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THE CANADIAN MANUFACTURER AND INDUSTRIAL WORLD.

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

VOL. 6.

TORONTO, MARCH 18, 1887.

No. 6.

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SEE ADVERTISEMENT, PAGE 158.

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VOL. VI.

TORONTO, ONT., MARCH 18, 1887.

No. 6.

TWELFTH ANNUAL MEETING OF THE CANADIAN MANUFACTURERS' ASSOCIATION.

THE PRESIDENT'S ADDRESS—REPORTS OF THE
SECRETARY AND TREASURER—THE ASSOCI-
ATION IN A MOST SATISFACTORY CONDITION
—LECTION OF OFFICERS—INTERESTING
PAPERS READ.

The twelfth annual meeting of the Canadian Manufacturers' Association was held in the rooms of the Association, Wellington street West, Toronto, on Wednesday, the 9th inst.

The President, Mr. Thomas Cowan, of Galt, took the chair at 2.15 p.m.

Among those present were Messrs. W. K. McNaught, Wm. Bell, E. J. Davis, James Worthington, W. G. A. Hemming, P. W. Ellis, H. Hemming, E. S. Piper, Jos. Simpson, James Watson, T. D. Craig, M.P.P., Geo. Booth, R. MacGregor, W. H. Storey, J. S. Larke, Daniel Lamb, H. Bickford, Cyrus A. Birge, R. W. Elliott, J. B. Armstrong, Geo. Lang, John F. Ellis, Samuel Collinson, A. Warnock, John Fensom, Wm. Chaplin, J. Firstbrook, Theodore Heintzman, John Taylor, James Kendry, Frank J. Phillips, H. Heintzman, W. A. Storey, C. R. H. Warnock, Emil Boeckh, James Kendry.

The minutes of the last annual meeting were read and confirmed.

PRESIDENT'S ADDRESS.

The President, Mr. Thomas Cowan, delivered his annual address as follows:—

In giving this annual address, I wish to follow the example of my respected predecessor, and make any remarks I have to offer as short as possible. You will, I am sure, be pleased to learn from the reports of our Executive officers that the Association continues to prosper; that we have added largely to our numbers, and that our financial position has steadily improved. Allow me to express the hope that the influence of this Association may be proportionate to the increase in its membership; and that it may be of growing importance as an organization for the promotion of Canadian manufactures and the development of home industry.

Since our last meeting much has been done to enlarge the boundaries of commerce and to develop the vast resources of this country. The completion of the C.P.R. (our Canadian highway) marks a new era in our history. It was a bold undertaking for a comparatively new country like ours, and we may be pardoned the feeling of national pride as we went to our *via apia* spanning the continent, and uniting the various provinces of the Dominion. As a result of developing

the North West, new markets have been created for nearly every line of our Eastern manufactures; new fields for enterprise have been opened up, and new avenues of success have been presented, along which the united efforts of labor and capital may work hopefully for the personal and public rewards of honest and well directed industry.

This Association having steadily advocated a "fair play" tariff for Canada, I need make no apology for saying that I rejoice to know that in the recent elections the people have endorsed the National Policy in its entirety, and that we are again assured by the voice of the electorate, that ample protection is guaranteed to native industry, and that the hands of the authors and chief supporters of that Policy have been sustained and strengthened.

Since these results have become known confidence has been restored and has taken the place of the feverish anxiety which prevailed while elections were pending. For weeks before, buyers held off ordering as they wished to know what the result might be. Since the elections I am informed that every one of my manufacturing neighbors is in daily receipt of enquiries and large orders for machinery and goods. And I may add as a hopeful sign, that the remark covers woollen machinery for new mills and for enlarging and improving established concerns. The same applies to other lines of industry as well.

There are also a number of new industries lately started in our midst, which, I understand, have all they can possibly do. With fair average crops, and careful personal and public expenditure, Canada has a bright and prosperous outlook for some years to come. And labor of all kinds, whether skilled or unskilled, is likely to be fully engaged, with fair returns to both employer and employed, enjoying as they do some measure of protection from unfair foreign competing producers.

"A nation's prosperity being exactly proportionate to the number of hands and minds usefully employed," I hope to see much work to do and many minds and hands employed in making this country fairly prosperous and its people contented and happy.

The Colonial Exhibition of last year has been the means of placing Canada fairly before the markets of the world, and the exhibit of the natural products of the soil has accomplished a good work in removing erroneous notions which prevailed abroad as to the climate and natural resources of the country. I am glad to know that a number of our manufacturers succeeded in making satisfactory sales while at the Exhibition, and that the character of the product of our skilled labor as to design, finish and suitability, was very favorably commented upon, though we occasionally hear complaints at home as to the character of our own manufactures.

To secure a firm hold of either a home or foreign market it is of the utmost importance to keep up the quality of our goods, and to sustain the excellent reputation we are now eventually earning.

As a result of our efforts in this direction, a Commercial Agent was sent to London last season; two are now in the West Indies, and our Australian agent is working in the full belief "that we can do a good and profitable trade throughout

these Colonies in many lines." As our Secretary will no doubt call special attention to this trade in his report, I content myself with merely noticing it in passing.

In conclusion I hope our deliberations may be harmonious and satisfactory, and may be conducive to the advancement of the best interests of our Association and the promotion of Canadian industry in all its branches.

SECRETARY'S REPORT.

Mr. Frederic Nicholls, Secretary, submitted his annual report. He said:—

At the commencement of this my annual report, it may not be out of place to refer to the general and marked improvement in business which has attended most manufacturing enterprises since the date of our last annual meeting. Having more favorable opportunities than most people for accurately gauging the rise and fall of industrial prosperity, my avocation placing me in constant communication with those engaged in nearly every branch of manufacturing industry, and as I have visited during the past year nearly every point between Halifax and Sarnia, in which an industry of any importance is situated I am enabled to state that a healthy and confident feeling prevails and that a profitable and legitimate volume of business in almost every line, may reasonably be expected during the current year.

The affairs of this Association are so well understood by its members, that I may be excused from occupying your time with a repetition of what has been accomplished other than particularly referring to the fact that two special trade sections have been formed within the past twelve months. The "Tanners' Section" having a large membership, has already amalgamated with this Association, and I have every reason to believe the "Woollen Manufacturers' Association" will shortly follow suit. In order to make my report as brief and concise as possible I have sub-divided it under several heads and will commence with a reference to

COMMERCIAL AGENTS.

The increase in our manufacturing capacity has been so rapid during the past decade, that the necessity of endeavoring to increase our export trade, in special lines of manufactures, has become apparent. In a number of newspaper articles, published during the last three years, I have drawn attention to the fact that Canadian manufacturers, when seeking foreign markets for their productions, were seriously handicapped in their efforts from the lack of Consular and other advantages, such as are at the command of their competitors in other countries and have suggested the appointment of Commercial Agents, resident at foreign ports, whose duties would be to foster in every possible way an export trade in Canadian manufactures and agricultural and other products. In a resolution passed at its last annual meeting, this Association also drew the attention of the Government to the advisability of inaugurating some such system and of carrying out the intentions of Sir Leonard Tilley, who, when Finance Minister had set apart in the Estimates an item of \$10,000 to be used for this purpose. I am now able to report that several Commercial Agents have been appointed; that our commercial interests are already represented in Australia and the West Indies and that there is every prospect that our business relations with the countries indicated will shortly receive a considerable impetus. In this connection I may say that the Permanent Exhibition of Manufactures shortly to be opened in this city, will afford valuable facilities for an extension of Canadian trade in other countries. It will be a ready medium through which to reach desired articles, and arrangements have already been perfected for representation in Great Britain and Australia.

THE FACTORY ACT.

On the first day of July last an act passed by the Ontario Government and entitled "The Compensation for Workmen's Injuries Act," came into operation and the "Factory Act" passed by the same Government, was announced to come into operation on the first day of December last.

The provisions of both of the above Acts are doubtless familiar to the members of the Association as having been kindly furnished by the Hon. the Attorney General with a number of printed copies I was enabled to send copies of each to nearly every manufacturer in the Province. At a meeting held in this office last November, called at the request of a number of manufacturers, for the purpose of discussing the probable effect such Labor legislation might have on industrial enterprises, the general principles of each Bill met with approval although it was felt that too much power pertained to the office of Factory Inspector, inasmuch as under the Act, his decisions would be absolute and final. It was suggested that some provisions should be made for an appeal from the Inspector's decision, in certain cases, and a committee was appointed to wait upon the Attorney General and express these views. This committee carried out their instructions in due course, and were assured by the Hon. Mr. Mowat that the matter would receive the consideration of himself and his colleagues.

THE RAILWAY COMMISSION.

The report presented by the Executive Committee at the last annual meeting drew attention to the fact that a memorial had been forwarded to the Dominion Government by this Association, setting forth the necessity of appointing a Railway Commission which would, amongst other matters, take cognizance of the injurious effect of discriminating railway freight charges, on individuals and localities. At or about the same time several Boards of Trade also memorialized the Government on the same subject, and as you are aware, a Commission has since been appointed, which has already met and collected evidence in this and other cities. It is sincerely to be hoped that the Report which will doubtless be submitted to Parliament, by the Commission when their labors shall have ended, may bear fruit in the shape of such practical legislation as may abolish or at least mitigate the evils now existent, and with which every business man is familiar. In my opinion it might perhaps have been prudent for the Commissioners to have examined their witnesses in private inasmuch as a good deal of the testimony was given in the presence of leading railway officials whose presence may possibly have tended to prevent such a full and explicit statement of alleged grievances as might otherwise have been given.

THE INDUSTRIAL EXHIBITION.

The welfare and success of the Industrial Exhibition is a matter of intimate concern to manufacturers generally. The five delegates elected by you last year to serve on the various committees of the Industrial Exhibition Association (two of whom have also a seat at the Board of Management), devoted every energy towards contributing to the general and gratifying success which attended last year's exhibition. As one of those delegates I am strongly of the opinion, which I think is shared by every other member, that as Toronto is a great commercial and manufacturing centre, and as the attendance at the Industrial is always far in excess of any other fair held in any other part of the country, that an effort should be made to secure the holding of the Dominion Exhibition here during the present Jubilee year and to secure the customary Government grant of ten thousand dollars. Should this suggestion meet with the approval of the meeting a resolution to that effect might be passed and communicated to the Hon. the Minister of Agriculture.

THE COLONIAL AND INDIAN EXHIBITION.

