

Technical and Bibliographic Notes / Notes techniques et bibliographiques

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

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

Coloured covers/  
Couverture de couleur

Covers damaged/  
Couverture endommagée

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

Cover title missing/  
Le titre de couverture manque

Coloured maps/  
Cartes géographiques en couleur

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

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

Bound with other material/  
Relié avec d'autres documents

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

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

Additional comments: /  
Commentaires supplémentaires:

Coloured pages/  
Pages de couleur

Pages damaged/  
Pages endommagées

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

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

Pages detached/  
Pages détachées

Showthrough/  
Transparence

Quality of print varies/  
Qualité inégale de l'impression

Continuous pagination/  
Pagination continue

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

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

Title page of issue/  
Page de titre de la livraison

Caption of issue/  
Titre de départ de la livraison

Masthead/  
Générique (périodiques) de la livraison

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

10X	14X	18X	22X	26X	30X
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
12X	16X	20X	24X	28X	32X

CANADIAN

MANUFACTURER

AND INDUSTRIAL WORLD

DEVOTED TO THE MANUFACTURING INTEREST OF THE DOMINION

VOL. 17.

TORONTO, AUGUST 2, 1889.

No. 3.

"Old Dyewood Warehouse"

Established over Fifty Years.

Theo. H. Eaton & Son,

Windsor, Ont. : Detroit, Mich.

DYEWOODS, DYEING DRUGS,  
CHEMICALS, ACIDS, Etc.

HIGH GRADE LOGWOOD.

Domestic and Imported Extracts of  
Logwood, Fustic and Indigo.

FRENCH ARCHIL & CUDBEAR.

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

Dominion Dyewood & Chemical

COMPANY.

JNO. TAYLOR & CO., Proprietors.

General Drysalter.

Sole Agents in Canada for the following  
leading Manufacturers:

Farbenfabriken vormals Friedr Bayer &  
Co., Elberfeld, Germany, Aniline Dyes  
and Allzarines. Patentees of the One Dip  
Benzidine Colors.

Read, Holliday & Sons, Huddersfield, Eng-  
land, Aniline Dyes. Patentees of Acid  
Magenta, Gambine and Indigo Compound.

Mucklow & Co., Bury, England, Dyewoods,  
cut and ground, Extracts, Logwood,  
Fustic, Hyperine and Sumac.

Dominion Dyewood & Chemical Co.

TORONTO,

SOLE AGENTS FOR CANADA.

IMPERIAL BANK

OF CANADA.

Head Office, - TORONTO.

TRAVELLERS Going to EUROPE

Should Carry Cheques of the

CHEQUE BANK, Ltd.

LONDON, ENGLAND.

Capital, - - - - - £100,000

Guarantee Fund, - - - - - £27,000

These Cheques, which are issued in all denominations,  
are payable all over Great Britain and the Continent  
without expense or trouble of identification; are  
cheaper, more convenient, and equally as secure as  
letters of credit or circular notes. Hotels and shops  
accept them as cash.

Further particulars will be given on application to  
The Imperial Bank of Canada, at Toronto,  
and its branches, Agents for the Cheque Bank (Ltd.)  
in Canada.

ESTABLISHED  
1856

THE J.C.M<sup>c</sup> LAREN BELTING CO<sup>s</sup>

SUCCESSORS TO THE  
LATE J.C.M<sup>c</sup> LAREN

NEEDLE POINTED

CARD CLOTHING

MONTREAL



This space for sale.

John Bertram & Sons,

CANADA TOOL WORKS!

Dundas, Ont.

SEE ADVERTISEMENT, PAGE 105.

H. W. PETRIE,  
Machinery Dealer,

BRANTFORD, ONT.

SEND FOR LISTS.

Toronto Branch, opposite Union Station.

This space for sale

Largest Manufacturers of STEEL  
and BRASS STAMPS in Canada.

**PRITCHARD  
& ANDREWS**

OTTAWA, ONTARIO.

Rubber Stamps,  
Stencils, Seals, &c.

SEND FOR PRICES.

THE

**Field-Stirling Boilers**

ARE UNEQUALLED FOR

**Safety, Economy of Fuel,  
Dryness of Steam and  
Durability.**

They are the cheapest Boilers in the market for the actual amount of water turned into DRY steam per hour, and this is the only reliable test of the power of any boiler. They are safe at any pressure. Our boiler tubes are tested at 1,000 lbs. per square inch. Our plates are tested at 60,000 lbs. per square inch. No cast iron is used in these boilers. No disastrous explosion is possible, because the flame never touches the shell at all. The circulation is perfect. All the water must pass through the large mud drum and deposit its sediment. For full particulars and prices apply to the manufacturers.

**DOMINION SAFETY BOILER CO. Ltd.**

31 Wellington St., Montreal.

**McARTHUR,  
CORNEILLE & CO.**

(Successors to JOHN McARTHUR & SON)

310 to 316 St. Paul Street,

and

147 to 151 Commissioners Street,

**MONTREAL,**

offer at closest prices

PURE OLIVE OIL.

WINTER-PRESSED LARD OIL,

EXTRA FINE SPINDLE OIL,

and a full assortment of other

**LUBRICATING OILS.**

Also

**CHEMICALS,**

**DYESTUFFS,**

**DYEWOODS,**

**EXTRACTS,**

&c. &c. &c.

Are Sole Agents in Canada for

**SOCIETE ANONYME**

DES

**MATIERES COLORANTES ET**

**PRODUITS CHIMIQUES,**

DE ST. DENIS,

Successors to

**A. POIRRIER AND G. D'ALSACE,**

PARIS,

Manufacturers of

**ANILINE DYES,**

**ARCHIL,**

**CUDBEAR,**

&c. &c. &c.

Prize Medal, London Universal Exhibition,  
1862.

Gold Medal, Paris Universal Exhibition,  
1867.

Grand Diploma of Honor, Vienna Universal  
Exhibition, 1873.

Medal and Diploma, with Highest Com-  
mendations, Philadelphia Centennial Ex-  
hibition, 1876.

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

**D. MORRICE, SONS & CO.**

Manufacturers' Agents,

**MONTREAL & TORONTO.**

**HOCHELAGA COTTONS.**

Brown Cottons and Sheetings, Bleached Sheet-  
ings, Canton Flannels, Yarns, Bags, Ducks, etc.

**ST. CROIX COTTON MILL.**

Tickings, Denims, Apron Checks, Fine Fancy  
Checks, Gingham, Wide Sheetings, Fine Brown  
Cottons, etc.

**ST. ANNE SPINNING CO. (Hochelaga.)**

Heavy Brown Cottons and Sheetings.

*Tweeds, Knitted Goods, Flannels, Shawls, Wool-  
en Yarns, Blankets, etc.*

*The Wholesale Trade only Supplied.*

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

SOLID AND LIQUID EXTRACTS

OF

**LOGWOOD,  
Fustic and Hypernic,**

OF SUPERIOR QUALITY.

OFFICE, 55 BEEKMAN ST. N. Y.

**PILLOW & HERSEY MFG CO.,**

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

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

OFFICE, 105 Mill St., Montreal.

This Space for Sale.

WILM KNOX.

JOHN H. ELLIOT.

**KNOX & ELLIOT,**

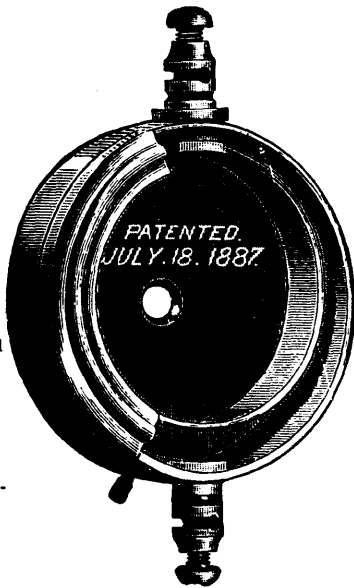
*Architects, Engineers and Mill  
Constructors,*

Office: 13 Victoria Street, TORONTO.

# W. C. HIBBARD,

## MONTREAL,

MANUFACTURER OF



Campbell  
Water-proof  
Wires.

Annunciator  
and  
Office Wire.

Silk and Cotton  
Covered  
Magnet Wire.

Aerial and Sub-  
marine Cables.

Superior  
Water-proof  
Tape.

Telephones.

Hotel & House  
Annunciators.

Gas Lighting  
Apparatus.

Burglar Alarms.

## AUTOMATIC FIRE ALARM APPARATUS

And all Electrical Appliances and Supplies.

# Butterfield & Co.

ROCK ISLAND, P.Q.



MANUFACTURERS OF

## UPRIGHT DRILLS,

FOOT VISES AND  
BOLT HEADERS.

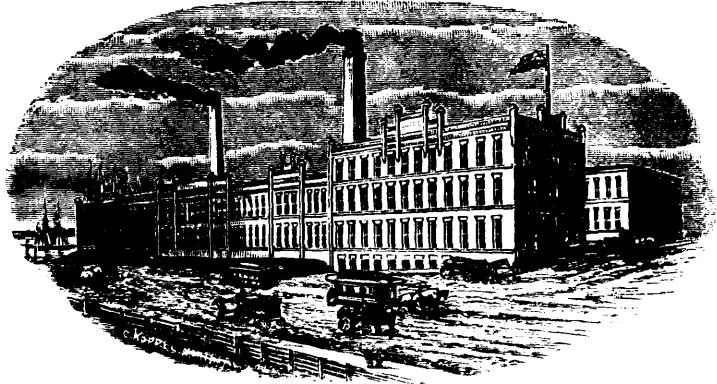
STOCKS, DIES AND TAPS

FOR

Blacksmiths', Machinists', Carriage  
Makers' and Gas-Fitters' Use.

Send for New Illustrated Catalogue  
AND PRICE LIST.

# DOMINION TIN AND STAMPING WORKS



Plain, Stamped and Japanned Tinware,  
Copper Goods,  
Star Patent Stove Pipe Thimbles,  
Stove Boards, Wire Goods,  
Machine Oilers, Coal Hods,  
Fire Shovels, House-furnishing Goods.

SPECIALTIES—Spice Tins, Mustard Tins, Baking Powder Tins, Blacking Boxes, Paint  
Irons, Lye Cans, Grocers' Canisters, Square and Round Oil Cans,  
Oil Tanks, Patent Butter Tubs (Tin Lined).

## KEMP MANUFACTURING CO'Y

Cor. Gerrard & River Sts., Toronto.

# Balcony Fire Escapes

(BATTEN'S PATENT)

## ADVANTAGES :

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

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

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

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

## Straight Iron Ladders.

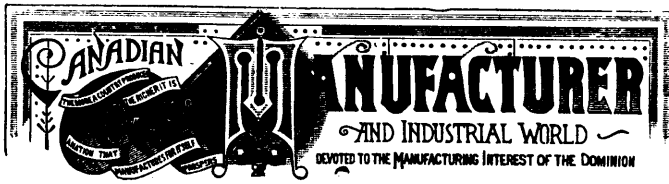
For situations not requiring a Balcony Fire Escape I can quote reasonable prices for strong and well finished Straight IRON Ladders.

FREDERIC NICHOLLS,

Sole Manufacturer for Canada,

The Permanent Exhibition of Manufactures

63 to 69 Front St. West, TORONTO



Published on the first and third Friday of each month, by the  
CANADIAN MANUFACTURER PUBLISHING Co., (Limited).

63 FRONT STREET WEST, TORONTO.

FREDERIC NICHOLLS, *Managing Director.*

J. J. CASSIDY, *Editor.*

SUBSCRIPTION. - - - - \$2.00 per year.

ADVERTISING RATES SENT ON APPLICATION.

MR. FREDERIC NICHOLLS is Secretary of  
The Canadian Manufacturers' Association,  
The Woolen Manufacturers' Association, and  
The Tanners' Association.

His Office is at the Publication Office of the  
CANADIAN MANUFACTURER,  
63 Front Street West, Toronto.

### EXHIBITIONS AND THEIR REQUIREMENTS.

THE business of operating exhibitions and fairs was, until quite recently, in a chaotic and unsatisfactory condition. Like in all other important enterprises, wisdom is to be gained but by sad and expensive experience, and those managements who have paid the closest attention to the development of the business, are the ones who are meeting with the largest success in their enterprises. The most conservative, and at the same time the most enterprising manufacturers, merchants, and business men in the country, now fully appreciate the value of these institutions, and are prompt to give of both their time and money towards perpetuating them and guaranteeing their success, and this both through a desire to benefit the community at large, and to advance their own personal interests. Ever on the alert to participate in the advantages which prosperity promises, they recognise the fact that no better opportunity can be presented to reach the public in a direct and practical manner than through the medium of such organizations.

The recognition of this situation is not confined to those who live in the immediate vicinity where fairs and exhibitions are held, as is evidenced every year at the Toronto Exhibition, where exhibitors are found coming from every province in the Dominion, from Nova Scotia to British Columbia, and from every important town and city from Halifax to Vancouver: large and influential deputations also coming from the British Islands and the American Republic. This favorable condition of things will always exist where the management is of the right character. Of course every promise made by the management of an exhibition to induce exhibitors to make displays, should be redeemed to the fullest extent, and no shadow of falsification should ever be discovered. It goes without the telling that no exhibition can be successful under any circumstances, without the cordial and hearty support of the press; and managers display wisdom when they make special efforts

to conduce to the comfort and convenience of representatives of the press, as is the case here in Toronto.

It requires wisdom and discrimination in arranging for the various departments of exhibitions. Too frequently the mechanical department receives indifferent attention, for exhibits of live machinery in practical operation are always attractive as well as instructive. Such machinery should include representative exhibits of wood and iron working machinery, agricultural machinery, electric appliances, and all the newer and most approved tools and implements with which the public should become familiar.

Great attention should be given to the classification of exhibits; and it should be understood that every object, method, or process susceptible of being displayed at an exhibition, and possessing the merit of excellence, is an acceptable contribution, and special efforts should be made to induce the exhibition of such. General machinery and machine tools should embrace hydraulic and pumping machinery; mill machinery and fixtures; engines and other motors; steam generators; fire extinguishing apparatus; wood and iron and other metal-working machinery and tools; mining machinery, etc. Other departments should embrace dairy machinery and appliances, for both domestic and factory use; agricultural and farm machinery; stable fixtures; veterinary instruments; vehicles of all descriptions; metallic ores and the crude metals produced from them; products of the furnace and the foundry; hardware of all descriptions; house furnishing goods; textile fabrics and materials, including cloths and clothing, footwear, hats, etc.; saddlery and harness, and such raw materials as are used in the manufacture of them; furniture, and all articles for decorating and ornamenting houses and the person; displays of food and food products, drinks, etc.; and the liberal arts should be represented by displays of books, bookbinding work, musical and scientific instruments and apparatus for instruction and investigation, and instruments and appliances used in telegraphy, etc.; also collections and specimens illustrating different departments of natural science and education; examples of work of pupils in public and private schools, and in art schools where special study is made of fine arts and industrial and decorative design. There should be special effort made to induce extensive displays of the products of the nursery, greenhouse and aquaria.

Whenever any machinery is in motion it should be carefully guarded by railing to prevent accidents, and there should be some well devised system whereby power may be supplied to such exhibitors of machinery as may require it. The most careful and thorough arrangements should exist to guard against fire, and to suppress it should such occur; and there should always be an ample police force on hand; a full corps of watchmen, and a complete and always ready fire department.

Visitors should be made to feel that everything possible was done tending to their comfort and convenience, specially so of women and children. Ample restaurant accommodations should exist, and care should be taken to prevent inferior food being sold or extortionate charges made. All such accommodations should be under the immediate supervision of proper officers, or executive committees. There should be baggage rooms, where satchels and wraps could be deposited and checks given, the charge for which should be nominal.

CANADIAN SUGAR.

THERE is no sufficient reason why Canada should not produce all or the greater part of the sugar it consumes, seeing that the soil and climate are eminently well adapted to the growth and cultivation of the sugar beet. Some spasmodic efforts have been made in this direction in the Province of Quebec, and indeed there is now a large and well equipped factory there, at Berthier, for the manufacture of sugar from this vegetable. The fact has been satisfactorily established that beets grown in the vicinity of Berthier possess as large an amount of saccharine matter as any grown under the most favorable circumstances in France, Germany or Austria; and it is equally certain that not only that particular locality, but about all the available lands in Quebec, Ontario and the North-West are equally well adapted to that industry.

The increase in the production of beet sugar in Europe of late years is remarkable. In 1853 the production there was less than 200,000 tons, while in 1887 it amounted to 2,430,000 tons. Within these dates the production of cane sugar in all countries increased from 1,200,000 tons to 2,750,000 tons, an increase of only a little over 100 per cent., while the increase of beet sugar was about 1,200 per cent.

The per capita consumption of sugar in both Europe and America is rapidly increasing; indeed it is increasing more rapidly than is the production. The stocks of sugar in the chief European markets on May 1st last were 604,000 tons, against 743,000 tons on the corresponding date of the previous year, a decline of nearly 20 per cent.; while the consumption in Europe increased from 2,657,000 tons to 2,818,000 tons in the same period. The stocks of sugar in England and the United States at the later of the above named dates had decreased in quantity 200,000 tons from what they were a year before, and during that year the world's visible supply of sugar decreased from more than 1,000,000 tons to 735,000 tons. In the United States the consumption of sugar has increased rapidly during the past ten years, this being concurrent with the decline in prices. In 1878, when the average price of raw sugar was about 7½ cents per pound, the per capita consumption was 36 pounds, while in 1888 it had increased to 53 pounds, an increase of nearly 50 per cent.

Similar facts apply to Canada; and in view of the rapidly increasing demand for the article, the importance of the cultivation of the sugar beet and its manufacture into sugar here cannot be too strongly urged. The pursuit of the industry on a large scale would present special advantages to the whole country, not only benefiting the farmer with a crop that would give him a larger money return per acre than any other which he might grow; but it would involve the employment of large numbers of workmen in the factories, and large investments of capital in plants and machinery. Other countries far less favorably situated than this recognize the advantages accruing from this industry.

The production of beet sugar is exciting a great deal of attention in the United States, regarding which our readers have been informed from time to time, particularly concerning the encouragement given it in California. It is well known that Mr. Claus Spreckels, of that State, is largely interested in several beet sugar factories there. He is offering valuable

inducements to farmers to grow beet crops, not only agreeing to take at his factories all the beets they raise, at remunerative prices, but he is also offering premiums for the largest productions on given areas; and a recent Californian exchange relates that two farmers, near Watsonville, that State, where Mr. Spreckels has a factory, were recently paid by him, one \$500, for the most productive 10-acre tract, and the other \$250 for the most productive 5 acres. The first 10 acres are said to have yielded beets that produced 8,417 pounds of sugar per acre, while the 5-acre tract averaged 7,652 pounds per acre. Mr. Spreckels, so it is stated by the Philadelphia *North American*, will erect a beet sugar works near or at Reading, Penn., at a cost of about \$400,000, on condition that the farmers of that county will plant 50,000 acres of their land in beets, the opinion prevailing that the industry would be a very profitable one in that section of country.

