

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

THE CANADIAN MANUFACTURER

AND INDUSTRIAL WORLD.

DEVOTED TO *
THE
MANUFACTURING & MINING INDUSTRIES,
OF THE
DOMINION. *

Vol. 5.

TORONTO, DECEMBER 3, 1886.

No. 57

FENWICK
&
SCLATER,
MONTREAL.



SEND FOR CIRCULARS

ASBESTOS GOODS,
OF ALL KINDS.

Files and Rasps, finest quality;
Fire Hoses, cotton rubber-lined, for
Fire Brigades; Linen Hoses, plain
and rubber-lined, for Mills, Fac-
tories, Hotels, etc.

Hand Fire Engines.

Stitched Cotton Belting.

Railway, Mill, and Engineers' Supplies.

"Old Dyewood Warehouse"
Established 1838.

Theo. H. Eaton & Son,

Windsor, Ont. : Detroit, Mich.

IMPORTERS OF

ANILINE COLORS,

DYE WOODS.

DYING DRUGS, CHEMICALS, Etc.

MANUFACTURERS OF

GLAUBER SALTS AND EXTRACT INDIGO.

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

Windsor Varnish Works

J. L. DUNN & CO.

MANUFACTURERS OF ALL KINDS OF

VARNISHES, HARD OIL FINISH,

JAPANS and DRYERS.

SPECIALTIES:

Dunn's Stove Pipe Varnish,

Dunn's Excelsior Paint Dryer.

OFFICE: 16 OUELLETTE STREET,

WAREHOUSE AND FACTORY, PARENT AVENUE,

WINDSOR, ONT.

Imperial Bank of Canada.

Head Office - Toronto.

H. S. HOWLAND, President, | T. R. MERRITT, Vice-President,
D. R. WILKIE, Cashier.

Capital Paid-up - \$1,500,000
Rest - \$500,000

Purchases Municipal Debentures.
Issues Drafts on its Branches and Agencies in the
North-West.
Transfers Monies by Telegram to Winnipeg and
Brandon.

Agents in London,
LLOYD, BARNETT & BOSANQUET'S BANK
(Limited).

62 LOMBARD STREET,
with whom monies for transmission from Great Britain to
Ontario and the North-West may be deposited.

A general Banking Business transacted.

THE
Gutta Percha & Rubber

MANUFACTURING COMPANY.

T. Mellroy, Jr. - - - Manager.

WAREHOUSE

Manning Arcade, King Street W., Toronto.

The largest manufacturers in the world of
Vulcanized India Rubber Goods for mechanical
purposes:

Rubber Belting from 1 to 72 inches wide.

Hoses, for conducting, suction and steam.

Packing, Cloth Insertion and pure.

Tubing, of all kinds.

Rubber, Linen, and Cotton Fire Hoses.

Leather Belting, Extra heavy American
Oak Tanned.

A full Stock always on hand.

Write for Price Lists and Discounts.

McKechmie & Bertram
CANADA TOOL WORKS!

Dundas, Ont.

Supply complete outfits of Machinery for Railway
Machine Shops, Locomotive Builders, Car Builders, Im-
plement Manufacturers, Planing Factories, etc. CON-
TRACTS taken and fulfilled at shortest notice. Tenders
given, and Price Lists and Catalogues furnished on ap-
plication.

J. C. DIXON & BROS.,
WORSTED SPINNERS,
DUNDAS, Ont.

MANUFACTURERS OF
FINGERLING, KNITTING,
and all descriptions of
WORSTED YARNS.

The Canadian Bank of Commerce.

HEAD OFFICE, . . . TORONTO

Paid up Capital, 92,000,000.
Reserve, 2,100,000.

DIRECTORS.

HON. WM. McMASTER, *President.*
WAL. ELLIOT, Esq., *Vice-President.*
John Waddle, Esq., Jas. Crathern, Esq.
W. H. Hamilton, Esq., T. Sutherland Stayer, Esq.
George Taylor, Esq.
W. N. ANDERSON, *General Manager.*
J. C. KEMP, *Asst. General Manager.*
ROBT. GILL, *Inspector.*
F. L. HANKEY, *Asst. Inspector.*

New York—J. H. Goodby and B. E. Walker, Ag'ts
Chicago—A. L. DEWAK, Agent.

BRANCHES.

Ayr.	Guelph.	St. Catharines,
Barrie.	Hamilton.	Sarnia.
Belleville.	London.	Seaforth.
Berlin.	Montreal.	Simcoe.
Brantford.	Norwich.	Stratford.
Chatham.	Orangeville.	Strathroy.
Collingwood.	Ottawa.	Thorold.
Dundas.	Parkhill.	Toronto.
Dunnville.	Paris.	Walkerton.
Galt.	Peterboro.	Windsor.
Goderich.		Woodstock.

Commercial credits issued for use in Europe, the East and West Indies, China, Japan, and South America.

Sterling and American Exchange bought and sold.

Collections made on the most favorable terms. Interest allowed on deposits.

BANKERS.

New York—The American Exchange National Bank.
London, England—The Bank of Scotland.

**McARTHUR,
CORNEILLE & CO.,**

(Successors to JOHN McARTHUR & SON)

310 to 316 St. Paul Street,
and
147 to 151 Commissioners Street,
MONTREAL,

offer at lowest prices

**PURE OLIVE OIL,
WINTER-PRESSED LARD OIL,
EXTRA FINE SPINDLE OIL,
and a full assortment of other
LUBRICATING OILS.**

Also

**CHEMICALS,
DYESTUFFS,
DYEWOODS,
EXTRACTS,
&c. &c. &c.**

Are Sole Agents in Canada for
SOCIETE ANONYME

DES

**MATIERES COLORANTES ET
PRODUITS CHIMIQUES,
DE ST. DENIS,**

Successors to

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

Manufacturers of

**ANILINE DYES,
ARCHIL
CUDBEAR.
&c. &c. &c.**

Prize Medal, London Universal Exhibition, 1862.

Gold Medal, Paris Universal Exhibition, 1867.

Grand Diploma of Honor, Vienna Universal Exhibition, 1873.

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

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

**ALFRED SAVAGE & SON,
MANUFACTURERS OF
Woollen Mill Oils and Soaps.**

168 MCCORD STREET,
MONTREAL.

GET SEND FOR PRICES AND CIRCULARS.

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

55 BEEKMAN ST., N.Y.

All kinds of

DYE STUFFS.
Dye Woods, Extracts, Cutch,
Indigo, Gambier, Cudbear, Coch-
ineal, Sumac, and Liquid
Extracts of Dyewoods.

**MIDDLETON & MEREDITH,
MONTREAL.**

CHEMICALS AND DYE STUFFS.

Sal Soda, Soda Ash, Bleaching Powder,
Caustic Soda, Bi-Carb. Soda, Chlorate
of Potash, etc., etc.

Extracts Indigo, Sumac, Fustic, etc.,
Gambier, Cutch, Sumac, etc., Acids,

ANILINE DYES,

Brooke, Simpson & Spiller's. Full Assort-
ment on hand.

PHOSPHOR BRONZE. SILICATE CLOTH.

PILLOW, HERSEY & 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, 91 St. Peter St. Montreal.

**DOMINION
Card Clothing Works,
York St., Dundas.**

**W. R. GRAY & SONS,
PROPRIETORS,**

MANUFACTURERS EVERY DESCRIPTION OF

**Card Clothing and
Woollen Mill Supplies.**

**DOMINION
DYEWOOD & CHEMICAL CO.**

SOLE MANUFACTURERS OF
The Celebrated Yorkshire Scouring and
Fulling Soaps,
Neutral Cotton Seed Oil Soaps,
Pure Lard Oils specially adapted for the
Woollen Trade.

IMPORTERS OF
Indigo, Cochineal, Cudbear,
Indigo Ext., Cutch, Archil,
Madder, Dyewoods,
Dyewood Extracts and all Dyeing Drugs,
ANILINE DYES, ALL COLORS.

SPECIALTIES ARE
Imperial Blue, Fast Seal Brown,
Fast Acid Brown, Brilliant Scarlets,
Azo. Green, Fast Cardinals,
Fast Acid Garnet.

Office: 77 FRONT ST. E. **TORONTO.** Works: Don Station.

THE CANADIAN MANUFACTURER

DEVOTED TO THE MANUFACTURING & MINING INDUSTRIES OF THE DOMINION.

AND INDUSTRIAL WORLD.

VOL. V.

TORONTO, ONT., DECEMBER 3, 1886.

No. 23.

A GREAT COMMERCIAL UNION.

WE find in the *Canadian Exhibitor* (published in London, England, during the Exhibition recently closed), a brief report of a speech made on a certain occasion by Mr. J. B. Perry, of Toronto, who championed Canada's cause and Canada's policy most effectively. It appears that in the conference room of the Exhibition a paper on "Colonial Tariffs" was read by Mr. Stephen Bourne, who argued that, if we were to have a Federation of the Empire, some general principle as to tariffs must be arrived at: and, further, that Free Trade must be the basis of any satisfactory settlement. Instead of trying to stimulate home manufactures by means of Protection, colonists should steadily develop the resources of their respective countries. In other words, they should leave manufacturing severely alone, supply themselves from the mother country with all products of the mill and the factory, and give themselves wholly to the bringing out to the market of the raw products of the farm, the forest, the sea, and the mine.

These views did not chime in with the patriotic aspirations of Mr. Perry, who replied in vigorous "Canada First" style. For one thing, he thought that the mother country, if it were desired to bind the colonies closer to her, should put a duty on foreign wheat, while admitting colonial wheat free (he might well have said the same thing respecting other produce too). As for the surplus population of "the old sod" finding room to live in and a good living in Canada, they could have all that, provided only that the emigrants *settled on the land*, and became farmers, with a view to which every man of them was offered a free gift of 160 acres. The speaker came out most eloquently in his peroration, thus:—

"Let England be a mother to her own, and cease building up foreign countries by a one-sided trade policy. You boast of the Free Trade principle while other countries are shutting their ports to your manufactures and flooding your country with their goods, leaving you to debate what to do with your multitude of unemployed men. In discussing Imperial Federation, the question of loyalty to the old land is not in the debate. All are loyal. We in Canada are super-loyal. Situated as we are beside our friendly cousins of the American continent, with their market of sixty-five millions open to us if we but say the word, we sacrifice our material progress by maintaining British connection; but our love for old England with its grand traditions remains so strong that we content ourselves with the anomalous position we now occupy. But the importance to England of fostering Canadian loyalty is obvious when you consider our position from a strategical point of view, as now affording an alternative route to your Eastern possessions over our transcontinental railway. It appears to me the time has arrived for a closer union or a loosening of the present tie, and that union must be built upon

mutual help, and on the lines suggested by Mr. Bourne in his able paper."

Mr. Perry appears to have agreed with Mr. Bourne in a general way, but that particular point of the National Policy he refused to sacrifice for any consideration.

However, in this matter something more has to be said than all that has been said at all the Imperial Federation conferences ever held in London, or anywhere else, let us add. The question has been asked: Is there any possible way of harmonizing the commercial interests of Protectionist colonies with those of the mother country? And first we would remark that the problem is becoming more difficult with every year that passes, for the reason simply that in the colonies Protection is every year spreading itself and taking firmer root. Thirty years ago the mother country could have made a far better *Free Trade* bargain with Canada than can be made to-day; thirty years hence Free Trade will have almost disappeared from among progressive nations. Canada, after several swings between Protection and Free Trade, has on due deliberation adopted a National Policy of her own, which she will never give up, though to destroy it is the cherished design of some of her prominent political leaders. Victoria, on the other side of the globe, some time ago adopted a system of Protection, not, however, going quite as far as we have gone in that direction. For years back the contrast has been presented of Victoria declaring for Protection, the people of New South Wales on the other hand declaring that whatever others might do, *they* would stick to Free Trade. And English free traders have confidently held it forth that Protection in Victoria was only a temporary craze there, and that soon the telling example of New South Wales must influence all Australasia to the permanent adoption of Free Trade. But, alas for such mistaken anticipations, the deceptive repetition of Cobden's prophesyings forty years ago, when he advised his countrymen to be quite sure that, if England once adopted Free Trade, continental Europe would quickly follow! The revolution has come in Australasia, but not as expected by the free traders. To-day the protection of home manufactures is imperatively demanded by the popular majority in New South Wales, and will most certainly be carried "ere long," The movement has fairly started, and now nothing can stay it.

A possible solution of the problem might be sketched somewhat as follows:—England to admit all colonial raw produce free, as at present, while putting a good round duty on all foreign produce of corresponding kinds. Raw cotton would have to be excepted, and probably raw wool too, all things considered. But wheat and *nearly all* other food products should be included, for certainly the colonies, if assured of the

British market, would quickly develop a production that would supply the mother country's *import requirements* several times over. In return the colonies to admit British manufactures at *half* the duties imposed upon foreign; it being admitted that customs duties they must have in order to raise a revenue. *There* would be a commercial union for you that would guarantee the permanent coherence of the Empire, and be the wonder of the world. If anybody has anything better to propose let us hear it.

WATER GAS AS FUEL

THE fact has been widely published that, since natural gas came into such extensive use in Pittsburg, a number of large manufacturing companies have either already removed to that wonderful hive of industry or have determined to do so at an early day. Natural gas is there displacing coal to the extent of many millions of tons per annum, and something like a revolution in the iron and glass trades is even now going on. The question, "How long will this big rush of natural gas last?" is already debated with keen interest; and a very practical question it is, to be sure.

What we hear quite recently from Scranton (Pennsylvania), however, is not as yet so generally known. The Scranton district is finding its fortune, not in natural gas, but in the immense heaps of waste coal, the accumulations of many years, around the mines. Recent inventions, it is said, render it possible to make use of all this waste or refuse, heretofore so called, thus making the cost of fuel merely nominal, as stated in a despatch which will be found on another page, under the heading of "Iron and Machinery." Two large iron establishments will remove there, owing to the powerful inducement of cheap fuel, and others will doubtless follow. The despatch tells further of the great revival in Pennsylvania's iron industries now going on, and will be found interesting reading.

The Scranton Board of Trade has issued a report on "Powdered Anthracite and Gas Fuel," which is making a great impression on people who have a turn for looking ahead. The idea advanced is to utilize the mountains of anthracite dust or "culm" lying around the mines for the production of water-gas, which is by some looked upon as the fuel of the future, wherever coal for its production is available. Mr. J. A. Price, the president of the Scranton Board of Trade, the author of the report, estimates the amount of culm produced since the opening of the anthracite region, and now lying above ground, at 40,000,000 tons, of which one half, or 20,000,000 tons, has been wasted by the weather, used in filling and grading and fired in the culm bank, leaving 20,000,000 tons available. Estimating that a ton will produce 100,000 cubic feet of water gas, this culm will produce 2,000,000,000,000 cubic feet of gas.

The cost of the production of this gas, as given by Mr Price, is as follows:—

One ton waste at producer	\$.50
Labor handling same per ton	30
Expenses of plant per ton	1.00

100,000 cubic feet gas \$1.80
or less than 2c. per 1,000 cubic feet.

This is regarded by the *American Manufacturer* as certainly an astonishingly low figure, much below the usual estimates

of the cost of water gas. Professor Lowe, as stated in the report of the judges of the Novelties Exhibition, claims 80,000 cubic feet of gas from a ton of anthracite at a cost of 10c. per 1,000. This would make the total cost of the gas from a ton of coal 88 instead of \$1.80. Of this \$1.80, 50c. was for coal culm, and \$1.30 for other expenses. Assuming that the expenses are the same when anthracite coal is used as when culm is used, the coal in Mr. Lowe's figures would cost \$6.70.

Our Pittsburg contemporary further says:—"That water gas will eventually play an important part as a fuel gas we have not the least question. That the best method for its production, or that the gas now made is the best for some purposes, say iron-making, may be questioned. There are difficulties in its manufacture, there are objections to its use in furnaces in which it comes in contact with iron, but these will be overcome, and even now for many purposes water gas is much to be preferred to solid fuel."

FLAX EXPORT OR MANUFACTURE.

THE *Montreal Gazette* observes that *Imperial Federation* lays much stress on a paper, read by Mr. E. B. Biggar, in the Conference Hall of the Colonial Exhibition, on the raising of flax in Canada. Hitherto the factories of the United Kingdom have been mainly supplied with that material by Russia, but if flax and tow can, as Mr. Biggar urges, be grown in Canada, of excellent quality and in sufficiency to meet all needs, there is certainly no reason why Russia should have the preference. The statements made by Mr. Biggar were, moreover, confirmed by the speakers who followed him, some of whom had large experience in the agricultural industry in question. The fibre of the flax grown in Manitoba and the North-west is said to be superior to that of Ontario. And yet the latter, of which 1,000 tons were exported to Belfast during the present year, was pronounced by trained judges to be superior to the Russian article. Some agriculturalists hold that flax is more profitable than wheat for breaking up virgin soil, and that it will flourish where the summers are too short for wheat. There is, however, ample room in the North-west for the raising of both crops to any extent that the European demand can require. It is satisfactory to learn that leading Belfast manufacturers are disposed to encourage the industry in the North-west.

It may be satisfactory to learn that, as the *Gazette* says, leading Belfast manufacturers are disposed to encourage the production of flax in the Canadian North-west. But we submit that it would be still more satisfactory could we so manage things as to have the flax manufactured at home. And, by the way, it might be a good plan for the people of the North-west to keep their eyes on the manufacture of flax, as well as its production, as one of the possibilities of the future for that vast region. No matter what some people may say, authorities both scientific and practical are agreed that flax is exhausting to the soil, and that it must have a strong soil to grow in. But the prairie soil of the North-west is of exceptional strength and endurance under crop, that of Manitoba in particular. We suggest, therefore, that it would pay the people of that Province, first of all, to give special attention to the flax crop, and to try what they can do in the manufacture of the fibre too. If higher duties on flax goods be required, the Dominion Parliament should put them on at the first opportunity.

TRADE POINTERS.

THE customs receipts at Montreal (we recall here what the *Gazette* said on October 1st) for the month of September show a remarkable increase of over sixty-two per cent., or \$316,346 over those of the same month in 1885. This indicates a very great development in the import trade of the country, two-thirds of which is handled at Montreal, and shows that the merchants anticipate a largely increased business during the coming season. There are well grounded reasons for this. Since the beginning of the year the volume of wholesale trade has shown a steady development. The harvest, the Dominion over, has been an average one, and has been secured in fine condition. The prices of agricultural produce are not unsatisfactory; those of cheese and butter are fair, if not good, and the falling off in the cattle export trade promises to be more than recouped by the greatly enhanced shipments of sheep, the prices of which, too, in Great Britain, have been steadily on the rise for some time. The export trade throughout is in a flourishing condition. The returns for August show an increase in the month over last year of within a fraction of a million of dollars, \$827,633 being in goods the produce of Canada. It therefore appears that the country is in a position to pay for the increased volume of imported goods.

The collections at the port of Montreal for the first quarter of the fiscal year have been as follows:—

	1886	1885
July	\$943,804	\$801,569
August	735,305	628,777
September	896,945	550,599
	<u>\$2,576,056</u>	<u>\$1,983,945</u>

Showing a total increase of \$592,110.

On another page we publish an Ottawa despatch giving the exports for October, which show an increase of nearly a million dollars in goods the produce of Canada, over the corresponding month of last year. A comparison for the first four months of the fiscal year (July to October inclusive) is also given.