This exhibition afforded a grand opportunity, eagerly embraced by many Canadian manufacturers, of exhibiting to the

world the extent and development of our industrial resources. The country's gain in prestige as a result of our exhibit is of itself sufficient cause for congratulation to those who participated, but in addition to this a number of exhibitors have found that their enterprise has led to substantial commercial advantages. For certain productions new markets have been opened up, not only in Great Britain and Europe, but also in Australia and the far East, and the fact that Canada was the only colony that made any practical and diversified display of manufactures, has firmly established our reputation as the premier colony of the Crown, and in conjunction with our other exhibits of the products of the soil, the mine, the forest, the sea and of our public institutions, has demonstrated that we have within ourselves every element, industrial, agricultural, political and educational, that is necessary to the prosperity and progress of a nation.

PRISON LABOR.

The employment of convicts in our penitentiaries and prisons has long been a disturbing question and fraught with so many difficulties that a settlement was long delayed. This Association, acting in the joint interest of manufacturers and artisans, were successful in their efforts to induce the Dominion Government to entirely prohibit the importation into Canada of any goods wholly or in part manufactured in foreign prisons, and I am pleased to be able to state that this desirable legislation has been followed by the cessation, in our Dominion institutions, of all contract labor, and that to-day no goods whatever are made for the outside market in any of the penitentiaries under the control of the Dominion Government, the last contract, that of lock manufacturing having been finally closed down last month. The address at the opening of the Ontario Legislature indicates that the Ontario Government propose to abolish the custom of hiring out prisoners on the contract system. The work carried on at the Central Prison, Toronto, would otherwise afford employment to a large number of free workmen, and public opinion will sustain the Mowat Ministry in their contemplated reform.

INDUSTRIAL ART AND DESIGN.

In reference to the four silver medals awarded last year by the Association for industrial designs by students of the Art Schools in Toronto, London, Ottawa and Kingston, I may say that the competition fully realized our expectations, inasmuch as a great deal of interest was created; the Association medals were eagerly competed for, and an extraordinary degree of native talent was developed. Dr. May, Superintendent of Art Schools, writes as follows:—"I have great pleasure in informing you that the action of the Ontario Manufacturers' Association in offering medals in competition for industrial designs in the Art Schools in this Province, elicited considerable praise, and was the means of bringing your Association very prominently before the public at the Colonial and Indian Exhibition." "The designs were labeled and numbered to correspond with the Educational Catalogue (see pp. 41, 48, 50). Several notices of these designs appeared in the British press, and I refer to one of them which I have inserted in my Report on the Exhibition. I may also mention that the Marquis of Lorne advised me to place some of the designs in the hands of English manufacturers, but I could not do so as they were the property of the students."

THE TARIFF.

Naturally, in a country which, notwithstanding the progress of late years, has not yet arrived at industrial maturity, certain re-adjustments of the tariff become necessary, from year to year. The necessity for this arises from various causes, such as the establishment of new industries for the manufacture of certain classes of goods that had not previously been made in the country; and for the purpose of producing what had previously been considered as the raw material of other industries. Whilst the tariff as it now stands is generally satisfactory I would again draw the attention of the Association to the advisability of endeavoring to secure the substitution of *specific* in place of *ad valorem* duties, wherever practicable. The result

would be to check fraudulent undervaluation and to ensure to manufacturers the full amount of the protection to which they are legally entitled.

RECIPROCITY.

The present misunderstanding with the United States, arising out of the fisheries question, has directed public attention towards the commercial relations of the two countries, and a great deal is being said and written on this subject, and mock heroics have been freely indulged in by certain warlike American senators who have thus achieved the feat of killing two birds with one stone, or in other words, have made a bid for the votes of Anglo-phobists and gratified their personal vanity at the same time. The general tone of the American press, however, clearly shows that the great bulk of the American people are sincerely desirous of a peaceable and permanent settlement, and many suggestions have been offered as to the best method of ensuring this desired consummation. The remedy of Unrestricted Reciprocity appears to find the most favor on the other side, and is eloquently advocated by Mr. Erastus Wiman, a native Canadian who has risen to eminence in the United States, and whose utterances, both from the fact of his being a Canadian and because of his high commercial standing, carry a very great deal of weight. Of course, the main argument he and others advance for our consideration is that we would have an open market of fifty millions of people for our productions. In reply to this I quote an extract from an article which appeared in the CANADIAN MANUFACTURER not long since, and which fully expresses my own views on this important question. The extract reads as follows:—"But the markets of the States would be open, too, it is said, and therefore reciprocity in manufactures would be fair to both sides. The reply is that it would *not* be fair, for the reason that American manufacturing companies and firms, being larger and longer established than ours, would soon shut up our factories by selling for a time at sacrifice prices, after which the old story would be told again and this market would be at their mercy. If there are many of our manufacturing friends who honestly think that they would be able to hold their own in the contest we shall be happy to hear from them as to the practical grounds they have for this opinion. But the most serious objection of all to reciprocity in manufactured goods is one arising out of Canada's position as part of the British Empire. Whatever goods we make free coming from the United States must also be free coming from England. We cannot admit American goods free while levying duties on British goods; that most certainly would not be allowed, nor can we ask that it should. But British export warehouses are piled high, not only with goods of home production, but also with the manufactures of France, Belgium, Germany and other countries, all admitted free. Observe now what follows: If the Americans, by treaty, open their markets to Canadian manufactures, the duties on English and other goods would remain unaffected, but if we open our market for goods to the United States this consequence is involved, that we throw our doors wide open to the whole world. Our neighbours would have to consider only such competition as might be expected from Canada, but we would have to consider what would be the effect of throwing our markets open, not only to the neighboring States, but also to England and all the world besides. This is the one sound and sufficient reason why reciprocity in manufactures can never be adopted by Canada except as a policy of suicide. That is, of course, as long as this Dominion remains a part of the British Empire.

In conclusion I may say that it was my intention to refer to the recently appointed Labor Commission, and also the advantages that would accrue from the establishment by the Dominion Government of a "Bureau of Commerce," but as my report has already exceeded the usual length I will, should an opportunity present, offer some remarks on these subjects during the evening session.

Respectfully submitted,

FREDERIC NICHOLS, *Secretary.*

TREASURER'S REPORT.

The Treasurer, Mr. George Booth, submitted a statement of the financial condition of the Association, which was supplemented by the following report:—

Four years ago circumstances rendered it incumbent upon me to resign the position of treasurer of this Association, which I had the honor to fill for many years.

Upon the resignation early last year of your late treasurer, Mr. John Cosgrave, I was again called upon to fill the position.

In submitting this, the tenth annual report of the finances of this institution, I can congratulate you that the result is far more satisfactory than was my wont to lay before you in years gone by.

The Manufacturers' Association took a very active interest in the campaign of 1878. Perhaps no other organization was more influential in moulding and educating the electorate to the necessity for a "radical change" in the fiscal policy of our Government; and to their exertions (which they used in every legitimate way), the victory then achieved for Canadian interests was largely due.

With the close of that campaign this Association withdrew from the political arena, concentrating and confining their efforts from that time forward to the aiding in the formulation of that National Policy which is now admitted by all to be necessary to the growth and prosperity of this Dominion, and advising as to its adaptability to the many and diversified interests.

Eight years ago it devolved upon me, as treasurer, to make my first financial statement. In addition to a record of receipts and disbursements, a list of liabilities unprovided for was appended, showing a deficit of \$925.50. For years it was your treasurer's unpleasant duty to report his inability, out of the ordinary receipts of the Association, to liquidate this "war debt." However, it gradually decreased, but not until last year (owing in a great measure to the exertions of our energetic secretary, Mr. Nicholls) was the treasurer enabled to carry over a surplus; and it is my pleasing duty to day to report a balance in our banker's hands of \$204.82, to the credit of this Association. The actual balance at the end of the year was \$63.33.

A large number of members have not as yet sent in their subscriptions for the current year, and it is hoped they will do so at an early date. Respectfully submitted,

TORONTO, March 9, 1887.

GEO. BOOTH.

On motion the reports of the Secretary and the Treasurer were each adopted.

CORRESPONDENCE.

A number of letters and telegrams from members expressing their regret at not being able to be present at the meeting were filed.

A letter of resignation, which had been received some time since, from Mr. A. W. Wright, Hon. Secretary, was read, and the resignation accepted.

Mr. James Goldie, Guelph, 1st Vice-President, having tendered his resignation on account of his business affairs preventing regular attendance of the meetings, the resignation was accepted by the Association with much regret.

ELECTION OF OFFICERS.

Mr. Thomas Cowan, Galt, President; Mr. Samuel May, 2nd Vice-President; Mr. George Booth, Treasurer, and Mr. Frederic Nicholls, Secretary, were each re-elected, and Mr. W. H. Storey, Acton, was elected 1st Vice-President, *vice* Mr. Goldie resigned.

Representatives to Industrial Exhibition Association—Messrs. George Booth, R. W. Elliott, Samuel May, Daniel Lamb, Frederic Nicholls.

EXECUTIVE COMMITTEE.—R. W. Elliott, Toronto; E. Garney, jr., Toronto; Jas. Watson, Hamilton; Wm. Bell, Guelph; Jos. Simpson, Toronto; J. A. Pillow, Montreal; A. Warnock, Galt; W. Millichamp, Toronto; B. Rosamond, Almonte; Geo. Pattinson, Preston; Daniel Lamb, Toronto; George Booth, Toronto; Isaac Waterman, London; W. H. Storey, Acton; C. Shurley, Galt; John Taylor, Toronto; M. B. Perine, Doon; Thomas McDonald, Toronto; B. Greening, Hamilton; George W. Sadler, 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; W. F. Cowan, Oshawa; J. S. Larke, Oshawa; H. Heintzman, Toronto; George Lang, Berlin; D. R. Wilkie, Toronto; P. Freyseng, Toronto; F. Crompton, Toronto; Carl Zeidler, Toronto; C. A. Birge, Dundas; Wm. Harty, Kingston; W. G. A. Hemming, Toronto; W. K. McNaught, Toronto; C. Boeckh, Toronto; T. D. Craig, M.P., Port Hope; Wm. Chaplin, St. Catherines; H. E. Clarke, M.P.P., Toronto; W. H. Cross, Barrie; Hon. W. E. Sanford, Hamilton; Hon. D. McInnes, Cornwall; F. T. Daville, Aurora; W. G. Gooderham, Toronto; James Barnam, Hamilton; C. Knees, Milton; H. Bickford, Dundas; Peter Lawson, Port Dover; James Morrison, Toronto; John Bertram, Dundas; W. Kemp, Toronto; P. W. Ellis, Toronto; A. J. Close, Toronto; T. D. Beddoe, Hamilton; W. Stalschmidt, Preston; O. Wilby, Weston; E. J. Davis, King; James Worthington, Toronto; James Goldie, Guelph.

GENERAL BUSINESS.

By resolution, the appointment of the following sub-committees was delegated to the Executive Committee—Tariff Committee, Foreign Trade Committee, Patent Committee, Fire Insurance Committee, Committee on Industrial Art and Design, Committee on Reciprocity Negotiations.