Anent the encouragement that is given in different European countries to the cultivation of the sugar beet and the manufacture of beet sugar, duties are levied on sugars imported into these countries as follows:—

		Cents per pound.
France.	On brown sugar of 98° and under . . . . .	4.38
	“ “ above 98° and on refined . . . . .	5.47
Germany.	On all raw sugars . . . . .	2.59
	“ refined sugars . . . . .	3.25
Austria.	On all sugar under No. 19, Dutch standard . . . . .	3.27
	“ of No. 19 and over, and on refined . . . . .	4.36
Italy.	On all sugar of No. 20, Dutch stan., or less . . . . .	4.65
	“ above No. 20 . . . . .	5.81
Netherlands.	On all raw sugar of 99° and on refined . . . . .	4.91
	On Melada and on grape sugar . . . . .	3.27
Belgium.	On all under No. 7, Dutch stan., Class 4 . . . . .	3.
	On Nos. 7 to 10, Class 3 . . . . .	3.59
	“ 10 to 15, “ 2 . . . . .	3.95
	“ 15 to 18, “ 1 . . . . .	4.22
	On refined, over No. 18, and loaf . . . . .	4.49
	“ crystallized . . . . .	4.80
Spain.	On all sugars . . . . .	5.20
Denmark.	“ “ . . . . .	3.80

Duties are levied on sugars in all other sugar producing countries, ranging from about 2 cents to 7 cents per pound.

THE NICARAGUA CANAL.

IN a recent issue of this journal (March 15th last), in discussing the advantages likely to accrue to Canada through the building of the Nicaragua Ship Canal, it was shown what some of these advantages would be, and how they would affect Canadian commerce. It was shown that the canal lies in an almost straight line drawn between Great Britain and Australia; that the difference in distance between the Canadian cities of Halifax, N. S., and St. Johns, N. B., and Boston and New York and the canal, is quite small, and that thousands of miles of distance would be saved by the Nicaragua route over that around Cape Horn, in all ocean voyages between American and European Atlantic ports, and all ports on the west coasts of North and South America, China, Japan, India, the Hawaiian Islands, Australia and New Zealand.

Since the publication of that article, the Nicaragua Canal Company, who are exploiting the construction of that canal, have begun work upon it and are making commendable headway with it; and a recently published pamphlet issued by the company gives some valuable information concerning it. One part of the pamphlet is devoted to a description of the engineering work upon the canal, and another part to a recital of the climatic and other advantages in which Nicaragua is

pre-eminent. The canal traverses the lowest depression of land in the range of mountains which extends from the Arctic Ocean to Cape Horn. This depression is occupied by the large inland sea of fresh water, Lake Nicaragua, and by its outlet, the San Juan River. The western border of the lake is within twelve miles of the Pacific coast, from which it is separated by a low divide of 42 feet. The lake is 110 feet above sea level. It drains towards the Atlantic Ocean through the river. This great natural feature is to be utilized in the proposed canal, both the lake and the river being navigable throughout most of the route proposed for the canal. Following is an extract from the pamphlet :

"The details of work to be done are, roughly, a break-water at Greytown, on the Caribbean Sea, dredging thence to the westward, 10 miles, through alluvial ground; then a lock of 31 feet lift. At 2 miles beyond there will be a second lock or double lock of the combined lift of 75 feet, and a dam across the small stream, Deseado, above which will be a basin affording  $4\frac{1}{2}$  miles of free navigation; then a rock cut about  $2\frac{3}{4}$  miles in length, followed by 12 miles of free navigation in the valleys of two small rivers, the San Francisco and the Machado. Here the water will be raised by dams and embankments, and the basins will connect directly with the San Juan River above a large dam across that river, which will raise the surface level in the river and lake and secure additional free navigation of  $64\frac{1}{2}$  miles in the river and  $56\frac{1}{2}$  miles across the lake. On the western side of the lake the canal enters a cut of slight depth in the earth and rock, 9 miles long, issuing thence into the Tola basin, with  $5\frac{1}{2}$  miles of free navigation obtained by damming the small stream, the Rio Grande. At this dam a series of locks lowers the level 85 feet, and the canal proceeds in excavation down the valley of the Rio Grande, a distance of 2 miles, to the last lock, a tidal lock of 20 to 30 feet lift, below which the canal enters the upper portion of the harbor of Brito,  $1\frac{1}{2}$  miles from the Pacific Ocean.

"From ocean to ocean the canal will be 170 miles long. There will be 16 miles of excavation on the east side,  $11\frac{1}{4}$  miles on the west,  $\frac{3}{4}$  mile for 6 locks, making a total excavation of 28 miles. There will be a total navigation in the several basins now existing and to be constructed, of 21 miles. Free navigation will be had in the San Juan River of  $64\frac{1}{2}$  miles, and in Lake Nicaragua of  $56\frac{1}{2}$  miles, a total of 121 miles. With the exception of the rock cuts in the eastern and western divides, the canal in excavation will be at all points wide enough for two ships to travel in opposite directions. Through the basins and in the lake and river vessels can pass each other and navigate with entire freedom.

"The traffic of the canal will be limited only by the time required to pass a lock. On the basis of 45 minutes as the time for this operation, and that but one vessel shall pass in each lockage, the number of vessels which may pass through the canal in one day is calculated at 32, or in one year 11,680; which, based on the average tonnage of vessels going through the Suez Canal, will give an annual capacity for traffic of over twenty million tons. The locks, however, are 650 feet long and 70 feet wide in the chamber, and two vessels, each of 2,000 tons displacement, can be passed in one lockage, thus materially increasing the estimated capacity. The time from ocean to ocean by steamers is estimated at twenty-eight hours, which includes one hour and twenty minutes for possible detention in narrow cuts."

#### TAX EXEMPTIONS.

THE value of real estate and buildings thereon in Toronto in 1889, exempt from all taxation, amounts to \$16,041,150, which, at  $14\frac{3}{8}$  mills on the dollar, the rate of taxation this year, amounts to \$230,591. The assessments on real estate this year are upon an appraised valuation of \$116,283,077.

Toronto University is exempt on assessment of \$977,300 on buildings only, and Upper Canada College on \$477,600 on buildings only, to say nothing of the other very valuable real estate they own.

Following is a summary of real estate tax exemptions in Toronto in 1889 :—

Dominion Government.....	\$1,833,204
Ontario Government.....	3,124,210
Public Schools.....	715,559
Roman Catholic Separate Schools.....	59,571
Roman Catholic Church Property.....	1,158,217
Protestant Churches Property.....	3,130,108
Salvation Army Property.....	94,934
City Property.....	2,301,803
Universities and Colleges.....	2,592,441
Charitable Institutions.....	438,386

The following shows the value of property held by the leading religious denominations in Toronto, exempt from taxation, in which are included churches, schools, missions and vacant lands, but not orphanages or colleges :—

Roman Catholic Church Property.....	\$1,158,217
Roman Catholic Separate Schools.....	59,571
Anglican Church Property.....	995,078
Methodist.....	837,117
Presbyterian.....	702,254
Baptist.....	229,393
Congregational.....	151,291
All other.....	214,975

\$4,347,896

The system of tax exemption in Toronto needs revision. As far as municipal protection goes—fire, police, etc.—and as far as general benefit is concerned from street and other improvements, from water and gas service, etc., all landed estate is on equal footing. All these benefits and advantages cost money, and it would be nothing more than right and just that all the property thus benefited should bear its equal and just proportion of the expense. Value is given to the exempted property here alluded to, by reason of the fact that it is located in a large and flourishing city; and it goes without contradiction that if it were located in Alaska or Labrador it would not be valued as highly as it now is. Are these advantages of any value to the owners of the property? Neither the Dominion nor the Ontario Governments contribute a dollar towards the expense of the City of Toronto, but they are quite as able to pay for these advantages as the tax payers of Toronto are to pay for the advantages to their private property. So, too, regarding the valuable holdings of the different church and educational organizations. Their property would be of but little value if it were not in Toronto; and as the general public have no voice in the management or control of these organizations—as they exist solely for the benefit of the few privileged ones, and not for the general use of the public—they should be made to contribute their just and equal share in the support of the city government. If the Roman Catholics, the Protestants, the Salvation Army, or the Young Men's Christian Association, desire to invest their money in real estate and fine buildings, they are free to do so, but the expense of the municipal care of it should be borne by them and not by the tax payers of the city generally; and it is as manifestly unfair to ask for tax exemption for this class of property as it would be to ask for tax exemption for factories, foundries, workshops and other industrial establishments. It is absolutely wrong and unfair to exempt from taxation the stately cathedral and tax the unpretentious workshop that rests beneath its shadow. One

exists for the convenience and pleasure of the few who can afford to worship there occasionally on Sundays, while the other gives employment six days of the week to those who have to toil long and hard for their daily bread. Those who can array themselves in costly apparel, and drive in fine carriages, patronize these exempted churches, while the factories and workshops are taxed chiefly and largely at the expense of those who earn their living by the sweat of their brow. The toiling masses are taxed to support universities and colleges that go untaxed, but no toiling workmen can afford to send their sons to them to be educated—that is reserved for the sons of the wealthy, who attend untaxed churches. Neither the Dominion Government nor the Ontario Government are paupers, and they can well afford to pay their share of the expense for the municipal protection of their property. Neither are the church organizations of Toronto paupers, as the figures show; and there is no reason why they should not pay taxes on their investments as manufacturers and business men have to do. Toronto possesses magnificent public schools, and in these the sons and daughters of the people—the tax-paying common people—obtain such education as they can, and which is sufficient to fit them for all the ordinary walks of life. But why should these tax-paying common people be asked to exempt the universities and colleges from taxation when these institutions can never be of any benefit to them? If rich men desire to educate their sons at these institutions, why should they not pay the taxes on them?

This tax exemption business in Toronto needs vigorous modification.

#### OUR BRITISH TRADE.

THE imports of merchandise into Canada from the United Kingdom for the six months ended with June, 1889, were valued at £2,439,594, against £2,469,637 during the corresponding period of 1888; while the exports from Canada to the United Kingdom during the first six months in 1889 amounted in value to £1,303,225, against £1,184,176 during the first six months in 1888. The total value of exports from the United Kingdom to Canada last June was £433,431, being £52,682 less than in June last year, the decrease being equal to 10.83 per cent., while for the half year the aggregate reached £2,439,594, being £29,043, or 1.24 per cent. below the amount for the first half of last year. Dealing with the various items separately, the important reduction of £17,883 is shown in the value of horses exported to Canada last June. In salt there was a slight increase, but spirits were shipped to a rather less amount. In wool the total was only £716, or £980 under the exports in June 1888. A falling off of £6,192 took place in cotton piece-goods, and of £6,574 in jute piece-goods, but in linen there was an increase of £4,443. Of silk £758 less came to Canada last June compared with the corresponding period of last year, while of ribbons apparently there were no shipments. In June last year £94 of ribbons was exported. In articles partly of silk there was an increase of £650. Woollen fabrics are responsible for a decrease of £10,654, but in worsted fabrics there was an expansion of £19,474, and in carpets of £1,880. Hardware and cutlery show a reduction of £405. With regard to the iron trade, the chief feature was the increased shipments of

railroad rails, these amounting in value to £15,135 more than in June last year. In hoops and sheets an increase is also exhibited, but in other cases there is a falling off—amounting to £8,967 in pig iron, £3,688 in bars, £14,377 in tin plates, £2,919 in cast and wrought iron, £611 in steel, £1,623 in lead, and £3,792 in unwrought tin. Amongst miscellaneous articles there were increased shipments of cement, earthen and china ware, and oil, but a decrease in apparel, haberdashery, alkali, paper and stationery. Turning to the other side of the account, viz., to the exports from Canada to the United Kingdom, an increase of £74,696, equal to 11.16 per cent., is shown in the total for the month of June last, the total being £743,648, contrasted with £668,952 for June last year. For the half-year the total is £1,303,225, being an increase of £119,049, or 10.53 per cent. Of oxen and bulls, the exports were £38,335 more last month than in June, 1888. The exports of wheat were £38,334 below the value received for the corresponding period, but in wheat-flour there was an increase of £29,963, in butter £468, and in cheese £7,434. The activity of the lumber trade was well maintained, the shipments of hewn wood showing an increase of £32,941, and those of sawn wood an increase of £12,519.

#### EDITORIAL NOTES.

THE amount of money on deposit in Postoffice and Dominion Government Savings is \$41,260,529, as compared with \$39,821,327 at the corresponding date of last year.

THE American Association for the Advancement of Science will hold their thirty eighth meeting in Toronto, beginning August 27th inst., and continuing to September 7th.

THE Boiler Inspection and Insurance Company of Canada, whose head offices are at Toronto, have obtained an amendment to their Charter, empowering them to cover the persons in charge of steam boilers insured with them against loss of life, or injury resulting from explosion of the steam boilers.

“To discontinue an advertisement,” says John Wanamaker, Philadelphia’s great merchant, “is like taking down your sign. If you want to do business you must let the public know it. Standing advertisements, when changed frequently, are better and cheaper than reading notices. They look more substantial and business-like and inspire confidence. I would as soon think of doing business without clerks as without advertising.”

WHAT well directed training schools can accomplish is illustrated in the case of the dairy-schools of Denmark. That Government has for years spent over \$50,000 yearly for the maintenance of dairy-schools. The result has been an immense improvement in dairy products, and a lively demand for Danish butter. Within twenty years Denmark’s exports of butter have increased from \$2,100,000 to \$13,000,000 per annum.

WESTWARD the Star of Empire, etc. Certain New England cotton manufacturers propose putting in a cotton plant, with 150,000 spindles, which will employ 800 people, at Kearney,



Nebraska The subsidy asked is \$250,000. The local committee having the matter in charge has raised \$150,000, and there are two land companies to hear from. The feeling among business men of Kearney is that the mill will be under construction in a short time.

It has been discovered that the use of gasoline stoves is a sure preventive against cockroaches. Mr. E. H. Stockstrom, of St. Louis, Mo., says so. He says that before he began the use of gasoline stoves in his family he was terribly harassed with cockroaches, but since that time the pests have disappeared, while they are as bad as ever in neighboring houses where gasoline stoves are not used. He says that this is the experience of others beside himself.

THE Westinghouse Electric Light Company are making extraordinary efforts to prove that its apparatus is not deadly enough to kill criminals. Everybody knows that electricity will kill, and the electric company's evidence to the contrary will not be accepted by the people. Everybody knows that steam will kill, and yet that fact does not seem to affect the trade in steam engines. There is no good reason why electric companies should endeavor to create a false impression about their fixings. —Hamilton *Spectator*.

AMONG the passengers on a steamer that recently touched at Victoria, B.C., on an excursion from San Francisco to Alaska, were a number of wealthy Americans, including Hon. Alexander Badlam, who is engaged in writing a compendium of the varied and wonderful resources of Alaska. The party are supplied with a photographic outfit and a complete printing office, from which a daily paper will be issued. Mr. Badlam was at one time treasurer of the American-Russian Fur Company, and it was he who first suggested the purchase of Alaska by the United States from Russia. His forthcoming work will be profusely illustrated from photographs taken on this trip.

A COTTON manufacturing company at Fall River, Mass., propose to erect a cotton factory on a different plan from anything that has been attempted there before. Instead of story upon story, as heretofore, the plant is going to be spread out on the ground. A one-story structure, fitted with a monitor, is to be erected, and the spinning, weaving, carding etc., will all be located on one floor. The building will be unusually wide, and so constructed as to admit light from above, after the fashion of an English weaving shed. It will be furnished with 25,000 spindles, and the estimated cost is much less than the average factory of the same producing capacity. The advantages to be derived are better light and less liability of the yarn to be affected by atmospheric changes.

On her last trip from Liverpool to New York the steamer City of Rome took on at Liverpool a number of non-union firemen, there being a strike among the union firemen at that port, which prevented the shipping of union men. While the steamer was at Queenstown a gang of union men boarded the vessel, and a bloody fight followed between the rival firemen. Several of the non-union workmen were seriously injured, and one of them was so cut up by knives in the hands of the union men that he was removed from the vessel to a hospital in

Queenstown hovering between life and death. The whole band of union men were taken in irons from the steamer to the Queenstown jail. It remains to be seen if proverbial British justice will be meted out to these murderers.

MANY American cotton factories are turning out coarse or medium goods at as low cost as the mills of Great Britain. The English still have the lead in the production of the finer stuffs. But with the growth of the industry at the South, where nothing but the coarser grades has yet been attempted, continued success for the New England industry must apparently depend in great measure on further development in the direction of fine fabrics. This seems to be realized more generally than ever before by the eastern manufacturers. Unusual demand for fancy looms and for cotton of the longest possible staple, has been observed of late, and in some of the New England factories goods fully equal to the best foreign productions are now turned out. Those capitalists who thus improve the present period of prosperity to prepare for more successful competition with the English mills when hard times come around again, will unquestionably find that they have done wisely.—*Bradstreets*.

WHEN the scheme shall have been solved to make the tin in the Black Hills available, by freeing it from the mica in combination, we shall have tin enough for the world. This will be done; and whether the tin shall be transported for manufacture to Chicago or to several places, it is only a matter of time when we shall cease to be importing English tin obtained at an annual cost of over \$20,000,000, which is more than \$60,000 for every working day of the year. It has been repeatedly shown that if our plates were produced here it would give employment to 70,000 people. It would make a market every year for 850,000 tons of iron ore, 300,000 tons of limestone, 1,500,000 tons of coal, 300,000 tons of pig iron, 25,000,000 bushels of charcoal, 5,000,000 pounds of lead, 25,000,000 pounds of tin, 10,000,000 pounds of tallow, 3,000,000 pounds of sulphuric acid, and about 10,000,000 feet of lumber.—Albany, N.Y., *Evening Journal*.

A NUMBER of Toronto manufacturers are forming a stock company, with a sufficiently large capital, with the intention of purchasing a block of land either in this city or contiguous to it for manufacturing purposes, the idea being to secure to themselves the increased value of the real estate contiguous to their factories, instead of allowing this to go to land speculators and other owners of adjoining property. It is understood that when the scheme is perfected and the title to the land obtained, several of these manufacturers propose to erect large and suitable buildings on it, adapted to their manufacturing business, and also to erect all the necessary cottages, etc., for the accommodation of the workmen who may be in their employ, for which merely nominal rents will be charged. It is said that several American manufacturing concerns are interested in the scheme, and that it is intended by some of them to start Canadian branches of their establishments on this property.

ARRANGEMENTS are now being made in Great Britain for supplying that country with fuel-gas generated at several points and piped to the places of consumption. Some American engineers have declared it to be impracticable to pipe gas from coal regions to cities one hundred miles distant. Englishmen are now about to prove that it is both practicable and profitable. It is, however, still an open question whether greater

profit may not be found in consuming the coal and producing the power in the coal regions and then transmitting the power itself to the distant points. The promise seems to be that the methods of handling electricity will yet be so much improved that power may be carried by means of it without too great loss of energy to the places where it is needed. When this result shall be reached the waste water-powers of the earth, including, perhaps, the surf-beat of the ocean and the tidal movements of the streams, may possibly be made available for the industrial uses of man.