THE COST OF LIVING OR "THE PRICE OF LIFE"

In this issue we publish in full a paper read before the meeting of the American Public Health Association, held recently in Toronto, by Mr. Archibald Blue, Secretary of the Ontario Bureau of Industries. This paper sets forth the results of inquiries into the actual cost of maintenance in several public institutions in this Province. We observe that where a "ration" is spoken of it means three meals, or the supply for one day. The results of an inquiry made last year as to the cost to the working classes in Ontario of rent, fuel and clothing, are also given. The figures per day's ration which Mr. Blue has arrived at will probably strike most people as being a good bit lower than they had expected to find them.

These low figures are, however, in some degree confirmed by the authority of Mr. Edward Atkinson, of Boston, who is one of the foremost statisticians and economists in the United

States (Mr. Atkinson's paper, it will be seen, is referred to by Mr. Blue, who, however, has his doubts as to whether living on cheaper food would be true economy.) His views as to the "price of life" were given in an article published in *Bradstreet's* last March, the substance of which we reproduce for the benefit of our readers as under:—

He begins by saying that we have become so accustomed to measure the price of things in money that it is a little difficult to forget the rates of wages, earnings or profits, and look only at the actual results of toil. But reflection will show that that for which men and women really work is not money, but subsistence. The price paid for shelter, food and clothing is the price of sustaining life. It is therefore an urgent problem for millions how to get a good subsistence for less money than they now spend for a poor one. The way for the working classes to improve their condition is to produce more or waste less. When each one has found out this secret for himself the labor question will be practically settled. All there is in it is how to answer the all-absorbing question, "What is the price of life?"

The magnitude of this problem to the people of the United States appears from the fact that ninety per cent. of them trust to their daily work for the daily price of their own lives and of those who depend upon them. In the "working classes," in the narrow sense of that term, are reckoned laborers, servants, mechanics, and factory operatives, with whom may be included teachers, clerks, salesmen, saleswomen, seamstresses, and the like. In the strictly working class may also be included ninety per cent. of all the farmers who own their own land, but who work harder than any of their hired men. To all such persons the price of life is the one question which is ever before them.

There is a somewhat subtle distinction between the cost of life and the price of life. The cost is the force consumed. In respect to each individual it is the effort which he makes, be it great or small. The true cost of life is the measure of the actual work performed by each person in order to secure the shelter, food, and clothing which are necessary, together with the additional comforts and luxuries which each person can afford to enjoy, including leisure. By "leisure" is meant the control of a part of each day from the urgent necessity of working for mere subsistence. It may be that he who attains such leisure will adopt the definition of this word which is given by the "Old Bohemian" in his cookery book. He says that "leisure consists in the diligent and intelligent use of time."

In contrast with this broad view of the cost of a man's life to the community, whether he be capitalist or laborer, is just what he consumes out of the annual product, and no more. The price of a man's life to himself is what he pays out of his earnings for his necessary consumption. A man can live at a very low price to day, and if he be intelligent he may earn the price at the cost of very little labor.

These are the general views presented by Mr. Atkinson as to what he calls the "price of life." Some particulars, connected with experiments of his own in the production of a food ration which is both good and cheap, we hope to refer to in our next.

OUR CARD BASKET.

THE following is a list of those who have favored us with a call since the date of our last issue.

Haskin, Laidlaw, Galt, Chas. Draper, of Messrs. Chas. Draper & Sons, Canton, Mass.; Kemp, of Messrs. McDonald, Kemp & Co., tire manufacturers, Toronto; A. E. Dalley & Co., Hamilton; Frank J. Phillips, of the Cobban Manufacturing Company, Toronto; R. Lang, tanner, Berlin; Samuel May, of Messrs. Samuel May & Co., billiard table manufacturers, Toronto; James Watson, President Strathroy Knitting Company, Hamilton; W. H. Storey, of Messrs. W. H. Storey & Co., glove manufacturers, Acton; R. R. Pringle, Cobourg; O. Wilby, of the Weston Woolen Co., Weston; S. S. Myers and E. F. Duffon, of Messrs. Duffon and Myers, woolen manufacturers, Stratford and St. Mary's; James Kendry, of the Auburn Woolen Mills Co., Peterborough; T. B. Caldwell, of Boyd, Caldwell & Co., woolen manufacturers, Lemark; T. G. Van Egmond, of A. G. Van Egmonds' Sons, Seaford; David Graham, woolen manufacturer, Inglewood and Clinton; Geo. Pattinson, of Robinson, Howell & Co., woolen manufacturers, Preston; James Gillies, of Gillies, Sons & Co., woolen manufacturers, of Carleton Place; Bennett Rosamond, of the Rosamond Woolen Co., Almonte; J. Elliott, of Elliott & Co., woolen manufacturers, Almonte; W. Rosamond of the Cobourg Woolen Co., Cobourg; John Shuh, of the Waterloo Woolen Manufacturing Co., Waterloo; D. Morrice, of D. Morrice Sons & Co., Montreal; J. A. Cantlie, of Cantlie, Ewan & Co., Montreal; John Ellis, of Ellis & Godfrey, woolen manufacturers, Galt; James Lockhart, Toronto; G. B. Fraser, Toronto; H. A. Collinson, of the Whitman and Barnes Manufacturing Company, St. Catharines; P. Patterson, of Patterson & Bro., manufacturers of agricultural implements, Richmond Hill; James Newton, of Newton & Bro., tanners, Richmond Hill; Robert Williams, of R. S. Williams & Sons, piano manufacturers, Toronto; Wm. Christie, of Christie, Brown & Co., biscuit manufacturers, Toronto; Karl Zeidler, of Wagner, Zeidler, & Co., piano key manufacturers, Toronto; Wm. Burn, of the Burn & Robinson Manufacturing Company, Hamilton; John Hallam, of the Grand River Knitting Mills Company, Paris; W. Millichamp, show case manufacturer, Toronto; Geo. Booth, of Geo. Booth & Son, coppersmiths, Toronto; Mr. Wilcox, of the American Nail Works, Hamilton; Frank J. Phillips, of the Cobban Manufacturing Company, Toronto; John Inglis, of Messrs. Inglis & Hunter, engine builders, Toronto; Mr. Langley, of Messrs. Langley, Neill, & Co., hat manufacturers, Toronto; P. Freyseng, cork manufacturer, Toronto; H. A. Massey, of the Massey Manufacturing Company, Toronto; H. S. Howland, jr., of the Permanent Exhibition of Manufactures, Toronto; James Barnard, of the Hart Emery Wheel Company, Hamilton; M. Staunton, of M. Staunton & Co., wall paper manufacturers, Toronto; Joseph Simpson, knit goods manufacturer, Toronto; Mr. Currie, of Currie, Mylne, & Co., boiler makers, Toronto; C. A. Birge, of the Canada Screw Company, Dundas; J. F. Ellis, of the Barber and Ellis Co., manufacturing stationers, Toronto; W. A. Firstbrook, of Firstbrook Bros., Toronto.

THE total commercial product of coal of all kinds in 1885 in the United States, based upon figures collected by the Bureau of Mineral Statistics, was 95,834,705 long tons valued at \$152,915,108. This is exclusive of the coal consumed at the mines.

A TRIAL has recently been made in New York city of fireproof wood. About 300 insurance men of that State were witnesses one evening last week of an experiment testing the fire-proof qualities of a building lately erected by P. M. Wilson at Hudson and Bank streets. The flooring of the building is formed of two thicknesses of plank, with asbestos between them. The effectiveness of this was tested by building a large fire upon a piece of the floor, and raising heat enough to bake a bushel of clams laid upon it. Notwithstanding the high temperature the floor was not materially injured.

NO COMPROMISE.

A MONTREAL FIRM SPEAKS OUT PLAINLY--THE SHOE TRADE

WE find the following in the *Toronto Telegram*, Dec. 1st.

The leather trade is far from lively at present, and the recent failures of large houses in the Lower Province have not added to its stability. In Toronto happily the insolvency of Charlesworth & Co. will probably be the only one of note, but in Montreal matters are far from hopeful. In reference to Charlesworth & Co. the worst effect arising from the assignment will be the number of smaller firms it has dragged down to ruin with it. The mercantile lists for the present week show numerous small dealers who have suffered commercial destruction through connection with the big Toronto house. A meeting of the creditors is being held this afternoon, when some final disposition will be made of the matter by the creditors.

Appropos of extensions and liberal compromises, the following circular was received by Mr. E. R. C. Clarkson from a Montreal house to whom he had submitted, as assignee, the offer of a western firm of a compromise at 75c. on the dollar:—

"Being convinced that the sustaining of insolvent firms in business by accepting compromises is injurious to trade, and unfair to those who pay in full, we have decided not to accede to any compromise during the year 1886.

"We are at all times willing to give any reasonable renewal or sign for granting an extension of time, or to do anything to assist a firm to pay its way, but will not become a party to assist men to injure legitimate trade by giving them goods at less prices than firms who pay one hundred cents on the dollar.

"P.S.—The object of this circular is to avoid being asked and the necessity of refusing to sign a compromise."

Mr. Clarkson is perfectly in accord with the sentiments expressed in the communication, with the proviso that there are exceptions to every rule. The principle, however, he says, is incontrovertible, and if the western merchants followed the example of the Montreal firm there would be fewer attempts to defraud creditors.

AMERICAN PATENTS TO CANADIAN INVENTORS.

THE following patents were granted to citizens of the Dominion of Canada, bearing date November 16th, 1886. Reported expressly for this paper by Louis Bagger & Co., Mechanical Experts and Solicitors of Patents, Washington, D.C.:—

Gemmel, Robert, Columbus, Ont., car-coupling	352,534
Loughlin, T. O., Spanish River, Ont., saw	352,624
Richards, D. L., St. John, N.B., car-coupling	352,661
Smith, Richard, Sherbrooke, Que., doctor for paper-calender rolls	352,665
Sym, Hugh, Montreal, Que., apparatus for removing and replacing the wheels and axles of railway-cars	352,587

Dated Nov. 30:—

Burris, S. C., Victoria, B.C., molding machine	352,285
O'Neill, John, Hamilton, Ont., lock-fastening for bottom-hoops of milk cans	353,611
Waddell, Montgomery, Cobourg, Ont., electric-current indicator	353,619

TOWNSEND COX of the New York Forest Commission, who was at the Hoffman House, said that the acreage of the forest land owned by the State is increasing yearly by the accumulation of land sold for unpaid taxes. The State has over 1,000,000 acres of timber land at the present time. There is a good deal of trespassing, and Mr. Cox estimates the value of timber stolen last year at \$150,000 to \$200,000. The work of the commission is largely to protect the forests from destruction. The loss from thieving is larger than from fire, and next to that is drowning out of trees by the damming of streams, which turns the water back and spreads it over large areas.

THE
Canadian Manufacturer
AND INDUSTRIAL WORLD.

Published on the first and third Friday of each month, by the
CANADIAN MANUFACTURER PUBLISHING CO., (Limited).
6 WELLINGTON STREET WEST, - - - TORONTO.

ANNUAL SUBSCRIPTION, IN ADVANCE, \$2.00.

CARD OF ADVERTISING RATES SENT ON APPLICATION.

EDITOR: **FREDERIC NICHOLLS.**
Secretary Canadian Manufacturers' Association.

This Journal has won for itself an acknowledged position amongst Trade Journals and is recognized as the representative industrial paper of Canada. All the various industries of the country are represented in its columns, and it has been for years the fearless and consistent advocate of those reforms which were indispensable to the success of the Manufacturers. It now reaches nearly every mill and factory in the Dominion, and its influence is constantly increasing.

As a medium for advertisements of machinery, steam appliances, mill and factory supplies, etc., it is unequalled, and our rates will be furnished on application. Communications from Manufacturers, Exporters, and others, are respectfully invited.

OFFICERS OF CANADIAN MANUFACTURERS' ASSOCIATION.

President:

THOS. COWAN, Galt.

First Vice President:

JAMES GOLDIE, Guelph.

Second Vice-President:

SAMUEL MAY, Toronto.

Treasurer:

GEORGE BOOTH, Toronto.

Hon. Secretary:

A. W. WRIGHT, Toronto.

General Secretary:

FREDERIC NICHOLLS (6 Wellington Street West), Toronto.

Executive Committee:

Chairman:

R. W. ELLIOT, Toronto.

E. Gurney, Jr., Toronto
James Watson, Hamilton.
Wm. Bell, Guelph.
Joseph Simpson, Toronto.
J. A. Pillow, Montreal.
A. Warnock, Galt.
W. Millichamp, Toronto.
R. McKechnie, Dundas.
B. Rosamond, Almonte.
Geo. Pattinson, Preston.
Damel Lamb, Toronto.
Charles Riordan, Merriton.
George Booth, Toronto.
Isaac Waterman, London.
W. H. Storey, Acton.
Wm. Brkett, Dundas.
C. Shurley, Galt.
John Taylor, Toronto.
M. B. Perine, Doon.
Thomas McDonald, Toronto.
R. S. Hamlin, Oshawa.
B. Greening, Hamilton.
Geo. W. Suller, Montreal.

J. F. Ellis, Toronto.
J. R. Barber, Georgetown.
John Fensom, Toronto.
Robert Mitchell, Montreal.
L. Côte, St. Hyacinthe.
H. N. Baird, Toronto.
John Elliott, Almonte.
Wm. Christie, Toronto.
J. B. Armstrong, Guelph.
C. Raymond, Guelph.
Murray A. Kerr, Hamilton.
W. F. Cowan, Oshawa.
J. S. Larke, Oshawa.
H. Heintzman, Toronto.
George Lang, Berlin.
F. Strange, Toronto.
D. R. Wilkie, Toronto.
P. Freyseng, Toronto.
F. Crompton, Toronto.
John McClary, London.
Carl Zeidler, Toronto.
C. A. Birge, Dundas.
Wm. Harty, Kingston.

W. G. A. Hemming, Toronto.

All Manufacturers are invited to become members of this Association. Full particulars will be furnished on application to the Secretary.

Editorial Notes.

ADVICES from New Zealand state that a company has been organized to construct a cable from New South Wales to British Columbia at a cost of \$10,000,000. An annual subsidy of \$50,000 is expected to be obtained from the Colonial and Imperial Governments jointly.

TWENTY-FIVE blast furnaces, 65 railroad companies, 131 woodworking establishments, 18 electric light companies, 73 foundries, mills and machine shops, 59 mining and smelting companies and 36 flour mills were organized in the twelve Southern States during the past three months. We might have something like this to boast of in Canada if we had Protection for the making of iron, as well as for the use of it in various manufactures.

THE folly of Free Trade is exemplified in the announcement that Marshall & Co., twine and thread manufacturers, of Leeds and Shrewsbury, England, have decided to close their works there and remove to the United States. They will supply their English Trade from America, it is added. Of course they will, as the manufacturer in a protected country has access to the markets of Free Trade countries as well as to that of his own. "Heads I win, tails you lose."

It is cabled from Melbourne (Victoria) that the Government's announcement of important gold discoveries has caused a general revival in the industries of the colony. Further, owing to the recent rain in New South Wales, the largest crop in many years is expected. Now, if New South Wales would adopt Protection, as she certainly will ere long, the other colonies there would quickly follow the example already set by Victoria, and the prosperity of the fifth continent would advance by leaps and bounds.

A MONTREAL despatch says that navigation may be said to have been closed yesterday week (Thursday, Nov. 25th), on which day the last steamship for sea this season left port. Up to that date ocean navigation had continued 209 days, having opened with the arrival of the first steamship inwards on April 30th. The arrivals from sea in 1885 and 1886 respectively were as follows, the first column showing number of vessels, and the second the aggregate tonnage ---

1885 323 501,679
1886 364 592,405

OWING to an unfortunate and most conspicuous omission in Canada's National Policy, we are unable to chronicle the march and expansion of iron-making in the Dominion, along with that of other important industries. In default whereof, we fall back on the record of our Republican neighbours, who are much wiser than we are in this matter. Under the heading of "Iron and Machinery" will be found two despatches from Philadelphia, a week apart in date, which show how the iron and steel making industry, and others too, are advancing under high Protection unflinchingly maintained.

On Wednesday evening was successfully cast, at the works of Messrs. John Bertram & Sons, Dundas, one of the largest pieces probably ever moulded in the Dominion, consisting of a bed plate for a planing machine for the Wm. Hamilton Manufacturing Company, Peterborough. This bed is thirty feet long, and the machine when finished will take in work six feet square. Between eight and nine tons of metal were poured into the mould. It speaks well for the firm that they never lost a large cast, and this last undertaking went off without a hitch.

A PROMINENT representative of one of the largest steel rail mills in Pennsylvania is reported to have said that he had sold rails during the past week for \$36, but, expecting higher prices, had stopped taking any more orders. It is stated that the quantity of steel rails already sold in the United States for delivery in 1887 is sufficient to lay about 7,700 miles of single track, calculating on the average requirements of rails weighing 60 to 65 lbs. to the yard. The *New York Commercial Bulletin* states that this total, while representing not over 50 per cent. of the entire probable production the coming year, is quite equal to the entire make in England last year. If the estimates of leading rail manufacturers are not at fault, 15,000 miles of single track will need new rails in 1887, and if that proves to be correct, and prices are kept down to the proper point, the output in the United States next year will be close upon last year's entire foreign production.

FROM Philadelphia we hear of a new and important development in the controversy between the green-glass manufacturers and the blowers, over the abolition of the apprentice system. On Monday night (Nov. 29th), meetings of the local assemblies of glass-blowers were held in Clayton, Millville, Salem, Woodbury, Williamstown and Glassboro, N.J., when it was decided that they would not strike as ordered by the Executive Board of District Assembly No. 149, Knights of Labor, but would surrender their charters rather than do so. These blowers are working with apprentices under a reduction in wages of 5 per cent., according to agreement made with manufacturers some weeks ago. The charters of the six assemblies were sent to General-Secretary Litchman on Tuesday. It is stated that these assemblies purpose forming a new association. On the other hand, the officers of District Assembly 149 declare that these blowers, numbering between 500 and 600, will be ostracised and black-listed by all members of the league in good standing, and will not be allowed to work outside the limits of their own town.

THE following is the latest from Amsterdam, N.Y., regarding the great strike in the knitting mills:—The chief incidents in the labor troubles there are the arrival of T. Barry and the opening of one of the mills which has remained closed since the general shut down by McDonnell & Co., resuming operations with a small force in the picking and carding rooms. The employees are all non-unionists. Nine young men who came to the city with the intention of going to work in the mills were returned to their homes in New-England recently by the Knights of Labor, who intercepted them. The manufacturers boast that they have turned away applicants for work enough to fill their mills twice over. But a certain class of

experienced workmen are needed in the mills. The finishing and seaming departments in the factories now in operation employ the usual number of hands, but spinners and knitters are not so easily obtained. A meeting of Knights of Labor was held Monday. Before the hour announced for the meeting Main street was crowded for two blocks. The house, which accomodates 1,200, the hall and sidewalk were blocked. The meeting was the largest one ever held in the neighborhood. The principal discourse was delivered by Thomas Barry, who was successful in bringing about a settlement at Cohoes in March. The manufacturers, though refusing to treat with the other members of the order at different times, have conferred with Barry. The soundness of the latter's utterances gained for him the esteem of the manufacturers and of the Knights of Labor. He denounced the strike of the nine spinners, which originated the lock-out, as uncalled for, since the man they refused to work with was a Knight. District Master Workman Cummins, who was prominent in the strike, explained that he did not order the strike, but that the spinners went out of their own accord.

MILLING NOTES.