RESOLUTIONS.

THE following resolutions were then carried:—

Resolved, that the Dominion Government be requested to favorably consider the advisability of awarding the usual Dominion Exhibition grant of \$10,000 to the Industrial Exhibition Association for this the Queen's jubilee year. The Industrial Exhibition Association having the finest buildings and grounds in Canada for the required purpose, and Toronto being a great commercial, industrial, and railway centre, the Manufacturers' Association is of the opinion that the interests of exhibitors generally would be materially advanced, and a really representative display of manufactures and natural products from all parts of Canada secured, were the Government to adopt the suggestion of this Association.

After the question of reciprocity in manufactures with the United States had been fully and ably debated, it was

Resolved, that this Association is opposed to reciprocity in manufactures with the United States, and that the executive committee be requested to draft a memorial to the Government setting forth the views of the members of the Association on this question.

The afternoon session was then adjourned.

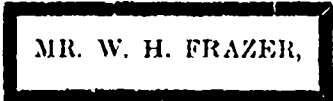
Evening Session.

The President took the chair at 8 p.m.

Mr. J. J. Withrow, the President of the Industrial Exhibition Association, was invited to a seat next the President.

Before commencing the regular order of business, the President in a few well chosen remarks, paid a tribute to the memory of the late Mr. W. H. Frazer, Dominion Appraiser, who was well known to and universally respected by the members of this Association. The following resolution prepared by Messrs. R. W. Elliott and W. K. McNaught, was then unanimously adopted

Resolved, that this Association forward to the family of their former secretary,



a letter of condolence in view of their recent bereavement.

The older members of the Association remember his earnest efforts to vary and develop the fields of Canadian industry, his labors in this behalf receiving but scant recognition or reward.

This Association as constituted to day fully understand the great work he accomplished in securing a field of industry free from foreign undervaluation. Every member knows the untiring industry, ability and urbanity which were his prominent characteristics, and, therefore, while the loss to the public has been great, the loss to his family must be such as can only be realized by those similarly afflicted.

Mr. J. J. Withrow, the President of the Industrial Exhibition Association, addressed the meeting in reference to the aims and objects of the Industrial Exhibition, and on the benefits which would accrue to exhibitors were the Government to award his Association the annual Dominion grant.

Mr. Withrow's remarks were acquiesced in by the meeting and on resuming his seat he was loudly applauded.

PAPERS READ.

The following able and instructive papers were then read by members who had kindly undertaken to devote the necessary time to their preparation in order to make an attractive programme for the evening session. The topics discussed were questions of present importance and in which all manufacturers are interested, and the reading of which were received with hearty applause.

SOME OF THE FACTORS WHICH LEAD TO SUCCESS IN A MANUFACTURING INDUSTRY.

(By W. H. Storey, Acton.)

This subject embraces points too numerous to discuss successfully in the time at my disposal, and I shall necessarily be brief.

It may be said without question that the first qualification to success is intelligence. The successful manufacturers of this, or any other country, may ascribe their success very

largely to this qualification. An undoubted verification of this assertion may be seen in the remarkable influence wielded socially, and politically, by the industrial nations of the earth noted for manufacturing supremacy.

Ignorance is no where more fatal to success than in the different branches of industrial pursuits, striving for a foothold against the keen competition of the nineteenth century. In the matter of intelligence, I do not consider as alone essential, the culture of the scholastic institutions with which our country is favored. But a thorough knowledge of the business to be conducted, in all its primary details. There must be the mind for apprehension and detail, indeed the Alpha, and Omega, of many of our manufactures may be summed up in this word detail, a disregard for this important matter may be looked upon as fatal to success, and this applies to all departments of the business, without a single exception. In order therefore to observe details, there must be diligence and well directed energy: "Sloth like rust consumes faster than labor wears," and there are duties which cannot be entrusted to any but the principal. It is said, if you would have your work well done go, if not send, and there is no class of labor to which this better applies than a manufacturing enterprise. Therefore, the successful manufacturer must be diligent

Another primary factor of success is probity of character, and the character of the goods, to secure respectful consideration at the hands of the mercantile classes, must bear the honorable impress of well made goods. Whether the class of goods produced be of an inferior or high grade, they certainly should be the very best of their class. A house noted for honest well made goods will thrive, where others fail, from a want of regard to this important particular. The successful manufacturer aims at the highest state of perfection in his products, and there is no question, of its being the surest method of securing the results sought, and a verification of the well won proverb, "Honesty is the best of policy." To be successful implies a close study of the wants of the trade - hence the successful manufacturer, must be cosmopolitan in character, and searchingly investigate his customers wants, otherwise, he will find at the end of the season, he has mistaken the demand, his ware room stocked with unpopular goods which too often are sacrificed at a loss. The question of cheapness is a secondary matter if the goods have not intrinsic value, and he who hopes to succeed by deluding himself with the belief that anything will sell, will find too late, that the sacrifice to do so will yield him nothing but disappointment in return.

To be successful implies method in management, and aptitude for the business engaged in. There is perhaps no more important decision made in life than that of deciding (not by inclination) but by aptitude and capacity for the business contemplated. How many wrecks are stranded on life's shoals from a disregarded capacity for the conducting of a business the commercial bulletins of our country amply attest.

The question of attention to the minutest details of a customer's order is of the utmost importance. It is certainly much easier to obtain a customer than to retain him, where the disposition is absent to study his interests. There is no class of people on the broad earth better entitled to first rank in commercial pursuit than the rank and file of intelligent Canadian buyers and it is certainly of first importance to study their interests and thus secure their hearty co operation in the development of Canadian industry.

In every department of manufacture, but especially in every description of goods done up in packages the utmost neatness, taste, and skill should be exhibited; bad judgment is nowhere more visible, and none more keenly criticized than the packing department of the manufacturer's business. Indeed, the buyer's first impression of the goods is very often taken from the neatness, or want of it, surrounding the packing of his goods. It matters little what care may be taken in the manufacture of the article itself, or what merit the goods may possess, a want of care and neatness in this section of the business will

meet a just reproof from the merchant, and in nine cases out of ten condemn at first sight the best productions.

The question of a profit is of sufficient importance to command a place in this paper owing to the keen and too often senseless competition prevailing at the present day. The belief seems to be current with a certain class, that to be a manufacturer must *per se* be the sure road to wealth and opulence. How often is this delusive idea the means of bringing into competition with legitimate trade, and I may add by way of parenthesis (narrowed profits), a class of persons totally unfitted to meet it, and who after a bitter though wholesome experience, end with disappointment and the loss of means invested. I fear that an intelligent estimate of the cost of the article produced, together with the cost of conducting the business, is too often wanting in those who give the greatest trouble to legitimate business.

In estimating the cost of an article it is of importance that the utmost care should attach to every detail of its primary composition. No assumption as to the cost of this or that should be permitted, or indeed too sanguine a view of the cost of any article embodied therein.

Having obtained the primary cost of the article, including labor, there are legitimate loadings which it should bear. If the business is an established one, and not extravagantly conducted, the expenses of conducting it the previous year should be ascertained, and a searching analysis of the following accounts made: salaries, fire insurance, rent, interest on capital, discount, fuel, light, and general expense account. Now it should be ascertained what per centage these accounts in the aggregate have borne during the preceding year to the amount of business done. Having so discovered the lawful expenses of conducting the business let it be a factor in the estimated cost of the article before striking a per centage for profit.

I am well convinced that without the closest examination and scrutiny of these details, there can be no regard for exactness, the absence of which leads to looseness and want of economy, either of which are fatal to success.

I cannot close this paper without adverting to another important factor necessary to success, and that is the hearty cooperation of our operatives. How many industries have been arrested in their development by some unseemly dispute between employer and employee, growing out of some trivial matter capable of easy adjustment, but which from a spirit of antagonism has been allowed to imperil if not destroy the interests of both. There must be a spirit of fairness on both sides. The question of how much can be squeezed out of labor and how little pay given, should not be thought of. I believe our manufacturers, as a class, are superior to the grinding process as applied to labor, and believe in the maxim "a fair day's pay for an honest day's labor." The tying labor down to the bare necessities of life is not consistent with the spirit of Canadian manufacturers. While the utmost liberality should be extended to intelligent labor and its interests carefully guarded, the necessities of the hour arising from the keenest competition ever waged, require that labor should be also considered. There is no doubt our manufacturers aim at placing the intelligent labor of this country on a higher plane than that of our foreign competitors in Europe. Nevertheless the frugality and economy practised by French, German and English operatives must, to some extent, be kept in view here. I believe also that in all manufactures which admit of such a system, economy in the use of material by the employee should be rewarded. Economy is more necessary to day than ever. It should be studied, practised, and paid for, while waste and extravagance should have no place in the concern.

I have endeavored to outline briefly what I regard as some of the features necessary to success in a manufacturing enterprise and to humbly add my quote to something which concerns the prosperity and progress of the manufacturing interests of Canada.

TRADE WITH THE TROPICS.

(By John Taylor, Toronto.)

In view of the possibility in the near future of the federation of all British Colonies with the Mother Country on a representative basis, I thought it opportune to point out some of the advantages to be gained by closer trade relations with our tropical cousins in the Carribean Sea. We all know from childhood that Jamaica is noted for ginger and rum, but beyond this the 1,000 islands that dot the map, like a necklace, from the Bahama group to Trinidad, are less known to most Canadians than Alaska. A population of 4½ millions, out of which about 1½ millions belong to the British West Indies, must in the nature of things require much that Canada has to export, when it is remembered that nearly every pound of beef, pork and butter has to be imported into those Islands from somewhere. Eternal summer will not produce good grass nor yield remunerative crops of cereals, so we must give credit to the malignant winters of Canada for rich pastures and that nursing rest that produces plump wheat and barley.

Geographically we are unfavorably located for regular interchange of commodities with the West Indies—and this unfavorable fact must be the prime obstacle to profitable reciprocity. So long as Canadians have to ship goods through the United States, and submit to the vexatious bonding and transfer charges in New York, our trade with the chief islands of the Antilles or the British possessions in Central America will be limited. True, there is a monthly Cunard service from Halifax, but the ports of call are too few, and there is a fatal lack of knowledge, in Ontario, at all events, about the service at all. Our government would be wise in disseminating information about the nature of West Indian imports and exports, and thus do much to reduce the hazard of "trial shipments." Every country has its peculiarities—*e.g.*—in Jamaica, flour in flat-hooped barrels wont realize by several shillings a barrel as much as the same flour in half round-hooped barrels. The writer has had a personal and painful illustration of this fact. Size of package, style of packing, method of marking, etc., all appear trifles to us here, but the unlucky exporter will find to his cost that they mean quite as much as excellence, down among those who wear "the shadowed livery of the burnished sun."