At a meeting of the directors of the Industrial Exhibition, held last week, Secretary Hill was instructed to invite Sir John Macdonald to open the exhibition. The Governor-General has promised to pay an official visit, if duties permit. Electric lighting contracts were let to the Ball, Reliance and Heisler companies, who will place incandescent lights in various colors beneath fountains and foliage plants in the Horticultural buildings for effect. A contract was also let to the Toronto Electric Light Company. The electric railway will be in operation as last year. The applications already in cover all the available space in the Implement, Stove and Carriage buildings, while the space in the Main and Machinery buildings is nearly all taken up. There will be a change in the system of entering. Six offices will be erected at each gate, where all tickets are to be purchased, and these will be printed each day, and will remain good only for the day of issue. There will be no dropping of quarters in the turn-stile as before.

At a recent meeting of Danish naval officers, Herr A. Köhl gave an account of an apparatus invented by him for signaling under water between ships. The speaker had noticed that a sound is heard clearer through water than air, and that it travels in a straight line in all directions around the point of issue. If a bell, for instance, be struck sharply with a hammer under water, the sound would be heard for some five miles. The saline contents of the water has no effect upon this phenomenon. The apparatus constructed by Herr Köhl consists of a bell with an automatic hammer and an acoustic receiver, both fixed upon the ship beneath the surface of the sea. The receiver is pail shaped, three feet in diameter and one foot in depth, and is connected by electric wires with a receiving table on board. By an ingenious arrangement of dipping needles the direction of an approaching vessel is indicated by the sounding of a gong, and on the signals being repeated as the vessel proceeds its steering course may be ascertained. Practical trials are shortly to be made with the apparatus.—*London Iron.*

THE following high-toned and dignified specimen of American journalism is from the *Australasian and South American*, of New York:

"Now that Canada has passed the Weldon extradition act, embezzlers and other criminals will have to find some other refuge in which to spend their ill-gotten wealth. South America has proved a haven of refuge for some of these gentry. It would have been worth a good deal of money to this country if the retroactive clause had not been stricken out, but it is presumed the Dominion authorities did not wish so much good money to leave them."

For years and years efforts have been made to induce the United States Senate to ratify treaties looking to the surrendering of criminals, but these efforts have always failed. Canada does not desire to harbor thieves and scoundrels from other countries, and it would have been worth a good deal of money to the United States if it had not so steadfastly refused to ratify treaties looking to the extradition of them. Perhaps the time may come when the Greater Ireland in America will not wield quite so much power in American politics—should that time ever arrive the United States will consent to an extradition treaty—not before.

A DISTINCTIVELY new era in the South's iron and steel history is marked by the organization of an English company, composed of the leading iron and steel makers of Great Britain, to build extensive steel and iron works, including four furnaces, steel rail mill, rolling mill, etc., at a new town at Cumberland Gap, on the dividing line between Tennessee and Kentucky. The name of the town is to be Middlesboro, Ky., and for over a year the work of buying mineral lands, preparing for railroad connections, etc., has been vigorously but quietly pushed by the American Association (limited), which is the name of the parent company. Over \$4,000,000 in cash have already been paid out, and upwards of 60,000 acres of mineral lands purchased, and over \$7,000,000 more have been pledged for new enterprises. In addition to the contracts for furnaces, steel works and rolling mill, pipe works, etc., to cost in the aggregate \$3,000,000, there will be a \$750,000 hotel and sanitarium, in which many of the leading physicians of Europe and America are interested, three hotels to cost \$200,000, four coal mines, representing \$500,000, and a \$500,000 tannery. Other enterprises, including electric light and gas works, sawmills, brick yards, railroad shops, etc., have been arranged, and the total investments already secured aggregate \$10,000,000.

In his recent address at the annual meeting of the Canadian Bank of Commerce, Mr. B. E. Walker, the General Manager, discussing the great lumber interests of Canada, said:—

"The Southern pine, now thoroughly introduced into the Eastern United States markets, is brought into competition with our pine to an extent which may sooner or later prove quite serious. For outside work it is not of much use, but for cheap interior building it is being used more and more every year. There is no fear that it can displace the finer Northern pine except to a limited extent; but the great power of lumber production in the Northern and Southern States, added to our own, makes the danger of over production greater and greater every year."

Mr. Walker speaks as though the introduction of Southern pine into the Eastern markets of the United States was a recent event; while the fact is that that trade in that section is about as old and well established as any that Canadians ever enjoyed there. Time was, and the fact is true yet to a great extent, that Southern yellow pine was in high favor there—not for "cheap interior building" as Mr. Walker suggests, for it was always too valuable for such purposes—but for fine flooring and also for decorative purposes; and for ship building purposes also. At one time the finest and fastest clippers that ever sailed the ocean were built in New England shipyards, and most of these—notably the "Great Republic"—were constructed largely of yellow pine, grown in North Carolina and sent from Wilmington; deck beams, ceiling, outside planking, etc.; Georgia and Florida also enjoying the trade to a large extent.

POLICE MAGISTRATE DENISON, of Toronto, is reported as objecting to Sunday street car service in this city chiefly on the ground that the employees of the street railroads would be overworked. He refers to the condition of a driver on a Sunday street car in Detroit, who worked fifteen hours a day for two consecutive weeks, and twelve hours a day for each third week, including Sundays, and who but seldom ever saw his children awake. No such hours of labor are required of street car employees in Toronto, even where there is no Sunday service, nor should there ever be, even if the Sunday service should be undertaken. Colonel Denison suggests that it would be a popular move, and one which would meet the demand for greater outing facilities on Sundays in Toronto, to have several large steamers added to the ferry service, by which the masses might be enabled to visit the Island. Perhaps Colonel Denison thinks that employees on ferry steamers would not be as liable to fatigue from Sunday work as street car drivers. It is rather singular that so much objection should be raised to Sunday street car service, while nothing is said regarding the Sunday ferry boat service.

THE Paris (France) Compressed Air Company is an organization successfully engaged in transmitting power to hundreds of industrial establishments in that city. They have a great central station where, by means of ordinary steam air compressing engines, air is compressed for its many customers. The air so compressed is sent through thirty miles of main pipes at a pressure of from 80 to 90 pounds per square inch, and is utilized to the extent of nearly 2,000 horse-power in large and small industries. The work of compression consumes 50 tons of coal a day. The mains through which the air is forced are of 12 inches internal diameter. It is carried to every part of Paris, and sold at moderate rates to consumers. These employ engines of special form, provided by the company at a certain rental, or at outright sale. The power is used for every conceivable purpose, from the small energy required to run a sewing machine up to the force demanded by a great printing establishment or an electric light plant. It has been found especially serviceable for use upon elevators, and in places where power is required only occasionally. The system has found wide favor, and is making money, while its customers are avoiding waste, trouble and useless expense.

THE National Electric Light Association have sent out from their New York headquarters a circular to all electric light companies, asking for information as to the experience had with insurance companies. In their circular the committee of the association having this matter in charge say:—"A prejudice has been created among insurance companies against electric light plants as insurance risks, in consequence of which rates have steadily advanced until the tax has become oppressive. In addition to this a large number of companies have placed them upon the prohibited list. A committee was appointed by their association at the annual meeting in Chicago, in February last, to devise ways and means to effect, if possible, a change in the position and views of the insurance companies. We sincerely believe, if the fact was known, that the premiums paid on electric light property are sufficient to pay all losses and expenses, and still leave a good surplus; that all first class insurance companies could be induced to write them

freely at lower rates. We have undertaken to secure statistics sustaining such belief. We trust that all electric light companies will cheerfully lend their aid and assistance to any plan which will lessen the cost of insurance, as the result would be beneficial to all concerned."

A FEW years ago a royal commission on railways was appointed in Canada. This commission, after taking a considerable amount of testimony, has presented its conclusions in a report which has been recently issued. Some of the facts and conclusions, which are summarized in the *Montreal Gazette*, are interesting. It appears that railway construction and operation began in Canada in 1837, when sixteen miles were opened for traffic. The total mileage in Canada at present is over 13,000 miles, and the tonnage of freight carried last year was 17,173,700 tons. According to the commission's figures the cost of railway building is about the same in Canada as in the United States, the cost being lower in those two countries than in any other. The cost is greatest in Great Britain, and next highest in France. In accommodation proportionate to population, the commission reports, Canada came next to the United States in 1884, and is now in advance of it—there being a mile of railway to every 470 or 480 inhabitants. In average charge for freight, Canada's showing is said to be 93c. per ton, as compared with \$1.04 in the United States, \$1.50 in Holland, \$1.70 in Germany, \$2.00 in England and \$2.14 in France. The lowness of the rate in Canada is ascribed to competition by water and to competition by American lines at all points accessible by Canada's navigable waters. The commission devotes some space to a statement of the importance of maintaining and developing the foreign traffic passing through Canada. Among other things considered by the commission is the practical working of the principle of controlling railway corporations by State-appointed commissions. The conclusions of the commission on this head are favorable to the system.

WITHIN a day or two the Steamer San Mateo will arrive at this port with 4,300 tons of coal from the new mine which was opened a few months ago on Vancouver Island, sixty miles from the Wellington mine. She will be followed in a few days by the San Pedro, and she again by a third steam collier, each carrying about 4,000 tons. These three vessels will henceforth carry the output of the new mine to the wharves of the Southern Pacific Company, which is its chief owner. The coal is said to be even stronger than the Wellington, and a suitable fuel for locomotives. It is expected that this new supply will relieve the railroad from the necessity of using Scotch or Australian coal. Regret will be felt that this coal is not found on American territory, and a new reason will be furnished for the annexation of British Columbia; but at the same time the people of this State will have reason to congratulate themselves on the disappearance from the coal market of the largest consumer in it. It was on the wants of the railroad that the owners of the Wellington mine banked when they put up a job to squeeze coal consumers here. Whenever the price of wheat in California kept ships away from this port, or a strike in the Australian mines cut down their output, the Dunsmuirs were able to corner the coal market, because they knew to a pound how much the railroad required. If the new mine had been opened a year ago, housekeepers in this city would never have paid \$18 a ton for their Wellington coal. To the railroad company the new source of fuel supply will make the difference of a saving in the cost of fuel, and, what is of equal importance, of a steady, uniform and reliable supply. To this State, which

# F. E. DIXON & CO.

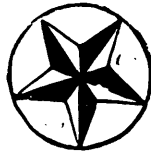
MANUFACTURERS OF

TO MILL OWNERS  
And Manufacturers.

USE ONLY

F. E. DIXON & CO.'S

STAR  
LEATHER



RIVET  
BELTING.

READ THIS:

Shepherd Street,  
Toronto, Nov. 16, 1888.

Messrs. F. E. DIXON & CO.  
Gentlemen,

The eighteen-inch Driving Belt we had from you in July, 1879, has given us thorough satisfaction. It has done all the work in our factory ever since, and looks as if it were good for the next ten years.

Yours truly,

WM. BURKE  
For Langley & Burke.

BELTS for Saw Mills,  
for Electric Light Works,  
for Hard Places.

Lace Leather, Belt Oil, etc., etc.

F. E. DIXON & CO.

L  
E  
A  
T  
H  
E  
R

B  
E  
L  
T  
I  
N  
G

70 KING STREET EAST,  
TORONTO.

**GEO. F. HAWORTH & Co.**

**MANUFACTURERS OF**

**LEATHER BELTING**

**BELTS MADE ANY WIDTH,**

**LENGTH OR STRENGTH REQUIRED**

**SEWED, RIVETED OR PEGGED.**

**ALSO AGENTS FOR**

**HOYT'S AMERICAN PURE**

**OAK-TANNED LEATHER BELTING.**

**11 JORDAN STREET,**

**TORONTO.**

has barely 4,000 miles of railroad in operation, when States like Illinois, with one third our area, have 15,000 miles, this is a matter of consequence. The due development of California will call for the construction of not less than 5,000 miles of new railroad in the course of the next ten years. Everything which facilitates that construction and cheapens the cost of operating the new lines when they are built, is to the public advantage. One leading reason why our railroad mileage is so much less than that of other States with resources inferior to ours, is that fuel costs our roads just about twice as much as it costs the roads of the east.—San Francisco, Cal., *Call*.

KUHLOW's *German Trade Review*, speaking of the International Sugar Commission whose labors in London recently came to a close, the representatives expressing the hope that their efforts may attain the result that they desired, says:—

"This hope may only be realized when the whole of the sugar exporting countries are induced to come to an agreement, for it is not to be concealed that should one country raise objections the rest will withdraw. It is simply a question of whether the Governments are prepared to abolish the sugar bounties, and only to grant as a drawback the actual amount of tax paid. The German Government is willing to revert to the system by which the bare amount paid is refunded—that is to say, only to tax the sugar manufactured in the country when it is consumed here, and to leave it duty-free when it is intended for abroad, and as then there is hardly any tax paid there will be nothing to refund. The history of sugar bounties has a serio-comic character. A Government is desirous of doing something for an industry which it regards with particular favor. And it therefore offers a premium, by which means a splendid opportunity for doing an export trade is afforded, and this is soon called into life. It is an expensive business for the State, but it has, ostensibly, advantages for the industry concerned, which enable it to obtain a dominant position in international markets. Things go on merrily so long as this Government remains the sole one pursuing that course. It, however, requires no demonstration to prove that the manufacturers in the same line in the other countries will demand—and from their point of view with justice—that their respective Governments place them in a similar position to meet international competition. Finally, all the Governments find themselves compelled to accord the same protection to the manufacturers. The advantages enjoyed by the manufacturers of one country are, therefore, equal to those enjoyed by the manufacturers of the others, and hence, according to the principles of the multiplication table, it means that one is no better off than the rest, and that in the international market all are exactly in the position as if no premium had been granted. The result is that each Government is by degrees compelled to withdraw huge sums from the State treasury, no longer to give an advantage to its manufacturers, but only to prevent the latter from being injured by their foreign competitors. The industry itself has neither advantage nor disadvantage, the State suffers a huge loss, the sole advantage in the affair is reaped by the sugar consumers in the world market, and the English consumer in the first rank, all the countries in Europe striving to outbid one another in order to supply England with cheap sugar."

The investments that foreign capitalists are making in the United States are attracting a great deal of notice; and they indicate that these investors have great faith in the prosperity of the country and the stability of its institutions. The *American Economist* has an excellent article on this subject from which we take the following:—

It is among the remarkable phenomena of the present day that capitalists no longer limit their investments to enterprises protected by their own government. The facilities for inter-

course which have effaced time and distance have gone far to obliterate those jealousies and fears which formerly were entertained by men of different nationalities toward each other. Especially within the past ten years has the effect of this change been shown in increasing investments of foreign capital in corporate and individual enterprises in the United States. Within the past year have these investments grown to such magnitude as to command wide attention. Conservative estimates place the investments in American industries during that time at more than \$100,000,000. Many of these investments are in stocks and bonds bought in the market, in which case they do not attract attention. Others take the form of purchases of cattle and ranches, the construction of factories, the organization of trusts to control important industries, loans upon securities and temporary investments of various kinds. Nearly all of these are public by their nature, and become known to the people through the press. No doubt the larger part of the European capital transferred to this country during the past year has been invested in some of the many trusts recently organized. The advantages of the movement of capital to this country are many and obvious. It promotes the prosperity of the people by developing industrial enterprises which otherwise would lack adequate capital. A further advantage of the movement of capital to this country is that it lowers the average rate of interest in the United States. To this cause chiefly may be attributed the great decline in prevailing rates of interest all over the United States in the past twenty years. Twenty years ago 7 per cent. was the legal rate in New York State, and in a close market it not uncommonly rose to 9 or 10. Of late the rate in New York city rarely is as high as the legal rate of 6 per cent. In fact, 6 per cent. would now be regarded as the effect of a tight market, while 4 to 5 per cent. is as much as a borrower on good standing ought now to pay on an average market. The facility with which foreign money is brought here, and the amount of it now here ready for investment, serve also the important purpose of preventing the long duration of money panics. To these many advantages, resulting from large foreign investments here, may be added the weighty consideration that, so long as such investments continue, they will constitute a standing barrier against the interruption of friendly relations between the United States and foreign countries. The fact that it would be within the power and the right of the United States to confiscate the property in this country of any citizen of a State at war with this nation will prove an irresistible argument for peace. A thousand millions of English money invested in the United States would go far toward paying our part of the cost of a war with England.

A FEW days ago Mr. T. V. Powderly, the professional labor agitator, made a violent attack upon Mr. Corbin, president of the Reading Railroad Company, because that gentleman had declared that he would not have in his company's employ any man who belonged to any labor organization; regarding which the *New York Indicator* says:—

Mr. Powderly's complaint is that an employer insists that the men he employs shall receive their orders from him, and not from an outsider like Mr. Powderly. No man can be compelled to work for an employer of labor, nor as Mr. Powderly has learned to his disgust, can an employer be compelled to employ men whom he does not want. We confess that we see less of a menace to labor in the assertion of the right by an employer to decide whom he shall or shall not employ, than in the assertion of the right by paid demagogues to say whom some other person shall or shall not employ. There is less of tyranny and of injustice to labor in the demand of an employer that his workmen shall wear the badge of no organization, than in the demand of labor leaders that no man shall be allowed to earn his living who does not wear the particular badge recognized by such leaders. We have seen what professional labor,

ruled by such men as Powderly, would do, if it could, with fellow workmen who did not submit to their dictation. The man who would not submit his neck to the yoke would be deprived of all work, ostracized, boycotted, starved, and even murdered. When Mr. Powderly can show that any employer has ever attempted to go to the lengths, in order to prevent men working, that Mr. Powderly's associates—if he himself did not do it—have gone, then Mr. Powderly's criticism will be worthy of some consideration. It is not now.

THE idea suggests itself to *Progressive Age* that gas companies and builders of gas engines might unite on some practicable plan for renting out gas engines that would enormously increase the consumption of gas and the use of this kind of power. We are told that electric motors are put out in this way, and presume it leads to the introduction of a great many of these machines that would not be used if they had to be bought outright. And no doubt a large proportion of those so rented out are eventually bought by those who have rented them, after actual use has demonstrated their utility. The same result would undoubtedly follow the renting out of gas engines, and the fact that one was used with pronounced success in a locality would lead to the introduction of others, some of them by direct purchase, and others on rental. The latter would lead many desiring but temporary power, say for two, four, six, or even twelve months, to rent a gas engine, and so become, for the time being, large consumers of gas. And it is more than likely that a large percentage of these would become permanent users and eventually buy the engine used. The plan of renting out gas stoves, and in some cases of giving the free use of the stoves, in order to accomplish the sale of gas, has proved very profitable to most, if not all, of the companies that have gone into it, by creating a large increase in the consumption of gas, and this mainly during daylight hours, when the product of the works is not required for lighting purposes. The demand for running gas engines would be mainly during day time, and, in fact, largely between the hours when gas stoves were being run for ordinary cooking purposes; hence, the works could meet this demand with equal convenience. It would seem, therefore, that investigation into the practicability of some arrangement of the sort outlined might be worth while.—*Progressive Age*.