(*Indianapolis Millstone.*)

WE hear of millers who have visited different mills, and who are impressed favorably or otherwise with what they saw. For instance a man is thinking about building a mill. He visits a number of establishments, and in some of them is very much pleased with what he sees. He comes back saying that the flour is of a fine quality, and in every way the mill is doing well. Opinions formed as the result of personal observation in the mill, without careful comparative examination, are useless. The best judges of flour in our largest markets do not attempt to decide as to the value or quality of flour except by comparative examination. The best judges of flour are the buyers and dealers, and not the millers. A buyer or dealer in flour sees a great many different kinds of flour, and sees and understands the wants of the trade better than does the miller.

RECENTLY we have had brought to us quite conspicuously the great danger from spontaneous combustion. In one case a servant who had been oiling an oak floor left the cloth used for this purpose under a sink while she was preparing dinner. Time, about one hour, when the presence of great heat was noticed. An examination of the cloth showed that it was nearly ignited. It was shrivelled and drawn together, as a woollen cloth acts when about to give forth a blaze. The floor under it was blackened with heat, and the varnish on the base board scorched. A few minutes's absence from the room and the cause of the fire would have been destroyed and the building in flames, and it would have been suggested, in all probability, that it was the work of an incendiary. Another case was in a shed which connected an engine-room with a mill. An untidy miller covered a water pipe in a trench with manure, and laid a board over it. It had been there about a day when this board and some connecting lumber were noticed to be in a blaze, caused from the combustion of the manure. If this had happened at night when there was no one about the premises, there would have been more talk of incendiarism.

AN English inventor claims that the grip of a pulley on belting may be increased by covering the pulley with a thin, perforated metallic cover, fastened by screws, rivets or solder. Among other advantages, it is said that the strength of the pulley is materially increased, the hold of the belt improved, and it is possible to run with slacker belts. But people here say that nothing holds its grip on the belt equal to the Dodge Wood Split Pulley.

F. E. DIXON & Co.

MANUFACTURERS OF

Patent Lap-Joint, Star Rivet

Leather Belting

SOLE AGENTS FOR

PHOENIX BELT OIL

The Only Perfect Belt Dressing.



IT will make the leather more durable.
 It will effectually prevent the slipping of the belt.
 It does not affect the cement which holds the laps together.
 It does not increase the stretching of the belt and thus render it narrower.
 It makes the leather perfectly water-proof. Belts dressed with this oil can be and are run in places where the temperature reaches 160 to 175 degrees, while in the other extreme, we have endorsements from owners who run their belts in ice houses. Indoors or out, in any kind of weather, wet or dry, hot or cold; belts thoroughly dressed with Phoenix Oil will always run satisfactorily.

.....
 SEND FOR PRICE LIST AND CIRCULARS.
 And our Latest Pamphlet on Belting.

F. E. DIXON & CO.

70 KING STREET EAST,
TORONTO.

SEND FOR CATALOGUE and PRICES.

The DODGE "INDEPENDENCE" WOOD SPLIT PULLEYS



WITH PATENT BUSHING SYSTEM

Best Belt Surface, Lightest, Strongest, Best Balanced, and Most Convenient Pulley in the World.

EVERY PULLEY A SPLIT PULLEY.

The hole in every pulley can be readily bushed to fit any sized shaft. Bushings furnished with each pulley. Guaranteed to give from

30 TO 60 PER CENT MORE POWER THAN ANY IRON PULLEY.

Strong enough for any power required. Made in any size and width, from twelve inches to sixteen feet diameter.

EVERY PULLEY WARRANTED.



We will furnish a Pulley for any service for 30 days free of charge, if it does not meet the warranty. Prices as low as any other good Pulley. Send for Catalogue, Price List & Guarantee

70 PER CENT. LIGHTER THAN CAST IRON

And 50 per cent. Lighter than Wrought Iron or Steel Pulleys.

READ THE FOLLOWING.

NORTHWESTERN MANUFACTURING & CAR COMPANY,
SHATTO & DENNIS, MINNEAPOLIS, MINN., AUGUST 15, 1884.
Gentlemen: You ask why we use the Dodge Patent Pulley. I answer because we consider them the cheapest, most convenient and satisfactory in all particulars.
Yours truly, S. R. STINSON, General Manager.

OFFICE OF NEWTON WAGON CO.,
BATAVIA, ILL., FEB. 17, 1885.
C. L. RICE, AGENT, CHICAGO, ILL.
Dear Sir: Replying to your favor, will say that after using the Dodge Wood Split Pulley for a year or more we are satisfied they are a good thing, if not the best Pulley made, and shall use them hereafter in preference to any other we know of.
Yours truly, NEWTON WAGON CO.

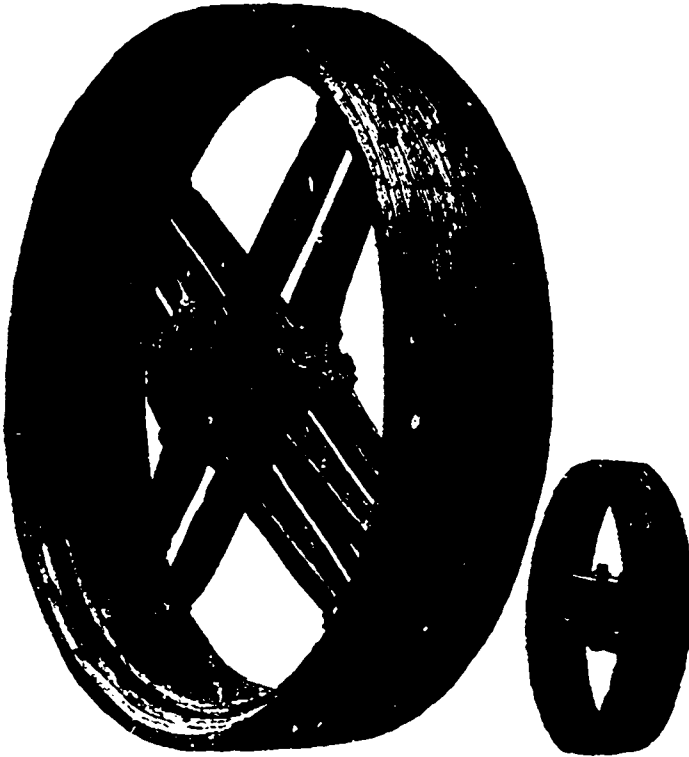
We have sold these pulleys for one year, and they have been put to every kind of service, and their popularity is wonderful. We refer to the following users for proof of the above statements: Pillsbury & Hulbert Elevator Co., Minneapolis; K. M. Pratt & Co., Elevators; Northern Pacific Elevator Co.; The Pacific Elevator Co.; Minneapolis Harvester Works; Minneapolis School Furniture Co.; M. & St. L. R. R. Co.; Wilford & Northway; Washburn, Crosby & Co.; St. Paul Electric Light Co.; St. Paul Roller Mill Co.; Minneapolis Brick Co.; N. W. Mfg. & Car Co., Stillwater, Minn., and very many others.
SHATTO & DENNIS, MINNEAPOLIS, MINN.

THE WORLD'S INDUSTRIAL AND COTTON CENTENNIAL EXPOSITION,
NEW ORLEANS, MARCH 19, 1885.
W. H. DODGE, PRES.
DODGE MFG. CO., MISHAWAKA, IND.
Dear Sir: I have a number of your Patent Wood Split Pulleys in use here at the World's Fair and Cotton Centennial Exposition, driving Dynamos for Electric Lighting. They are doing heavy work, and are held upon the shaft by the compression of wood on iron. They hold firmly, and do not slip. I have watched with a great deal of interest the many Pulleys of your make running at this Exposition; and I think them the best Pulley I have ever seen. I believe them to possess the following points of merit over any other Pulley: All Pulleys being split or in halves; best belt surface; best shaft fastening; best method of utilizing Pulleys to shafts of different sizes; best balance; lightest on the shaft; strong, and I believe durable. I heartily recommend them.
Yours very truly, S. H. GILMAN, Chief Consulting Engineer.

Waste of Power.

According to the best scientific authority it costs one horse power to keep in motion one ton of metal or weight; thus for every unnecessary 2,000 pounds weight on your line shaft, cost you one horse power. To maintain a horse power costs from \$2 to \$125 per year. Any manufacturer who will take the pains to investigate the unnecessary weight by Heavy Iron Pulleys, *too light belts, etc.*, will be surprised to find the enormous waste of power consumed in this manner. 60,000 Dodge Patent Wood Split Pulleys now in use. Our capacity being now equal to 100 Pulleys a day, we shall hereafter keep in stock for immediate shipment all sizes.

Send for Illustrated Circular and Reference List.



THE DODGE WOOD SPLIT PULLEY CO.,

81 to 89 Adelaide Street, West, TORONTO, CANADA.

TAKE NOTICE:—Our List of Prices for the DODGE PATENT WOOD SPLIT PULLEYS is for ALL SPLIT-PULLEYS.

We beg you will note this fact when comparing our List with others which are for SOLID RIM, and NOT for Pulleys in HALVES.

Business Notes.

MITCHELL & MITCHELL, general dealers, Fordwick, owe \$3,000 and have an equal amount of assets. The stock is to be sold by auction.

At a meeting of creditors Charles Stern fancy good jobber of this city, offered creditors 40c. on the dollar, which will likely be accepted.

THE bailiff has the stock of G. S. Turner, shoe dealer, St. Thomas, in his possession, and the estate will not pay more than 5c. on the dollar.

THE estate of Charlesworth & Co. of this city, having gone into the hands of an assignee, it is very likely that the concern will be closed out.

TWENTY-FIVE cents on the dollar is all George Coulson of Hamilton states he can pay his creditors. His liabilities are \$1,500 and assets considerably less. Creditors are willing to accept.

AN offer of 70c. on the dollar is made to creditors by Edward O'Leary, a tailor doing business at Ottawa. The dry goods stock of R. Stewart in the same city has been sold out under chattel mortgage.

THE assignee has not yet completed his list of creditors of the firm Rothschild & Co. The liabilities will exceed \$90,000 and the actual assets will be about \$5,000. The absconding jewellers are rusticiating in Syracuse, N. Y.

THE Galt co-operative association has not proved a profitable venture for its promoters, and the shareholders came to the conclusion that it would be better to face the loss at once. The stock has been purchased by the late manager.

J. H. LAMB & Co., manufacturers of confectionery at Meaford, could scarcely expect three partners to make a living out of such a small business, and the bailiff has seized their stock under chattel mortgage. The liabilities will not exceed \$1,000.

HIRAM LUMLEY, general dealer of Wardsville, allowed his father to obtain a judgment by consent for \$1,000. The stock and accounts amount to \$2,200 and there are no other assets. The liabilities amount to \$6,000. The creditors are not satisfied.

AN offer of 75c. on the dollar was accepted by most of the creditors of A. R. Kerr & Co., of Hamilton. There are a few creditors for small amounts not yet heard from and S. Carslev of Montreal refuses to accept. There is a chattel mortgage on the stock for \$8,000.

AN assignment having been made by Sharp & McKinnon of Montreal, their affairs are being thoroughly investigated. The direct liabilities amount to \$210,000 and several firms have sustained such losses that fears are entertained of a number of suspensions. McKinnon has been arrested under a capias and serious charges have been preferred against him.

W. E. BRIDGESS, shoe dealer, Wallaceburg, held a meeting of creditors recently, showing liabilities of \$4,000 and assets \$5,100. He offered to compromise at 50c. on the dollar which was refused, but the creditors present agreed to accept 65c. on the dollar spreading over 10 months secured. Unless a settlement is agreed to on the basis stated above, the business will be closed out.

IN 1884 Parney & Dunscombe, two young men, commenced a general store at Waterford. Both owned property and were regarded as comfortably off. As business men they have not proved a success, and now ask some assistance from creditors. They have assigned their book accounts to Mrs. Dunscombe, who is a creditor, and a small stock of goods is all there remains to satisfy an indebtedness of \$6,000. John Birrell & Co., of London, are creditors for \$4,000. An assignment has been made to the sheriff.

TRADE OF THE DOMINION.

IMPORTS AND EXPORTS FOR OCTOBER—THE SHOWING COMPARED WITH OCTOBER, 1885.

OTTAWA, Nov. 27th. The statement of goods entered for consumption for the month of October, just issued, is—

Dutiable	\$6,090,913
Free Goods	2,775,260
Coin and Bullion	22,234

Total \$8,888,437

Duties collected \$1,694,826

The statement of exports from the Dominion during the same month is as follows:—

	Produce of Canada.	Produce of other Countries.
Mine	\$564,995	\$62,517
Fisheries	988,982	16,626
Forests	2,668,852	250,326
Animals and their produce	3,713,138	74,158
Agricultural products	2,218,015	541,167
Manufactures	376,612	36,807
Miscellaneous	63,016	9,986

Totals \$10,480,610 \$991,587
10,480,640

Grand Total \$11,472,227

THE INCREASE AND DECREASE.

This gives an increase of \$944,310 over the corresponding month of last year.

Goods, the produce of Canada, show an increase of \$982,016, and goods, not the produce of Canada, a decrease of \$37,704. In goods, the produce of Canada, the following increases are shown over the same month last year: Mine, \$10,330; fisheries, \$120,973; forest, \$300,203; animals and their produce, \$988,313; manufactures, \$1,810. Agricultural products show a decrease of \$123,537, and miscellaneous, \$1,810.

Taking the first four months of the fiscal year, the total exports of goods, the produce of Canada is \$35,163,166, against \$34,720,146 for the same period last year, showing an increase of \$443,020. In goods not the produce of Canada, the increase for the four months is \$704,886, making a total increase of exports for the four months \$1,147,906. The increase in goods the produce of Canada is wholly in animals and their produce and manufactures, the former showing the large increase of \$1,177,286 and the latter \$40,813. All other articles show decreases as follows:—Mine, \$102,542; fisheries, \$161,178; forest, \$331,143; agricultural products, \$179,721; miscellaneous, \$495. In goods, not the produce of Canada, the increases are:—Mine, \$67,448; fisheries, \$17,768; forest, \$152,653; agricultural products, \$706,463; miscellaneous, \$18,016. The decrease in animals and their produce, \$184,766, and manufactures, \$83,620.

THE WHOLESALE TRADE IN MONTREAL.

(Herald, November 29th.)

Business in all its branches has been quiet the past week, though healthy in its tone. The season, when it is no longer autumn and while it is not yet winter, is an off season in all trades. Dry goods men report business fair, considering all things; orders are coming in freely, though only of a sorting-up character. Remittances are only fair, though far from unsatisfactory. When winter roads become passable and outdoor farming operations are ended and farmers commence to market their produce, which this year is plentiful, money is

expected to come in more freely. In boots and shoes business is very quiet, as is usual for this season; a few orders are reported to keep the factories from dullness, and some work is already in hand for the spring trade. The leather trade has not altered much the past week; stocks are not too large and are well assorted; manufacturers are only buying from hand to mouth in anticipation of stock-taking in the near future. The weeding out of a few unhealthy firms in the boot and shoe trade will have a tonic effect on both the leather and the boot and shoe trade. Leather being purchased and never paid for and boots and shoes being sold under cost could not but have a depressing influence on trade. Grocers report trade quieter, but the city demand continues good. Sugars are depressed, and granulated is said to have been shaded below six cents for a round lot. There is a good country demand for teas at former prices; the market slightly favors buyers. Iron and hardware are in about the same position as the other lines of trade; the season's trade is over, and sorting orders are all that are to be depended upon. In heavy hardware prices are firm with a strong upward tendency.

CURRENT NOTES.

(Boston Manufacturers' Gazette.)

As important factor in the cheapening of transportation rates on merchandise by rail is the increased capacity of freight-cars made possible through improved methods of construction, and more especially through the adoption of steel rails and powerful locomotives. The Pennsylvania Railroad Company is increasing the capacity of its freight-cars to 80,000 pounds each. It is but a few years since 20,000 to 25,000 pounds was the maximum weight allowed for the load of each freight-car.

HENRY WARD BEECHER has no sympathy with eight-hour men who have fourteen-hour wives. When the only capital a man has is his hands and his ability to work, Mr. Beecher has little confidence in the future success of one who is satisfied with but eight hours work. Mr. Beecher should bear in mind, however, that those same eight-hour men are loudest in their demands for ten hour pay. Many of the leading spirits of strikes and boycotts are individuals who want to be supported without work, even if they are fed and clothed by dollar contributions from laboring men.

The Chicago labor strikes and socialistic uprisings have undoubtedly seriously affected the prosperity of that city. The packing business is especially affected. The uncertainty of getting beef and pork packed as needed has obliged two large Boston operators to begin work again at the Brighton abattoir. Some of the Chicago packers will remove further west. In the meantime the working-men's strike last week has accomplished nothing except to throw those engaged in it out of employment at the beginning of winter. Chicago working-men will long have reason to regret the numerous mistakes they have made during the past season. Even after a nominal settlement such as has now occurred, there is a constant fear of recurring labor troubles in Chicago.

The State geologist of Indiana reports that dry wells bored for gas or oil in that state have yielded one or both since the Charleston earthquake. Acting on this hint some one has proposed boring for either oil or gas near Charleston, which, as the scene of the late disturbances, is presumably shaken up considerably in the interior of the earth. But it does not appear that Charleston is in the coal formation, which seems to be essential to the production naturally of petroleum or natural gas. Had there been wells several hundred feet deep in and around Charleston at the time of the late earthquake they might easily have developed into volcanoes, thus giving release to the pent up forces of the earth's interior. An eminent geologist once said that volcanoes are only successful earthquakes. Probably the people of South Carolina are more than willing by this time to let the earth's interior alone, provided it will let them alone.

FOOD FOR THOUGHT.

BY JOHN MORLEY.

EVERY pulley in a mill or factory should be a split pulley, and as light as possible, consistent with strength, and should be in perfect balance. No matter how permanent you think your machinery may be arranged, in these days of advance and progress changes in the location of machines, or of the machines themselves, are frequent, which necessarily requires a change either in the location of the pulleys on the line shaft, or pulleys of different size. To uncouple the shaft and make such a change with a whole pulley is expensive and annoying, and invariably leaves the shaft out of line, and to run a shaft out of line is both sinful and expensive, because just as soon as a shaft is the least bit out of line, friction begins to pile up to an extent equivalent to a loss of power equal to more than that required to drive the mill. Not only do you encounter loss in friction, but a constant destruction of the shaft, buildings and belting, as the constant twisting or bending of a long line of shafting which is not in alignment, produces a strain upon the hangers and walls of the building by constant vibration, and leaves it only a question of time when the building, unless constantly repaired, goes down, or at least requires expensive repairs. Overloading a shaft and building, with tons of unnecessary weight, by monstrous, awkwardly-constructed iron pulleys, either whole or in halves, is wicked. You will find by the adoption of a good light wood split pulley that most of these evils can be overcome, because of lighter shafting and at least seventy per cent. less weight on the shaft; and as a wood face gives from twenty-five to sixty per cent. better traction surface for a belt than iron, a large saving in belt tension is effected.

All of these advantages make the keeping of a shaft in alignment, after once lined up, an easy task, and put money into the pocket of the manufacturer, as power costs money.

One of the many advantages that the DODGE WOOD SPLIT PULLEY has over an iron pulley is that it holds a belt much better. Most good mechanics are aware of this fact, but it may not be generally known how great is the difference and as some manufacturers of iron pulleys have the temerity to maintain the contrary, we offer a few figures from acknowledged authorities:—

Portion of circum. embraced by belt.	Rel. value of leather belt		Portion of circum. embraced by belt.	Rel. val. of leather belt	
	On wooden pulleys.	On iron pulleys		On wooden pulleys	On iron pulleys
.20	1.80	1.42	.20	1.90	1.40
.30	2.43	1.69	.30	2.40	1.70
.40	3.26	2.02	.40	3.30	2.00
.50	4.38	2.41	.50	4.40	2.40
.60	5.88	2.87	.60	5.90	2.90
.70	7.90	3.43	.70	7.90	3.40

Morin - Appleton's Encyclopedia; Haswell Engineers' and Mechanics' Pocket Book.