Without tiring you with dry statistics of the imports and exports, it would be well to note that last year the Dominion imported goods to the value of 4½ millions of dollars from the West Indies and Brazil direct. This does not include goods admitted free into the United States and re-sold by dealers and brokers on Canadian account, such as logwood, Fustic, Annato, etc. In fact nearly all dye-woods are entered as importations from the United States, whereas none are produced there—only pass through the great American toll-gates, New York and Boston. The heaviest interest in the tropical islands is, of course, sugar, and this has been developed into a large and chiefly direct trade through the establishment of refineries in Nova Scotia and other convenient ocean ports. But we, as manufacturers and agriculturists in Canada, are more concerned in exports than imports. We want more customers for our flour, beef, butter, cheese, and manufactures, and when we read that Cuba alone imports on an average twelve million dollars worth of British produce, and that Jamaica imported in 1883, £43,474 worth of building materials from the United States, as against £16,600 worth from British possessions, it would seem that our merchants are being outwitted in their own legitimate market. It is, however, comforting to read in the Jamaica Blue-book, that "the decrease in the trade (sugar) with the United Kingdom is due to the fact that a large proportion of the island sugars is being taken by the Canadian refineries." Take the item of clothing, of which we exported to Jamaica in 1883 but £946 worth, while the United States—that highly tariffed nation—sent them £10,000 worth. Certainly a small trade altogether in comparison with

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Great Britain, which sent them nearly half a million pounds, sterling, worth of the same class of goods. These matters are merely referred to, to show that as between the Dominion and the United States it is chiefly a question of communication with the odds in our favor as to cost of production. Besides the major island of Jamaica we have under the British flag, the Bahamas, Trinidad, Antigua, etc., and that garden of the tropics, Barbadoes—the most densely populated island of its size in the world. Add to these, British Honduras and British Guiana, with clusters of Spanish, Danish, and other islands south and east of the great republic of St. Domingo, and we have a constituency of consumers worth looking after, and who are at present, chiefly fed and housed by our neighbors the Americans. Since that moral, yet fatal, blow at the West Indian trade in 1834 when John Bull voted £20,000,000 to free the slaves it has been the fashion to speak of the ruin of those Islands, and indeed, it has taken them half a century to partially recover the paralysis of that measure, yet figures show that there is a healthy advance in trade, in and out, and that the labor problem, the source of all West Indian calamities—like all other problems—will be solved. What Canada wants (in the writer's judgment), is information—correspondents in each important centre from New Providence to Demerara, that would supply the Government with advices as to the wants and products of the islands, together with import duties, regulations and peculiarities of trade pertaining to the various ports. The grant voted by Parliament for "Commercial Agencies" would meet this want and aid buyer and seller to understand each other.

It has ever been the custom for men and trade to work westward, but why not work southward? On through the course already outlined to the great empire of Brazil, with its 12,000,000 of a population, its rapidly growing cities and its capital of half a million people. Brazil imports annually nearly a hundred million dollars worth of goods, about one-thirteenth being from the United States—consisting chiefly of agricultural implements, hardware, lard, butter, flour, pine timber, petroleum, biscuits, coal, ice, hams, soap, boots and shoes. Great Britain, as usual, takes the lion's share of the commerce of this mighty empire, but the old channels of trade are changing rapidly and if our claims to pre-eminence on this continent as a maritime people be not an empty boast what more probable than that Canada should bid for a Brazilian trade!

I know from experience that many of our products reach these far away points in a round about way and after paying sundry charges to middle men and foreign agents. As an example, a large proportion of the butter used in the tropics is sold or consigned by Canadian shippers to Liverpool, is repacked into tins of various sizes, and sent out to the West Indies, and probably to South American ports, and one of the first steps towards a direct trade with these countries it seems to me would be the compilation and publication of their various tariffs and export duties together with tables of currency, customs of the country and any other information that would smooth the way for the progressive trader. Such an undertaking, I take it, would be within the province of Local Boards of Trade here or of the Government.

MACHINE SHOP PRACTICE.

(By John Bertram, Dundas.)

The development of manufacturing interests in Canada has within the last few years acquired such proportions as the most sanguine pioneer in any branch of industry, twenty years ago, hardly dreamt of. The results of long and persistent effort in perfecting steam engines for the mill, factory or machine shop, seems now to have culminated in that success which places our new country in the list of nations competing in the world's market, and that in lines of manufacture which are now challenging the attention of countries old in the race. It will not be amiss at this stage to tender a few ideas on the present and

past state of machine shop practice. It barely requires a retrospect of forty years to include all the history of Canada's manufacturing industries as they fluctuated between prosperity and depression, and consider the waste of time, loss of power, and consequent want of economy which was inseparably connected with the operations of a class of men fighting for existence and having barely a margin of time left for systematizing. Looking at the engineer's shop or factory of these days many can remember the different styles of motive power and the enormous quantities of water and steam required to make one horse-power; the mill and factory shafting, mostly of cast iron with ponderous pulleys four or five feet in diameter, revolving (in cases of the main line) at fifty per minute; the makeshifts for turning out steamboat engines, heavy land engines and mill work—the great power absorbed by the ponderous shafting and unbalanced pulleys, the waste of steam in engines innocent of expansion valves which seemed to keep pace with the destruction of our forest timber, and the wonder is how those men achieved so much. The engineer's shop appliances created a great waste of time, being built mostly of wood with as little iron as possible, to a great extent limited the amount of work turned out, and to attempt the experiment of cutting with the modern tool in those old-time machines would bring down the whole affair. But the rapid decay of our forest timber and the clearing and draining of land and the consequent drying up in summer of a source of wealth which made a permanent location and name to some of our chief centres of industry rendered the steam engine a necessity, and the consumption of coal imported from a distance made it imperative that all modern improvements for saving fuel should be adopted, and as a present result we find steam engines with automatic cut-off valves which have no superior in any country are made in various parts of Canada, and that smooth turned shafting with light and finely proportioned and balanced pulleys of moderate diameter revolving at speeds proportioned to the requirements of the driven machinery is in general use. The old dingy grist mill now gives place to the modern roller system with machinery and fittings built on scientific principles. Engineers' tools and appliances came also in for a share of the general improvement; the old lathe and planer which had to creep along at the rate of the fiftieth of an inch for each revolution and stroke now give place to those carrying one-eighth or half an inch, and still the aspirations of the engineer is heavier machinery. The same remarks apply to wood-working machines. A planing head revolving over two thousand per minute was a dangerous neighbor, now four thousand is a safe speed, and as the result of a few years of enterprise the record of to-day shows Canada with more labor-saving machinery (if we take large and small establishments) than most older countries relative to her population.

It was the writer's privilege as a Colonial visitor in England to get admittance to the works of Sir Joseph Whitworth, of Manchester, and if any manufacturer wishes inspiration on the power and adaptability of machine tools to produce such magnificent results in turning and planing metals a visit to those works will amply reward him.

The new shops of this firm are situated at Openshaw, about four miles from Manchester town hall, and are for the production of breech-loading steel guns of the heaviest calibre down to the long Nordenfolt for one inch and a half projectiles. All the machine tools for boring, rifling and turning are of the most powerful description. For the largest class of guns a line of lathes eight feet swing and six hundred feet long set on stone foundations grace one side of the machine shop, and in one a steamboat shaft twenty inches diameter with its double cranks forged on solid, slowly revolves while a tool one inch wide travelling at the rate of three-quarters of an inch for every revolution leaves a finish like nickel plating. A planer fifty feet long carries a bed for a turning lathe about fifty tons weight, and the great aim and end desired in the operation on every piece of work was to finish it with the machine. But

the most wonderful feat in engineering here is the production of steel forgings by the Whitworth plan. The steel is cast in moulds and pressed by hydraulic pressure to insure solidity and for securing greater strength all shafts have a smooth hole through the centre, and the steam hammer finishes the piece to the desired form. A model of the shaft for the steamer *City of Rome* bearing this peculiarity of construction was seen by the writer. A glance at some of Whitworth's justly celebrated machine shop appliances, such as measuring machines, standard gauges and screw threads, which are almost universal over the world, places him in the foremost rank as an inventor. All the machines in the works are severely plain, but beautifully proportioned, and the working slides (especially of most modern tools) are made in straight lines, and some surfaces, after a work of fifteen years, look as if new from the fitting shop. In conversation with the manager he remarked that the principal machine tool men in the United States often visit their works, and there is no doubt that the remarkable change observable in machine tool construction among the Americans is largely due to observation in that line, while on the other hand British tool makers draw largely from the handiest and best points in American machine practice, even copying numbers of distinct machines which have become indispensable. I may here observe that Manchester, Leeds, Halifax, Nottingham and other large towns in England, and Glasgow and Johnstone in Scotland, furnish us a host of machine tool makers, while London and Rochdale are more noticeable for wood-working machines. But the great bulk of their productions, except those of a high class, find no place on this side of the Atlantic. In visiting the engineers' shops of Britain there is one thing which forcibly strikes a Canadian, and that is the dividing off, as if by mutual consent, on specialties; thus some firms seem to have a monopoly in a class of machines suited for marine engine work, others for the locomotive shop, and so on for agricultural and the endless variety used for cotton, woollen and flax machinery. And here it might be in place to give a notable illustration of the important part occupied by the engineers' shop in iron bridge building, in the construction of Forth Cantilever at Queensferry, Scotland. In this case as the work is on such a large scale the workshops are located close to the structure so as to save the cost of preliminary erection and transit of finished material, the bridge during construction forming the nucleus for the derricks and travelling cranes, thus the Queensferry approach, which is 1700 feet long, a lattice steel structure being placed on the ten piers at high water mark, and being elevated by hydraulic presses forms the travelling crane for placing the granite blocks on the various piers till the height of 150 feet is attained. Two cantilever arches 1700 feet each have their centres resting on four granite piers, which were built by sinking caissons to a depth of 90 feet, each having a diameter of 80 feet at the base and 60 feet at the top. From the top of these four piers trusses 10 feet in diameter and made of one inch steel plate radiate upward and diagonally into the framework of the cantilevers, like the spokes of a wheel, and as each section is added, the rivetting together goes on silently by hydraulic pressure. And here comes in the work of the engineers' shop, as all the various operations are performed by special machinery mostly designed by the contractor, Mr. Aroll. In the sinking of the caissons the material was dug out by hydraulic spades and ejected through tubes by machinery. In the machine shop are a number of special tools used in preparing the work, of which one example will suffice, namely, a drilling machine for the rivet holes in the ten-foot tubular trusses, and as these could not be handled in any ordinary machine this is made for the work. Parallel and directly over a line of rails in the yard lies a tube 150 feet long, four wheels on the track carries the machine which encircles the tube, cross slides, carrying a large number of drills, pointing to the centre, perform the work. Stages for the workmen and water tubes for each drill makes this, with a steam engine, a complete engineers' shop in itself, and as one section of the tube is finished the whole is moved on the rails to another.