### SPECIAL ADVERTISEMENTS.

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

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

### KNITTING CREELMAN BROS., Georgetown, Ont MACHINES.

200-LIGHT GAS MACHINE for sale, only used two winters. Apply Wagner, Zeidler & Co., West Toronto Junction. (6t)

FOR SALE—at Merrickville, Ont., within five minutes' walk of the C.P.R. station or the Rideau canal wharf, a first-class Water-Power with substantial buildings suitable for roller mill or other heavy machinery. Apply to MRS. M. P. MERRICK, Merrickville, Ont.

FOUNDRY AND MACHINE SHOP FOR SALE IN DUNDAS—Formerly occupied by Thomas Wilson and Co., and lately by Cochrane Roller Mill Co., very suitable for manufacturing purposes; steam engine, boiler (new), also water power; a quantity of machinery and shafting in building. Apply to Thomas Wilson, Dundas; Kingsmill, Cattnach & Symons, Toronto; or Bruce, Burton & Bruce, Hamilton.

I WILL give a free deed of ten lots on the Scugog River to anyone who will start a manufacturing establishment employing a certain number of hands. A. D. MALLON, Lindsay, Ont.

MR. J. THEO. ROBINSON, publisher, Montreal, has sent us copies of two of the latest issues from his press: "Picked up in the Streets," a romance from the German of H. Schobert, translated by Mrs. A. L. Wister; and "The Monk's Wedding," by Conrad Ferdinand Meyer. These books are of Mr. Robinson's "Popular" series. They are printed with large, new type on good paper, and are neatly enclosed in ornamented paper covers. Other books recently published by Mr. Robinson include "A Modern Mephistopheles"; "Steadfast"; "A Brother to Dragons"; "Virginia of Virginia"; "Silken Threads"; "The Battle of the Swash," etc.

THE Humbolt Publishing Company, 28 Lafayette Place, New York City, have sent us "The Story of Creation; a Plain Account of Evolution," by Edward Clodd, F.R.A.S. This is, we think, one of the very best books yet issued by this company, and those who have neither the time nor the courage to read the more voluminous works on the subject of evolution, will be much pleased with the concise and vigorous account given in this book. There are over eighty illustrations, tables, etc., which illustrate the matters to which they refer. We are also under obligations to the Humbolt Publishing Company for "The Pleasures of Life," Part 2, by Sir John Lubbock.

THE D. LOTHROP Company, Boston, Mass., publishers of that sterling juvenile monthly magazine, *Wide Awake*, are offering an inducement for subscriptions to that publication that ought to attract the attention of all lovers of good literature. They offer for \$4 to send to any person *Wide Awake* for one year—from any date—and George Eliot's complete works, consisting of six large 12 mo. volumes, bound in cloth; the regular publication price of which is, for *Wide Awake*, \$2.40; and the six books, \$10. The books include "Adam Bede," "Romola," "Felix Holt," "Middlemarch," "Daniel Deronda," "Silas Marner," "The Mill on the Floss," "Scenes from Clerical Life," "Theophrastus Such," and "Jubal and other Poems." *Wide Awake* has no superior as a companion, entertainer and educator for young people and the family.

"PORT ARTHUR ILLUSTRATED."—Mr. J. A. Carman, of the *Manitoba Colonist*, of Winnipeg, has sent us a copy of a beautifully illustrated description of Port Arthur, Man., its products, resources and attractions; the aim of the work being to present the resources and attractions of that flourishing Canadian town and its tributary district in an accurate, reliable and readable form. We are informed that this is the first work of the kind ever issued in Canada, and also the most beautiful, complete and expensive. It is very rare in publications of this kind that such a large amount of artistic work is employed as is presented in this brochure. The photo work was done mostly by Messrs. W. J. Barrie and J. F. Cooke, of Port Arthur; the engraving by the Moss Engraving Company, of New York; the paper is the product of the Canada Paper Company, of Montreal, and the letter-press and make up by the *Winnipeg Commercial*.

THE Detroit & Cleveland Steam Navigation Company, through Mr. E. B. Whitcomb, their general passenger agent at Detroit, Mich., have sent us a beautifully illustrated guide book descriptive of the many lake tours to be made via the picturesque Mackinac Island, which is one of the grandest and most romantic spots on the American Continent. This island is reached by the magnificent steamers of this Company, which are among the largest, swiftest and most luxurious on fresh water, and built especially for the accommodation of the summer tourists' travel. These steamers stop at Mackinac Island both going and returning, giving those who wish to return on the same trip from four to six hours in which to view the curiosities and wonders of the place; and tourists can return by one of these steamers every thirty-six hours. The round trip occupies four and a half days from Cleveland, or about sixty-six hours from Detroit. This guide book and further information can be obtained from Mr. Whitcomb at Detroit.

# Manufacturing.

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

**FIRE** in the Ledoux Carriage Works, at Montreal, July 20th, did damage to the extent of \$2,000.

**THE** saw mill of Mr. W. P. Cameron, at Maitland, N.S., was destroyed by fire July 27; loss, about \$7,000.

**MR. JOHN GETTLER'S** saw-mill at Fullerton Corners, Ont., was destroyed by fire July 24th; loss, about \$7,000.

**THE** barrel factory of the Sarnia Oil Refining Company, at Sarnia, Ont., was destroyed by fire July 18th; loss about \$3,000.

**MR. W. H. LAW**, proprietor of the Central Bridge Works, Peterboro, Ont., is building an addition to his works 150 x 150 feet.

**THE** Alberni Saw Mill Co. have ordered the necessary engine and machinery for the mill they are about to establish at Alberni, B. C.

**MESSRS. STAHLSCHMIDT & Co.**, Preston, Ont., manufacturers of office furniture, etc., are building a 96-foot brick chimney to their works.

**FIRE** in the nail factory of the Pillow & Hersey Manufacturing Company, Montreal, on July 22nd, did damage to the extent of \$1,000.

**THE** Royal City Mills, Westminster, B.C., recently made a shipment of 800,000 feet of lumber on the ship *Macduff*, for Liverpool, England.

**MR. PAUL LEA**, Moncton, N.B., manufacturer of doors, sash, etc., who recently enlarged his factory, is introducing new and improved machinery.

**MESSRS. J. W. BEECHIE** and Joseph Wagner, Guelph, Ont., have formed a copartnership for the purpose of conducting a tannery business at that place.

**THE** Manitoba Milling and Brewing Company, of Carberry, Man., will build an elevator at their mill this season, with a capacity of 35,000 bushels.

**MR. J. J. McNEILL**, of Gravenhurst, Ont., owns and operates a shingle mill near that town which produces 70,000 shingles a day, giving employment to 20 hands.

**THE** Chemical Manufacturing Company, Brantford, Ont., have been organized with a capital stock of \$12,000 for the manufacture of acid phosphate, acetic acid, etc.

**THE** Wm. Hamilton Manufacturing Company, of Peterboro, Ont., are about to erect another large addition to their premises—a new brick moulding shop 200 x 50 feet.

**MESSRS. E. LEONARD & SONS**, London, Ont., have recently supplied a 25 h. p. steel steam boiler to Messrs. Lymburner & Matthews, manufacturers of brass goods, Montreal.

**OPERATIONS** have been resumed in the Cornwall Elastic Web Works, at Cornwall, Ont., under the management of Mr. Charles Ott, late of the Gloucester Cotton Mills, Gloucester, N.J.

**THE** Quebec Construction and Navigation Company is being formed in the city of Quebec with \$100,000 capital stock, for the purpose of building steam and other vessels in that city.

**THE** Laurie Spool Company, whose headquarters are at Montreal, have been incorporated with a capital stock of \$15,000 for the purpose of manufacturing spools, bobbins and wooden ware.

**MESSRS. COWAN, SHAW & PATTERSON**, Alberni, B. C., under the name of the Alberni Lumber Company, will build a saw-mill at that place with capacity to cut 100,000 feet of lumber per day.

**MESSRS. KEMPTON BROTHERS**, Liverpool, N.S., have recently imported a thorough outfit of new machinery for their bottling establishment, with capacity to fill 40 dozen bottles per hour.

**THE** Westport Woolen Mills at Westport, Ont., of which Mr. Joel Clark is proprietor, were established 15 years ago. There are six looms in operation, the products being tweeds, blankets, etc.

**MESSRS. NICKLE, DYMENT & Co.**, Gravenhurst, Ont., own and operate three lumber mills at that place, the capacity of which is 120,000 feet of lumber, 60,000 shingles, and 50,000 lath a day.

**MR. ALEXANDER STEWART**, St. John, N.B., is increasing the capacity of his soap works, and will include the manufacture of fine lines of toilet soaps. He is adding the necessary machinery and appliances.

**AN** anonymous donor has presented a peal of eight bells to St. Matthias church, Cote St. Antoine, Montreal. These bells are the newly invented tubular bells, manufactured by Messrs. Harrington, of Coventry, England.

**ANOTHER** large discovery of excellent coal has been made by the Crow's Nest Coal and Mining Company, in Crow's Nest Pass, of the Rocky Mountains, B. C., which shows twelve seams of coal, varying from 30 feet to two feet in thickness.

**MESSRS. W. BOULTER & SONS**, proprietors of the Bay of Quinte Canning Works, Picton, Ont., during the season just closed canned 71,000 quarts of strawberries, 12,000 of which were grown on two acres of land cultivated by Mr. M. W. Young.

**THE** J. B. Armstrong Manufacturing Company, Guelph, Ont., call attention to the "Unique" road cart manufactured by them, and of which, they inform us, there are at this time 1,300 in actual use. They solicit correspondence regarding them.

**THE** Tucker office desk and furniture factory of Messrs. Graybill & Co., Waterloo, Ont., was badly damaged by fire July 21st. The main parts of the buildings and the stock and machinery are a total loss, but the engine, boiler and drying kiln were saved.

**THE** lumber mills of Mr. Albert Heath, at Huntsville, Muskoka, have capacity to cut 100,000 shingles per day and 40,000 feet of lumber, employing about 60 men. Large quantities of deals are cut for the English market, the demand from there being good.

**THERE** is a small fortune waiting for the man who can discover some process of making the veneer used in making fruit baskets flexible without the use of steam or hot water, and thereby save the manufacturers the time now wasted in the drying of the material.

**MR. J. E. CLIPSHAM**, Gravenhurst, Ont., is one of the most prominent carriage manufacturers in that part of the country. His factory has a floor area of over 8,000 square feet, and his specialties are his celebrated wrought iron tubular axle wagon and bob-sleighs.

**MESSRS. KIRKWOOD, WYMAN & Co's** cannery, on Five-Mile Point, near Seattle, W. T., was burned on July 7th, loss \$40,000. The cannery was constructed two years ago, and when it was already for operation it was burned down. Within thirty days it was rebuilt at a cost of \$37,000.

**THE** Rathbun Company, proprietors of the Deseronto Car Works, Deseronto, Ont., have just finished the construction of 235 freight cars for the Canadian Pacific and the Canada Atlantic railway companies. They are now busy on cars for the Napanee, Tamworth and Quebec Railway.

**MR. B. S. PETTENGILL**, of the Vancouver, B.C., soap factory, is on a trip to Eastern Canada and the United States, to visit soap factories of the large cities with a view of becoming acquainted with the latest methods. He will select a stock of improved machinery to be used in his factory.

**MR. W. L. DOSSETT**, of the Dossett Manufacturing Company, of Toronto, has leased the furniture factory at Peterboro, Ont., recently occupied by the Lindsay-Seldon Furniture Company, for his concern, and will remove his company's works to Peterboro, engaging in the manufacture of furniture.

**AN** extremely close imitation of a buffalo robe is put on the market by Newlands & Co., of Galt, Ont., Canada. It is called the "Saskatchewan Buffalo Robe," and is having a large sale in Canada. It will probably also be manufactured in the United States and sold here.—*Philadelphia Textile Record.*

**THE** British Columbia Ice Manufacturing and Fish Freezing Company, of Victoria, B.C., have commenced operations. Ice for storage is not always readily obtainable in the winter seasons on the



British Columbia coast, owing to the mildness of the climate, hence the establishment of a factory for the manufacture of ice.

THE Barber & Ellis Company, Toronto, announce their readiness to manufacture all manner of account books to order, made in any style and for any business. The well known reputation of this concern is a guarantee that any work coming from their establishment will be first class in every particular. They solicit correspondence.

PAPER tough as wood is said now to be made by mixing chloride of zinc with the pulp in the course of manufacture. It has been found that the greater the degree of concentration of the zinc solution the greater will be the toughness of the paper. It can be used for making boxes, combs, for roofing, and even, it is added, for making boats.

THE Eugene F. Phillips Electrical Works, Montreal, have been incorporated with a capital stock of \$60,000 for the purpose of manufacturing and dealing in insulated telegraph, telephone and other wires and electrical supplies; generating and dealing in electricity for lighting, heating and mechanical purposes, and business incidental thereto.

THE Canada Jute Company, Montreal, who have been now about two years in their large, commodious and well equipped bag factory, are operating their works on full time on their different specialities. Their capacity is 30,000 flour sacks and 30,000 yards of packing burlaps a day. Their works include a complete outfit of machinery for bag printing.

THE Sarnia Oil Company's pipe line is now at work conveying crude oil from the Petrolea district to the works at Sarnia, Ont. With the facilities of bringing in their supply of crude, the Sarnia Company is now in position to go on steadily and regularly with the manufacture of their Northern Light brand of oil, claimed to be the best Canadian product on the market.

MESSRS. RHODES, CURRY & Co., Amherst, N.S., have been awarded the contract for the construction of the extensive additions to be made to the works of the Intercolonial Railway at Moncton, N.B. The buildings include a round house and an extensive addition to the erecting shop. Both buildings are to be of brick. The contract price is understood to be in the vicinity of \$75,000.

THE barque *Thos. S. Stowe* is at present lying in the Royal Roads ready to depart for Deptford, England. The vessel carries as cargo 250 spars for the use of the Imperial Government. The spars are each 100 feet long and two feet square, and were cut by the Moodyville saw mill. They are pronounced exquisite specimens of pine timber, clear and straight as an arrow.—Westminster, B.C., *Columbian*.

THE extensive tannery at Bracebridge, Ont., now the property of Mr. C. W. Tilson, of Toronto, was built by Messrs. Beardmore & Co. in 1875, and sold to Mr. Tilson in 1882. This tannery has capacity to turn out about 900 sides of sole leather a week, employment being given to from forty to fifty hands. About 4,000 car loads of bark are consumed each year.

THE Sherbrooke, Que., *Gazette* states that the Council of that city has been approached to know what encouragement will be given to a worsted-weaving industry. It seems that a number of gentlemen are thinking of buying the concern of the kind now in existence in Quebec, and to locate it at the Paton mills, to expend \$50,000 in machinery and \$8,000 in new buildings, and to employ perhaps 100 hands weekly.

ONE of the growing industries of San Diego, California, is the manufacture of asbestos goods. At Pacific Beach are located works that cost several thousand dollars, where cement and roof and house paints are made. More machinery is being put in to facilitate the manufacture of these, and a kiln will at once be erected for the making of asbestos brick. The works will soon use a carload of raw asbestos each week.

THE new foundry and machine shops of Messrs. B. R. Mowry & Sons, Gravenhurst, Ont., covers an area of 115x40 feet, and is thoroughly equipped with tools and machinery. This firm are manufacturers of saw mill and shingle cutting machinery builders' and architectural iron work, etc. This is an old established concern, but their works were destroyed by fire that devastated Gravenhurst over a year ago.

THE Polson Iron Works Company, Toronto, are making rapid progress in the construction of the steam engines and boilers they are building for the Canadian Pacific Railway's international ferry steamer that they are building at their ship-yard at Owen Sound, Ont. There are two cylinders 108 x 50 inches each, and four

boilers, each 14 feet long and 13 feet diameter. These will each weigh 25 tons.

MOLYBDEDITE, or sulphide of molybdenum, has been observed in a number of localities in B. C., but usually in small quantities. These localities are situated for the most part in or near the Coast Ranges. Fine specimens have, however, been brought from the head of Spuzzum Creek, west of the Frazer, which may indicate the existence of a deposit of economic importance.—Victoria, B. C., *Standard*.

THE Grand Trunk Railway Company, through Mr. Wm. Edgar, general passenger agent, Montreal, has sent us an illustrated hand book, descriptive of the summer resorts and places of interest in Canada reached by this road. The work is especially designed to aid in the selection of routes for summer tours, giving such descriptions as show the avenues of approach, and what is to be seen and enjoyed in journeyings over the Grand Trunk and its connections.

MESSRS. WILLIAMS, GREENE & ROME, of Toronto, proprietors of the extensive shirt factory at Berlin, Ont., have been in communication with the business men of Galt, Ont., negotiating as to the terms upon which they might be induced to establish a branch factory there. Their proposal is in substance to establish a branch to employ at first 40 hands, to be increased in a short time to say one or two hundred, and for this they would require the town to make them a payment of \$1,000 per annum for five years.

MR. ISAAC COCKBURN, Gravenhurst, Ont., who recently built a large lumber mill on the site of one destroyed by fire a few months ago, is running his works to their fullest capacity. Fifty men are employed in this mill, the output of which is 40,000 feet of lumber, 25,000 shingles and 20,000 lath per day. The mill is driven by 4 boilers of 200 horse power and twin engines of 150 horse power. The most improved machinery is used, largely from the William Hamilton Manufacturing Co., of Peterboro', Ont.

AMONG the cargo of the bark *Doric Broderson* from Liverpool is the steel frame and machinery for a steamer for Ewen & Co. The steamer will be put together at Colvin's shipyard by Gray & Munro, of the Victoria Machinery Depot. The steamer is eighty feet in length. The engines are triple expansion, with steel boilers. It will be completed in the course of two months and will be used in the service of Ewen & Co.'s canneries and in towing. When completed the cost of the steamer will be \$25,000.—Victoria, B. C., *Colonist*.

THE foundry and machine shop in Dundas, Ont., formerly occupied by Messrs. Thomas Wilson & Co., and lately by the Cochrane Roller Mill Supply Company, is offered for sale. The works are very suitable for manufacturing purposes; an abundance of water power is available, and a steam engine and boiler, shafting and other machinery are in the building. Application may be made to Mr. Thomas Wilson, Dundas; Messrs. Kingsmill, Cattanach & Symonds, Toronto, or Messrs. Bruce, Burton & Bruce, Hamilton, Ont.

THE Albion Iron Works Company, Victoria, B. C., are building the machinery for the steamer *Hope*, of that place. The engines are to be of the fore and aft, compound type, with high-pressure cylinder of twelve inches diameter, low pressure cylinder of twenty-four inches diameter, and a stroke of eighteen inches for both. The boiler will be of the Scotch type, seven feet six inches in diameter by eight feet six inches in length, made of steel, and capable of carrying a working pressure of 120 pounds to the square inch. The propeller will be six feet four inches in diameter, with a pitch of nine feet.

The *Dominion Illustrated* comes to us this week with a rich supply of British Columbia scenes, including some illustrations of Chinese life in and near Victoria. The group of portraits of the staff of the Geological Survey, comprising Dr. Selwyn, Dr. Dawson, Mr. Whiteaves, Dr. Bell, and some forty others, will be prized by many who know what services those gentlemen have rendered to Canada. The North-West is represented by the Hon. E. Dewdney. The letterpress is up to the usual mark of excellence.