Haswell, the acknowledged authority, and most quoted by American mechanics, summarizes thus. The ratio of friction to pressure for leather belts, when worn over wooden pulleys, is 47: over turned cast iron pulleys, 24.

BEYENS of tin plates whose bill runs up pretty nearly \$18,000,000 per annum will be glad to know that the Welsh tin plate makers contemplate a coalition, as they term it there, by which agencies will be opened in different American cities so they can sell their tin plate direct to the consumer. They complain that the middlemen are making too much profit, but they do not say whether they will give the consumer the benefit or pocket it themselves. - St. Louis Industrial Gazette.

THE LABOR PROBLEM.

FOOD IN ITS RELATION TO THE DISTRIBUTION OF WEALTH.

The following interesting paper was read by Mr. Archibald Blue (Secretary of the Ontario Bureau of Industries), at the recent meeting of the American Public Health Association, in Toronto:—

The old question, "Is life worth living?" is still asked, and it still awaits an answer which all men will accept. But in almost every case the men who ask, as well as those who try to answer, view the question largely upon its moral and spiritual sides. Issues are raised which have been issues in the schools for four thousand years at least, and problems are proposed the solution of which, if never found, seems bound to be for ever sought. The discussion never advances; there is no transmission of results; no torch is handed on; every thinker starts at the beginning, and his light goes out with himself. I do not say that the problems on their philosophical or religious sides are insoluble in the abstract, or that no good purpose is being served in the study of them. I can conceive of aspects in which the study might be of great utility, by enlarging our ideas of man, of the world he dwells in, and of the divinity that shapes all ends.

But the object of this paper is to take up the question in one of the most material of its relations, and see how far life is made endurable by the means for maintaining it.

Shelter, clothing, and fuel are necessities in a climate like ours, but food is necessary in every climate. Waste of living tissue goes on as the result of bodily exertion, and the store of animal heat is lessened with every breath. How much food is required to repair waste and supply animal heat, keeping the functions of life in healthy play? What is an average ration, measured by quantity and value?

The answer to these questions must vary with the climate, as well as with market prices. Men work harder in Ontario than in Florida, because nature is less bountiful here than there, and so they require more of the foods which repair waste. The temperature is considerably lower, too, and so they require a larger portion of the more costly foods which keep up animal heat. In one country the chief diet is fruits and vegetables, rich in starch; in the other it is animal products and cereals, rich in albumen. For this reason it does not seem possible to ascertain a ration which, either as to quantity or value, may be accepted as a standard over any very large area of the world. Between Ontario and Ohio or Massachusetts there ought not to be a marked difference either in the kind or quantity of foods, and so far as I have been able to compare the statistics there is none; it is only in the cost of foods that a difference appears, and it may be that the data are not sufficient to justify comparison under this head. I shall therefore limit what I have to say on the subject to conditions found in Ontario, as shown by investigations carried on under my own direction.

An effort was made last year to find out the cost of living among the working classes of the Province—the cost for rent, fuel, clothing and food, as well as the aggregate cost. The schedule used in the collection of statistics asked for figures under these heads, to be given with as near an approach as possible to accuracy. Of course absolute accuracy in the returns was not looked for. There are few men in any walk of life who could set down the actual figures of a year's food supply, saving the few who keep detailed accounts of house expenses. The cost of rent is known to every tenant, and fuel and clothing may be very closely estimated without the aid of accounts. But food is an everyday requirement, in small or large supplies, and I own that I viewed the returns of its cost with no little mistrust. The average for nineteen towns and cities of the Province was shown to be \$47.67 a year per capita, for an average family of 4.54.* Was this trustworthy

average, and did it possess scientific value? I had no reason to doubt that it was quite as reliable as a great mass of the figures in a census enumeration. But any one who knows how the work is done will not care to accept even the figures of a census as things which cannot lie, for many of them are given at random, and taken as they are given.

Was it possible to verify the returns of the cost of living by actual returns on a large scale? I applied to a number of colleges and public institutions, and met with a favorable response. Five schools and colleges, four provincial prisons, and four asylums for the insane furnished complete returns of the quantity and value of their food consumption for fourteen days in February; the results of which are summarized in the following tables:—

DESCRIPTION OF PERSONS AND RATIONS.*

INSTITUTIONS	No.	NO. OF RATIONS SUPPLIED.				Total rations.
		Under 5 years.	5 to 10 years.	10 to 15 years.	Over 15 years.	
Schools and colleges	5	14	826	2,330	5,708	8,878
Provincial prisons	4	14	364	1,547	17,403	19,328
Lunatic asylums	4	139	145	56	43,733	44,073
Totals	13	167	1,335	3,933	66,814	72,279

QUANTITY AND VALUE OF A WINTER RATION.

CLASSES OF FOOD	SCHOOLS AND COLLEGES.		PROVINCIAL PRISONS.		LUNATIC ASYLUMS		ALL CLASSES.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
Animal album.	lbs. 1,815	cts. 9,722	lbs. 0,855	cts. 4,295	lbs. 1,234	cts. 6,181	lbs. 1,204	cts. 6,111
Vegetable album.	lbs. 984	cts. 2,287	lbs. 1,950	cts. 3,361	lbs. 1,156	cts. 2,740	lbs. 1,347	cts. 2,850
Starchy foods	lbs. 1,789	cts. 3,215	lbs. 1,314	cts. 1,740	lbs. 1,071	cts. 2,626	lbs. 1,597	cts. 2,461
Miscellaneous	lbs. .021	cts. 0.953	lbs. 0.014	cts. 0.374	lbs. 0.028	cts. 1.008	lbs. 0.024	cts. 0.932
Totals	4,609	16,177	4,163	9,770	4,089	12,555	4,172	12,254

These averages are computed from returns of food consumed in two weeks of hard winter weather by 5,163 persons of various ages, as shown in the description—the total quantity of food supplied being 301,549 pounds, and its value \$8,857. The schools and colleges show a more liberal diet of animal and starchy foods than the other institutions, and the cost of a ration in them is 65½ per cent. more than in the prisons, and 29 per cent. more than in the asylums. In all classes the average is 2.551 pounds of albuminous foods, and 1.597 pounds of starchy foods—the total ration, including tea and coffee, being 4.172 pounds, and costing 12½ cents. This is a winter dietary, and to obtain a standard average for the year it was necessary to get similar returns in a summer month. The beginning of June was selected, but, unluckily, four of the schools and colleges were breaking up for vacation, and only one of the five made a report. The returns for prisons and asylums, however, were complete, and so far it is possible to make a comparison of winter and summer dietaries, and to compute a standard ration for the year.

Computed by classes of foods, the following table shows the quantity and value of a daily ration in the college, prisons, and asylums for February and June, and an average or standard ration computed from the returns of both months:—

* A ration is taken as the equivalent of three meals.

* The average number of persons in a family in Ontario, according to the census of 1881, was 5.25.

WINTER AND SUMMER RATIONS.

CLASSES OF FOOD	FEBRUARY, 14 days.		JUNE, 14 days.		Feb.--JUNE, 28 days.	
	Quan. Value		Quan. Value		Quan. Value	
	lbs.	cts.	lbs.	cts.	lbs.	cts.
Animal albuminoids	1.132	5.712	1.404	6.597	1.267	6.150
Vegetable albuminoids	1.393	2.922	1.312	2.913	1.353	2.918
Starchy foods	1.576	2.371	1.358	2.045	1.468	2.209
Miscellaneous	0.024	0.925	0.021	0.824	0.023	0.825
Totals	4.125	11.830	4.095	12.379	4.111	12.102

In this table two unexpected results are presented—an increase in the summer consumption of animal foods, and a decrease in the consumption of starchy foods. On reference to the detailed tables, however, it will be noticed that the increase of animal foods is almost wholly in the article of milk, the college ration of which was two pounds more in June than in February. In starchy foods the decrease is in potatoes, other vegetables and fruits, supplies of which were becoming scarce, while yet the new season's crops were not ripe for the market. The quantity of the June ration is slightly less than the February one, but the cost is half a cent (.549c) higher. The prisons alone show a decrease in cost; in the college there is an increase of over one cent per ration, and had returns been obtained from all the colleges the June average would unquestionably exceed the February one for all the institutions.

In the Toronto School of Infantery, comprising one hundred men, the following ration is provided

ARTICLES.	QUANTITY.		VALUE. cents.
	lb.	oz.	
Beef or mutton	1	0	7½
Bread	1	0	2¼
Potatoes	1	0	1¼
Barley	0	1	4
Cheese	0	2	
Sugar	0	2	
Coffee	0	0½	
Tea	0	0¼	0½
Salt	0	0½	
Pepper	0	0¾	
Totals	3	6½	15

This is an adult ration, and no doubt the component articles have been selected and the quantities determined with extreme care. Like the colleges, prisons, and asylums, too, the supplies are procured in large quantities, and it is fair to assume that waste is reduced to a minimum. It is scarcely possible for a private family to purchase food at the same prices or to consume it with so little proportionate waste as an institution like one of our asylums or prisons: it may be done, but it is more likely to be the exception than the rule.

Now let us see how the cost of food as computed from workingmen's returns compares with its cost in the schools, colleges, and public institutions. At the average of winter and summer rations in these it is \$44.17 a year per capita; at the prisons' rate it is \$35.51; at the asylums' rate it is \$47.12; at the infantery school rate it is \$54.75; at the colleges' winter rate it is \$59.04; and at the rate of the college giving winter and summer returns it is \$70.30. The workingmen's average of \$47.67 is therefore something more than a probable one: it is well verified by the statistics gathered from other sources, and I am disposed to think that the cost of living is better known and more accurately gauged in the families of the working classes than in the families of any other class of the community. I

have put the ration question to many intelligent men of good circumstances in this city and elsewhere, and the almost invariable reply has been, "I cannot tell," or "I have never thought of the matter." And yet there is no economic question of the day of greater importance than the Ration of Food. In this Province of Ontario, with its 2,100,000 people, it means at the workingman's standard an expenditure of \$100,000,000 a year, or within \$15,000,000 of the value of our field crops last year. We consume that much to keep up existence, and to fit us for earning the ration of to-morrow.

But food is only part of the cost of living. Shelter, clothing and fuel are necessities also, and when these are provided other calls upon earnings are made which are only less imperative in their character. For an average family of the working classes in the towns and cities of this Province, the cost of food last year was \$216.42, of rent \$74.41, of fuel \$40.53, and of clothing \$86.39—a total of \$117.75. The average earnings of workers with dependents (including the earnings of wife and minor children) was \$147.60 for the year, so that \$29.85 only was left for the almost endless petty requirements of every human household. And these are average figures, the mere fact of which implies that, taking families apart, many are below the standard of their class. Of 1,605 wage earners, with dependents, from whom returns were obtained last year, only 950 had a surplus, the average being \$93.07: 410 came out at a cost of living being equal to earnings; and 245 closed the year with an average deficit of \$56.74. To any one of the last class I should not like to put the question with which this paper opens, "Is life worth living?"

But is there no way out for the workingman in the corner? or is it his own fault that his state is what it is? Is he improvident? does he live too well? or could he live better on cheaper food and less of it? Doctors and chemists are able to answer some of these questions definitely, for the subject is in their line, and the detailed items of a ration furnish valuable data for the study of it. But the subject is also in the line of the political economist, and he is taking it up. Within the past year a large mass of information has been collected, especially in the United States, and when all the facts are known, when all the data are gathered, I feel confident that the way out will be found. It concerns the great mass of the people of this continent, for at least 85 per cent. of their number, possibly 90 per cent., depend on daily work for their daily living. Do they get a due share of the product of their labor? Is there a fair distribution between the capitalist and the workingman? If they do get a due share, if there is a fair distribution of the products of industry, I should be disposed to agree with that very able economist, Edward Atkinson, and urge the working classes to live on cheaper foods. But cheaper foods may mean physical degeneracy; and I think it has been conclusively shown by Buckle that, as a fixed condition, they mean a more rapid increase of population than of capital, a corresponding decrease in the rate of wages, a very unequal division of wealth and power; they mean the tendency to a state in which the democratic element is wanting, where the only business of the people is to labor, and their only duty to obey. The statistics available do not answer the question as to the distribution of wealth with sufficient clearness, but they seem to denote that an inordinately large proportion goes to the capitalist. In Canada, as appears by the census of 1881, the total amount paid for wages in the manufacturing industries was \$59,408,512, while the excess of products over labor and materials was \$79,362,113; that is to say, of \$509.03 net product per capita, the workingman received as his portion \$235.03, and the employer retained \$276. In the United States, as the census of 1880 shows, the amount paid for wages was \$947,953,795, while the portion of employers of labor was \$1,024,801,847; that is, of \$722 net product per capita, the workingman received \$347 and his employer retained \$375. In Canada 51¼ per cent. of the product of industry is taken for rent, interest, and profits, and in the United States 52 per cent. of

❖ Permanent ❖

Exhibition of **M**anufactures.

Toronto.

NICHOLLS & HOWLAND, PROPRIETORS.

THE undersigned are now prepared to receive applications for space in the PERMANENT EXHIBITION OF MANUFACTURES.

A special building is being erected for us and is expected to be ready for occupation by January next. The structure, which is to be a very handsome one, will have a frontage of 92 ft. by a depth of 105 ft. and will contain the following accommodation :-

A lofty, well-lit basement, having large doors opening on a lane at back, at such a level as to facilitate the handling of heavy weights; the ground or main floor a few steps above the level of Front street, with a height of ceiling under the galleries of 14 ft., while the central portion, up to base of dome skylight, will be 29 ft. high. On this floor, in the north-east corner, immediately adjoining the entrance vestibule, will be the general and private offices of the management, and adjoining them a number of small private offices or consulting rooms for the use of exhibitors, besides comfortable lavatory and sanitary appliances. A gallery floor 23 ft. wide will extend around the four sides of the building, and will be used for exhibiting the lighter classes of manufactures. A special feature of the building will be the good lighting, for in addition to the rows of large windows in front and rear, there will be a large dome skylight in the centre. Access to the various floors will be by ample staircases, and by a large elevator. The building will be heated by steam.

It will be located on Front street (nearly opposite the Queen's Hotel), convenient for both boats and railways, for shipping and for visitors.

Some of the advantages likely to accrue to manufacturers exhibiting may be briefly summed up as follows :

1. The Exhibition will be free to all and open throughout the year.
2. It will afford all the advantages of a Toronto branch establishment at a very moderate cost.
3. Exhibits will be seen by large numbers of business men who would not be apt to visit a private branch office unless on special business.
4. The Exhibition will be extensively advertised and made very attractive, and as almost every variety of machinery and manufactured goods will be on view under the same roof, it will certainly become an important mercantile exchange.
5. Competent salesmen will be in charge for the purpose of explaining the merits of each exhibit to interested visitors.
6. Exhibitors can have printed on their office stationery "When in Toronto call and see sample of our goods at PERMANENT EXHIBITION OF MANUFACTURES." This may afford prospective purchasers an opportunity of personally inspecting goods, who would not be apt to visit outside towns for that purpose.
7. Exhibitors can appoint us selling agents, or can have their own representatives in charge. In the former case, every endeavor will be made to establish profitable trade.
8. Machinery can be shown in motion, as shafting and power will be provided.
9. Office accommodation will be provided for the convenience of exhibitors and their agents.

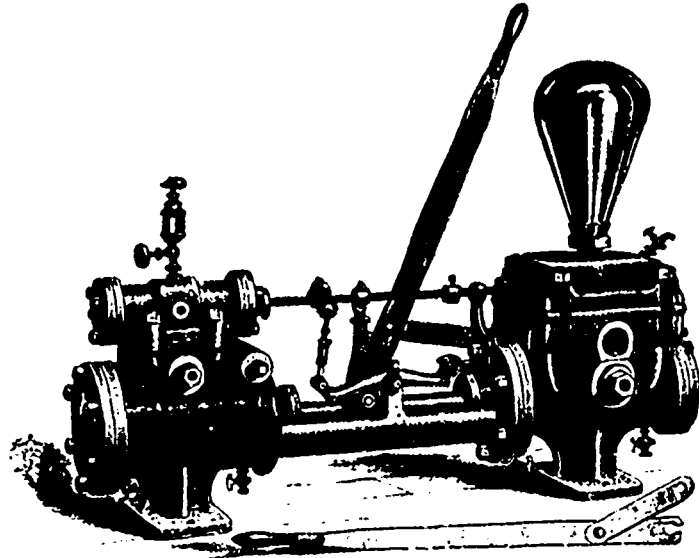
Further information will be promptly furnished.

❖

NICHOLLS & HOWLAND,
Office of Canadian Manufacturers' Association
6 WELLINGTON STREET WEST,
TORONTO.

KNOWLES STEAM PUMP WORKS,
—BUILDERS OF—
STEAM PUMPING MACHINERY IN EVERY VARIETY

**BOILER
FEED,
FIRE
and
TANK
PUMPS**



Simple and Duplex
PUMPING
ENGINE
for
TOWN and CITY
SUPPLY.

For Particulars,
Address

44 Washington St., BOSTON.

93 Liberty St., NEW YORK.

—SEND FOR ILLUSTRATED CATALOGUE.—

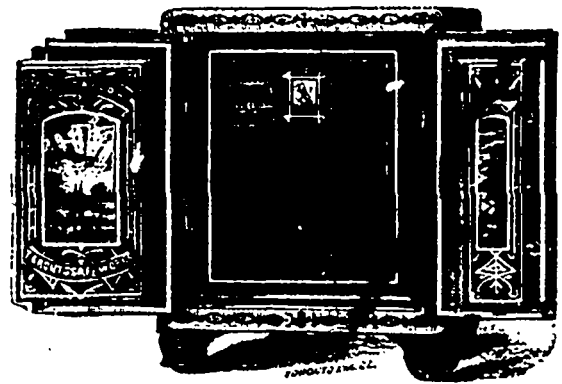
**J. & J. TAYLOR,
Toronto Safe Works.**

ESTABLISHED 1855.

Manufacturers of all kinds of Fire and Burglar Proof
Safes.

PRISON LOCKS AND JAIL WORK A SPECIALTY.

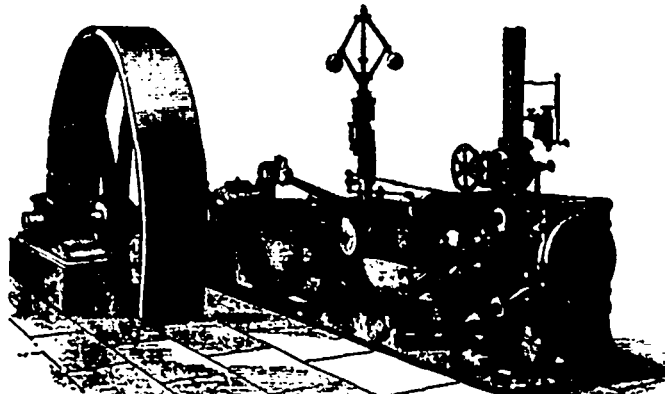
We call the attention of Jewellers to our new style of Fire
and Burglar Proof Safes, specially adapted for their use.



JOHN DOTY ENGINE COMPANY,

Corner Bathurst and Front Sts., Toronto, Ont.

Improved
Corliss
Engines.