But while the older countries have notably made great advancement in the application of special machinery to modern bridge construction, Canada has also made rapid strides in that direction. While the country was young, her forest timber furnished the chief framework of the bridge or viaduct, but in a changeable and wearing climate iron and steel have become the cheapest material, and the result is that a number of establishments have sprung up in different localities devoted to this industry, notably the Dominion Company at Lachine, and any patriotic Canadian will be well entertained by a visit to the works and their greatest masterpiece close by, which spans the river St. Lawrence, and will soon form part of our great national highway, the Canadian Pacific Railway. Where rolled the great river a year ago unobstructed as it was in the days of Champlain in a few weeks the iron horse will be crossing almost in sight of a sister structure (the Victoria Bridge, erected by an English company thirty years ago) thus adding to the many interesting sights that delight the tourist who visits this beautiful region and instructive lessons to all who take pride in our growing nationality.

THE SILVER CURRENCY QUESTION.

(By W. K. M'Naught, Toronto.)

Probably there is no question that is at the present time receiving more general attention from manufacturers and men in all branches of business, than that of "depression of trade." The prospect of a war in Europe is no doubt an absorbing question to the people of those countries which are likely to be involved in it, but outside of that continent, (unless Great Britain be drawn into the quarrel), the interest is, we think, more of a sentimental than of a personal character.

The general business depression, however, that for the past few years seems to have settled like a pall over the entire commercial world, is a matter which not only demands, but is bound to receive the attention of every citizen of every country, no matter what his position in life may be.

Go where you will, whether to free trade England, or to the protected countries of Europe or America, the same complaint is heard. "business is depressed, capital lies idle, factories are shut down and workmen unemployed;" and as a consequence, thinking men everywhere are looking for some panacea for this seemingly universal difficulty.

Before proceeding further, however, it might be well to note the fact, that while all civilized countries have for the past few years been in a commercially congested and depressed condition, the worst sufferers have been those which still adhere to the exploded fallacy of Free Trade; and from a careful survey of the entire field it may be pretty safely asserted that, apart from other causes, the nearer the commercial policy of any nation approaches Free Trade, the stronger has this depression seemed to take hold upon it, and *visa versa*.

In Canada, as in the United States, while we have no doubt indirectly felt the effect of this world-wide depression, it has been in proportion to that felt in free trade England, but as the wash of the incoming tide when compared to the rush and roar of the angry sea when it dashes against some rock-bound coast.

Of course, as in all such cases, there are not wanting theorists who pretend with certainty to account for the prevailing stagnation, and as a rule each advocate has some very plausible reasons in support of his contention. The two theories which have taken the strongest hold upon thinking minds seem to be the "over production of manufactured goods" and "the appreciation of gold." My own belief is that while there is much force in the arguments advanced by the supporters of each of these theories, that in neither of them is the whole truth contained. I think rather that the cause can be found in a combination of both theories, although in my opinion the growing scarcity of gold is probably the more serious of the

two. The able articles of Mr. Morton Frewen in the *19th Century Magazine*, have, I think, demonstrated beyond a peradventure that the excess of consumption of gold over its production, or, in other words, its growing scarcity, is one of the most disturbing elements, if not the principal factor in the present universal depression. Mr. Frewen's contention is, that as the demand for gold exceeds the supply by some \$65,000,000 per annum, it is only a question of time when gold will become so scarce that it cannot be used as the recognized standard of values, but must give place to something else. That his view is not confined to himself, is evident from the persistent efforts that have been put forth from year to year by those advocates of a bi-metallic standard, both in Europe and America, who wish to see silver placed on the same platform with gold as a recognized standard of value. I fail to see, however, that it is possible to have a double standard such as is proposed by these bi-metallic advocates. You might just about as well try to have two different yard measures as two standards of money value. The value of gold or silver, like everything else, depends upon the laws of supply and demand, and it is just as impossible to make the earth stand still as to regulate by Act of Parliament, or Congress, the relative values of gold and silver. If anything were wanting to prove the soundness of this contention, the present anomalous position of the American silver dollar would amply establish it. This coin, when first minted, was supposed to be worth one hundred cents in gold; to-day, however, owing to the depreciation in silver and the appreciation of gold, it has shrunk in value so as only to be worth eighty cents. The person, therefore, who is innocent enough to sell either goods or labor for it at its face value, loses twenty per cent. on every dollar he thus exchanges, and has literally to take the advice the Government has stamped upon its face, "In God we Trust," for the other twenty cents. If gold were as plentiful as silver, it would be of no more value than that metal, while if silver were to become as scarce as gold now is, it would materially appreciate in value. The same reasoning would hold good if the supply were reversed. A few years ago seventeen pennyweights of silver would buy one pennyweight of pure gold, but to-day it takes nearly twenty pennyweights of silver to buy that quantity. This depreciation in silver arises from two causes, partly because gold has become scarcer and increased in value, and partly because silver has become more plentiful, and consequently cheaper. Thus it is the law of supply and demand, acting in opposite directions upon the two metals which are used as money by all civilized nations, is slowly but surely forcing them intrinsically apart. From present appearances, I should say that the relative positions of these metals is not liable to any startling change that will serve to bring their values any closer together. On the contrary, everything points in the opposite direction. The production of gold is slowly but surely decreasing, with little or no prospect of any great addition to its ordinary annual output, while on the other hand, silver is being found in increased quantities, and unless its production is in some way restricted, bids fair to become a glut in the market. In the meantime, most civilized countries are adhering to the gold standard, and hence the appreciation of gold and the apparent shrinkage and cheapness of silver as well as of everything else. Exactly the same causes which are tending to depreciate the value of silver, are at work in lowering the values of natural products and manufactured goods of all kinds, for it is a self-evident proposition that the scarcer gold is, the greater must its purchasing power become, as long as it remains the sole standard of value. As Mr. Frewen quaintly puts it, "If all the gold in the world had shrunk to five sovereigns, and it still remained the standard of value, the owner of one of them would be able to buy Koh-i-noor diamonds for shirt buttons." Speaking on this subject, at a public banquet in Chicago, Mr. L. T. Gage of that city, and one of the leading bankers of the United States, in the course of his remarks said that when "gold becomes worth a premium of twenty per cent. as it certainly will in the course of time—I do not say how soon—the

banker can then sell his reserve for the full equivalent. It is true that his profits may be realized in a kind of money that will have a purchasing power of twenty per cent. less than the kind of money that he now realizes his profits in. But isn't that true of you all? Isn't it true of every laborer in the United States? Isn't it true that the savings fund of the laboring people, the humble classes of the United States, now amounting by statistics to \$1,100,000,000 in the savings banks, will shrink in purchasing power \$200,000,000? That is as certain as water is to run down hill."

To my mind, the present indications seems to point to the fact that, owing to the demand for gold, and its inadequacy to meet the wants of commerce, a new metallic standard will shortly have to be decided upon, if we are to have a return to solid commercial prosperity, instead of continued or spasmodic depression. The producers, and those interested in its production, are naturally anxious that silver should be the coming standard, but its bulk, combined with its rapidly decreasing value, furnish weighty reasons why it should not be adopted. As I said before, I believe that a dual standard is as impracticable as two yard measures, and that we must seek for the new standard in some one metal or alloy of metals, which shall dethrone gold as king of metals and arbitrator of values. For this purpose I would suggest an alloy of the two metals at present used by all civilized countries, gold and silver. I think that if adopted it would not only settle this vexed question for centuries to come, but give trade the world over an impetus equal to that caused by the discovery of the gold fields of Australia and California. If say one dwt. of gold valued in round numbers at one dollar, were alloyed with one oz. of silver, valued at the same price, the result would be a coin the size of the American dollar, the value of which would be two dollars. One dollar of this alloy would be the size of half a dollar; half a dollar of a quarter dollar, and a ten cent piece the size of a five cent piece. The advantages of such a coinage would be numerous. Although about ten times more bulky than gold, it would be only one-half the bulk of silver, and for ordinary commercial transactions it would be more convenient than either. Its adoption would have an effect upon trade equivalent to the doubling of the world's present reserve of gold. Its principal advantage however, would be its perfect equilibrium as a standard of value. In this respect it would act somewhat similar to the compensation balance of a chronometer, which is composed of two metals, the expansion of one of which is counteracted by the contraction of the other, and thus, no matter to what extreme of heat or cold it is subjected, a perfect equilibrium is maintained. This standard would work precisely in the same fashion; if gold got scarcer and silver more plentiful, as now appears likely to be the case, this coinage would still remain at par, for the depreciation of its silver half would be offset by the appreciation of its gold half. No matter how these metals might fluctuate, the loss of the one would be offset by the gain on the other, and, as a consequence, it could at all times be taken as a certain and unwavering standard of value. If such a coinage could be made universal it would be a boon to commerce such as the world has never before seen. While each nation would probably desire to retain their usual well-known designating names for their own coins, they might easily, if some understanding were arrived at, have their values based upon the decimal system, similar to the French or American. Each coin ought also to be worth its face value as bullion when the standard is fixed, and the standard once defined, say taking them at their present values: twenty parts of silver to one part of gold, it should remain unalterable, so that, take it where you might, it would pass current at its par value, without deduction or exchange in any shape or form. While the minting of such a coin would entail a loss upon each Government, which should be charged to "expenditure" instead of being deducted from the coinage itself, this apparent loss would be a real gain to every person handling it.

While the adoption of such a standard of value could not

fail to benefit materially every nation using it, it would affect the United States more favorably than any other. The United States being at the present time the greatest producer of silver in the world, it follows that any change by which her languishing silver mining industries can be stimulated, as they certainly would be by the creation of a universal market for this product, must bring about a new era of prosperity, fully equal to the palmiest days of the California gold fever. In this prosperity Canada would undoubtedly share, for it is almost beyond question that this Dominion has an as yet almost unexplored wealth of silver equal to any country in the world. We think if the United States were to adopt this or some such coinage as a standard of value, and make it take the place of the present gold coinage as legal tender for duties, taxes, and payment of debts of all kinds, that its adoption by other countries would only be a question of time. Great Britain is moving in this direction now, and though like all large bodies, public opinion in that country moves slowly, it is bound to get there in time. Once the commercial world is fairly alive to the growing scarcity of gold and its consequent appreciation, it will set about for a remedy and not rest contented until a suitable one is found. I may be mistaken, but in my opinion some such plan as I have outlined above is certain to be adopted in the near future.

ORGANIZATION.

(By Frederic Nicholls, Toronto.)