LETTERS patent have been issued by the Ontario Government incorporating the Electric Light, Telephone and Power Company, of Rat Portage, Ont. (limited), with a capital stock of \$30,000; the Home Circle Printing and Publishing Co., of Toronto (limited), with a capital stock of \$3,000; the Goderich Organ Co. (limited), of Goderich, Ont., with a capital stock of \$10,000; the Toronto and Midland Manufacturing Co. (limited), of Toronto, with a capital stock of \$20,000; the Howard Furnace Co., of Berlin (limited), with a capital stock of \$24,000; and the Greybill Manufacturing Co. (limited), of Waterloo, Ont., with a capital stock of \$25,000.

MESSESS. A. W. MORRIS & BRO., Montreal, have recently completed and put in operation their new bag factory, which, they say, is the equal of any in Canada or the United States. The output of this factory now includes some 40 different styles of bags, adapted for all possible commercial purposes. The machinery includes calendaring machines; folding and cutting machines—one of these latter having capacity to cut 1,800 bags per hour through 80 to 100 thickness of cloth; sewing machines sewing 2,500 stitches a minute, and turning machines for turning the bags right side out after they have been sewed, with capacity to turn 24,000 bags a day.

THE Albion Iron Works Company, Victoria, B. C., have recently built and placed two steam boilers for a steam tug at that place, of 1,000 h. p. each. They are 19 feet in length, 9 feet in diameter, and weigh 24 tons each. Each contains two 42-inch patent corrugated steel furnaces, and 240 3-inch tubes. The boilers are tested to carry 155 lbs., and are made of  $\frac{7}{8}$ -inch steel plates. These works have secured the contract and are now engaged in the construction of a pair of new compound engines and a new steel boiler for the steamer Hope, owned by Mr. W. P. Sayward. The new machinery will be ready for use about the first of October, and will cost \$10,000. The new boiler will be ten feet long; eight feet in diameter; will be supplied with two Fox's patent corrugated furnaces, and will weigh in the neighborhood of ten tons.

BESIDES the very heavy uncompleted contracts Messrs. Rhodes, Curry & Co., Amherst, N.S., have in hand, they have about \$120,000 worth not yet begun. The principal contract included in this sum are the Dominion building at Annapolis, and the railway round house and addition to the erecting shops at Moncton. In both cases their tender was the lowest. The price of the Moncton contract is about \$86,000, and is to be completed by the end of December next. It will require 1,250,000 brick, and 237 windows, containing over 5,000 panes of glass of from 10x12 to 10x16 inches. It is an evidence of the great resources and capacity of this firm that it is able to undertake the completion of such a contract within five and a half months. A very handsome lot of bank fittings manufactured by this firm was sent forward a few days ago for a branch of the Bank of Nova Scotia about to be opened at Jamaica, W. I.

A CHICAGO firm engaged in the manufacture of tin cans and japanned ware, has patented an invention which competent judges say will revolutionize the tin and steel industry of the world. Patents have been secured in all the leading countries. It is a process by which, it is claimed, molten metal may be rolled into any desired shape, thus saving all intermediate processes. It was invented originally to roll molten solder in a thin plate, but the process is pronounced by experts to be equally applicable to iron and steel in its various forms of plates, structural iron and rails. It is said the cost of manufacturing steel rails can be reduced to the extent of \$10 per ton, and that thin iron plates for tinning can be made much below the cost of the production of tin plates in Wales, thus making a new industry in this country. The molten metal is passed between rollers which are chilled as it passes, the rollers being kept cool by a stream of water which passes through them. Iron and steel so rolled will be much more even and closer in texture than that subjected to present processes.

MR. THOMAS CARTER, Woodstock, Ont., is manufacturing a parlor organ which embodies Scribner's patent resonant pipe combination, an invention which he claims as having a most important bearing on the future reputation of reed instruments, and by means of which the volume of tone is very largely increased, and the quality of it rendered equal to that of pipe organs of the same capacity. This ingenious invention consists of an additional socket board attached to the wind chest, having two rows of reeds in horizontal cells surmounted by suitable stop mute attachments, and a vertical series or set of resonant pipes or chambers, one pipe for each reed, each one being proportioned according to a perfected scale of graduated dimensions with regard to the size of its reed, so that when the sliding mute is drawn the reed tone ascends through the resonant pipes with greatly increased volume and equally improved tone quality. Mr. Carter has placed one of these beautiful instruments in the Permanent Exhibition of Manufactures, in this city, which the public are invited to inspect.

THE gas works have been pushed forward with commendable energy. About forty men during the last three weeks have been busy at work in putting up the necessary buildings and laying the mains along the streets. The cistern is already completed and the iron work of the gasometer furnished by Messrs. Cowan & Co., Galt, is being put in. The gasometer is 33 feet in diameter and has a capacity of 10,600 feet. The gas house, which consists of a retort room and a purifying room, is about finished. Two and a half miles of mains are already laid and the balance, not including the crossings,

will be put down this week. Mr. McIlvanie expects to have gas in the holder in two weeks from now. About the first of August Waterloo will emerge from darkness into soft brilliant gas light. We understand that as soon as the present works are completed, a joint stock company will be formed with a capital stock of \$100,000 to operate the McIlvanie system in the Dominion of Canada. The system has given the best of satisfaction wherever it has been tried. — *Waterloo Chronicle*.

MR. McLEOD STUART, ex-Mayor of Ottawa, who has been in England for some months, has returned home, having sold the anthracite coal mines at Banff, owned by the Canadian American Company, to an English syndicate, of which Messrs. Rothschilds are the bankers, for the sum of a million and a half dollars. The mines were originally secured by Messrs. Hector Cameron and Jas. O'Connor, of Toronto, for \$28,750. The Canadian American Company purchased from them for \$27,000 in cash, and a large amount of paid-up stock. Among the Canadian shareholders may be mentioned Mr. McLeod Stewart, Major John Stewart, Mr. Sandford Fleming, Mr. Edward Griffin, Mr. James O'Connor, and Mr. W. B. Scarth, M.P. The whole proceeds of the sale, after deducting all expenses of commissions, travelling, etc., will be divided between the shareholders in the rate of their stock. It is stated on good authority that the Stewart family hold more than one-half interest in the property. The new syndicate has stocked the company for \$5,000,000, and intend to push the working with great vigor. They will establish a line of steamers between Vancouver and the southern portion of the continent for the conveyance of their coal. Mr. Stewart, who received valuable assistance from Sir Charles Tupper in making the sale, is expected here towards the end of the month, and will preside at the annual meeting of the Anthracite Coal Company, which will be held at Banff, on August 12th.

THE Board of Trade has adopted the suggestion to memorialize the Government for measures for the preservation of hardwood timber, in the free grant townships, as a source of charcoal for the manufacture of iron. The fact that iron ore and charcoal are hauled much longer distances than from Kingston to the forests and mines, lends favor to the idea that the manufacture of iron and steel may be profitably entered upon here. There will be several sources of ore supply open to any such enterprise—the iron mines of Belmont, Marmora and Madoc, the mines along the Rideau canal and in the vicinity of Ottawa, and the mines along the Kingston and Pembroke railway. The forest fuel supply is, if sufficiently protected, assured

## Electric \* Lighting.

ELECTRIC GAS LIGHTING.  
ELECTRICAL APPARATUS AND SUPPLIES.  
CONTRACTORS FOR ELECTRICAL WORK.

Henry S. Thornberry & Co.

39 KING ST. WEST, TORONTO, Room 2.

The Barber & Ellis Comp'y,  
NOS. 43, 45, 47, 49 BAY ST.

• ACCOUNT BOOKS •

MADE TO ORDER IN FIRST-CLASS STYLE.

PAPER BOXES MADE FOR ALL CLASSES OF GOODS

Correspondence Solicited.

TORONTO, - ONTARIO.

from the free grant townships in Frontenac, the Bay of Quinte, the C.P.R. via Sharbot Lake, and the Napanee and Tamworth railway.—Kingston, Ont., *Whig*.

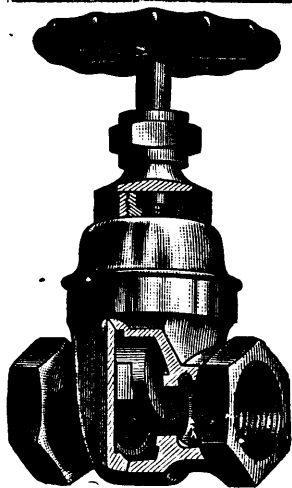
THE whale, which belongs to the mammalia, no doubt holds the palm for thickness of skin. At some parts of the body the skin is only two inches thick, but in many places its pelt is fully two feet in thickness. The skin of the whale is the substance usually known as blubber, and in a large specimen will weigh altogether more than thirty tons. The distinction of being the thickest-skinned quadruped belongs to the Indian rhinoceros, whose hide has a knotty or granulated surface, and is so impenetrable as to resist the claws of the lion or tiger, the sword or the balls of the old-fashioned musket. So stiff and hard is this skin that were it not divided by creases or folds the animal imprisoned in his armor could scarcely move. It is manufactured into leather of great strength and durability, and targets and shields are made of it that are absolutely proof against darts or sword strokes. The skin of the hippopotamus runs that of the rhinoceros very closely as regards thickness.

THE Frontier Axle Company is a new concern recently started at Rock Island, Que., for the manufacture of improved Concord axles with patent sand-box attachment, also a patent adjustable sand-box. Mr. A. T. Lawrence, the manager of the works, informs us that his establishment is being equipped with a full supply of the very best and newest designs of machinery adapted for the business, and it is expected that the works will be in full and satisfactory operation within a couple of weeks. The company are manufacturing an axle which they claim is superior to any heretofore made in Canada, and which, with their sand-box attachment, they warrant to run two hundred miles without re-oiling. Some of these axles now in use have travelled over three hundred miles without re-oiling. The present output of the works is about twenty set of axles per day, which quantity will be largely increased as soon as all the new machinery can be placed and put in operation.

THE authorities of Toronto have just closed a contract for the new pumping engines which are to supplement those now in use supplying the water service of this city. The contract is with the Geo. F. Blake Manufacturing Company, of Boston, Mass., but all the work in the construction of these engines is to be done in the works of the Polson Iron Works Company, Toronto. There is to be two pumping engines of capacity to pump 3,000,000 imperial gallons

each, each twenty-four hours, and these will embody the well known Corliss valves, of which there will be over 300 in the two engines. The power to actuate this machinery will be derived from two powerful steam engines of the Brown type, of which engines the Polson Iron Works Company have already built a large number. The steam to drive these engines is to be generated in three steel tubular return flue boilers, each 66 inches in diameter and 15 feet long. The cost of the entire plant will be about \$30,000, which does not include foundations or building. This machinery will be erected in new buildings to be erected, adjoining the present pumping station in this city, and these will include an engine room 50x43 feet, boiler house 32x28 feet, etc.

THE Grand Trunk Railway car shops at London, Ont., have just completed and sent out a new dining car, "No. 788," which is claimed to be one of the finest specimens of work on any railway in the country. It combines all the new ideas in modern dining-car service, including some original with the Grand Trunk. The length of the car is 63 feet, including a vestibule at each end, dining-room, pantry, kitchen, lavatory, wine lockers and sideboards. The side-board for glassware and silver plate, which is at one end of the dining-room, makes a very pretty effect. The interior is finished in mahogany throughout. The ceiling is of light wood veneer, ornamented in blue and gold, which gives a very harmonious effect. The floors are of cherry and maple, the centre being covered with Wilton. The drapery sides, as window shades, lambrequins and portieres, are in woolen and silk combinations, made expressly for the G.T.R. The most noticeable feature is the arrangement of tables and seats, which is an innovation. On one side of the dining-room the tables are for four persons each. On the opposite side they are for two persons. Instead of the stationary or tilting seats rattan chairs are furnished, which are decidedly more convenient and comfortable than the old plan. The ventilation has not been overlooked, but has been improved. In addition to the roof sash being made to open, there are fourteen acme ventilators over the lamps which carry off the odor and heat from the lamps when lit. The lighting of the car is done by five silver-plated double acme burner lamps in the dining-room and one in each end next to the room, and on each platform is a lamp. The exterior is painted Tuscan red, the company's standard color, and ornamented in gold. The name "Grand Trunk" is over the windows on each side, the number "788" on the centre under the windows, and the word "dining-



## WEBER'S PATENT Straightway Valves

FOR

STEAM, WATER AND GAS,  
*Best Value in the Market.*

**KERR BROS**  
Walkerville, Ont.

Sole right to manufacture in the Dominion  
Send for Price Lists.

Also manufacturers of COMPOUND MARINE  
AND STATIONARY ENGINES.

## To Manufacturers!

### - TO RENT -

The Flats and Basement of that centrally situated property on Bay Street, below Front Street, being the BEST BUSINESS PREMISES and location in the City of Toronto, WITH POWER (guaranteed steady), Steam Heating, W. C., Wash-rooms, etc., on each floor. Heavy Weight Steam Hoist; good light on three sides; Lowest Insurance Rates; entrance from front or rear to each flat. Specially adapted for Factory, Warehouse and Office purposes.

The building has a depth of 100 feet, with a frontage of 54 feet on the west side of Bay Street and 34 feet on lane in rear; four stories high and basement. RENT CHEAP.

We have also in the same locality, Lot 70 feet front by 100 feet deep to a lane, on which we will erect factory buildings specially to suit a good tenant. For further particulars apply to

DICK, RIDOUT & CO.,  
11 & 13 FRONT ST. EAST

## "The Princess" Baby Carriage Rugs

MANUFACTURED BY

**NEULANDS & CO.**

*Registered and Patented in Canada and the United States.*

Are light, elegant and warm; and every Child's Carriage and Perambulator should have one.

WRITE TO **W. H. STOREY & SON,**  
**ACTON, ONTARIO,**  
For CIRCULARS and PRICE LISTS.

## The Standard Drain Pipe Co.

ST. JOHN'S, P.Q.

### INVERT BLOCKS

FOR BOTTOMS OF BRICK SEWERS.

These Blocks are made of Fire Clay, SALT GLAZED and VITRIFIED, and form the most perfect Invert known. Amongst their special advantages, they are indestructible perfectly smooth, affording the minimum of friction to flow.

Easily and cheaply laid on ANY BOTTOM.

Made in lengths of 18 inches, or to suit buyers.

*The Standard Drain Pipe Company, St. John's, P.Q.*  
**ROBT. CARROLL, Agent for Toronto.**

car" on each side near the ends and on each end. The car rides on two standard six-wheeled trucks.

The Ball Electric Light Company, Toronto, are sending out a circular which includes a partial list of electric light plants manufactured by them now in service for public and private illumination in Canada, among which they mention the following users: Aylmer Electric Light Co., Aylmer, Ont.; Belleville Gas Co. (increased), Belleville, Ont.; Berlin Gas Co. (increased), Berlin, Ont.; Chatham Gas Co., Chatham, Ont.; Crowe Iron Works, Guelph, Ont.; Dominion Bridge Co., Montreal, Que.; Dominion Barb Wire Co. (increased), Montreal, Que.; Doty Engine Co. (increased), Toronto Ont.; Fredericton Gas Co., Fredericton, N.B.; Gananoque Electric Light Co. (increased), Gananoque, Ont.; Grimsby Park Co. (increased), Grimsby, Ont.; Goldie & McCulloch (increased), Galt, Ont.; Hanlan's Point Ferry Co. (increased), Toronto, Ont.; Kingston & Pembroke Railway Co., Kingston, Ont.; London Electric Light Co. (increased) London, Ont.; Long Branch Park Co., near Toronto, Ont.; Massey Manufacturing Co., Toronto, Ont.; McDougall, A. & Son, Distillers, Halifax, N.S.; Newmarket Electric Light Co. (increased), Newmarket, Ont.; Napanee Paper Co., Napanee, Ont.; Northumberland Paper Co. (increased), Campbellford, Ont.; Ontario Bolt Works Co. (increased), Toronto, Ont.; Oshawa Electric Co. (increased), Oshawa, Ont.; Port Hope Electric Light Co. (increased), Port Hope, Ont.; Polson Iron Works Co. (limited), Toronto, Ont.; Peninsula Park Hotel Co., Barrie, Ont.; Renfrew Electric Light Co. (increased), Renfrew, Ont.; Stratford Gas Co. (increased), Stratford, Ont.; Town of Orillia (increased), Orillia, Ont.; Town of Thorold, Thorold Ont. They also state that they have supplied incandescent plants as follows: L. C. Porter Milling Co., Winona, Minn.; Iron Silver Mining Co. (Arc and Incandescent), Leadville, Col.; Jno. A. Roebing's Sons Co., Trenton, N.J.; Pennsylvania Co. Depot, Shop and Tracks, Fort Wayne, Ind.; T. R. Benton, Fairchild, Wis.; A. C. Foster, Fairchild, Wis.; R. L. Bergland, Minneapolis, Minn.; Galaxy Mills, Minneapolis, Minn.; Bay State Sugar Refining Co., Boston, Mass.; Steamboat *Carmoua*, Ontario Navigation Co.; St. Clair Tunnel Co., on Grand Trunk Railway, Sarnia, Ont.

The following description of how darning by machinery is done is from that excellent family journal, *Good Housekeeping*:—First a colored basting thread was run by hand on each side of the rent for

a guide, to indicate how far the stitching should extend and to secure uniformity of outline. The material was placed under the presser-foot with the needle close to the guide thread, and a row of stitching run directly across the tear as far as the guide thread on the opposite side, holding the material firm and slightly stretched with both hands that it might not pucker. Then by touching the wheel the machine was stopped with the needle down, the presser-foot raised, the goods turned half-way around, and another line of stitching run close to and parallel with the first, stopping at the first guide thread. The wheel was again checked with needle down, presser-foot raised, towel turned back to first position, and a third parallel line of stitching run. When the entire rent had been stitched over backwards and forwards in this manner it was crossed in the opposite direction, although the darning was even then so firm as to render the cross-stitching unnecessary except in the centre where the hole had been. I had always supposed that if a machine were run over an open space without any material under it, that the threads would pucker and knot, and perhaps break the needle, but to my surprise, it ran on, the threads winding around each other and filling in the hole in the strongest and most substantial manner. There were only two precautions to be observed, which also apply to hand darning, viz: that the tension on the thread used be a little loose, and that the darn be made large enough to reach the strong part of the material, otherwise a new hole will be soon found alongside the darn caused by the strength of the repaired portion drawing upon the weak threads surrounding it. In this manner the holes in the best tablecloths and towels were mended, and the thin weak places stitched over, and it would have delighted the eye of any good housekeeper to have seen this pile of linen when it returned from the laundry; the towels were almost as strong as new ones, and the torn places in the table linen were so smooth that the darn was scarcely perceptible. I found that this method of repairing was capable of application to many other articles than plain table linen or towels. Where the ends of neck-bands or wrist-bands of shirts had become parted from the body, they were again firmly and smoothly attached in this way, and even the worn buttonholes and the weak parts around them were made whole in the same manner. There are some things, however, that cannot be darned by the machine without an extra attachment, as for instance hosiery, and this, as well as rents in dresses, is best repaired by hand.