**STEEL BOILERS
OF BEST
CONSTRUCTION.**

Write for Circulars.

it is taken, while the remainder in each case is given as wages for the skill and labor required in the work of production.

Allowing 10 per cent. for rent, insurance, and management, and 6 per cent. for interest on the amount of capital invested in manufacturing establishments as given in the census (a very doubtful quantity, however) there remains to the proprietors or capitalists in Canada 33.8 per cent. of the total excess of product over materials, and in the United States 28.8 per cent. This may be a fair and just distribution—the presumption is against it. But all data for determining the question are not in the hands of the public, and in a problem so hard of solution as the equitable adjustment of the relations of capital and labor every term of the equation ought to be known. It is not a matter that touches the interests of a class of the community merely, it touches the interests of all classes and of the whole nation. Our greatness, strength, and permanency on this continent are intimately dependent on the health, the character, the intelligence, and the independence of the working classes, for in the fate of the Deserted Village we get a universal truth:—

“ Ill fates the land, to hastening ills a prey,
Where wealth accumulates and men decay;
Princes and lords may flourish or may fade,
A breath can make them, as a breath has made,
But a bold peasantry, their country's pride,
When once destroyed can never be supplied.”

LACHUTE.

CONCERNING this busy little burg the *Montreal Witness* has the following correspondence:—

The town of Lachute with its surroundings contains all the elements necessary to ensure its future growth. The beauty of the place itself, with the fine scenery and country that surround it, attract large numbers of visitors and residents both summer and winter. Then its splendid water power is utilized by large manufactures of various kinds. The extensive and prosperous paper mill of Messrs. J. C. Wilson & Co. is a very massive and substantial looking, and is an establishment of which any place might be proud. Hambleton's bobbin factory and Hamelin & Ayer's woollen mill flourish on the same side of the river, crossing which we have the rope walk, McQuat & McRae's foundry, and near the latter is the now justly celebrated establishment of Fish & Ireland, where desiccated wheat, prepared barley, and the far famed rolled oats are prepared. These, with many others, go to make Lachute a beehive of industry.

I have just mentioned some of the things Lachute has, and must not forget its churches, schools, etc., and its splendid railway facilities, several trains of the Canadian Pacific Railway coming and going daily.

This very prominent and important place has, however, only one mail daily; it arrives about 8 a.m., and departs at 10.40 a.m., giving business men two and one-half hours to answer their correspondents, but no chance to hear from them for the next twenty-four hours! An evening mail would seem to be a necessity for this rising town, and the postal and railway authorities will give it if they are asked. Places of far less importance have three mails daily, and Lachute wants, at least, one more to make her already assured future prosperity complete in every respect.

MORRISON'S defeat takes out of Congress another persistent "tariff tinker," and is for that reason a matter for universal rejoicing. The republicans have reason to feel good because they elect a member of their own political faith in his stead, and the democrats have occasion to be profoundly grateful for having at last got rid of Morrison, who has done nothing since he has occupied a seat in the house but furnish the republicans with the material for telling arguments against his party. The democratic party is very much stronger with the seats of Hurd and Morrison occupied by republicans. They have done their party immeasurable mischief by stupidly endeavoring to ride into national prominence on their tariff reform and free trade hobbies. — *Marquette (Mich.) Mining Journal.*

330

Iron and Machinery.

PROSPERITY IN PENNSYLVANIA.

INDUSTRIES OF EVERY KIND LOOKING UP—IRON ORE IN VIRGINIA.

PHILADELPHIA, Nov. 21st.—There is scarcely an exception to the general prosperity which has attended all lines of business in this city this fall. Manufacturers have all they can do, and many of them report more orders than they can fill. Merchants report that they have never had a more prosperous season, and their orders are drawn from all parts of the country. They also report that the South is buying largely in this market, and that with the return of prosperity to that section payments are more prompt and the distribution of goods there greater.

The city of Scranton is attracting considerable attention from manufacturers. Recent inventions have given means by which to utilize the millions of tons of waste from the coal mines in that region, which make the cost of fuel merely nominal, and two large establishments with an employing capacity of at least 1,000 hands will remove there. One of these is the Savage Drop Forge Works, of Southington, Connecticut, and the other the Jersey City Steel Works. All through Pennsylvania industries of every kind are daily being started up. In many places associations have been formed to foster and encourage manufactories, and nearly every town in the State of a few thousand inhabitants has a Board of Trade to look after such matters.

Within the last week nearly \$1,000,000 more has been invested in iron ore and coal properties in Southwest Virginia. Recent examinations of the advantages for making iron there show that the cost of producing pig iron will not be more than \$9 a ton, against \$13.50 in the Lehigh Valley of this State. Many declare that this is cheaper than iron can be produced in Alabama. Considerable attention is also to be paid to lead and zinc in that region where these metals are found in large quantities.

Anthracite coal is being rushed to tide water as rapidly as equipment can be found to handle it, in order that it may be gotten to market before the close of navigation, which has been fixed for the 25th of the present month. It is now believed that the mines will be operated all of December without any stoppage, and that over 4,000,000 tons will be mined and marketed this year.

Freight shipments over the railroad and water lines in and out of Philadelphia continue enormous. The Pennsylvania Railroad Company is increasing the capacity of its freight cars from 60,000 to 80,000 pounds, having begun at 20,000 pounds. It is also vigorously prosecuting its system of four tracks. The Reading Company is refusing business because of the lack of equipments, and the Lehigh Valley is running its freight trains in four sections and adding daily to its equipment. The New York, Lake Erie and Western is borrowing engines and cars from smaller roads, because the shops cannot make them fast enough.

PROGRESS OF THE STEEL RAIL INDUSTRY.

HEAVY ORDERS FOR 1887 AND PRICES STILL ADVANCING—RAILROAD BUILDING.

PHILADELPHIA, Nov. 28th.—Manufacturers of steel rails never had more reason to feel encouraged than at this time. All the mills are running to their fullest capacity, and there is ample reason to believe that they will be kept thus occupied for some time to come. James M. Swank, general manager of the American Iron and Steel Association, states to a representative of the *Tribune* in discussing the present situation, that all

branches of the iron and steel industries are active at firm prices. The situation, he says, is extremely satisfactory, and in fact has not been so generally satisfactory for many years. Speaking particularly on the steel rail industry, Mr Swank gave figures to show that the present year is the greatest known to this country for the production of steel rails. The year 1882 has always been referred to as the one that was phenomenal in the production of steel rails, and indicative of the growing prosperity of the country. In that year there were produced 1,284,067 gross tons of steel rails, and this amount was never equalled after that until the present year, which will considerably exceed that production. Mr. Swank says that contracts already made for 1887 aggregate 800,000 tons. He gives as the lowest quotation with the Eastern mills to-day, \$35 a ton, while some of these mills are not willing to contract at prices below \$36 a ton, and one mill will not take new orders at less than \$37.

In connection with the steel rail industry, the rapid growth of railroad building is mentioned. He states that the indications are that the United States will lay more track this year than in 1885, which was the greatest year of railroad building that the country ever witnessed. "There is no longer any doubt," said Mr. Swank, "that we will build twice as many miles of railroad this year as we did in 1885. In that year there were built 3,131 miles of railroad, and the present indications are that in the year 1886 we will build 6,000 miles of railroad. For the first ten months of the present year there were 5,014 miles of railroad laid in this country against only 2,258 miles in the same period of last year." Mr. Swank stated further that that which was more satisfactory than all else in the situation was the entire absence of anything resembling what is generally denominated a "boom." Prices, he said, were based upon a regular and steady demand for iron and steel products, and this was certainly indicative of a healthy prosperity.

The members of the steel rail combination have not stated what their course will be in regard to enlarging the limit of production, but there are general statements that there will be a considerable enlargement, and also that there may be no occasion for a limit, as the mills will have demand for all that they can produce. Statements have also been made that contracts were placed this week with Eastern mills for 50,000 tons of steel rails. It is exceedingly probable that steel rails will bring \$40 a ton in the early part of 1887.

CHEAP GAS IN GLASGOW.

In 1869 the corporation of Glasgow obtained parliamentary powers to supply the city with gas. They started with a capital of £534,000, and during the first year's operation the total quantity sold amounted to 1,010,117,000 cubic feet, retailed at 4s. 7d. per 1,000 cubic feet. The capital to carry the works on steadily rose as the operations increased, until in 1879 it reached its maximum, namely, £1,074,644. Since 1879 the capital has been gradually reduced, and now it stands at £706,000, of which £150,000 consist in redeemed mortgages, so that practically the capital is no larger than when the corporation began gas making. The works have been increased enormously, the latest returns showing an annual make of 2,666,179,000 cubic feet, retailed at 3s. per 1,000 feet. Briefly put, then, the corporation of Glasgow have, as gas makers, achieved the following results: In seventeen years they have reduced the capital to its original amount, doubling their producing power, and reduced the price of gas from 4s. 7d. to 3s. per 1,000 feet. They have also enabled the community on two occasions to expend £5,000 for purposes which otherwise would have necessitated the levying of rates, in other words, they have saved the city £10,000. The citizens are also supplied with the use of meters free of charge, while, as a rule, other corporations and private companies charge for meters 10 per cent. on outlay. Glasgow gas is the cheapest in Scotland.

Textiles.

THE GREAT KNIT-GOODS STRIKE.

AMSTERDAM, Nov. 23rd (*Special*). The strike in the knit-goods manufactories here led to a remarkable scene to-day, that of women acting as "pickets," and submitting to arrest by the police rather than depart. The mayor of the city yesterday appointed special policemen to guard the mills and prevent the intimidation of persons seeking work. Three of the pickets of the Knights of Labor were arrested yesterday and ninety-six pickets to-day. They were brought before the Recorder and their trial was set down for Friday. About one half of the pickets arrested were women. As early as 5 a.m. to-day pickets were on guard. Their plan was to march like soldiers up and down the sidewalks. Before 7 o'clock sixteen men and twenty women had been arrested by the special policemen. They were released on their own recognizance to appear for trial on Friday. At noon the special police were busy. Batch after batch of pickets were run in. The prisoners exhibited no signs of fear. Young women, neatly dressed, showed no more repugnance to arrest than did men. District Master Workman Cummings was present, speaking reassuring words to the arrested members of the Knights. At six o'clock, when the mills closed, the police kept the idle persons who lined the sidewalks from interfering with the mill hands as they poured out of the mills. Among the prisoners are a number of persons who were brought up for the second time. These were required to give \$1,000 bail to appear for trial on Friday (26th). The Knights of Labor look upon the arrests as farcical, and do not believe the prisoners will suffer serious punishment. There is great excitement over the situation, and in view of threats made, there is a fear that there may be a serious disturbance of the peace. The arrests were made for violation of city ordinances and a section of the Penal Code.

THE TERMS OF THE MANUFACTURERS.

COHOES, Nov. 23rd (*Special*).—The following was to-day adopted by a unanimous vote of the Knit-Goods Manufacturer's Association of Cohoes and Waterford, as the only basis upon which they will open their mills:—

We do not wish, in hiring or discharging help, to discriminate against any person on account of their belonging or not belonging to any labor organization, and we demand that no discrimination shall be made against any of our number. We ask that those whom we may employ shall acknowledge and respect our right to hire and discharge whom we please, as we deem best for the interest of our business, and that they shall not interfere with other employes. We are willing to refer any other questions of difference to arbitration. The only real difficulty is in a claim that the officers of labor organizations have the right to judge or investigate whether any employe may discharge a person whom he no longer wishes in his service. His liberty so to do has always heretofore been conceded, and there is no reason why it should be now questioned. To deny it is to say that he who hires another must continue to employ him whether he wishes his services or not, so long as a committee of arbitrators shall determine. This is as unjust as to claim that any one hired by another should be compelled to work for him until a similar committee should say he might quit. This would be simply slavery.

The manufacturers have no wish to be unjust or to trespass upon a single right of those whom they employ, and only ask that they shall be treated in like manner. We are willing to start our mills on this basis of mutual regard for the rights of both parties, believing that it is for the interest of both to deal fairly with each other. Whenever the operatives are desirous of so resuming work the manufacturers will be glad to employ them again.

Mining.

COAL IN NORTH-WEST CANADA.

THE *Winnipeg Commercial* says:—The fuel problem, which but a few years ago was such a big bugaboo to those who took a pessimistic view of the future of the North-west, is being rapidly and practically solved. There are now four coal mines in different parts of the territory, being worked on a large scale, whilst in many other districts coal for local use is readily obtained, a lack of transportation facilities preventing the working of such mines for shipping. As the country is opened up by the construction of railways, many new mines will be put in operation, to supply the demands of an increasing population. The wide area over which these coal deposits are found, makes the question of available supply of little moment, at least so far as any predictions of a shortage are concerned. The mines now being worked for other than local purposes are: the Galt mine at Lethbridge, the Saskatchewan mine, near Medicine Hat, the Bow River mine, west of Calgary in Bow Valley, and the Cascade mine in the Rocky Mountains. This last mentioned mine has lately been put in operation by a strong company formed for that purpose. The coal turned out of this mine is said to be genuine anthracite, of the best quality, but owing to the distance of the mine west of Winnipeg, it is not likely that it will make any difference in the price of hard coal here, if indeed the product reaches as far east as this city. However, the opening of this mine will prove a great boon to the western towns and communities. In soft coal the market here will probably be supplied this winter at lower prices than ever before ruled in Winnipeg. The competition thus established will keep down the prices of American imported coal and also wood to reasonable figures, so that evidently the days of dear fuel are numbered.

Important to Iron Manufacturers.

I wish to correspond with some party engaged in the foundry and machine shop business, using large lathes and planers; must have planer at least 40x40 inches, 10 or 12 ft. bed; and lathes with 30 to 38 inch swing. With such a party I will place the manufacture of the now well known

"Johnson Gang Punch, Shear and Cold Metal Forming Machines,"

This machine has been patented in the Dominion of Canada within the last two weeks, and in the United States less than one year ago. Over fifty of them are now in use in the United States in the largest chain manfactories, car manfactories, implement factories, wagon makers, plow makers, sleigh manfactories, iron hardware specialty manfactories, and in all cases are highly endorsed, and are saving in labor from two to ten dollars per day.

The following is a partial list of those now using the machine and to whom we would refer, in the United States:—

Oliver Broe & Phillips, Pittsburgh, Pa., on chain links, 1 in. to 2½ in. diameter.
 Belling & Small, York, Pa., largest car works in the United States.
 Wilkesbarre Iron Screen and Fence Co., Wilkesbarre, Pa., largest in Pennsylvania.
 J. I. Case Threshing Machine Co., Racine, Wis., largest in the United States.
 Mitchell & Lewis Co., Wagon Manufacturers, Racine, Wis., largest in the Northwest.
 LaBelle Wagon Works, Fond du Lac, Wis.
 Cooper Wagon Works, Dubuque, Ia., largest in the State.
 Union Wagon Works, Winona, Minn., largest in the State.
 Spangler Manufacturing Co., Agricultural Implements, York, Pa.
 Janesville Machine Works, Janesville, Wis., Reapers and Mowers.
 Ashcraft Manufacturing Co., Bridgeport, Conn., Heavy Pipe Wrenches.
 Wilcox Manufacturing Co., Aurora, Ill., Hardware specialties.
 Jensen Manufacturing Co., Racine, Wis., Wagon Hardware.

Inquiries are coming in from the Dominion of Canada, and I am anxious to place the manufacture of these machines with some responsible manufacturer on a royalty; will furnish patterns, drawings, etc., or will sell it out at a nominal sum.

Correspondence from responsible parties solicited. Address,

W. H. JOHNSON, 734 Grand Ave., Racine, Wis.

332

Dissolution of Co-Partnership

NOTICE IS HEREBY GIVEN

That the partnership heretofore existing between the undersigned, under the name, style and firm of **McKECHNIE & BERTRAM**, Manufacturers of Machine Tools and Wood Working Machinery, at the Canada Tool Works, in the Town of Dundas, in the Dominion of Canada, was, on the 1st day of the present month, November, DISSOLVED by mutual agreement.

All debts due to the late firm are to be paid to Mr. John Bertram, who is to pay all debts and liabilities of the same, and to perform all contracts entered into, and fill all orders heretofore received by the said firm.

Dated at Dundas, Ont., this 24th day of November, A. D., 1886.

R. McKECHNIE.
JOHN BERTRAM.

Witness:

H. H. Robertson, as to signature of R. McKechnie.

J. V. Teetzel, as to signature of John Bertram.

WITH REFERENCE TO THE ABOVE, we the undersigned, beg to notify the numerous patrons of the late firm of McKechnie & Bertram, and the public generally, that we have entered into co-partnership under the name and firm of **John Bertram and Sons**, for the purpose of continuing the business of the late firm, at the premises heretofore occupied by them, at the town of Dundas, and are prepared to **FILL ORDERS ON SHORTEST NOTICE** for all kinds of Machine Tools and Wood Working Machinery.

JOHN BERTRAM.
ALEX. BERTRAM.
HENRY BERTRAM.

RICE LEWIS & SON,

HARDWARE AND IRON MERCHANTS,
TORONTO.

Steel and Iron Plates,

Boiler Tubes, Gas and Steam Pipe,

Manilla and Wire Rope,

PATENT DIFFERENTIAL AND EPICYCLOIDAL

PULLEY BLOCKS.

BUILDERS', FOUNDRY AND MILL SUPPLIES,
COLD ROLLED SHAFTING,

SPLIT PULLEYS AND SHAFT COUPLINGS.

SOLE AGENTS FOR THE

GARDNER GOVERNOR,

WRITE FOR CIRCULAR AND PRICES.

RICE LEWIS & SON.

Steam Pumps
AND
Hydraulic
Machinery
OF
All Descriptions.

NORTHEY & COMP'Y

HYDRAULIC ENGINEERS.

SPECIALTY
Northey's
PATENT
STEAM
PUMPS.

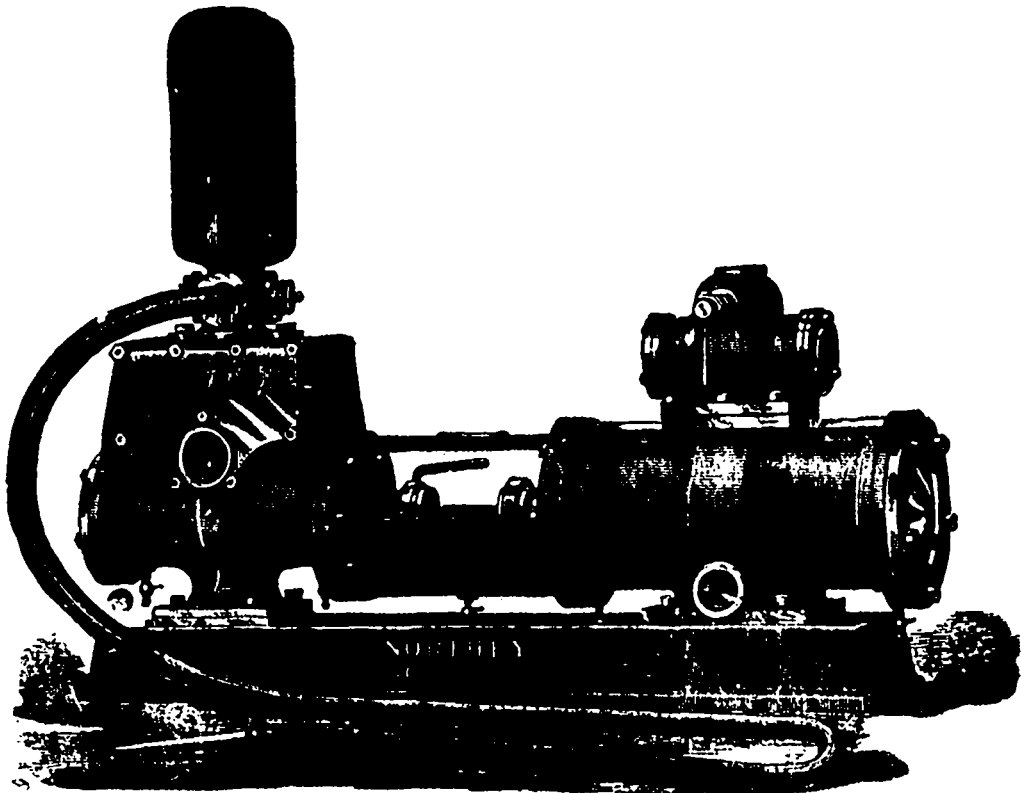
Works and Office: Corner Front and Parliament Streets, Toronto, Ont.