In considering the question of organization it must be borne in mind that the necessity for union becomes more and more apparent, year by year. In bygone days, the one man power in temporal, spiritual and political affairs largely prevailed. This however was before the age of a cheap daily newspaper press, which, aided by the achievements of modern science and invention, is able to place before the public each morning not only a complete record of the local events of the preceding day, but a synopsis of everything of international importance that may have occurred within a few hours of publication. The march of progress in this direction has led to a more self-reliant feeling, and to day the people themselves decide upon the course to be followed by their representatives instead of blindly following the dictates of those in power. This new era has been followed by a change of method, and experience has taught that a united body of men banded together for social, political or commercial advantage, can, as a unit, act with far greater power and influence than were each individual to seek to gain the same end by personal effort. Organization leaves less room for antagonism of ideas and offers wider and better facilities for harmonizing interests that would be apt to clash were not opportunities afforded of fully and amicably discussing those subjects on which a divergence of opinion might exist. The present is pre-eminently an age of organization, and the influence of combinations makes itself appreciably felt in every walk of life. The great strikes to the south of us have shown the power wielded by organized labor; Governments are made and unmade by political associations, rings and caucuses of high and low degree; the liquor party and the temperance cause each have powerful organizations waging war on each other, and the success of either in a Scott Act contest is often more attributable to the completeness of their organization than to the honest convictions of individual electors. Labor, in particular, is becoming so effectively organized that it wields a power and influence that is astonishing even to those who have watched the course of events in this direction for the past few years. And this power and influence the workmen having earned, are justly entitled to; they are an important class of the community, and the manner in which they have perfected their organizations affords a lesson, not without significance to those to whom this paper is addressed.

At present the only really effective industrial organization which exists in the Dominion is the Canadian Manufacturers'

Association; but this has in the past rendered good service to Canadian industry generally. It has looked to the encouragement of the arts and sciences as applied to industry, it has been foremost in endeavoring to extend our facilities for opening up a foreign trade, and it has exerted its influence towards securing needed reforms such as the abolition of prison labor in competition with free labor; the appointment of Commercial Agents; an equalization of the tariff, and other matters of more or less importance.

As it is clearly in the interests of manufacturers that the Government should be kept fully informed on all subjects connected with the tariff and its working, it should be the business of all to furnish any information in their power. How can this best be done? Not by individual manufacturers communicating directly with the Government, for though each may be fully aware of the probable effect of such proposed change in the tariff in his own particular industry, they are not and cannot be equally well aware of what effect a change which may appear desirable, viewed from the standpoint of their individual interests, might have on other industries. Evidently then, before any suggestion or recommendation is made to the Government it should be fully discussed and carefully weighed by a body where all classes of industries are represented. Organization is therefore a necessity for manufacturers, not only for the purpose of securing representatives in Parliament favorable to the fostering of home production, but in order to keep these representatives informed of the needs of the commercial community. Nor would separate organizations of different trades answer the purpose, for such organizations would in the nature of things, only see the effect of any change in their own particular industry.

The above reference is to tariff matters only, but what is true of changes in the tariff is equally so of many other kinds of legislation, such as factory bills, patent laws, etc.

That legislation can do much to make or mar; that individual skill, energy and business knowledge can do much is true; and these last, combined with the maintenance of a commercial system calculated to secure for our producers fair play in the home market, are not only important but essential.

The man who has not within him the qualifications which command success need not expect and will not achieve it under any commercial system; but the man who has thoroughly mastered his business and has the requisite energy and industry has a right to demand that his efforts shall not be rendered abortive by unwise legislation.

In conclusion I would emphasize my belief that this is an age in which rights are maintained and reforms secured only by a union of common interests, and not, as in days gone past, by individual exertion, and this being the case the manufacturers who have so great a stake in the welfare of the country should use due diligence in perfecting their own organization for their own protection and mutual advantage.

After a general discussion freely participated in by the members present, on subjects pertaining to the manufacturing industries, an interesting and enjoyable session was brought to a close at 11 p.m.

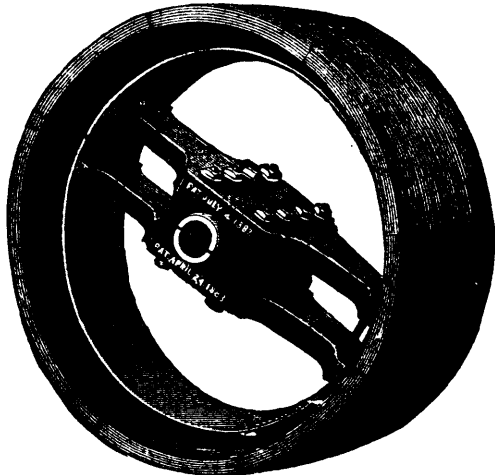
BRITISH markets continue dull at 8½ cents for refrigerator beef, and 10½ to 11½ cents per pound for American live cattle, estimated dressed weight.

A DOCTOR in St. Louis explains the necessity for having two ears by the fact that sound is always heard more distinctly by one ear than by the other, and in this way it is located. A man with one ear can hear just as well as a man with two, but he cannot locate sound.

CUT an earth worm in two and place the two halves in a flower pot with earth kept constantly moist, and in less than a year you will find two whole worms. A head will have grown on the half that had but a tail, while a tail will have grown on the half that had none.

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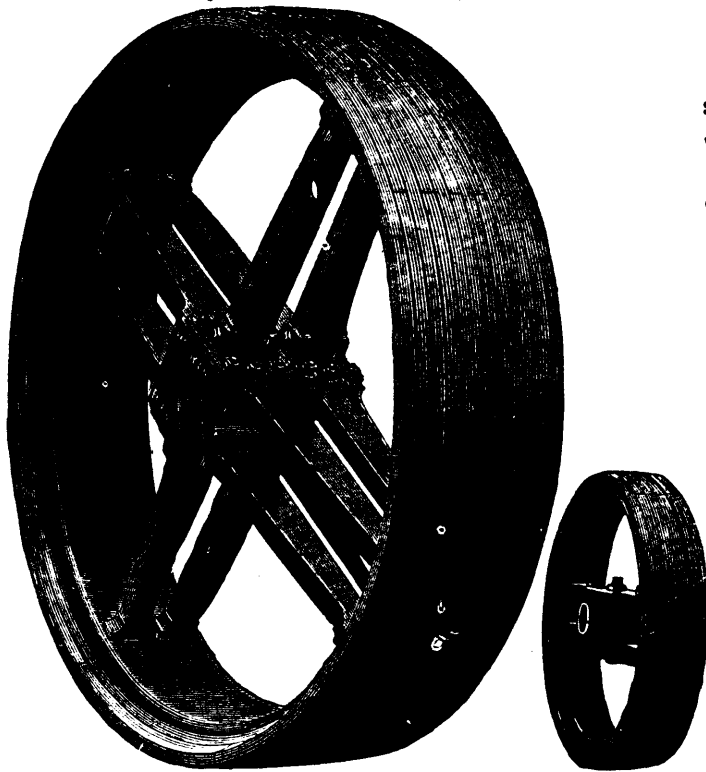
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OFFICE OF NEWTON WAGON CO., BATAVIA, ILL., Feb. 17, 1886. *Dear Sir:* Replying to your favor, will say that after using the Dodge Wood Split Pulley for a year or more we are satisfied they are a good thing, if not the best Pulley made, and shall use 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; R. 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.; Willford & 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, PREST. DODGE MFG. CO., MISHAWAKA, IND. *Dear Sir:* I have a number of your Patent Wood Split Pulleys in use here at the Worlds 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.

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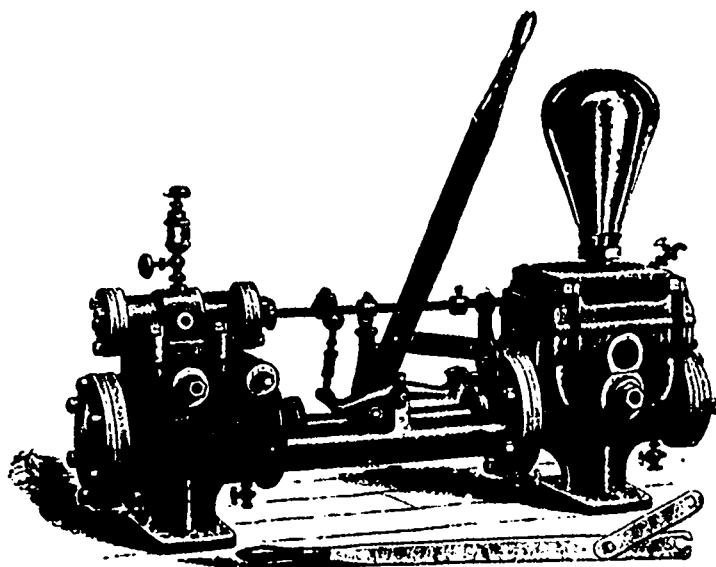
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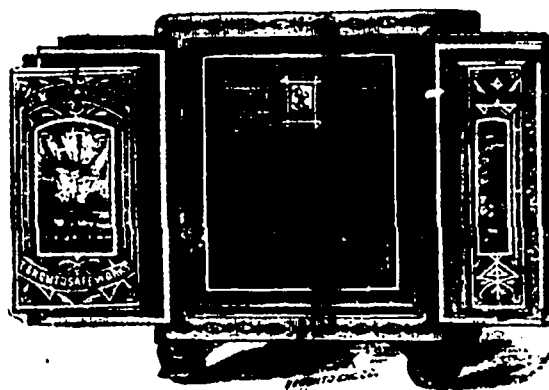
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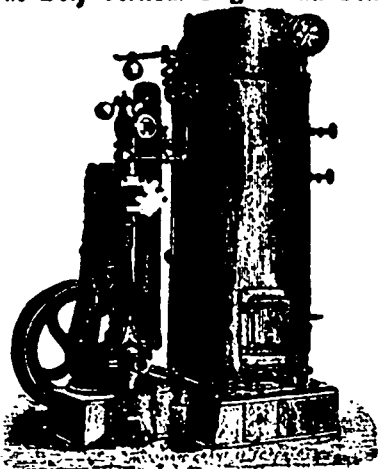
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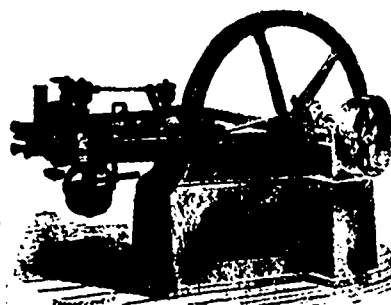
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Editorial Notes.