# 1889 CANADA'S GREAT 1889 INDUSTRIAL EXHIBITION

: TORONTO, :

From SEPTEMBER 9th to 21st.

**MANUFACTURERS REQUIRING SPACE SHOULD MAKE  
EARLY APPLICATION.**

The best opportunity offered during the year to place your goods before the people.

☞ *Over 250,000 people visited this Exhibition last year from all parts of the Dominion.  
THIS YEAR IT WILL BE GREATER AND BETTER THAN EVER.*

**All Entries must be made before AUGUST 17th.**

**SPACE IS BEING RAPIDLY TAKEN UP.**

**J. J. WITHROW,**  
PRESIDENT.

For Prize Lists and all information address **H. J. HILL,**  
MANAGER, TORONTO.

# COWAN & BRITTON,

GANANOQUE, ONT.

MANUFACTURERS OF

Strap and T. Hinges, Screw Hooks and Hinges,  
Wrought Steel Butts for Builders and Cabinet  
Makers, Washers, Staples, Hooks, Hasps, Hay  
Carrier Hooks, Patent Hasp Locks, Bed  
Fasteners, Steel and Iron Cut Nails,  
Clout, Truck and Finishing Nails,  
Brads, Tacks and Shoe Nails.

We are also prepared to make special Nails or Hinges, or other articles made from iron from samples. The quality of our goods is always A. 1, and our facilities for making them are unequalled.

## 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, Skillful Manufacture, Sharpness, Durability, and Uniformity of Grain.

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

Enquiries should be addressed to

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

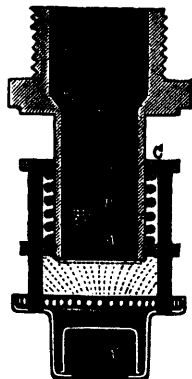
# Standard Drain Pipe

I am prepared to supply in any desired quantities first-class **CANADIAN SALT GLAZED VITRIFIED FIRE CLAY DRAIN PIPE**, manufactured by the Standard Drain Pipe Company, of St. John's, Que.

**ROBT. CARROLL**, 66 Adelaide St. West,

Telephone No. 208. **TORONTO.**

# FIRE PROTECTION.



BUILDINGS EQUIPPED

WITH

## AUTOMATIC SPRINKLERS

BY

**ROBERT MITCHELL & CO.**

MONTREAL BRASS WORKS,

Write for estimates

MONTREAL

# A. C. LESLIE & CO.

MONTREAL and TORONTO,

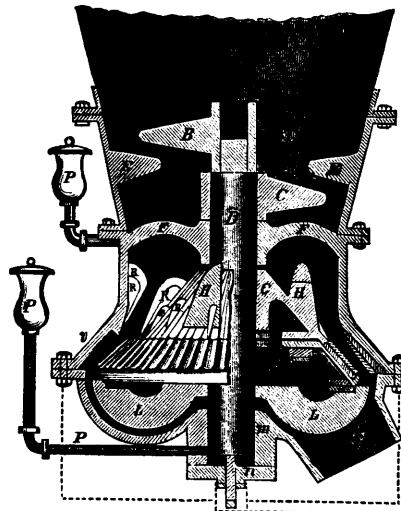
MANUFACTURERS' AGENTS FOR

## Iron, Steel, Wire, Tinsplate, GALVANIZED IRON.

Special value in **STEEL BARS, ANGLES,  
SHEETS, PLATES.**

**BUYERS ARE INVITED TO OBTAIN PRICES.**

"JESSOP'S" STANDARD TOOL STEEL IN STORE.



Important to Tanners.  
**SEGMENT BARK MILL.**

For Grinding any hard substance

SUCH AS

Cement, Plaster, Bones, Bats, Ores, Paint, etc. It is also used to grind Liquorice and Sarsaparilla roots.

Also as a Corn

Breaker.

The Segments will retain their cutting edges longer than those of any other Mill, and when dull can be quickly and cheaply renewed.

It has the following good qualities, viz.:—Fast grinding; evenly prepared bark; is easily erected and small power required to drive it.

It works with ease in damp or frozen bark, and breakages are prevented by safety coupling.

**PAXTON, TATE & CO.**

PORT PERRY, ONT.

ESTABLISHED - - 1828.

# J. HARRIS & CO.

(Formerly HARRIS & ALLAN),

## NEW BRUNSWICK FOUNDRY.

RAILWAY CAR WORKS,  
PARADISE ROW.

PORTLAND ROLLING MILLS,  
STRAIT SHORE.

PORTLAND, ST. JOHN, N.B.

Railway Cars of all descriptions. Chilled Car Wheels, "Washburn Peerless" Steel Car Wheels. Car, Machine, Mill, Ship, and all kinds of Castings. Steam Engines, Mill and other Machinery. Nail-Plate, Bar Iron, Street and Mine Rails, Ships' Iron Knees, Hammered Car Axles, Shafting and Shapes.

# S. LENNARD & SONS, DUNDAS, ONT.,

PATENTEES OF THE "ELYSIAN" SEAMLESS HOSIERY,

MANUFACTURERS OF PLAIN AND FANCY HOSIERY, CAPS, TUQUES, SASHES, ETC., ETC., ETC.

TO THE WHOLESALE TRADE ONLY.

Represented in Eastern Ontario, Quebec, Nova Scotia and New Brunswick, by

**DUNCAN BELL**, Montreal.

In British Columbia by

**E. G. ANDERSON**, Victoria, B.C.

In Western Ontario by

**S. LENNARD**, Senior Member of the Firm.

# John Doty Engine Co.

Cor. Bathurst and Front Sts.

TORONTO, ONT.

MANUFACTURERS OF

## ENGINES and BOILERS

OF EVERY DESCRIPTION.

SEND FOR CATALOGUES.

### TO LET.

TO MANUFACTURERS.

FACTORY, with water privilege, near Black's Bridge Montreal. Building 60 x 60, five flats, extra well lighted and very strong; rare opportunity for party wanting cheap power. Apply

**WM. JOHNSON & CO.**

14 St. John St., Montreal.

# G. & J. BROWN M'FG CO.

(LIMITED),

BELLEVILLE, ONT.

Engineers, Machinists, Boiler Makers,

Foundrymen and Bridge Builders.

RAILWAY and CONTRACTORS' SUPPLIES A SPECIALTY.

Frogs, Diamond Crossings, Switches, Hand Cars, Lorries, Velocipede Cars, Jim Crows, Track Drills, Semaphores, Rail Cars, Double and Single Drum Hoists, etc., etc.

## Fenwick & Sclater,

43 and 44 Foundling St., Montreal.

MANUFACTURERS OF

Cast Steel Files and Rasps, Anchor Brand.

Cotton Waste, white and colored.

Asbestos Cement for covering Steam Pipes and Boilers

Asbestos Piston and Joint Packing. Asbestos and Rubber Piston and Joint Packing. Plumbago Packing.

HOSE—Rubber, Canvas and Linen.

HOSE—Cotton, Rubber-Lined for Fire Brigades.

SELLING AGENTS FOR

Asbestos Packing Co., Boston; Boston and Lockport Block Co., Boston; American Cotton Waste Co.; Montreal Tent and Awning Co.; "Household" Fire Extinguisher Co.



EVERY REPUTABLE DEALER KEEPS THEM.

Insist on having the Genuine, and see that they bear our name.

W. H. STOREY & SON, ACTON, ONT.

# NAPANEE CEMENT CO'Y

(LIMITED.)

NAPANEE MILLS, - ONTARIO.

MANUFACTURERS OF

## HYDRAULIC CEMENT

Warranted equal, if not superior, to any native cement,

and as good, for most uses, as Portland.

Full particulars of strength, tests, etc., furnished on application. Endorsed by leading Cities, Engineers, Railways and others.

**ROACH LIME.** Particularly adapted for paper manufacturers, gas purifying, etc.

## JUTE, LINEN or COTTON BAGS

For FLOUR, OATS, POTATOES, FEED, etc.

Every Quality, Weight and Size kept. The largest and best assortment in Canada. Daily out-turn, THIRTY THOUSAND BAGS.

BAG PRINTING in COLORS a specialty.

HESSIANS, BURLAPS AND HOP SACKING,

A splendid stock kept. Plain and Striped. Every quality, width and weight.

TWINES—We keep the best stock in Canada.

CANADA JUTE CO'Y (Ltd.), STARK BROS., Agts.  
ONTREAL. 62 FRONT ST. EAST, TORONTO.

## To Prevent Boiler Explosions

And other accidents to Steam Boilers and to secure economy in their working, insure with

**THE BOILER INSPECTION AND INSURANCE CO. OF CANADA**

Consulting Engineers and Solicitors of Patents.

SIR ALEXANDER CAMPBELL, K.C.M.G.,

Lieut. Governor of Ontario, PRESIDENT.

JOHN L. BLAIKIE, ESQ., VICE-PRESIDENT.

GEO. C. ROBB, CHIEF ENGINEER. ALEX. FRASER, SECY-TREAS.

Head Office: 2 Toronto S., TORONTO.

*Every Instrument*  
**Warranted.**

# BELL

**ESTABLISHED**  
**25 Years.**

## UPRIGHT PIANOS CABINET ORGANS

*We have just commenced the manufacture of Pianos—which contain all the best known practical improvements. In quality, the best that can be produced with first-class material and skilled labor.*

*Have a universal reputation as being strictly first-class, and are recommended by Highest Musical Authorities. In tone, design and workmanship unsurpassed.*

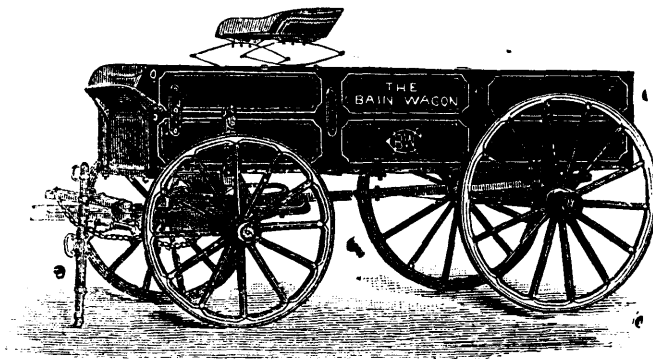
SEND FOR CATALOGUE TO

**W. BELL & CO. HEAD OFFICE AND FACTORIES, GUELPH, CANADA.**

Branch Warerooms at Toronto, Hamilton, St. Thomas, Winnipeg, London, Eng. and Sydney, N.S.W.

# Bain Wagon Co.

MANUFACTURERS OF



LIGHT RUNNING

**FARM, SPRING AND FREIGHT WAGONS**

Also Heavy Sleighs and Steel Skein Log Trucks.

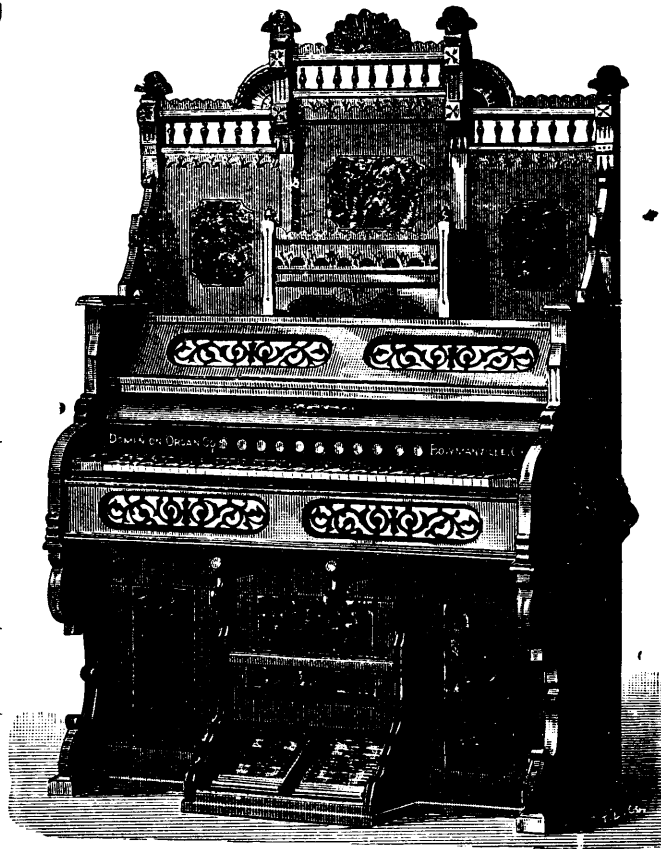
SEND FOR PRICES TO

**BAIN WAGON CO.**

**Woodstock, Ont.**

# 'DOMINION' PIANOS

Hold more Gold  
Medals from the  
World's Fairs than  
all other Canadian  
makes put together.



# "DOMINION" ORGANS

Large stock now on  
hand at very low  
prices at the

**TORONTO**  
**Temple Music**  
**J. S. POWLEY & CO.**  
*68 King Street.*

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

MANUFACTURERS NOT ONLY OF

**THE CHATHAM WAGON,**

BUT OF

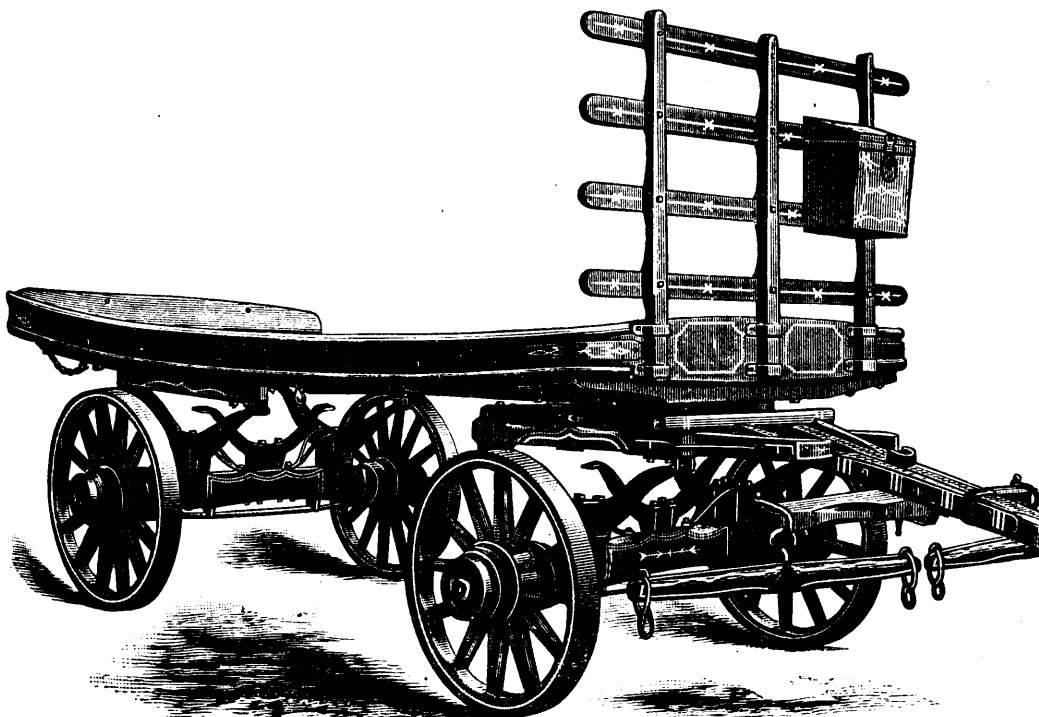
One and Two-Horse

# LORRIES

With and Without Springs.

Of a two horse, the above  
is a faithful cut. Found to  
be as durable, and the  
greatest carrier and easiest  
running Lorry made in Can-  
ada. At greatly reduced  
prices.

Correspondence solicited.



SHIP PLANK AND HARDWOOD LUMBER.

THE CHATHAM TWO-HORSE SPRING LORRY. 4 in. arms, 4 x 1/2 inch tire; capacity, 4 tons. The best and easiest running Lorry made in Canada.



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



THE HAMILTON AND TORONTO

SEWER PIPE CO'Y,

(LIMITED,)

HAMILTON, CANADA.

SUCCESSORS TO

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

—MANUFACTURERS OF—

STEAM-PRESSED, SALT-GLAZED  
VITRIFIED  
SEWER PIPE,

FLUE PIPES, CHIMNEY TOPS and  
SMOKE PREVENTIVES.

Established 1860



Canadian Rubber Co.

Cor. Front & Yonge Sts., Toronto.

MANUFACTURERS OF

RUBBER SHOES & FELT BOOTS,

Patent Pressed Double Strip Rubber Belting,

RUBBER  
ENGINE,  
HYDRANT,  
SUCTION,  
STEAM,  
BREWER'S  
and FIRE  
HOSE.  
HORSE  
CLOTHING  
STEAM  
PACKING.



RUBBER  
VALVES.  
CAR  
SPRINGS.  
WRINGER  
ROLLS.  
CARRIAGE  
CLOTHS  
BLANKETS.  
STOPPLES  
etc., etc.

Mould Goods of Every Description.

LADIES' & GENTLEMEN'S TWEED and GOSSAMER CLOTHING

OUR RUBBER GARDEN HOSE IS THE  
BEST IN THE MARKET.

J. H. WALKER, - Manager.

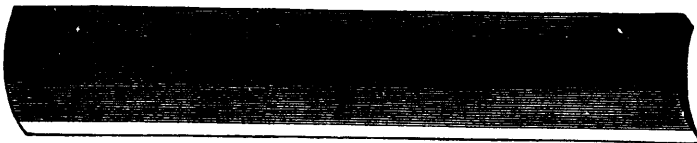
GALT MACHINE KNIFE WORKS.

PLANING MACHINE

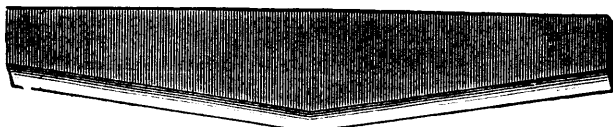
KNIVES.



STAVE CUTTER KNIVES.



STAVE JOINTER KNIVES.

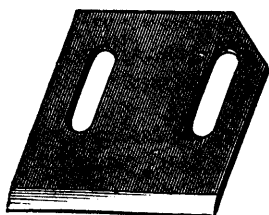


MOULDING, TENONING,

MITREING,

SHINGLE JOINTER,

And other irregular shapes.



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

PETER HAY, - - - GALT, ONT.