The NORTHEY PUMP

--IS THE--

Simplest and Most Durable Pump in the Market!

PUMPS FOR ALL DUTIES OF LATEST AND BEST DESIGN



Ordinary Pattern Boiler Feed or Fire Pump. For Pumping Water against Heavy Pressure. Simple—Compact—Powerful.

Complete Waterworks Plant for Towns, Villages, &c.,

—A SPECIALTY.—

CORRESPONDENCE INVITED.

AIR PUMPS

FIRE PUMPS

ACID PUMPS

TANK PUMPS

HOTEL PUMPS

WASH PUMPS

MINING PUMPS

POWER PUMPS

HYDRAULIC PRESS PUMPS

ILLUSTRATED

Catalogue and Price List

BOILER

FEED

PUMP

MARINE

PUMPS

WRECKING

PUMPS

OIL

LINE

PUMPS

REFINERY

PUMPS

AIR COMPRESSORS

GAS COMPRESSORS

ALL WORK Absolutely GUARANTEED

\$50

If you think of expending fifty or one hundred dollars in advertising, send us a copy of your advertisement and we will tell you (free of charge) what will be the best possible investment for you to make. Send 10 cts. for our 176 page pamphlet. Address,

GEO. P. ROWELL & CO'S NEWSPAPER ADVERTISING BUREAU,
10 Spruce Street, New York

BOECKH'S Standard Brushes

QUALITY AND SIZES GUARANTEED.

Manufactured by

CHARLES BOECKH & SONS.

OFFICES AND WAREHOUSES:

80 YORK STREET.

FACTORY.

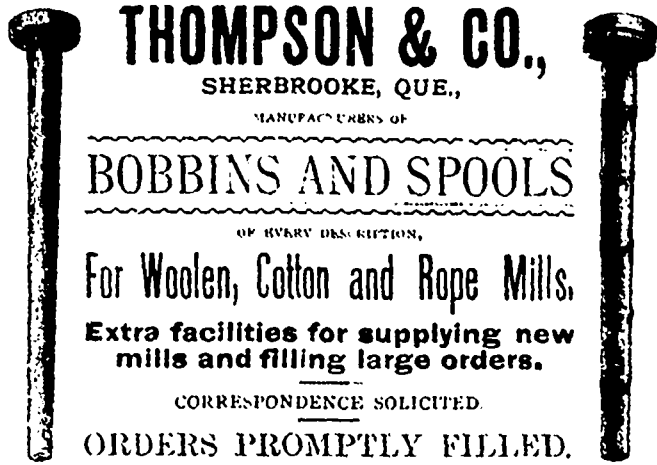
142 to 150 Adelaide Street West,
Toronto, Canada.

ARMSTRONG'S BUGGY AND CARRIAGE GEAR.

The "Defiance"

THIS GEAR meets the demand of the Driving Public for low-riding Buggies, and combines with this, lightness, durability, and great ease of motion. By the use of improved machinery and manufacturing in large quantities, we are enabled to make prices MODERATE. Send for our descriptive circular.

J. B. ARMSTRONG MFG. CO. (Ld.), Guelph, Ont.

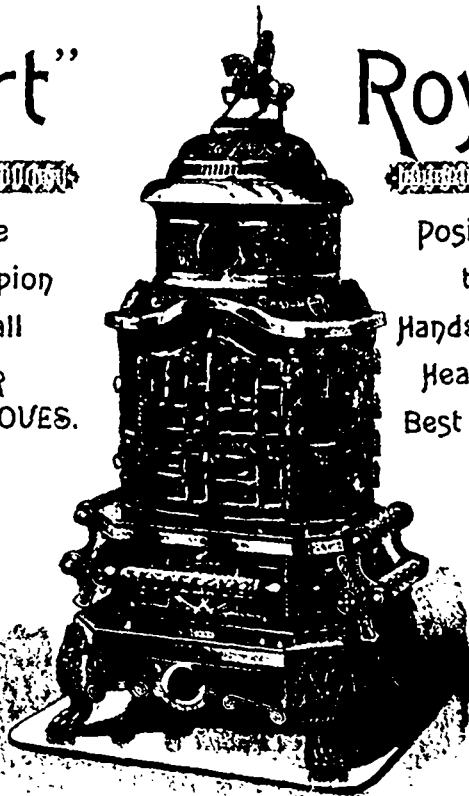


THOMPSON & CO.,
SHERBROOKE, QUE.,
MANUFACTURERS OF

BOBBINS AND SPOOLS
OF EVERY DESCRIPTION,
For Woolen, Cotton and Rope Mills.
Extra facilities for supplying new mills and filling large orders.
CORRESPONDENCE SOLICITED.
ORDERS PROMPTLY FILLED.

"Art"

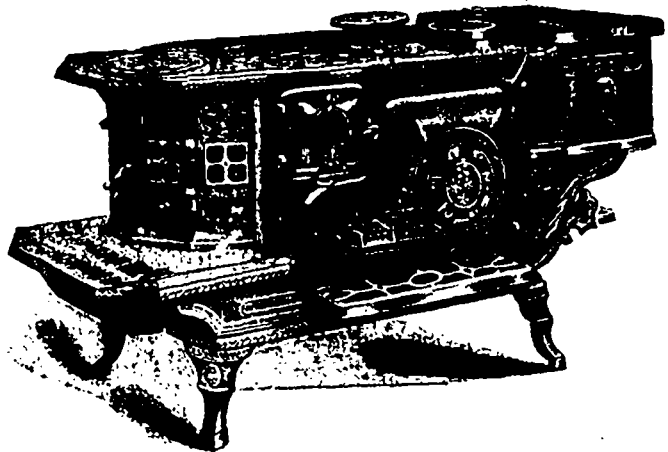
The
Champion
of all
PARLOR
STOVES.



Royal

Positively
the
Handsomest,
Heaviest,
Best Made.

NEW COMBINATION FOR COAL OR WOOD.



WINNIPEG, MAN., MARCH 9th, 1886.

McCLARY MANFG. CO.,

DEAR SIRS.--I have used your Combination Cook Stove for nearly two years, and am very much pleased with it. It has given entire satisfaction both as a coal and wood stove, and I find it can be changed from coal to wood or vice versa without trouble. Used as a coal stove, the fire can be kept in all night as readily as a self-feed hall stove. It is just the stove for this climate.

Yours truly,

J. H. BROCK (OF CARRUTHERS & BROCK).

THREE SIZES PARLOR.
No. 30, No. 40, No. 50.

TWO SIZES WITH OVEN.
No. 40, No. 50.

MANUFACTURED BY

McClary Mfg. Co'y.

London, Toronto, Montreal and Winnipeg.

FOLDING AND EXTENSION

Iron and Steel

Gates and Guards

(PATENTED JUNE 24, 1882.)

FOR Banks, Vaults, Elevators, Public Buildings, Asylums, Factories, Houses, Driveways, Stores, Theatres, Stables, Haggage, Express, Postal and Sleeping Cars, Express and Delivery Wagons, Windows, Doors, &c.

S. L. S. S. S. S. S. S.

THE

Ontario Folding Iron Gate and Guard Co.

OFFICE AND MANUFACTORY:

THE FENSOM ELEVATOR WORKS.

34, 36 AND 38 DUKE ST., TORONTO.

Correspondence solicited and Illustrated Catalogues furnished on application.

1873. GRIP! 1887.

CANADA'S COMIC JOURNAL.

ANNOUNCEMENT FOR THE COMING YEAR.

GRIP is now so well known as to require very little of either description or praise. It is

The Only Cartoon Paper in Canada,

and it is furnished at about ONE-HALF THE PRICE of similar journals in the United States.

GRIP'S CARTOONS,

in addition to being strictly impartial when they refer to politics, are always on the side of patriotism and morality.

The late improvements are universally admired. The journal is enlarged to 16 pages, and it is printed upon heavy toned and well-calendered paper. This gives both the engravings and the letter-press a beautiful appearance. And, notwithstanding this enlargement and improvement, the price of GRIP is

Only \$2 a year; Single Copies, 5-cents,

(the price it commanded when but a four-page sheet).

GRIP'S PLATFORM:

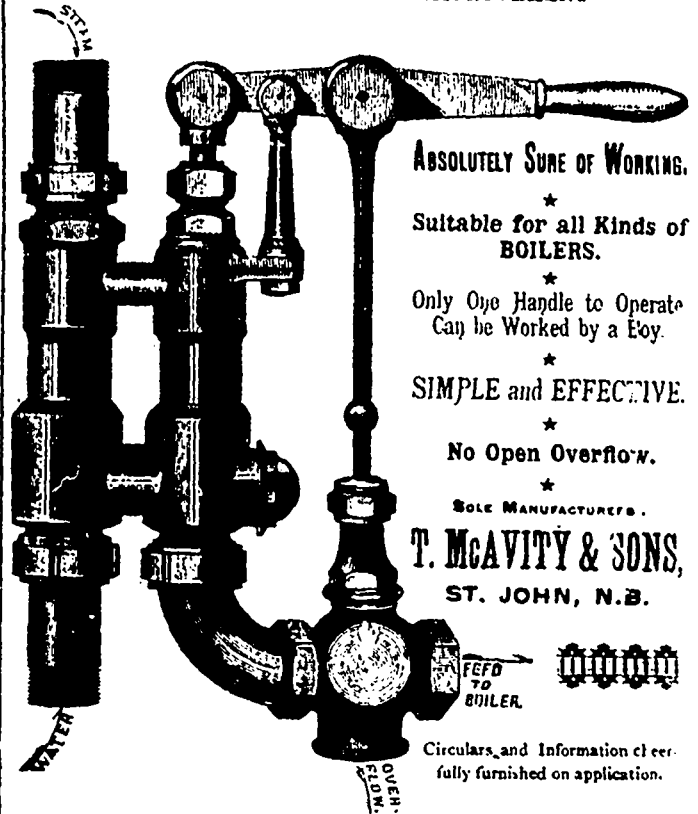
Humor without Vulgarity; Patriotism without Partizanship Truth without Temper.

Do not be without this favorite Canadian Cartoon Paper. Its price places it within the reach of all.

Address the Grip Printing and Publishing Co., 25 and 23 Front Street West, Toronto. New subscribers, sending \$2, will receive the paper the balance of 1886, and to 31st December, 1887.

* THE * IMPROVED Boiler Feeder

WITH McAVITY'S PATENT IMPROVEMENT



ABSOLUTELY SURE OF WORKING.

Suitable for all kinds of BOILERS.

Only One Handle to Operate Can be Worked by a Boy.

SIMPLE and EFFECTIVE.

No Open Overflow.

SOLE MANUFACTURERS.

T. McAVITY & SONS,
ST. JOHN, N.B.

Circulars, and Information fully furnished on application.

THE WELLINGTON MILLS LONDON

GENUINE EMERY

OAKEY'S Flexible Twilled Emery Cloth.
OAKEY'S Flint Paper and Glass Paper.
OAKEY'S Emery Paper, Black Lead, &c., &c.

PRIZE MEDAL AND HIGHEST AWARD, PHILADELPHIA, 1876.
For Superiority of Quality, Skilful Manufacture, Sharpness, Durability, and Uniformity of Grain.

Manufacturers: JOHN OAKEY & SONS, Wellington Mills,
WESTMINSTER BRIDGE ROAD, LONDON, ENGLAND.

Enquiries should be addressed to
JOHN FORMAN, 467, ST. PAUL ST., MONTREAL.

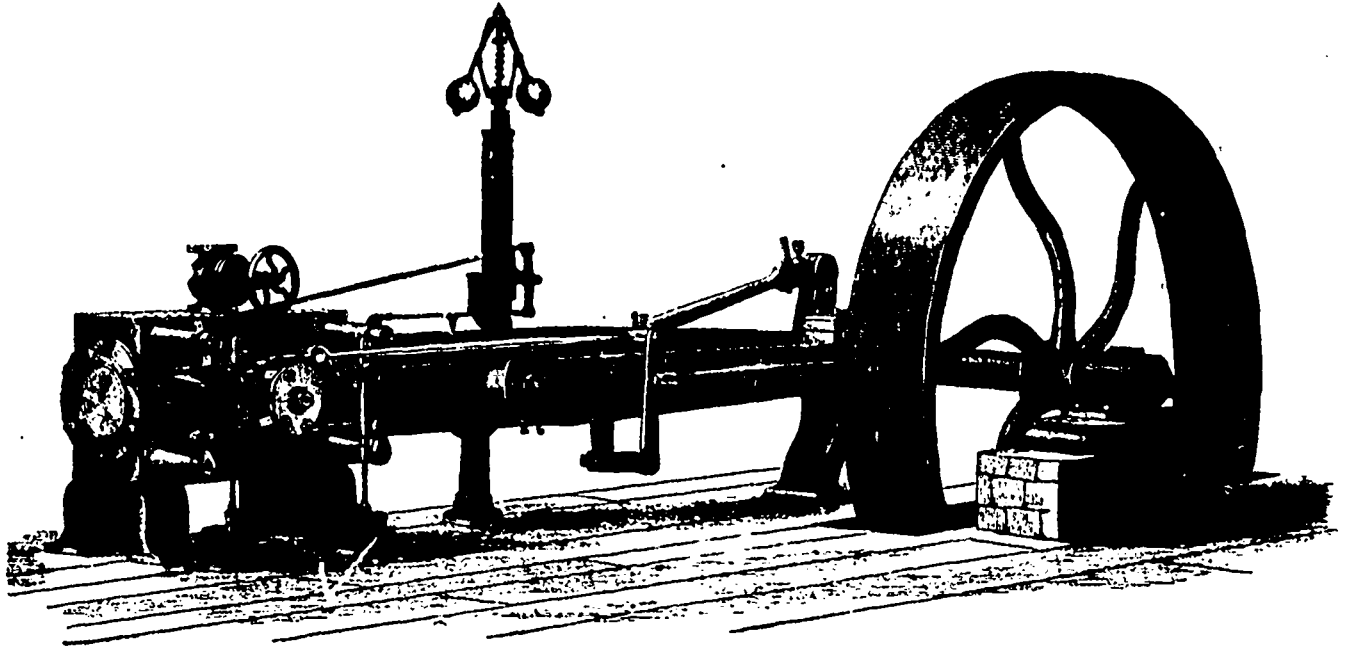
THE MAN

WHO SPENDS MONEY

For advertising in newspapers in these hard times, without first obtaining an estimate of the cost from GEO. P. ROWELL & CO'S Newspaper Advertising Bureau, 10 Spruce Street, New York, is likely to pay \$10 for what might be obtained for \$5. Such estimates are furnished to all applicants gratis. Send 10 cent for 176 page pamphlet with list of newspaper rates and reference.

THE GALT FOUNDRY,

Engine and Machine Works.



THE HARRIS-CORLISS STEAM ENGINE

Is the most perfect Cut-off Engine made. For Economy of Fuel, Regulating of Speed, Accessibility of all its Parts, it has many Imitators, but no Equals, and is Unsurpassed.

While many Engines of the same class have been invented, built, tried and abandoned, the Harris-Corliss has steadily gained in public favor, and is now

Without a Successful Rival.

PLEASE NOTICE SOME OF THE ADVANTAGES OF THE HARRIS-CORLISS ENGINE:

- 1st—The Steam is admitted at Boiler pressure to the piston by the main valve and is cut off at the same point, the lead determining through the regulator, when the supply of steam shall be cut off. This is the only Engine that thus admits steam at full boiler pressure.
- 2nd—The success of the Harris-Corliss Engine lies in the simplicity and precise action of the governing elements: the Governor is an independent mechanism, with no extraneous load, and free to instantly respond to all variations in the regular velocity of rotating parts.
- 3rd—No parts of the regulating medium enter the steam chest and thereby be out of sight of the engineer, and subject to the corrosive action of steam and the oil used for lubricating the valves and piston.
- 4th—Regularity of Speed under varying loads of steam pressure.
- 5th—Recessed Valve Seats which avoid the liability of wearing shoulders on them.
- 6th—Stop Motion on Regulator of Engine which effectually stops the Engine whenever the regulator by any means fails to perform its work, thus preventing the Engine from running away.
- 7th—Having four Valves either can be adjusted independently of the other with the greatest ease.
- 8th—The increased amount of power it develops.

We would draw special attention to our new and improved Adjustable Pillow Block, which is pronounced by all practical men who have seen it to be the very best in Canada.

COWAN & CO.,

Galt, Ont., Canada.

Manufacturers of Engines, Boilers and Wood-Working Machinery—all kinds, new Patterns, highly finished.

Portland Cements.

ROMAN Cement, Fire Bricks, Fire Clay, Scotch Sewer Pipes, Tiles, Enamelled Fire Clay Sinks; Enamelled, Majolica, Artistic Flooring and Wall Tiles.

A LARGE STOCK AND LOW PRICES.

W. McNALLY & CO.
MONTREAL.

TO ADVERTISERS.

A list of 1000 newspapers divided into STATES AND SECTIONS will be sent on application—**FREE**.

To those who want their advertising to pay, we can offer no better medium for thorough and effective work than the various sections of our Select Local List.

GEO. P. ROWELL & CO.,
Newspaper Advertising Bureau,
10 Spruce street, New York

The Red Book

To Textile Manufacturers



THE SECOND EDITION OF THE CHEMICAL Dye-stuffs, Machinery and Mill Supplies Directory contains a list of Manufacturers and Dealers in all Textile Machinery and Mill Supplies, fully indexed. Also Directory of the Dyers' and Finishers', Bleacheries, and Print Works; valuable tables and statistics, and a mass of information which will meet their daily. Handsomely Bound in Cloth.

Price, ONE DOLLAR.

SENT POSTPAID ON RECEIPT OF PRICE.



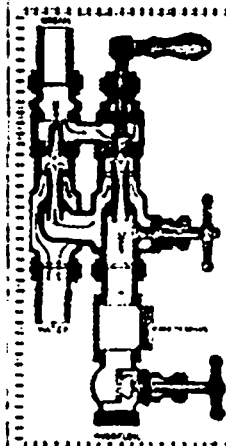
J. E. PALMER,
176 Broadway, New York.

FARM MACHINERY FOR SALE.

- 1 IRON FRAME 80 SPINDLE "BRIDESBURG" TWISTER, has been run only 6 months and is good as new.
- 1 SET 30" CUSTOM ROLL CARDS, in good condition
- 1 SET 40" DAVIS & FURBER WOOD FRAME CARDS.
- 1 YARN REEL.

Will sell at a bargain. Address,

BOYNTON & SON, East Aurora, N.Y., U.S.A.