READERS will observe that we have devoted a very liberal portion of our space to publishing the proceedings of the annual meeting of the Canadian Manufacturers Association, which occurred in this city last week. We regard this association as being of the greatest importance to the manufacturing industries of Canada. It is composed of representatives from every considerable manufacturing industry; and it is upon their shoulders rests the responsibility of making Canada a great and important manufacturing country. But in doing this they should not be handicapped either by a change in the policy of the Government regarding the imposition of a protective tariff, or by the inauguration of what would amount to the same thing—reciprocity of manufactures with the United States. That Canadian manufacturers view the matter in this light can be learned from the expressions drawn forth at the meeting. The subjects discussed in the various papers which were read at the meeting are of a character to demand attention, and will repay perusal.

IN the foreign trade of the United States Canada takes 5.91 per cent. and occupies the sixth place in bulk, Great Britain, the West Indies, Germany, France and Brazil preceding in the order above indicated.

DURING the three fiscal quarters of the year ending September 30, 1886, the declared value of merchandise exported from Ottawa to the United States aggregated \$1,606,383.40, of which \$1,505,041.93 was for sawed lumber. The value of exports from Toronto for the same time was \$1,983,715.51.

SINCE 1865 the population of the United States has increased 69 per cent.; the hay crop 106 per cent.; cotton crop 194 per cent.; grain crop 256 per cent.; railway mileage 280 per cent., and pig iron 486 per cent. A national protective policy in that country means national prosperity, as the above figures show.

THE aggregate values of free and dutiable goods imported into Canada, at Hamilton, during the year ending September 30, 1886, were, dutiable \$2,843,217, of which \$1,579,687 was from the United States; and, free, \$1,334,017, of which \$655,667 was from the United States. Considerably more than half of these importations were from the States.

ARRANGEMENTS have been made to distribute throughout the free libraries and Chambers of Commerce of the United Kingdom the various special pamphlets in regard to the mineral resources and educational institutions of the various Provinces of Canada, as well as special technical works of a similar kind which were prepared for the Colonial and Indian Exhibition.

THE Imperial Government has again contracted with the Cunard and Inman steamship lines for carrying the British

mails between the United States and Great Britain. There is to be four regular mail transportations each week by the fast vessels of these lines, besides extra service for specially inscribed letters by the steamers *Alaska*, *Arizona*, and *City of Rome*. The new contracts run for a period of thirteen months beginning with March, 1887.

REVOLUTIONS do go backward. The *Mark Lane Express*, discussing the policy of Protection in Great Britain, boldly proclaims that "a loaf of bread grown at home is cheaper at sixpence than a loaf of foreign grown bread at four pence." The agricultural classes in that country have felt foreign competition most keenly, and there is a strong tendency in the minds of a large minority of the British people to abandon the unsatisfying policy of Free Trade and return to that of Protection.

THE Canadian Pacific Railway Company have chartered the Cunard steamers *Parthia*, *Batavia* and *Abyssinia*, to ply on the route between Vancouver, B.C., and Hong Kong, China, the Imperial Government granting a subsidy of £10,000 a year. These steamers have accommodation for about sixty first-class passengers each, can carry about 3,000 tons of freight, and will make good time. The line is to begin operations the coming summer, the service to be monthly, which will be increased as the traffic may require.

THE United States Congress, just previous to its adjournment, passed what was known as the Senate Fisheries Retaliation Bill, and it became a law by the signature of the President. The passage of this bill naturally attracted great interest in Canada, where all legislation in Congress bearing on this subject was closely observed. The excitement incident to the matter is fast dying out, and it is thought that all points in dispute in this question between Canada and the United States will be amicably settled.

HITHERTO the flour consumed in India was made of wheat grown in that country and sent to Europe to be ground and from thence returned to the far East. But recently a native milling corporation has been formed at Bombay, which will grind large quantities of wheat into flour, effecting the saving of the double freight heretofore paid; and there are indications that other large mills will be erected there. This means higher prices to the wheat producer and lower prices to the flour consumer. This revolution in trade presents a feature which manufacturers of milling machinery will be quick to observe.

SIR CHARLES TUPPER in a recent speech delivered in Halifax N.S., stated regarding the projected fast mail steamers to and from China and Japan, correspondence concerning which is now being had with the Canadian Pacific Railway Company, that it was confidently believed the Imperial Government would grant a subsidy of £10,000 per annum for the service. He also stated that a new treaty was being negotiated with Spain which would place Canadian products in Cuba and the Spanish West Indies in a much more favorable position than

they now occupy under the most favored nation clause, and greatly increase trade between Canada and the Spanish possessions.

SCORES of suggestions have been made as to the best substitute for the deadly car stove since attention has been specially directed to its dangers. Among them are steam carried from the locomotive through the cars in properly arranged pipes; steam from a boiler in a car carried specially for the purpose; hot water tins on the plan common in Europe; chemical apparatus for producing heat; heat produced by electricity; condensed gas carried in strong receivers, and a separate iron car in which the heating and lighting apparatus for a whole train is carried. It will require time and patience to discover the best method of avoiding the danger, but one thing is certain—the car stove must go.

A BILL has been introduced into the New York State Assembly the object of which is to regulate the stamping of gold and silver ware. The bill provides that all goods, wares and merchandise which shall be manufactured of gold or silver metal, or which shall be sold or offered for sale, shall, by a suitable device stamped thereon, disclose the character, grade or carat of the metal, and that all goods in imitation of gold or silver metal shall be stamped "Imitation." The matter has created considerable interest in the trade throughout the country. The object sought is the protection of innocent buyers against disreputable sellers who frequently palm off electroplated and spurious goods, representing them to be genuine and solid gold and silver.

A PROJECT has been started in London, Eng., to organize a flour milling company there with a capital of \$500,000, for the purpose of building a first class flouring mill in the city of Rio Janeiro, Brazil. It is stated that there are no flouring mills in that country, and that all the flour consumed there is imported from the United States. The duty is 75 cents per barrel, and the profits on the business only about pays the expenses of the outward voyage. The English company propose to carry the wheat from the Argentine Republic and Chili to Rio and there convert it into flour; and as there is no duty imposed on the imported grain, the American flour trade would probably find it impossible to compete with the new industry. American millers and exporters are considerably exercised over the matter.

In the seven years intervening between 1879 and 1886 the number of traders doing business in Canada increased from 56,347 to 72,680, the number added being 16,233. In the first-named year there were 1,902 commercial failures, the aggregate amount involved being \$29,347,000, while in the latter year there were but 1,252 failures, involving \$10,387,000. In 1878, previous to the adoption of the Government system under which we are now living, the deposits in the post office and Government savings banks were only \$8,497,013, while in 1886, under the N.P., these deposits were \$38,154,680. The deposits in the regular chartered banks in the first-named year were \$66,216,964, and in the latter year \$103,797,818. The deposits with building and loan associations in 1878 were \$8,269,295, and in 1885 they were \$15,435,084.

THE Americans are determined to nurse their industries, and begrudge the least diversion of anything they can do for themselves. Now they are compelled to take the raw material or half-manufactured article from us, and inquiries for freights for such goods from England and Spain are numerous, but English producers must take advantage of the opportunity they have at present, while the prices in America permit, to compete with the producers across the Atlantic, even after paying the import duties, which, large as they are, are not heavy enough for some of the Protectionists in that country.—*Iron and Coal Trades Review (London)*.

It is interesting to observe that our London contemporary very candidly admits that the American duties are paid by "English producers." The remarks above quoted apply with equal force to Canada; and if this country hopes to ever attain to anything like the commercial importance enjoyed by the United States, Canadians, too, must "nurse their industries, and begrudge the least diversion of anything they can do for themselves." Free Traders say that the duties imposed upon imports are paid by the consumers, but our London contemporary knows better, and states that they are paid by the exporter.

THE DODGE WOOD SPLIT PULLEY.

THE Dodge wood split pulley, manufactured by the Dodge Wood Split Pulley Company, Toronto, Canada, has attained a very wide and deserved popularity. The rim of these pulleys is constructed by building up a series of rings of segments of wood, fastened together with insoluble glue, and nailed and doveled in a strong and substantial manner. The spoke or hub bars are secured at their ends to the rim by means of a dovetail, the parts of the bar being so placed that they will not touch each other at the axis, or hub, when the ring segments are in position. They are split transversely, and are turned over their entire surface, and are true in all respects. After turning, they are treated to a filling, applied hot, which fills in all the pores of the wood, after which the belt surface is coated with several coats of shellac varnish, and the body painted with two coats of fire and water proof paint, protecting the wood from steam, dampness and the effects of high degrees of heat. The parts being separable renders the pulley very convenient to adjust upon the shaft where it is intended to be placed. The bushing in the hub or centres of these pulleys are made to suit any size shaft on which it is to be used.

Regarding the utility of split pulleys, it can be said that in the arrangement of lines of shafting, no matter how permanent it may be thought the machinery is adjusted, changes are frequently necessary to be made, and any change, either in the location of pulleys on the shaft, or of pulleys of different sizes, where the pulleys are not otherwise adjustable, implies much annoyance and expense. All this is obviated in using this split pulley, for the location of it on the shaft can be changed by simply slacking up the screws which hold the halves together, and an old one may be removed and a new one adjusted to place in the same way.

The difference in weight between the common iron pulley and this wood pulley is very great. We have knowledge that in a large manufacturing establishment in Toronto, where an iron pulley was removed from a shaft to give place to a wood split pulley, the iron pulley, which was 43 inches in diameter and 20 inch face, weighed 785 pounds, while the Dodge pulley which was substituted, was 54 inches in diameter and 20 inch face—a very much larger pulley—but which weighed only 295 pounds. If the substituted pulley had been of the same dimensions as the iron pulley, the weight would have been but 125 pounds. When it is remembered that weight is not a desirable feature in a pulley, the fact that the iron pulley here

alluded to weighed 660 pounds more than a wood pulley of equal dimensions, should demand careful consideration.

Carefully made tests have developed the fact that the traciveness of wood pulleys is very much greater than that of iron pulleys, and that a wood pulley will drive from 40 to 60 per cent. more machinery, with the same tension of belt, than iron with like tension.

The capability of a belt to transmit power is determined by the extent of its adhesion to the surface of the pulleys. The width of a belt diminishes in proportion to the strain upon it. Mr. Robert Grimshaw, an expert engineer of Philadelphia, who made a test of the relative merits of the Dodge and a turned cast iron pulley, and who made a report thereof to the Franklin Institute of that city, in stating the results said that the figures showed facts unparalleled in the history of belt transmission, and that they were practically about six to one in favor of the wood pulley.

In summing up the advantages of this pulley, the claims which are guaranteed for it are, that it will transmit from 25 to 60 per cent. more power under similar circumstances than an iron pulley; that the compression fastening by which it is secured to the shaft holds it there firmly, and that the compression of wood on iron will hold stronger and better than set screws.