GOLDIE & McCULLOCH

Galt, Ontario,

Have the following Machinery For Sale:

- 80 H.P. Wheelock Engine—New.
- 70 H.P. Corliss Engine—Good Condition.
- 35 H.P. Wheelock Engine—2 Years in use.
- 60 H.P. Whitelaw Buckeye Engine.
- 60 H.P. Inglis & Hunter Corliss and Boiler.
- 25 H.P. Inglis & Hunter Westinghouse Engine.
- 4-Side McKechnie & Bertram Moulding Machine.
- 35 H.P. Boiler.
- 12 H.P. Upright Engine and 20 H.P. Boiler.
- 30 H.P. Boiler.
- 20 H.P. Slide Valve Engine.
- Macgregor, Gourlay & Co. Planer and Matcher.
- 35 H.P. Killey & Co. Engine.
- 100 H.P. Killey & Co. Engine.
- 40 H.P. Slide Valve Engine.
- 10 H.P. Engine and 12 H.P. Boiler.
- 80 H.P. Dickey, Neil & Co. Engine.
- 30 H.P. Abell Slide Valve Engine.
- Iron Turning Lathe, 18 feet bed, 32 inch swing.

For Particulars Address

GOLDIE & McCULLOCH, GALT, ONT.

# HAMILTON COTTON COMPANY,

MANUFACTURERS OF

## THE STAR BRAND

COTTONADES, DENIMS, TICKINGS

Star Brand—BEAM WARP.

„ HOSIERY YARN

„ BUNDLE YARN.

„ CARPET WARP.

„ BALLED KNITTING YARN.

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

General Agents,—

F. McELDERY & CO.,

204 MCGILL STREET, MONTREAL.

22 & 24 COLBORNE ST. TORONTO.

# Millers' and Manufacturers' INSURANCE COMPANY.

STOCK AND MUTUAL.

### OBJECTS.

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

### METHODS.

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

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

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

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

W. H. HOWLAND,

Vice-President.

JAMES GOLDIE,

President.

HUGH SCOTT, Managing Director.

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

# New Brunswick Cotton Mills

Saint John Cotton Mills,

WM. PARKS & SON, Ltd.

SAINT JOHN, N.B.

Cotton Spinners, Bleachers, Dyers and  
Manufacturers.

Cotton Yarns, Nos. 5 to 10, White & Colored.

Cotton Carpet Warp, White & Colored.

Ball Knitting Cotton, in all numbers and colors.

Cotton Hosiery Yarn, suitable for manufacturers  
of Hosiery.

Grey Cottons, in a variety of grades.

Fancy Wove Shirtings, in several grades and new  
patterns.

Seersuckers, in Stripes and Fancy Checks.

Cottonades, in Plain, Mixed and Fancy Patterns

AGENTS,

DUNCAN BELL, Montreal and Quebec.

WM. HEWETT, Toronto.

# The Manufacturers' Insurance Co. LIFE & ACCIDENT

HEAD OFFICE:

83 KING STREET WEST  
TORONTO, ONT.

The continued popularity of the Company is shown from the fact that \$305,000.00 of Life Insurance was received during January, and \$80,000.00 for the first week in February.

Issues Life Policies upon approved plans.

Issues Accident Policies containing all modern features.

### AUTHORIZED CAPITAL:

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

### OFFICERS:

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

### VICE-PRESIDENTS:

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

J. L. KERR, - Secretary-Treasurer.

**CANTLIE, EWAN & CO.**

GENERAL MERCHANTS

AND

Manufacturers' Agents.

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

Wholesale Trade Only Supplied.

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

**Porous Terra Cotta**

**Fireproofing.**

See it in use in new Bank of Commerce Building, Toronto; new Royal Insurance Company Building, Montreal; Imperial Fire Insurance Company Building, Montreal; St. Lawrence Sugar Refinery, Montreal.

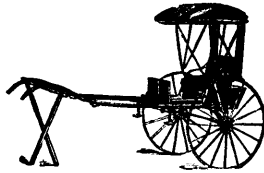
The finest thing for suburban cottages. Excludes heat and cold, is cheap and durable.

Try our improved Cedar Oil for cleaning boilers. We guarantee it to satisfy or no pay.

ADDRESS

The Rathbun Company,  
DESERONTO, ONT.

**ARMSTRONG'S  
Unique Road-Cart**



1,300 OF THEM DRIVING.

The Continuous Large Enquiry is Sufficient Evidence of their Satisfactory Running.

Every Section Getting Samples Buys More THE TRADE ONLY SUPPLIED.

Prices Right. Get Descriptive Circular, mailed direct on receipt of enquiry. Wheels tired with our Double Flange Steel should be used on all—increase the durability 50 to 100 p.c. in use.

J. B. ARMSTRONG MFG. CO., (Ltd.)  
Guelph, Canada.

The **D & C**  
**TO MACKINAC**

**SUMMER TOURS.**

**PALACE STEAMERS. - LOW RATES.**

Four Trips per Week Between  
**DETROIT, MACKINAC ISLAND**  
Petoskey, Sault Ste. Marie, and Lake Huron Way Ports.

Every Week Day Between  
**DETROIT AND CLEVELAND**  
Special Sunday Trips during June, July, August and Sept.

Double Daily Line Between  
**CHICAGO AND ST. JOSEPH, MICH.**

**OUR ILLUSTRATED PAMPHLETS**  
Rates and Excursion Tickets will be furnished by your Ticket Agent, or address  
E. B. WHITCOMB, G. P. A., DETROIT, MICH.,  
Detroit and Cleveland Steam Nav. Co

**Industrial and Trade  
DIRECTORY.**

**Acids and Aniline Dyes.**

THEO. H. EATON & SON, Windsor, Ont.; Detroit, U.S.A.—Importers of every Description **Pure Aniline Dyes** for Cotton and Wool- len Manufacturers. **Dyed Samples** furnished on application. Address all correspondence to Head Office, Detroit, Mich.

DOMINION DYEWOOD AND CHEMI- CAL CO., Toronto.—Importers and Manufac- turers. Chemicals for Cotton, Woollen, Paper and Leather Manufacturers.

McARTHUR, CORNEILLE & CO. (succes- sors to John McArthur & Son), Montreal.— Supply of best quality at closest prices. Every description of coloring materials required by manufacturers of woollens, cottons, silks, paper, leather, &c. Are sole agents in Canada for the celebrated aniline dyes of A. Porrier, Paris.

**Agricultural Implements and Parts.**

A. S. WHITING MANUFACTURING CO., Cedar Dale, Ont.—Manufacturers of scythes, forks, hoes, etc.

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

THE WHITMAN & BARNES MANUFAC- TURING CO., St. Catharines, Ont.—Manu- facturers of mowing and reaping machine knives, sections, guard plates, cutting appara- tus complete, spring keys and cotters, etc.


**Bridge Builders.**

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

**Chemicals and Dye Stuffs.**

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

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

**BINGHAM & WEBBER**   
"Their Work Speaks Their Worth."  
Their Telephone No. is 50  
Their Office is in the Lake- side Court.  
**PREMIER CATALOGUE PRINTERS**  
- OF CANADA -  
::: 25 1/2 Adelaide Street East :::  
**Toronto**

**THEO. H. EATON & SON**, Windsor, Ont.; Detroit, U. S. A.—Carry full line of Pure Dyeing Drugs, Dye Woods and Extracts adapted for the requirements of Woolen and Cotton Manufacturers. **Paper Makers' Anilines and Chemicals** Address the **Detroit Office**.

**DOMINION DYEWOOD AND CHEMICAL CO.**, Manufacturers.—Pure Dyewoods, Dyeing Drugs. Sole Agents. English, German, and French Aniline Dyes, for Woolen, Silk, Paper, and Leather manufactures.

**Edge Tools, Saws and Hardware.**

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

**H. R. IVES & CO.**, Montreal.—Hardware manufacturers and founders; iron ruling and ornamental iron work a speciality.

**Emery Wheels.**

**PRESCOTT EMERY WHEEL CO.**, Prescott, Ont.—Manufacturers of emery wheels, grinding and polishing machinery with patent improved cushioned journal bearings, tool grinders with water, twist drill grinders, and other emery wheel machinery.

**Gloves.**

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

**Hoists and Elevators.**

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

**Hubs, Spokes, Handles, Etc.**

**F. W. HORE & SON**, Hamilton, Ont.—Manufacturers of wheels, wheel material, shafts, poles, etc.

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

**Machine Tools.**

**JOHN BERTRAM & SONS**, Dundas.—Machine tools and wood working machinery. Toronto wareroom, 58 Yonge St. Agents—The Polson Iron Works Co. Montreal wareroom, Craig St. Agents for Quebec—The Machinery Supply Association, Montreal.

**Malleable Iron.**

**THE OSHAWA MALLEABLE IRON CO.**, Oshawa, Ont.—Manufacturers of malleable iron castings, to order, for all kinds of Agricultural Implements and miscellaneous purposes.

**SMITH'S FALLS MALLEABLE IRON WORKS**, Smith's Falls, Ont. Manufacturers to order of refined malleable iron castings. Agricultural and other castings a speciality. Carriage castings in stock.

**Knit Goods.**

**S. LENNARD & SONS**, Dundas.—Manufacturers of plain and fancy hosiery.

**Oils.**

**MCARTHUR, CORNEILLE & Co** (successors to John McArthur & Son), Montreal.—Afford best value in pure olive and lard oils, also in all other leading lines of vegetable, animal, and mineral oils for factory use. Invite special attention to their celebrated crown diamond "engine" and "machinery" oils.

**Paper Manufacturers.**

**WM. BARBER & BROS.**, Georgetown—Manufacturer of book and fine papers.

**THE TORONTO PAPER MANUFACTURING CO.**, Cornwall, Ont.—Manufacturers of engine sized superfine papers, white and tinted book papers, blue and cream laid and wove foolscaps, account book, envelope and lithographic papers, etc., etc.

**Tanners' Supplies.**

**THEO. H. EATON & SON**, Windsor, Ont.; Detroit, U. S. A.—Supply at lowest prices all Chemicals used by Tanners and Wool Pullers. Special Anilines for Sheep Skin Dyers, Wool Mat Manufacturers, etc., etc. Address correspondence to Head Office, Detroit, Mich.

**Wire Works**

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

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

SPECIAL MIXTURE USED FOR SHOES & DIES

WRITE FOR PRICES

**I. MATHESON & CO**  
ENGINEERS AND BOILER MAKERS  
NEW GLASGOW  
NOVA SCOTIA

GOLD MINING MACHINERY

WINDING GEAR MILLS PUMPS &c

ROMPTON "1888" WOOL COMBS.

**ROMPTON LOOM WORKS.**

WORCESTER, MASS.

COTTON, WOOLEN, SILK, TAPE & CARPET LOOMS.

**B. GREENING & CO.**  
HAMILTON, ONT.  
WIRE CLOTH  
ALL GRADES  
WIRE ROPE,  
PERFORATED SHEET METALS  
GALVANIZED POULTRY NETTING  
SOFA & CHAIR SPRINGS

ALSO MANUFACTURERS OF GENERAL WIRE WORK. Window Guards, Stable Fixtures, RAILINGS. Sand Screens Coal Screens Etc.

THE NEW IMPROVED

**RAPID ROLLER DAMP-LEAF COPIER.**

The Copier is always ready for work, copying is done instantaneously.

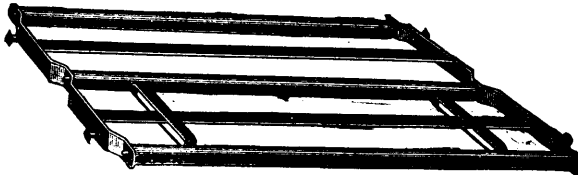
Six legible copies may be taken from one writing.

THE ONLY  
PERFECT COPYING MACHINE.

Send  
for  
Circulars  
and  
Calendar.

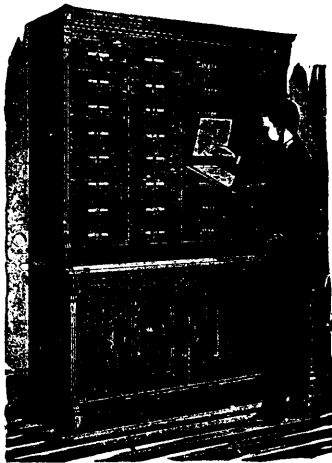


**METAL ROLLER BOOK-SHELVES.**



STYLE  
No.  
3.

**THE SHANNON LETTER AND BILL FILING CABINET  
IS UNEQUALLED.**



MANUFACTURED  
ONLY BY THE  
Office-Specialty Mfg. Co.,  
SUCCESSORS TO  
SCHLICHT & FIELD CO  
TORONTO,  
ONT.

**MACHINE  
BRUSHES**

*All kinds, Made to Order.*

Highest Quality of Work Guaranteed.

SEND FULL PARTICULARS OF DIMENSIONS AND QUALITY WHEN ORDERING.

Old Rollers or Blocks Re-filled with special care.

**CHAS. BOECKH & SONS,**

MANUFACTURERS,

Office and Warerooms : 80 York St.

Factory : 142 to 150 Adelaide St. W.

TORONTO, CANADA.

**MUNDERLOH & CO.**

MONTREAL.

Sole Agents for the Dominion

OF

**Meyer's CONTROL  
Watchman CLOCK.**

Reduced Premiums on Fire Insurance  
Secured by Using this Clock.

Description and Particulars on application.

**THE BELL  
TELEPHONE CO'Y OF CANADA**

—Manufacturers and Dealers in—

Telegraph & Electrical Instruments,

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

FOR FURTHER PARTICULARS APPLY TO

No. 12 HOSPITAL ST., MONTREAL.

Established 1872.

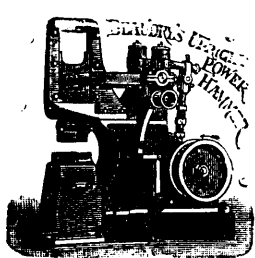
**- THE ACCIDENT -  
Insurance Co'y of North America.**

NEW FEATURE,

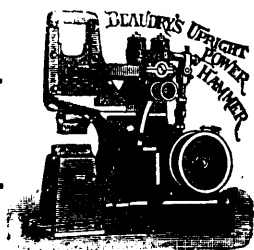
**JOINT INSURANCE  
FOR PARTNERSHIPS**

IMPORTANT TO MANUFACTURING FIRMS.

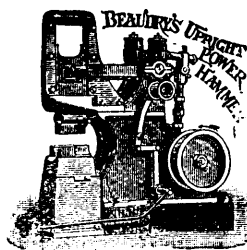
**MEDLAND & JONES, Gen'l Agents,**  
Cor. Adelaide and Victoria Sts., TORONTO.



SIMPLE,



PRACTICAL

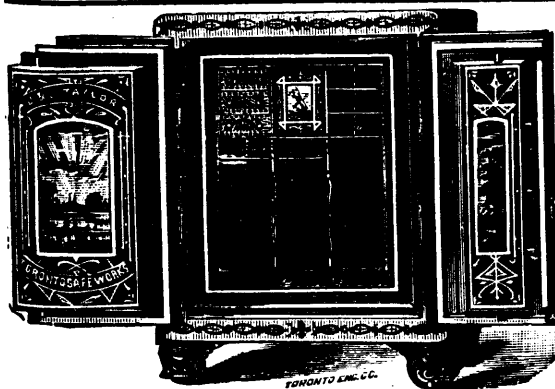


AND BEST.

## BEAUDRY UPRIGHT CUSHIONED POWER HAMMER

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

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



J. & J. TAYLOR'S

Double Tongue  
and Groove  
FIRE-PROOF

**SAFES**

(Patented  
January 14th,  
1886.)

Established 33 years.

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

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

Catalogues and Prices on application.

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

## INTERCOLONIAL RAILWAY OF CANADA.

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

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

The through express train cars of the Intercolonial Railway are brilliantly lighted by electricity and heated by steam from the locomotive.

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

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

### Canadian-European Mail & Passenger Route.

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

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

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

**N. WEATHERSTON,**

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

**D. POTTINGER,**

Chief Superintendent.

RAILWAY OFFICE, MONTREAL, N. B., 2nd July, 1889.

## Card Clothing, NEEDLE POINTED



And all other Varieties of

## Machine Card Clothing

MANUFACTURED BY

**JAMES LESLIE,**

**JUNCTION OF CRAIG AND ST. ANTOINE STS.**

**MONTREAL.**

GEO. W. SADLER, Proprietor.

**ROBIN & SADLER**  
**MANUFACTURERS OF**  
**LEATHER -**  
**- BELTING**

129 BAY STREET, TORONTO. *and* NOTRE DAME ST., MONTREAL.

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

G. O. CLEVELAND.

G. F. CLEVELAND.

**J. L. GOODHUE & CO.**

MANUFACTURERS OF SUPERIOR QUALITY

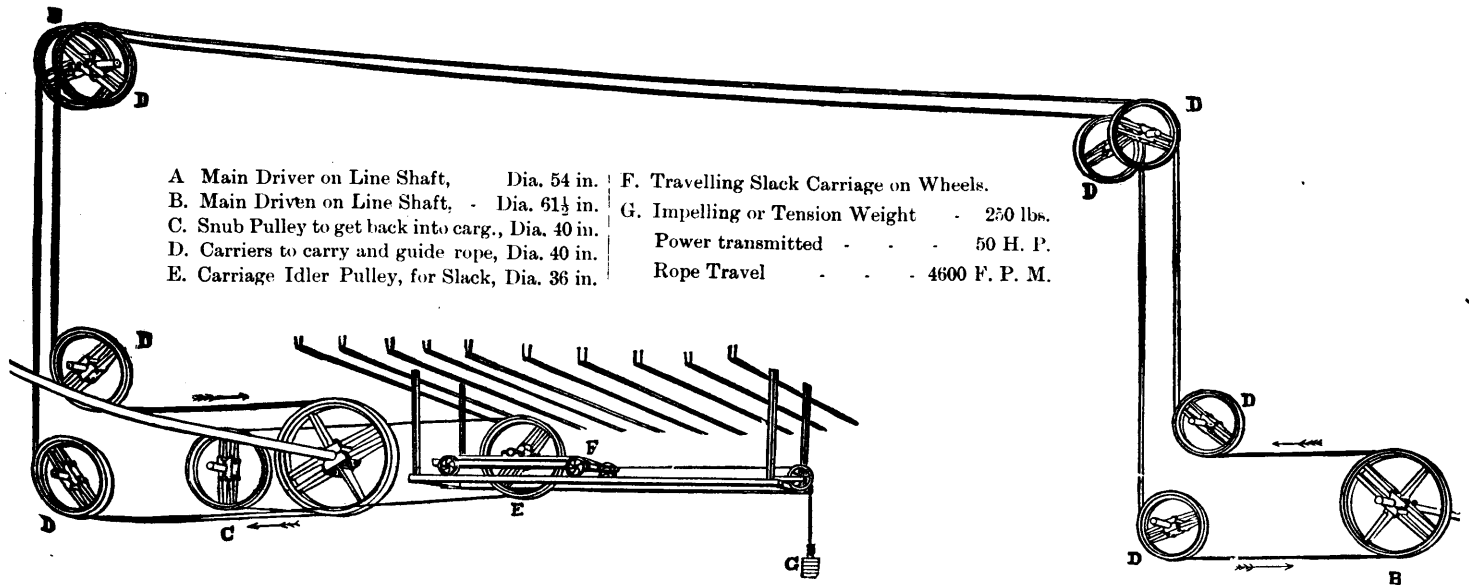
**LEATHER BELTING**  
**DANVILLE, - QUE.**

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

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

# Rope Transmission of Power.

❧ PATENTED. ❧



The above illustration shows the Dodge System of transmitting power by manilla rope and grooved hard wood pulleys, as manufactured and erected by Dodge Wood Split Pulley Co., Toronto, and demonstrates fully the practicability of the system. That it may be clearly understood and appreciated, we give the following description:

A transmission similar to the above was erected and started up in September, 1886, and has been running constantly ever since, conveying the power (50 H. P.) to drive a line shaft on the opposite side of the street.