JAMES MORRISON,

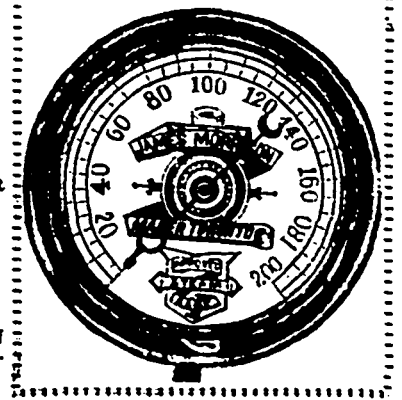
IMPORTER AND MANUFACTURER OF

Steamfitters' and Plumbers' Supplies

75 & 77 ADELAIDE ST. WEST, TORONTO.

SANITARY EARTHENWARE Now in Stock: Morrison's Washout Hopper National Water Closet.

- Crown Water Closet.
- Modero Water Closet.
- Perfect Water Closet.
- Jenning's Valve Closet.
- Demandet Valve Closet.
- Alexander Valve Closet.
- A full stock of Washbasins, Urinals, etc.
- Also complete stock of Wrought Iron Pipe and Fittings.
- Brass and Iron Valves.
- Plumbers' and Steamfitters' Brass Work.
- Rubber Hose, Bolting, Packing, etc.
- Sole Canadian representative of the Celebrated Hancock Injector.



ADVERTISERS

Can learn the exact cost of any proposed line of Advertising in American Papers by addressing

Geo. P. Rowell & Co's

Newspaper Advertising Bureau, 10 Spruce St., New York.

Send 10 cts. for 176 Page Pamphlet.

NEW WATERLOO

All Cast Self-Feeding Furnace.

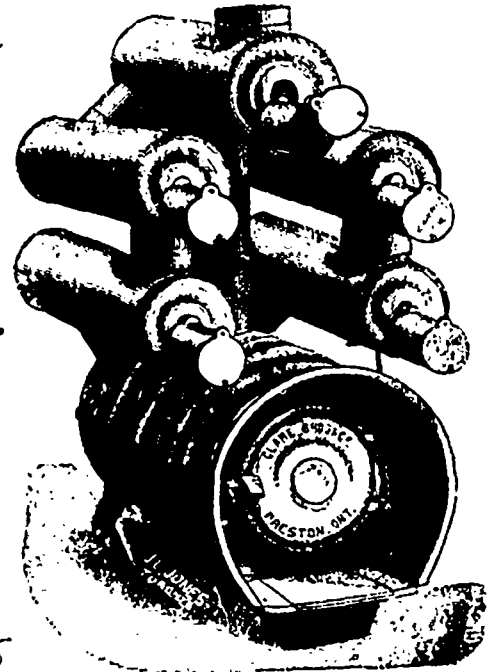
HILBORN

Hot Air Wood Burning Furnace.



**CLARE
BROS.
& CO.
PRESTON.**

Write for Illustrated Catalogue and Price List of the most complete line of Coal and Wood Hot Air Furnaces and Registers manufactured in Canada.



Years in advance of all others. The most economical, durable and powerful gas tight Furnace made. Can be operated as self-feeding or fed through the front door. Is fitted with New Hook Ash Clear Grate, the best grate known—a simple turning of the lever absolutely clearing the fire surface of all ashes and clinkers. Has large Ash-Pan, Sectional Fire Pot, a deep sand joint at the hottest part, allowing for expansion, renders this the most durable yet made. The Radiator presents five times as much surface to the action of the fire as ordinary furnaces, and can be more easily cleaned. This Furnace is fitted up in the best manner, with bronze hinge pins and knobs, dust flue, etc., and is undoubtedly the most economical furnace made.

This Furnace, made in six sizes, is unequalled for efficiency, economy, ease of management, durability. Is corrugated and made very heavy. The Drums are of heavy sheet steel (with cast iron ends and collar connections), well riveted together, so as to prevent the leakage of gas and smoke from unequal expansion and contraction. It has been largely in use for several years, and has never failed to give the most perfect satisfaction to purchasers, thus differing and entirely superseding all other wood-burning Furnaces heretofore made. Farmers who have a surplus of wood unfit for the market will find them a great relief from the vexation and annoyances of pulling down and setting up ordinary heating stoves and pipes, wood boxes, etc. We furnish the four larger sizes with either round doors, as shown on cut, or with extra large square doors.

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, AGRICULTURAL STEEL CUT TO PATTERN, COULTER STEEL HARROW DISCS, 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.

J. L. JONES
WOOD ENGRAVER
 10 KING ST. EAST
TORONTO
 SEND FOR PRICES

W. H. BANFIELD,
 TORONTO.
MACHINIST AND DIE MAKER,

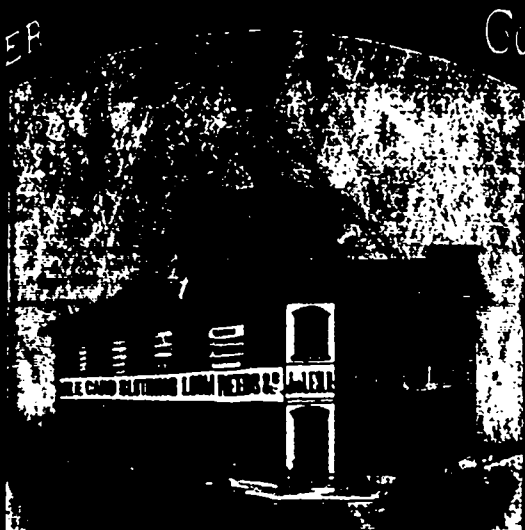
MANUFACTURER OF
 Foot and Power Presses,
 Combination and Cutting Dies,
 Tinsmiths' Tools, Knitting Machines, etc.

CUTTING AND STAMPING TO ORDER FOR THE TRADE.

Special Attention paid to Repairing Factory Machinery.
 78 WELLINGTON STREET, WEST.

JAMES LESLIE
 MANUFACTURER OF
 MACHINE CARD CLOTHING AND LOOM REEDS.

LEATHER BELTING
 FACE LEATHER
 ROSE
 COTTON AND WOOLLEN MILL SUPPLIES



COTTON LOOM HARNESSES AND WIRE HEDDLES
 OFFICE AND FACTORY
 JUNCTION OF CRAIG AND ST. ANTOINE STREETS
 MONTREAL.

BELHOUSE, DILLON & CO.
 NO. 9 CUSTOM HOUSE SQUARE, MONTREAL.
 IMPORTERS OF
CHEMICALS, DYE STUFFS & ANILINE COLORS.

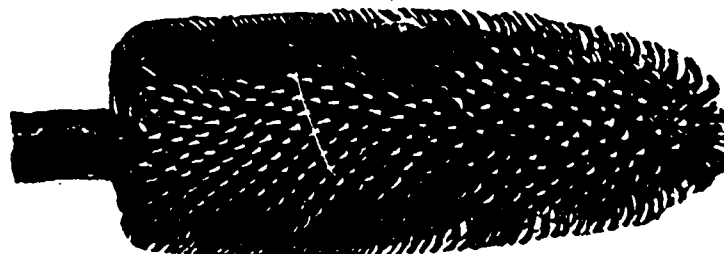
W. PILKINGTON & SON.
 WIDENES
 ALKALI MANUFACTURERS.



ALSO REPRESENTING THE WIDENES BRANDS OF
 CHEMICALS MANUFACTURED BY
 THE WIDENES COMPANY, ENGLAND.

THOMAS C. KELLOGG,
 SKANEATELES, N.Y., U.S.A.

Tassels are Grown, Cured and
 Packed on OWN Premises.
 New York Office,
 301 BROADWAY,
 T. H. KELLOGG, Manager.



DEALER IN
 AND
 CROWER OF
 American Tassels,
 CLIPPED AND PACKED
 TO ANY
 DESIRED SIZE.

T. H. EATON & SON, Windsor, Ont., and Detroit, Mich., Agents for Ontario.

Correspondence Solicited.

Samples sent by Mail upon Application.



ROBIN & SADLER,
 MANUFACTURERS OF
LEATHER BELTING

SEND FOR PRICE LISTS AND DISCOUNTS.

MONTREAL, 2518, 2520, 2522, Notre Dame St.

TORONTO, 129 Bay St.

TELEPHONE 110 B.

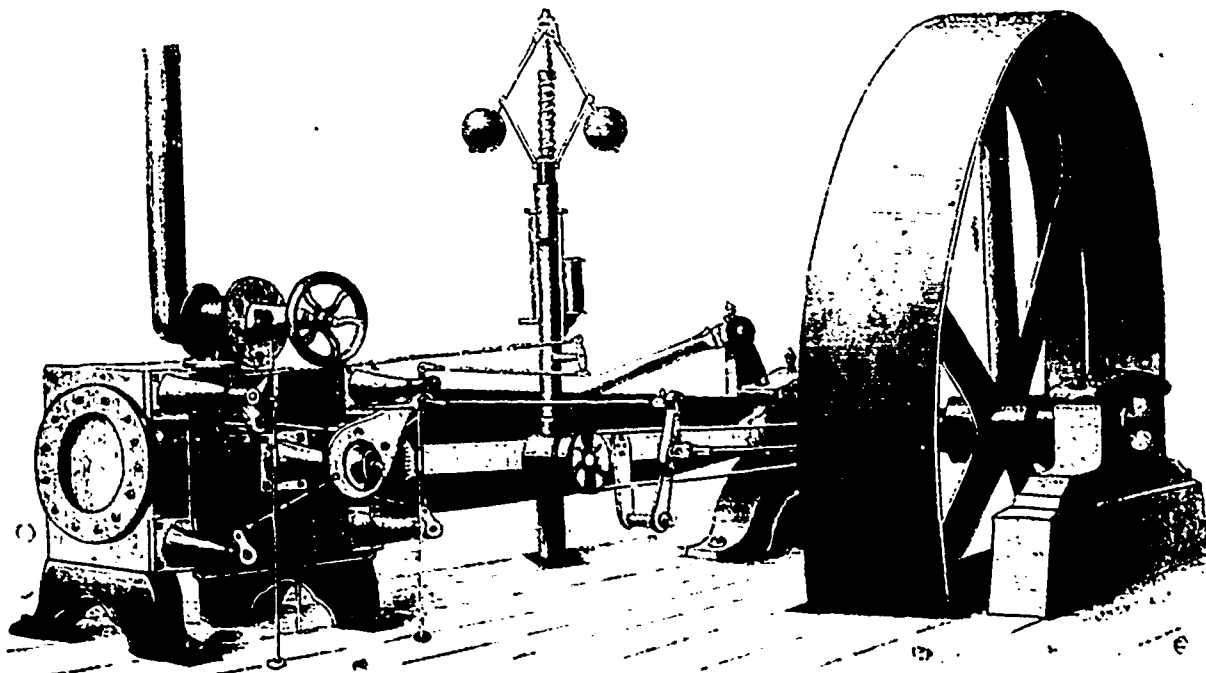
TELEPHONE 1101.

Mill Owners in the West will find it to their advantage to order their BELTING from our Toronto House.

We guarantee their orders well and promptly filled, for we keep on hand all sizes from 2 to 16 inch, **SINGLE AND DOUBLE**; also: Lace Leather, Belt Hooks, Belt Punches, etc. etc.

INGLIS & HUNTER, TORONTO.

ENGINES, BOILERS, CASTINGS.




THE BEST IS THE CHEAPEST.

CORLISS ENGINES.

WESTINGHOUSE ENGINES.

Steel Boilers, Stationary and Marine.

THE MONOLITH.
 An Automatic Visible-feed
STEAM ENGINE
Lubricator
 SEND FOR CIRCULAR.
 ADDRESS: **J. VIN. RENCHARD,**
WINDSOR, ONT.



THE ECLIPSE
 A VISIBLE FEED LUBRICATOR
 FOR STEAM ENGINES, PUMPS,
 AND LOCOMOTIVE AIR BRAKES
 BRONZED \$600 NICKELLED \$800
J. VIN. RENCHARD
 DETROIT MICH. & WINDSOR, ONT.

DOMINION SHOW CASE
MANUFACTURING CO'Y

J. P. WAGNER.
 C. SCHACK.
 H. G. LAURENCE.
 WM. MAHR.



SILVER MEDAL
 Toronto Exhibition, '84, '85.
 FIRST PRIZE
 Provincial Fair, Ottawa, '84.
 SEND FOR CATALOGUE AND
 PRICE LIST.

Show Cases, of Every Description in Nickel, Silver
 Walnut, Ebonized, Etc.

HARDWOOD STORE FITTINGS, METAL SASH BARS, ETC.

★
 SHOWROOMS AND FACTORY:

59, 61 and 63 Adelaide St. West, TORONTO, Ont.

BERTRAM & SONS,
CANADA TOOL WORKS,
DUNDAS, ONT.

Manufacturers of all kinds of Machine Tools and Wood Working Machinery. Our Tools are all made from new and improved patterns and with the latest improvements. A large stock always kept on hand, and those not in stock made at shortest notice. In our list will be found the following

- | | |
|------------------------|------------------------|
| Lathes, | Tenoning Machines, |
| Planers, | Band Saws, |
| Drills, | Scroll Saws, |
| Bolt Cutters, | Wood-Turning Lathes, |
| Punches and Shears, | Timber Dressers, |
| Boiler Makers' Rolls, | etc., etc., etc. |
| Slotting Machines, | — |
| Milling Machines, | Complete sets of Ma- |
| Cutting-off Machines. | chinery for |
| Shafting Lathes, | Locomotive Works, |
| Pulley-Turning Lathes, | Car Works, |
| Wood Planing and | Implement Works, |
| Matching Machines, | Cabinet Factories, |
| Surface Planers, | Planing Mills, |
| Moulding Machines, | Machine shops, |
| Mortising Machines, | etc., etc., etc., etc. |

The Canada Tool Works.

WRITE FOR PRICES AND CATALOGUES.

WHENEVER YOU HAVE *

- ORDERS OR INQUIRIES -

FOR

Wire Work or Wire Cloth

OF ANY DESCRIPTION,

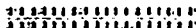
*** REMEMBER ***

- THAT THE -

Gibb Wire & Iron Co.

646 Craig Street, MONTREAL,

Manufacture Everything in Wire.



Send for Estimates and State what you Require.

Parks' Cotton Manufactures

Awarded the Only "Gold Medal" Given at the Toronto Exhibition of 1885, for Cotton Goods.

Fancy Wove Shirtings.

FAST COLORS, - - FULL WEIGHTS.

Quality always Equal to Samples sent out.

COTTONADES.

Our celebrated line of Lansdowne Tweeds, the best value, for least cost, of any made in Canada.

BALL KNITTING COTTONS.

Better Spun, Twisted, Bleached and Dyed than any other in the Market. For Sale by all Wholesale Houses.

No Goods Genuine Without Our Name Upon Them.

NO PRIVATE BRANDS.

WILLIAM PARKS & SON (Limited),

ST. JOHN, N.B.

AGENTS :

Wm. Hewett, Toronto;
Duncan Bell, Montreal;
Bedard, Girard & Co., Quebec.

**GOLDIE & McCULLOCH,
GALT, ONT.,**

— MANUFACTURERS OF —

Steam Engines, Bollers, Turbine Water Wheels, Flour Mill Machinery, Wool Machinery, Wood Working, Shingle and Barrel Machinery, Safes, Vault Doors, Etc., Etc.

*** SPECIALTIES ***

The Wheelock Automatic Cut-off Engine, Chilled Iron Roller Mills, Wheat Cleaning and Flour Dressing Machinery of every description.

**FIRE AND BURGLAR PROOF
SAFES.**

Special Price Lists and Illustrated Catalogues of our various Departments furnished on application.

All orders will receive prompt attention.

**GOLDIE & McCULLOCH,
GALT, ONTARIO.**

HAMILTON

COTTON COMPANY

MANUFACTURERS OF

THE STAR BRAND

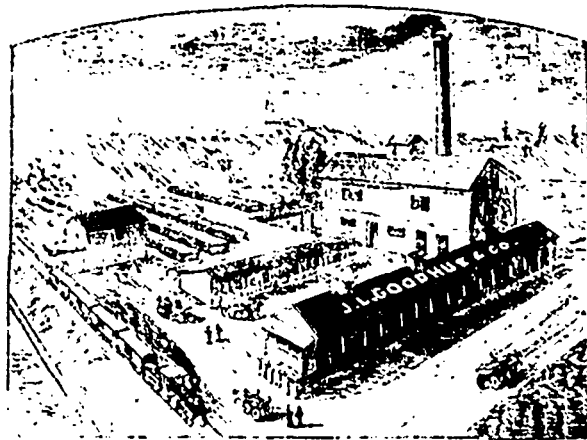
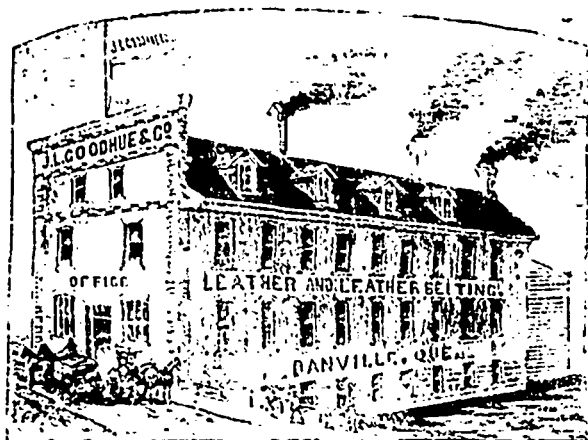
COTTONADES, DENIMS, TICKINGS.

- 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.



J. L. GOODHUE & CO.

ORDERS PROMPTLY FILLED.

LEATHER BELTING

WRITE FOR PRICES.

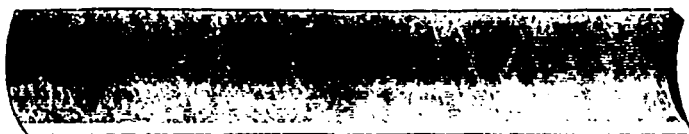
✳ DANVILLE, P. QUE. ✳

GALT MACHINE KNIFE WORKS.

PLANING MACHINE
KNIVES.



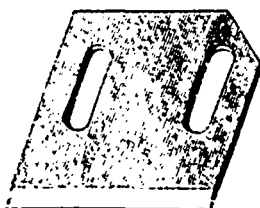
STAVE CUTTER KNIVES.



STAVE JOINTER KNIVES.



MOULDING, TENONING,
MITREING.



SHINGLE JOINTER,

And other irregular shapes

Case-box and Veneer, Paper Cutting, Leather Splitting and all kinds of knives made to order. SEND FOR PRICE LIST. ALL WORK WARRANTED.

PETER HAY

GALT QNT.

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.

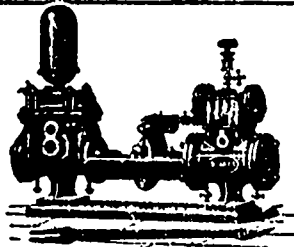
As no agents are employed and the company deals only with the principals of the establishments insured by it, conditions and exceptions which are so apt to mislead the insured and promote controversy and litigation in the settlement of losses will thus be avoided.

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.

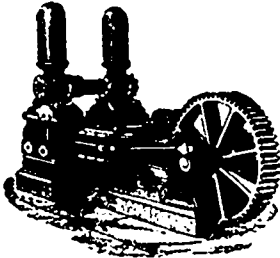
W. H. HOWLAND, Vice-President.
JAMES GOLDIE, President.
HUGH SCOTT, Managing Director.

