada, Montreal. | 53,467 Motor truck, J. A. Brill, Philadelphia, Pa. | 53,480 Egg beater, H. Beaumont and G. Wells, Montreal. |
| 53,456 Apparatus for telephone switch boards, Bell Telephone Co. of Canada, Montreal. | 53,468 Electric railway, F. Krizik, Prague, Austria. | |
| 53,457 Signalling apparatus for telephone switch boards, The Bell Telephone Co. of Canada, Montreal. | 53,469 Egg tester, Annie M. L. Chute, Bridgetown, N.S. | |
| 53,458 Telephone exchange system, The Bell Telephone Co. of Canada, Montreal. | 53,470 Converting simple into polyphase alternating currents, C. S. Bradley, Avon, N.Y. | |
| 53,459 Box, A. Berry, Warden; Frank Wilson, Joseph Ward and J. S. Clunie, all of Montreal. | 53,471 Panoramic display device, L. W. Yaggy, Lake Forest, Ill. | |
| | 53,472 Machine for clipping horses and shearing sheep, J. P. Deau, Waterford, Ont. | |

Many people are fond of using perfumed fumigating papers in their rooms. The paper which is thus burned is scented by first being immersed in cold saturated solution of potassium nitrate, and then being dried by means of hanging over a string. Unsized or ordinary fine paper is generally used. It is then perfumed by dipping into any strong essence and again dried—musk, otto of roses, myrrh, powdered orris root, or strong spirits of wine.

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.

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 IronSuitable 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 SHAFTINGFROM $\frac{1}{2}$ TO 8 INCHES IN DIAMETER. GUARANTEED STRAIGHT AND TRUE TO WITHIN $\frac{1}{64}$ 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 KINDSWe 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.**

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. Tap chisels, dies and taps.

Write for Prices.

Correspondence Solicited

The Central Bridge and Engineering Co. Ltd.

Capital Stock,

PETERBOROUGH, ONT.

\$200,000.00

Capacity, 5,000 Tons Per Annum



Capacity, 5,000 Tons Per Annum.

MANUFACTURERS OF

BRIDGES, ROOFS, VIADUCTS, PIERS, GIRDERS, TURNTABLES, ARCHITECTURAL WORK, FORGINGS, AND ALL KINDS OF GENERAL ENGINEERING WORK.

Also Law's Patent Surface CATTLE GUARDS, and Law's Patent "OPTIMATES" POWER HAMMERS

W. H. LAW

ENGINEER AND MANAGING DIRECTOR.

The United Alkali Company, Ltd., of England

CAPITAL EXCEEDS



\$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
ROBIN 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



Moulding,
Tenoning,
Mitreing

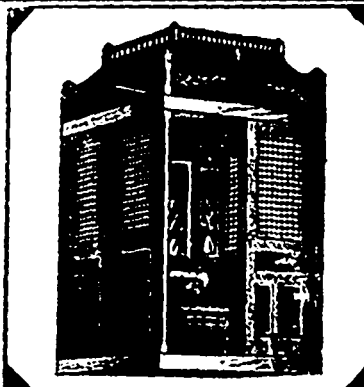
SHINGLE . . .
JOINTER . . .

AND OTHER IRREGULAR SHAPES.

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

SEND FOR PRICE LIST.....
ALL WORK WARRANTED

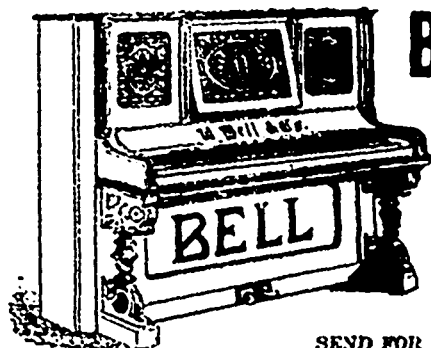
PETER HAY, - GALT, ONT.



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

Wynyard Square, Sydney, New South Wales.

All Communications promptly attended to.

References { Menzies, 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 PARTICULARS

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 Top, 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 LARGEST THE SAFEST THE CHEAPEST

Canadian Life Insurance Company is

The CANADA LIFE ASSURANCE CO.

CAPITAL AND FUNDS OVER \$18,000,000

WRITE FOR PROSPECTUS

J. B. 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
 UNITED UNDERWEAR, BLANKETS, Etc.

Representing in Canada
 F. P. SWEET & CO.,
 100 N. 2nd St., Montreal, P. Q.

W. G. KNOX, Agent, Montreal. I. COPPER SOREN,
 100 N. 2nd St., Montreal, P. Q.

WOOL

A. T. PATERSON & CO.

MERCHANTS

35 FRANCOIS XAVIER ST., MONTREAL

Represented by MR. DAVID GUTHRIE

The Dominion Cotton Mills Co., Ltd.,

MAGOG PRINTS

A Full Range of

..PURE INDIGO PRINTS..

now being shown to the Trade. Ask for samples. Prices for Sample.

All Goods Guaranteed and Standard. Warranted Indigo Blue.

D. MORRICE, SONS & CO.

SELLING AGENTS

MONTREAL AND TORONTO

USE THE McCASKILL STANDARD VARNISHES

SATISFACTION GUARANTEED

Manufactured by
McCASKILL, DOUGALL & CO.
Montreal, Que.

- ACIDS -

Sulphuric, Nitric,

Muriatic and Acetic.

STOCKS ALWAYS ON HAND.

**BELLHOUSE,
DILLON & CO.**

47 Wellington Street East, Toronto
30 St. François Xavier Street, Montreal



The Ontario . . .
Malleable Iron Co.

(Limited)

Manufacturers of..

MALLEABLE IRON Castings to Order for all kinds of

AGRICULTURAL IMPLEMENTS

AND...

Miscellaneous Purposes

OSHAWA - - ONT.

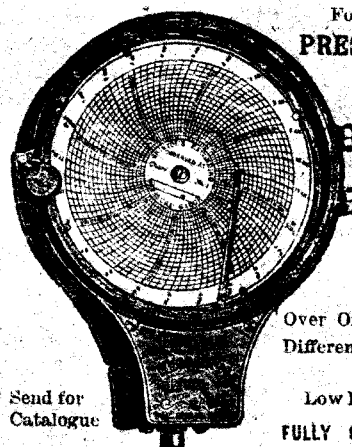
Sault Ste. Marie
Pulp and Paper Co.

SAULT STE. MARIE, ONT.

**GROUND
WOOD
PULP**

FOR DOMESTIC AND EXPORT TRADE

BRISTOL'S
Recording Instruments



For.....
PRESSURE

Temperature

AND

Electricity

Over One Hundred Different Varieties.

Low Prices and FULLY GUARANTEED

Send for Catalogue
THE BRISTOL CO.
WATERBURY, CONN., U.S.A.

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. Jacques St.
Quebec Branch
2841 St. Joseph