This shaft is on a parallel line with the main line or power end.

In order to avoid obstructing the street it was necessary to go back from the power end and up through the upper stories of the main building over idlers, then across the street into the upper story of the building where the power is to be used, then down again into the lower story, where is located the driven shaft.

The transmission is a very simple one and consists of a series of wood split pulleys, and best quality of tallow laid manilla rope. The power is taken from the main line, making 280 R. P. M. Referring to the Cut, A represents the driver and is 54 inches diameter with two grooves. B, the driven, is 61½ inches diameter with two grooves, located, as stated, in a building on the opposite side of the street, about 125 feet from the driving end. The idlers, D, are of 40 inches diameter, and each has two grooves, and the carriage pulley is 36 inches diameter with one groove.

A journal containing valuable suggestions to those who would apply rope in place of belting for the transmission of power over long distances, with thirty illustrations and much special matter relating to this, the most perfect system ever devised for transmitting the power of a prime mover to distant machinery, sent free on application to the

# Dodge Wood Split Pulley Co.

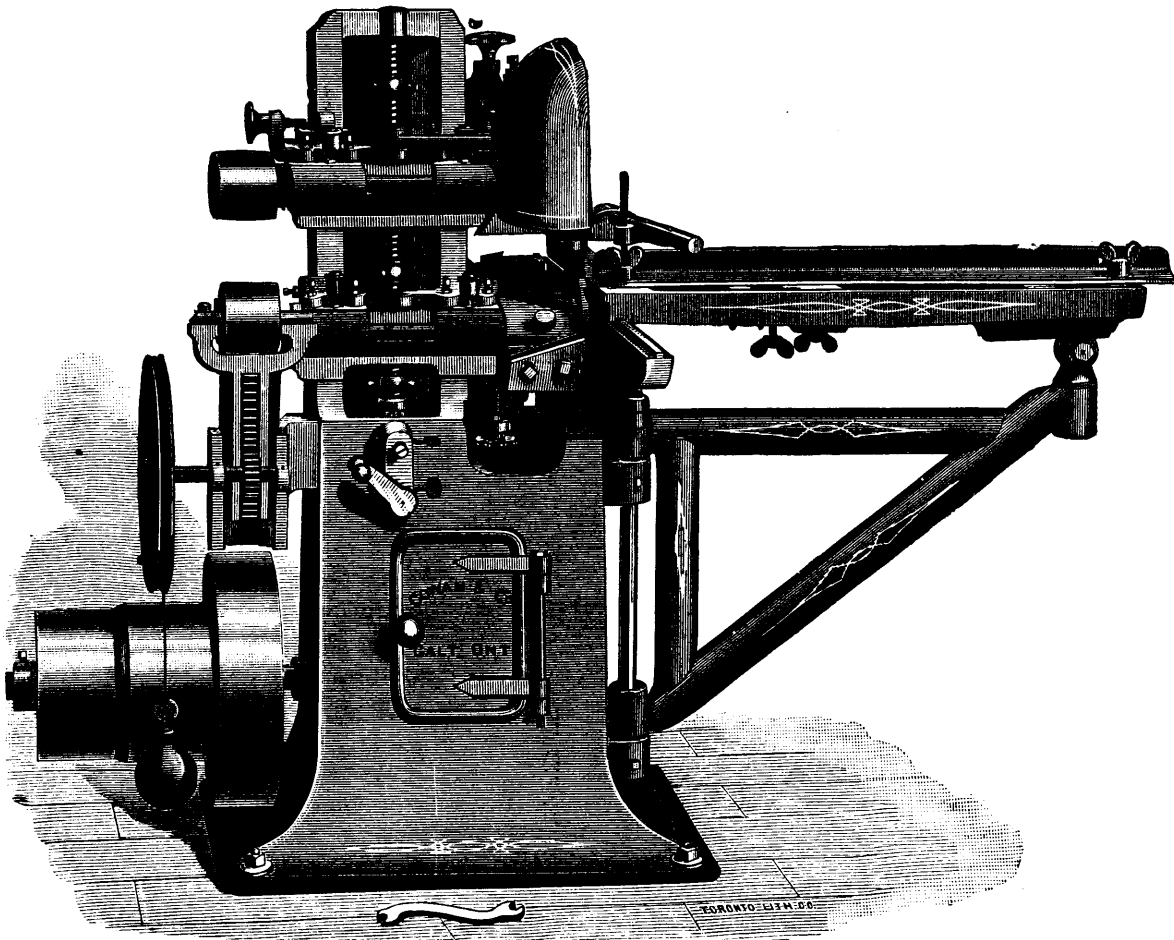
89 Adelaide Street West,

TORONTO, - CANADA.

Belt Pulleys of all diameters and faces made to suit any work, and a large assorted stock constantly on hand.



NEW AND IMPROVED  
*Pedestal Tenon Machine.*



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

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

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

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

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

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

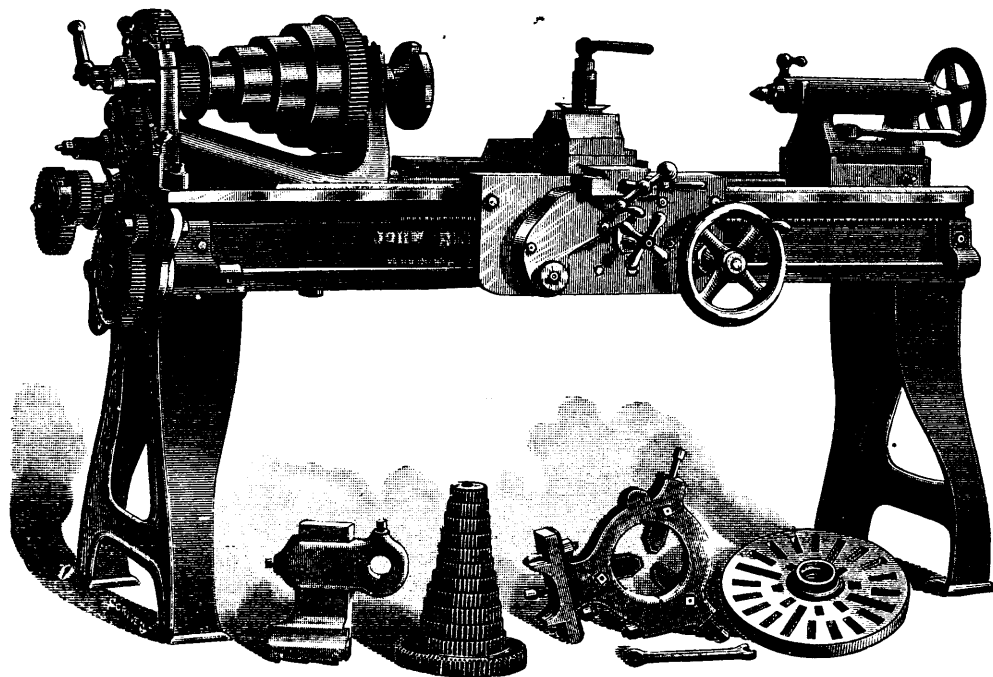
**COWAN & CO.**

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

Canada Tool Works,

# JOHN BERTRAM & SONS

DUNDAS, ONT.



16-in. LATHE.

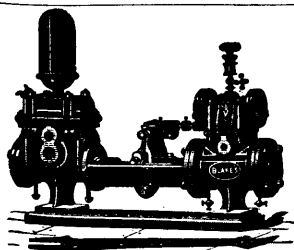
Manufacturers  
of  
**Machinists' Tools**  
and  
**Woodworking  
Machinery.**

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

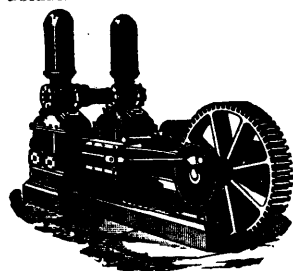
Locomotive and Car Machinery, Special Machinery, Price List and Photographs on application.

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

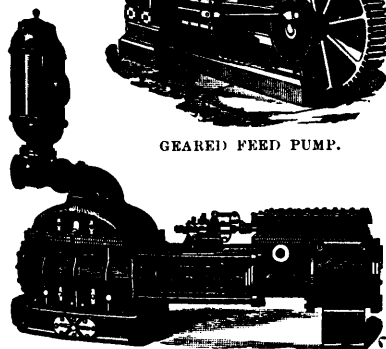
## Geo. F. Blake Manufacturing Co.,



BOILER FEED PUMP.



GEARED FEED PUMP.



DUPLEX COMPOUND ENGINE

BUILDERS OF

SINGLE AND DUPLEX

Steam and Power

### Pumping Machinery



BOSTON,

111 FEDERAL STREET.



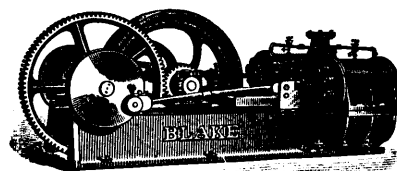
NEW YORK,

95 & 97 LIBERTY STREET.

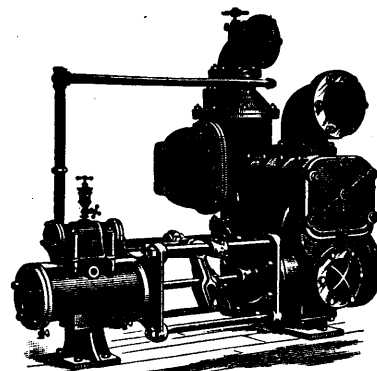


SEND FOR ILLUSTRATED CATALOGUE.

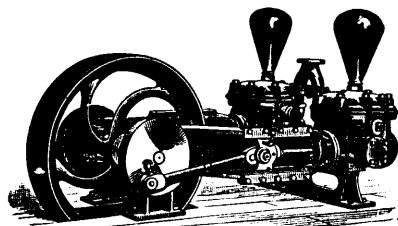
These goods may be seen at the Permanent Exhibition 63 to 69 Front Street West, Toronto.



AIR COMPRESSOR.



AIR PUMP AND CONDENSOR.



BELT PUMP

# *Nova Scotia Steel Co., Limited,*

NEW GLASGOW, NOVA SCOTIA

(Only Steel Works in Canada),

MANUFACTURERS OF

## **Hammered *and* Rolled Steel**

MADE BY THE

SIEMENS-MARTIN (OPEN HEARTH) PROCESS.

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

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

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

STEEL MOWER BARS.

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



**113 FEDERAL STREET, BOSTON.**

*93 Liberty St., New York.*

*Warren, Mass.*

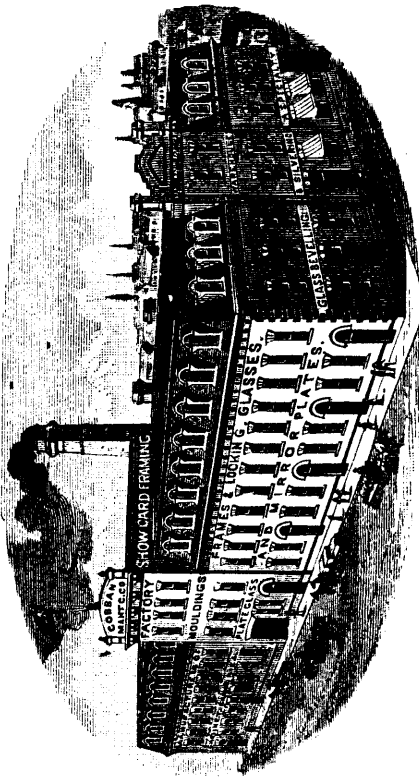
FOR SALE BY THE

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

**WHERE MANY SIZES MAY BE SEEN IN STOCK.**

SEND FOR ILLUSTRATED CATALOGUE.

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

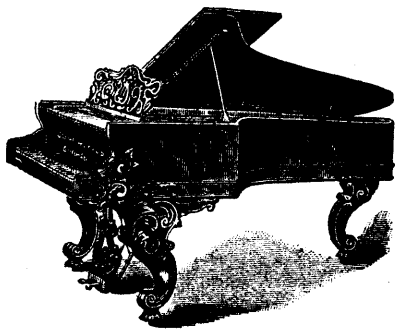


MANUFACTURERS OF  
 Mantles, Over Mantles and Mirrors in Finest Hardwoods. Mouldings, Picture  
 Frames and Looking Glasses. Mirror Plates: British, French, German,  
 Stocks. Plate Glass Beveling and Silvering a Specialty

**CLOSE PRICES. LIBERAL TERMS.**  
**MONTREAL. TORONTO.**

**HEINTZMAN & CO.**

MANUFACTURERS OF



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

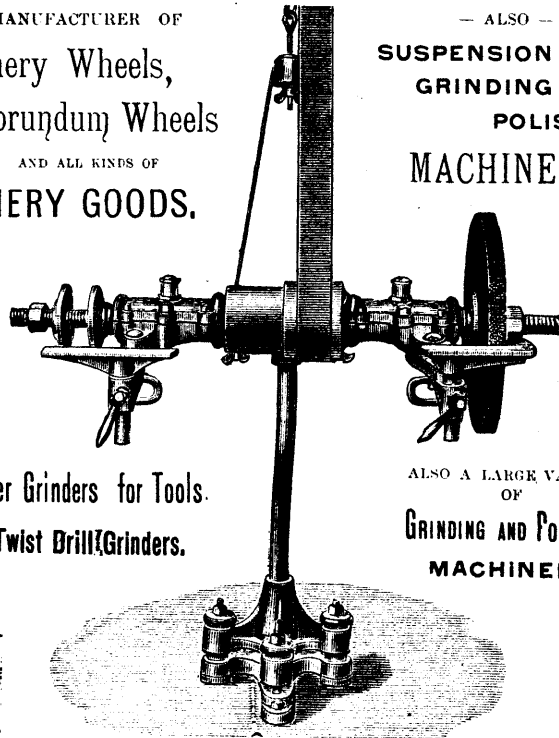
SEND FOR ILLUSTRATED CATALOGUE.

Warerooms, - 117 King St. West,  
**TORONTO.**

**PRESCOTT EMERY WHEEL CO.**  
**PRESCOTT, ONT.**

MANUFACTURER OF  
 Emery Wheels,  
 Corundum Wheels  
 AND ALL KINDS OF  
**EMERY GOODS.**

— ALSO —  
 SUSPENSION  
 GRINDING AND  
 POLISHING  
**MACHINERY**



Water Grinders for Tools.  
 Twist Drill Grinders.

ALSO A LARGE VARIETY  
 OF  
 GRINDING AND POLISHING  
**MACHINERY.**

*Discounts and Price Lists on application.*

**IMPROVED METHODS**

OF

**Handling Anchors and Chains**

With fewer men, in less time, and easier than by any other  
 arrangement, by the use of the

**Providence Windlasses.**

Approved by Underwriters, Owners, Masters and Builders.

**SOLE MAKERS FOR CANADA.**

**Windsor Foundry Company**

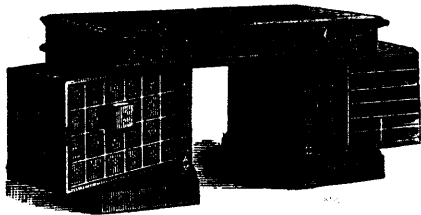
WINDSOR, NOVA SCOTIA.

# W. STAHLSCHMIDT & CO.

PRESTON, ONT.

MANUFACTURERS OF

School, Office, Church and Lodge  
Furniture.



## ROTARY DESK

No. 50.

Send for Circulars and Price List. Name this paper.

See our exhibit in the Annex at the Industrial Exhibition.

## Young & Son,

MANUFACTURERS AND IMPORTERS  
OF DYE STUFFS.

Black and Yellow Dyes,  
Cutchine and Sakta a Specialty.

21 and 23 DE BRESOLES ST., - MONTREAL.

Mills, Port Neuf, Que.

J. Brooks Young Harrison B. Young.

## New England Paper Co.

—MANUFACTURERS OF—

NEWS, WRAPPING AND MANILLA PAPERS.

ALL SIZES AND WEIGHTS

MADE TO ORDER.

21 and 23 De Bresoles St., Montreal.

J. H. Brooks Young, President.

Harrison B. Young, Treasurer.

ESTABLISHED 1820.

## EAGLE FOUNDRY.

### GEORGE BRUSH,

14 TO 84 KING AND QUEEN STREETS MONTREAL.

Maker of

STEAM ENGINES,  
STEAM BOILERS,  
HOISTING ENGINES,  
STEAM PUMPS,  
CIRCULAR SAW MILLS,  
BARK MILLS,  
SHINGLE MILLS,  
ORE CRUSHERS,  
MILL GEARING,  
SHAFTING,  
HANGERS AND  
PULLEYS,  
HAND AND POWER HOISTS FOR  
WAREHOUSES, &c., &c.,  
and Agent for

"Water's" Perfect Steam Engine Governor, and  
"Heald & Sisco's" Centrifugal Pumps.



## SMITH'S FALLS MALLEABLE IRON WORKS

### WM. H. FROST

MANUFACTURER TO ORDER OF

Malleable Iron Castings

FOR

Agricultural Implements  
AND OTHER PURPOSES.

Also CARRIAGE HARDWARE.

SMITH'S FALLS,  
Ontario, Canada.

## THE OSHAWA Malleable Iron Co.

MANUFACTURERS OF

MALLEABLE IRON

CASTINGS TO ORDER

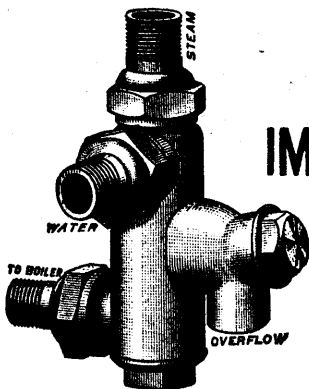
FOR ALL KINDS OF

Agricultural Implements

AND

MISCELLANEOUS PURPOSES.

Oshawa, Canada.



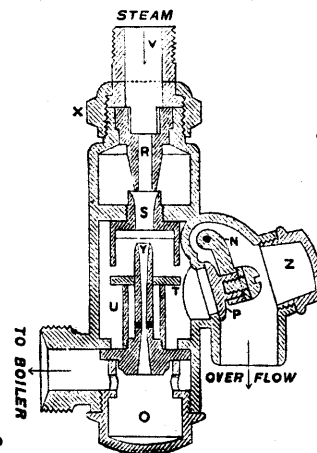
## FEED YOUR BOILER WITH A PENBERTHY IMPROVED AUTOMATIC INJECTOR.

10,000 IN USE IN CANADA.

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

## SIMPLE, ECONOMICAL AND DURABLE.

And the Only Absolutely Automatic Injector in the Dominion.



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