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

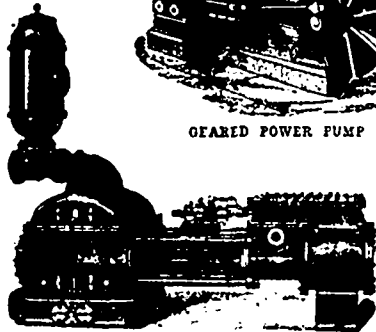
Geo. F. Blake Manufacturing Co.,



BOILER FEED PUMP



GEARED POWER PUMP



DUPLEX COMPOUND ENGINE

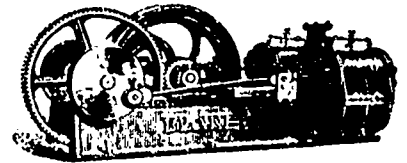
BUILDERS OF
SINGLE AND DUPLEX
Steam and Power
Pumping Machinery



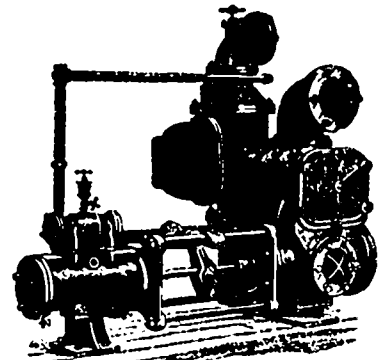
BOSTON,
44 WASHINGTON STREET.

NEW YORK,
93 LIBERTY STREET.

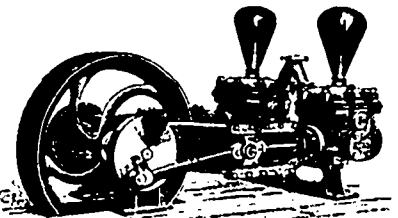
SEND FOR ILLUSTRATED CATALOGUE



AIR COMPRESSOR



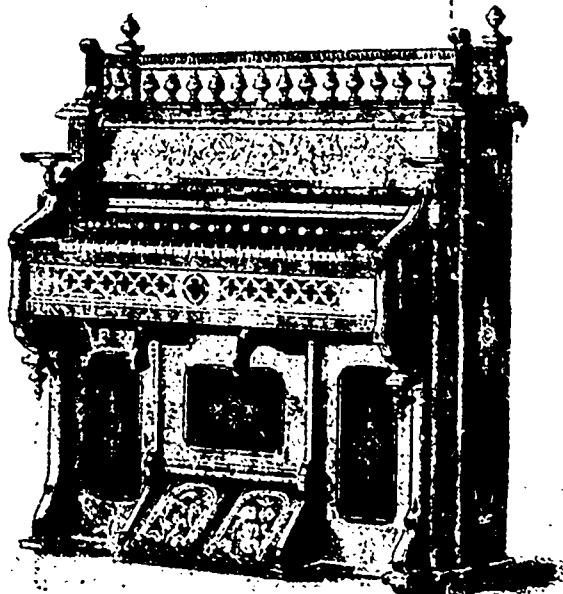
AIR PUMP AND CONDENSOR



BELT PUMP

BELL ORGANS

FOR
Chapel,
Church,
Lodge,
Parlor.



ARE THE BEST

OUR Large Double and Single Manual Organs
are the best in the Market, and
Musicians should see them before
buying elsewhere.

CATALOGUES
SENT ON APPLICATION

W. BELL & CO.,
GUELPH, CANADA.

Industrial and Trade DIRECTORY.

Acids and Aniline Dyes.

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

Agricultural Implements.

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

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

Bobbins and Spools

THOMPSON & CO., Sherbrooke, P. Q.—Manufacturers of all kinds of Bobbins and Spools for Cotton and Woollen Mills—Special patterns made to order from sample.

Bridge Builders.

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

Chemicals.

DOMINION DYEWOOD AND CHEMICAL CO., Toronto.—Importers and Manufacturers. Chemicals for Cotton, Woollen, Paper and Leather Manufacturers.

McARTHUR, CORNEILLE & CO. (successors 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.

Cotton Mills.

HAMILTON COTTON MILLS CO., Hamilton.—Denims, tickings and yarns.

Dyes, Dyeing Drugs and Extracts.

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 Woollen and Cotton Manufacturers. **Paper Makers' Anilines** and Chemicals. Address the Detroit Office.

Dye Stuffs.

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

LYMAN BROTHERS & CO., Nos. 71 and 73 Front Street East, Toronto—Dye Stuffs of all kinds for Woollen and Cotton Manufacturers; Warps, Shuttles, Bobbins, Card Clothing, etc., etc.

Dyewood and Dye Stuffs, Aniline Dyes.

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

Edge Tools.

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

Emery Wheels.

HART EMERY WHEEL CO., Hamilton.—Manufacturers of every description of Emery Wheels and Emery Wheel machinery.

Files.

G. OUTRAM & SON, Dominion File Works, Montreal.—Manufacturers of every description of files and rasps.

Gas Engines.

JOHN DOTY, Toronto.—Manufacturer in Canada of the new "Otto" silent gas engine, two, four, and seven horse power and larger.

Glove Manufacturers.

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

Harness and Trunks.

S. & H. BORBRIDGE, Ottawa.—The largest saddle, harness, and trunk manufactory combined in Canada. Wholesale and retail. Offer the trade and the public generally the largest assortment of goods in their line in the Dominion at lowest prices.

Hoist and Elevator Manufacturers.

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

Hubs, Spokes and Bent Goods.

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.

H. R. IVES & CO., Montreal.—Hardware manufacturers and foundries; iron railing and ornamental iron work a specialty.

McKECHNIE & BERTRAM, Dundas.—Machine tools and wood working machinery.

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 from air furnace. Agricultural and other heavy castings a specialty. Carriage castings in stock.

Inspirators and Ejectors.

THE HANCOCK INSPIRATOR CO., Montreal.—Manufacturers of inspirators, ejectors, and general jet apparatus.

Engines and Boilers.

JOHN DOTY, Toronto.—Engines and boilers of every description and capacity, also shafting, pulleys, and hangers for factories.

Knife Works.

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

Knitting Mills.

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

Leather Belting.

DOMINION BELT AND HOSE CO., Toronto.—Oak tanned belting, lace leather, etc.

Manufacturers' Supplies.

E. JENCKES MANUFACTURING CO., Pawtucket, R. I.—Sole manufacturers of Hicks Improved U. S. Standard Ring Travellers. Belt hooks, gimlet pointed wire goods, spinning rings, cotton banding, twine, &c. Manufacturers' supplies. Leather belting and lace leather. Special agents for Jos. Noone's sons cloths.

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.

Saw Manufacturers.

R. H. SMITH & CO., St. Catharines.—Manufacturers of all kinds of saws, plastering trowels, straw knives, etc. Sole manufacturers for the Dominion of Canada of the celebrated "Simond's Saw."

SHURLY & DIETRICH, Galt, Ont.—Manufacturers of circular and cross-cut saws, plastering trowels, etc.

Scythe Snaths.

THE DOMINION SNATH COMPANY, Sherbrooke, Que.—Manufacturers of Patent Swing Socket, and every variety of Scythe snath.

Tanners' and Wool Pullers' 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.

Taps and Dies.

BUTTERFIELD & CO., Rock Island, P. Q.—Manufacturers of Taps, Dies, and all Screw Cutting Tools.—Telegraph Office, Derby Line, Vt.

Wire Works.

B. GREENING & CO., Hamilton, Ont.—Manufacturers of wire ropes, cloth and general wire workers.

TIMOTHY GREENING & SONS, Dundas, Ont.—Manufacturers of the strongest description of steel wire cloth, malt kiln floors and general wire weavers. Telephone connection.

NEWSPAPER ADVERTISING A book of 100 pages. The best book for an advertiser to consult, be he experienced or otherwise. It contains lists of newspapers and estimates of the cost of advertising. The advertiser who wants to spend one dollar, finds in it the information he requires, while for him who will invest one hundred thousand dollars in advertising, a scheme is indicated which will meet his every requirement, or can be made to do so by slight changes easily arrived at by correspondence. 149 editions have been issued. Sent post-paid, to any address for 10 cents. Write to **GEO. P. ROWELL & CO., NEWSPAPER ADVERTISING BUREAU,** (108 Pruce St. Printing House Sq.), New York.

D. MORRICE, SONS & CO.,
 General Merchants, etc.
MONTREAL & TORONTO.
HOCHELAGA COTTONS.
 Brown Cottons and Sheetings, Bleached Sheetings, 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, Woolen Yarns, Blankets, etc.
The Wholesale Trade only Supplied.

Edwin Alden & Bro.

For cost of advertising in any paper or list of papers published in the United States or Canada, send to the ADVERTISING AGENCY of EDWIN ALDEN & BRO., Cincinnati, N.Y., New York, Cor. 5th & 7th Sts., 140 Nassau Street.
 *Our "Newspaper Combinations," a book of 150 pages, containing prices of advertising, full instructions, etc., sent on receipt of 10c. Our "Am. Newspaper Catalogue" containing names of every newspaper published in the U. S. and Canada, sent on receipt of price, \$1.50. Estimates free.

Advertising Agency.

D. S. BARCLAY
ENGRAVER & CO.
 41 KING ST. EAST TORONTO
 TELEPHONE 687

A. H. HOWARD. 41 KING ST. EAST TORONTO
DESIGNER.
 9 YEARS WITH MESSRS. BURNETT & CO.
Illuminated Addresses

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 STREET,
MONTREAL.



Peterboro' Business College,

PETERBORO', ONTARIO,

Will send you something useful and beautiful, FREE, if you write for it.

Give your name and address plainly.

D. J. Eannell Sawyer,

PRINCIPAL.



THE INTERCOLONIAL RAILWAY Of Canada.

The Royal Mail, Passenger and Freight Route between Canada and Great Britain,
AND DIRECT ROUTE

Between the West and all points on the

Lower St. Lawrence and

Baie des Chaleur,

ALSO

New Brunswick,

Nova Scotia,

Prince Edward Island,

Cape Breton,

Newfoundland,

Bermuda and Jamaica.

New and elegant Pullman Buffet Sleeping and Day Cars run on through express trains. Passengers for Great Britain or the Continent, by leaving Toronto at 8.30 A.M. Thursday, will join outward Mail Steamer at Halifax A.M. Saturday.

Superior Elevator Warehouse and Dock accommodation at Halifax, for shipment of grain and general merchandise.

Years of experience have proved the Intercolonial, in connection with Steamship Lines to and from London, Liverpool and Glasgow, to Halifax, to be the quickest freight route between Canada and Great Britain.

Information as to passenger and freight rates can be had on application to

ROBERT B. MOODIE,

Western Freight and Passenger Agent, 93 Rossin House Block, York-st., Toronto.

D. POTTINGER,

Chief Superintendent.

Railway Office, Moncton, N.B.,
 May 26th, 1885.

VICTORIA WIRE MILLS.

WIRE ROPE

Best brands of Crucible Cast, Siemen's-Martin, and Bessemer Steel and Charcoal Iron Rope. Cast Iron Wheels for transmitting power. Moulders' Bellows, Brushes and Riddles; Iron and steel Wire Cloth, all grades and strength. Perforated Zinc, Iron and Steel, all sizes. Bank and Office Counter Railings. Wire Guards, all kinds. Sand and Coal Screens; Sofa and Chair Springs. Blind, Furniture and Fence Staples. Dildine's Adjustable Wire Sieve. Ornamental Wire Work, &c.

Send for Circulars, mentioning your requirements.

B. GREENING & CO.,

HAMILTON, Canada.



LET US SEND ESTIMATES FOR YOUR CATALOGUE CUTS BEFORE ORDERING ELSEWHERE.

DESIGNS OF PICTURES, MACHINERY, ETC.

Engraving and Lithographing.

THE

George Bishop

ENGRAVING AND PRINTING CO'Y.

LIMITED.

167 AND 169 ST. JAMES STREET,

MONTREAL.

THE
Dartmouth Ropework Co.

HALIFAX, NOVA SCOTIA.

MANUFACTURERS OF

**MANILLA, SISAL AND
TARRED RUSSIAN CORDAGE,**

MARLINE, HOUSELINE,

HAMBROLINE, SPUN YARN AND OAKUM.

SPECIAL ATTENTION GIVEN TO

Binder Twine.

INTENDING ADVERTISERS should address

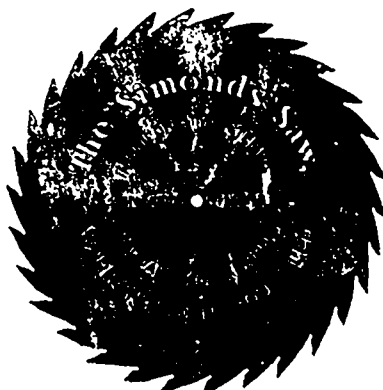
GEO. P. ROWELL & CO.,

10 Spruce Street, New York City

FOR SELECT LIST OF 1,000 NEWSPAPERS

Will be sent FREE, on application.

ST. CATHARINES SAW WORKS.



R. H. SMITH & CO.,

ST. CATHARINES, ONT.
Sole Proprietors, in Canada of the

**"Simonds" Saws
AT GREATLY REDUCED PRICES**

All our Goods are manufactured by the "Simonds" process. Our Circular Saws are unequalled. We manufacture the genuine Hanlan, Lance Tooth, Diamond, New Improved Champion, and all other kinds of Cross-cut Saws. Our Hand Saws are the best in the market, and as cheap as the cheapest. Ask your Hardware Dealer for the St. Catharines make of Saws.

THE LARGEST SAW WORKS IN THE DOMINION.

PERFECT THREADS AT ONE CUT
Reece's New Screw Plates.



CUT SHOWING SIZE C COMPLETE IN BOX
Size C cuts 1/4, 5/16, 3/8, 7/16, 1/2, 9/16 and 5/8 inch
Price, complete, \$2.00

SIZE A. SAME STYLE
Cuts 1/4, 5/16, 3/8, 7/16 and 1/2 inch
Price, complete, \$1.50

SIZE B. SAME STYLE
Cuts 1/4, 3/8, 1/2 and 5/8 inch
Price, complete, \$2.00

SIZE D. SAME STYLE.
Cuts 3/8, 7/16, 1/2, 5/8, 3/4 and 1 inch
Price, complete, \$2.50

SIZE E. SAME STYLE
Cuts 1/2, 5/8, 3/4, 7/8, 1 and 1 1/8 inch
Price, complete in box, \$3.00

ALL OTHER SIZES AT CORRESPONDING PRICES.

We furnish Collet and Die same as used in our Reece's New Screw Plate, to fit stocks B, D and large C stock, Little Giant, also B and C Wiley & Russell Lightning Screw Plate.

THE BEST PLATE IN THE WORLD.

MANUFACTURED BY

BUTTERFIELD & CO.,
Derby Line, Vermont, and Rock Island, Quebec.

THOMAS ROBERTSON & CO.,

MERCHANTS IN

Pig Iron, Bar Iron, Steel, Metals and Tin Plates

MANUFACTURERS OF

BRASS GOODS,

Wrought Iron Tubing for Gas, Steam or Water.

BOILER TUBES MADE FROM IRON, STEEL, COPPER or BRASS.

Representing Leading Makers in Great Britain of

Pig Iron, Bar Iron, Steel and Iron Plates, Machinery and Cast Steel; Ingot Copper, Tin, Antimony, Lead, Spelter; Boiler Rivets, "Best Scrap" and "Lowmoor Scrap," Sheet Copper, Brass, Lead and Zinc; Canada Plates, Tin Plates, Tin Sheets, Galvanized Sheets, Russia Sheet Iron, Black Sheet Iron; Boiler Tubes, Iron Pipe, Lead Pipe, Steam Fittings, Gas Fittings, Engineers' and Plumbers' Brass Goods; Seamless Copper and Brass Tubes, Sanitary Wire; Engineers', Steam Fitters', Plumbers' and Gasfitters' Supplies; Railway Equipment

GLASGOW:

Office, - 3 Oxford Street, S.S.
Gorbals & Govan Tube Works.

MONTREAL:

Stores, Common & Colborne
Office, 9 & 11 Chenneville St

JOHN WILSON, Glasgow.

JAMES R. WILSON, Montreal.

HEINTZMAN & CO.,

MANUFACTURERS OF



GRAND,
SQUARE,
AND UPRIGHT
PIANOFORTES.

Send for ILLUSTRATED CATALOGUE.

Warerooms, 117 King St. West,
TORONTO.

MACHINERY.

Steam Engines,
Steam Boilers,
Pumping Machinery.
Lathes, Planers,
Drilling Machines.
Machinists' Tools and Supplies.
Shafting, Hangers, Pulleys.

Machinery Supply Association,
Cor. BLEURY & CRAIG STS.
MONTREAL.

DOMINION FILE WORKS
G. OUTRAM & SON,
MONTREAL.
Oldest Established File Works
IN
CANADA.

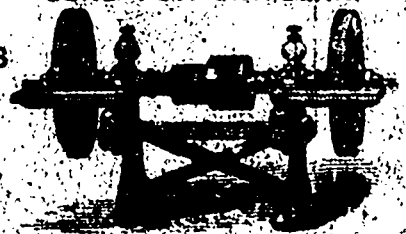


HART
Emery Wheel
COMPANY
(LIMITED),
Hamilton, Canada.

MANUFACTURERS OF
EMERY WHEELS

FOR
FOUNDRIES, MACHINE SHOPS,
SAW MILLS, & PLANING MILLS.
SEND FOR CIRCULAR.

Also
MANUFACTURERS
OF
EMERY WHEEL
MACHINERY.



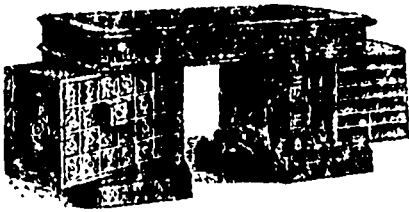
Illustrated Price List sent on Application.

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.

S. LENNARD & SONS

DUNDAS, ONT.

PATENTEE OF THE "SHEWAN" SEAMLESS HOSIERY.

Manufacturers of Plain and Fancy Hosiery, Caps, Ties, Sashes, etc., etc., etc.

To the Wholesale Trade only.

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

F. W. NEWMAN & CO.,
21 Lemoine St., Montreal.

In Manitoba by
PEDDIE & CO.,
WINNIPEG, MANITOBA.

In Western Ontario by
S. LENNARD,
Senior Member of the Firm.

ESTABLISHED 1820.

EAGLE FOUNDRY.

GEORGE BRUSH,

14 TO 34 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.

FOR SALE

FOR ACCOUNT OF THE

Joseph Hall Machine Works,
OSHAWA.

LEFFEL WATER WHEELS.

17 inch Water Wheels.	1 1/2 inch Water Wheels.
20 " " "	35 " " "
24 " " "	44 " " "
26 " " "	48 " " "

52 inch Water Wheels.

All with Improved Tight Gates of Superior Workmanship, and guaranteed the best in every respect

DOUGHERTY SHINGLE MACHINES.

JOHN LIVINGSTON, L.

Truce.



EVERY REPUTABLE DEALER KEEPS THEM.

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

JOHN WARDLAW Galt, Ont.

MANUFACTURER OF

Scotch Fingering,
Wheeling, Jacket and
All Wool
Knitting Yarns.

Fine Worsted, Tweed, and
Hosiery Yarns. Glove, Mitt,
and Cloud Yarns. Seaming
Yarns. Carpet Warps, &c.

Any Description of Yarns in single,
2, 3, or 4 ply made to order.

J. M. LAUGHLIN'S SONS,

GROWERS, MERCHANTS, AND EXPORTERS OF
AMERICAN TEASELS.

SHREVEPORT, N.Y.