Large sales of these pulleys have been made in Europe, resulting from the exhibit made by this company at the recent Indian and Colonial Exposition in London; and the National Arsenal at Shanghai, China, is now fully equipped with them, they having been made in and sent from Toronto.

THE rate at which bleaching powder (chloride of lime), loses its chlorine, is becoming more important now that the price of the substance is advancing, and the rise promises to be permanent. By the old or Leblanc process of making sodium carbonate, hydrochloric acid was a waste product, and to save himself, the manufacturer had to utilize its chlorine by passing the gas over lime, and forming the well-known bleaching powder. But by the new or Solway process of making sodium carbonate, no hydrochloric acid is produced. To generate the acid for the purpose of making bleaching powder would necessitate a great increase in the cost of the latter, and this is just the situation which confronts the bleaching industry to-day. Self-preservation dictates an inquiry into every cause of loss, and what takes place when the powder is stored, whether for sale or use, especially demands investigation.

AN observer must stand 6,667 feet above the level of the sea to discern a vessel 100 miles distant, and 26,666 feet when it is distant 200 miles.

DR. J. STRAHAN utters a caution against long-continued dosing with mixtures of iron, maintaining that there is danger of intestinal concretions being formed.

MESSRS. W. BELL & Co., Guelph, manufacturers of the well-known Bell organ, have established an agency in Toronto at 12 King street west, under the management of Mr. J. W. Scott.

THE committee of the Winnipeg Board of Trade charged to consider the colonization of vacant lands within 30 miles of that place, report that a large acreage has been sold at an average price of \$6.50 per acre.

MR. GUSTAVUS TUCKE, United States consul, at Sherbrooke, in his report to the Department of State, giving an account of Hartford copper mine near that place, says that the ores contain thirty-five to forty-two per cent. sulphur, three to four per cent. copper, and twenty-seven to thirty per cent. iron. These ores are reduced at the company's smelting works at Capelton, where they are converted into a matte of from twenty to twenty-five per cent. copper, and shipped via Boston, Portland or Quebec, to Liverpool, Eng., or Swansea, Wales.

Miscellaneous

By a new process of steaming white wood and submitting it to pressure, it can be made so tough as to require a coal chisel to split it.

It is stated that a powerful company of English capitalists has been organized to work rich mining properties in the Port Arthur district.

THE Du Lievre Milling and Mining Co., miners and manufacturers of phosphate, are making extensive improvements at their works at Lu Lievre basin, near Buckingham.

MR. JOHN MCKENZIE, of Seymour, Ont., has discovered an extensive deposit of marl on his farm at that place. The mine is within easy reach of the railroad, and the owner has declined several good offers for its purchase.

MESSESS. FULLER & HILL, Bolton Centre, are running their factory to its full capacity manufacturing butter tubs. About 2,000 tubs can be packed in a car, and they are filling an order for two car loads a week from Scotland.

THE Kingston News says that sail vessel owners are elated over the prospect for a good maritime season in 1887. Where last season 90 cents only per ton was paid on coal going west to Chicago, \$1.50 is now offered. Many vessels have also engaged to go into the western iron trade.

"HEAP'S PATENT" Manufacturing Company, Toronto, who make a specialty of manufacturing Heap's patent earth closets, are also manufacturing washing machines and several other special lines of goods. Their works are being run full time with a good prospect ahead for the trade of the opening season.

DURING the year ending September 30th, 1886, 131,066 tons of coal and coke were imported into Canada, at Hamilton, from the United States, which paid a duty of fifty cents per ton, or an aggregate of \$71,796.40. The different descriptions of this fuel were: anthracite, 66,797 tons; bituminous, 62,634 tons; coke, 1,635 tons.

MR. GEO. F. HAWORTH, 65 Yonge street, Toronto, is inviting the attention of mill owners to the Fairbrother American Leather Belting, for which he is agent. This belting is claimed to be of superior quality, and Mr. Haworth's facilities enable him to execute all orders for any size of single or double belting on the same day as received.

THE Canadian Lumberman of Peterboro, will issue its regular annual special edition on April 1st, which will embody a supreme effort on the part of the publisher, and furnish a complete budget of news of interest to the lumbering and wood-working trades from every province in the Dominion and from many foreign points. The edition will comprise 6,000 copies.

It is announced that, the National Policy having been sustained in the recent elections, the Montreal syndicate who hold the controlling interest in the Londonderry N.S. iron mines, will re-open the works and operate them on a very extensive scale. This will give employment to a large number of men, and put hundreds of thousands of dollars in circulation in that community.

MR. J. PERKINS, proprietor of the Toronto Engine and Boiler Works, Toronto, has recently added several heavy and costly iron working machines to his equipment, which enables him to meet any demand for heavy machinery, boilers, etc., that might be made. Mr. Perkins states that he is the only manufacturer in Canada who makes the "Improved" Brown high speed automatic cut off steam engine. These engines are specially adapted for electric light purposes, or where reliable power is needed. An entire new gas manufacturing plant is being built in these works for the Guelph Gas Company, which will soon be ready for delivery. The boilers, hydrants and hydrant valves used in the Parkdale water service, as well as a large portion of the hydrants and valves of the Toronto water service, were made in this establishment.

SPEAKING of the facilities of that section for the smelting of iron ores and the manufacture of iron and soft steel, the Winnipeg Com-

mercial says that there are immense deposits of iron ore within easy distance of that place; that they have been frequently tested with the most gratifying results, and that it has been demonstrated that the Lake Winnipeg iron ores are of the very best quality and description for the manufacture of fine Bessemer Steel. The ore can be easily worked; fuel is abundant in the immediate vicinity of the deposits, and communication by deep water navigation can be had with the mines. The construction of the Hudson's Bay Railway will also open up a valuable iron and other mineral district. There is undoubtedly a fortune in the near future in the manufacture of iron, etc., from the ores of Lake Winnipeg.

INFORMATION from New York is to the effect that an immense iron combination is being formed in that city which aims at nothing short of owning and controlling all the known valuable iron deposits of Canada, now ascertained to be the richest iron country in the world. The Central Ontario Railway, which runs from Trenton, on Lake Ontario, through the central part of Canada, and all the iron interests connected with it are to form part of this scheme. The road is to be extended 150 miles through the heart of the iron district to a junction with the Canadian Pacific Railway at Lake Nipissing. The capital of the company is to be \$10,000,000, more than two-thirds of which are already pledged. The syndicate, it is said, will own more than a hundred different properties at various points in Canada, and a mineral development even greater than that on Lake Superior is predicted.

THE system of transmitting power by ropes and grooved pulleys from the engine to the main shafting is becoming very popular in the old country. A foreign exchange describing a large engine, says: "Messrs. Douglas & Grant, Dunnekin foundry, Kirkcaldy, have at present in hand a compound Corliss engine of a very large description, for a cotton mill in Bombay. The fly wheel is 30 feet in diameter by 8 feet 6 inches wide, grooved for 38 ropes, by which the power is to be transmitted to the various lines of shafting in the mill. The engine is to run at 60 revolutions per minute, giving a speed of ropes of considerably over one mile per minute. The crank shaft, made of Whitworth fluid compressed steel, is 25 inch diameter in the body and 20 inch in the bearings. The steam pressure is to be 100 lbs. per square inch, and the engine will work easily up to 2,500 horse power."

MR. J. W. HERMAN, 114½ King street west, Toronto, is manufacturing the Brauning patent boiler water purifier, he being the owner of the Canadian patent. This purifier is a purely mechanical device, the object being to collect the impurities contained in the feed water into a series of peculiarly shaped and arranged pans, placed on the top of the flues within the boiler. The feed water is discharged into the purifier from the top of the boiler, and while passing through the purifier becomes heated to such a degree that all impurities become deposited in the pans, and only perfectly clean water subjected to the process of evaporation. The pans are accessible through the manhole, and can be easily taken out and emptied of their accumulated impurities, it being unnecessary to blow off the water. Mr. Herman has an array of testimonials regarding the efficacy of this purifier from a large number of users, among which we notice the names of the John Doty Engine Co., Chas. Boeckh & Sons and P. Freysing & Co., also one from Mr. G. C. Robb, of Toronto, chief engineer of the Boiler Inspection and Insurance Co., of Canada.

ON another page will be found the annual report and financial statement of the directors of the Millers' and Manufacturers' Insurance Company, of Toronto, as presented at the recent annual meeting of the company. The directors of the company are all well known and highly responsible business men, and their report shows that they have handled their trust in the most satisfactory manner. Nearly, if not quite all the share holders of the company are members of the Canadian Manufacturers' Association, and the organization of the company was the direct outgrowth of their views regarding the National Policy. A dividend of 10 per cent. has been declared to policy holders, made possible by the fact that the combined losses and expenses of the company up to the time of the report averaged but 40 per cent., while the losses alone of other companies have averaged over 64 per cent. It is shown that about 48 per cent. in premiums was saved to insurers in this company, as the cash rates were 25 per cent. lower than those elsewhere exacted. The business of the company is confined to covering risks on manufacturing establishments and the products thereof.

FIRE INSURANCE.

ANNUAL MEETING MILLERS' AND MANUFACTURERS' COMPANY.

REPORT FOR THE PAST YEAR—A MOST CREDITABLE RESULT—TEN PER CENT. DIVIDEND TO POLICY-HOLDERS—ELECTION OF DIRECTORS.

The annual meeting of the Millers' and Manufacturers' Insurance Company was held at the company's offices, 24 Church street, on February 28. The President, Mr. James Goldie, occupied the chair. The Manager, Mr. Hugh Scott, acted as secretary.

On motion of the President, seconded by the Vice-President, Mayor Howland, the annual report of the directors and the financial statements were read and adopted as follows:—

To the members and shareholders of the Millers' and Manufacturers' Insurance Company:

GENTLEMEN,—Your Directors beg to submit the second General Statement of the business of the Company, comprising revenue account and profit and loss account for the past year, and the balance sheet, showing liabilities and assets on 31st December, 1886.

The total number of policies in force at the close of the year was 244, covering \$742,018, and after deducting from this amount re-insurances of \$35,000, leaves the net amount at risk, covered by the Company, \$707,018, or an average of under \$2,900 for each policy.

We think it only just to draw your attention to the fact that the Combined Expenses and Losses of this Company from its inception amounted to only 40 per cent., whereas the average Loss Ratio alone, on the business of the past year of the Companies whose statements have been so far published, amounts to over 64½ per cent.

By a careful perusal of the Profit and Loss Account it will be found that all the expectations set forth in the original prospectus of the Company have been fully realized, showing, as it does, that after appropriating a reserve fund on the Government Standard basis of 50 per cent. of the cash premium income on existing risks, we felt justified in also declaring a 10 per cent. dividend to policy-holders, payable when each policy becomes renewable, out of the cash income of the Company.

When it is taken into consideration that the cash payments received by this Company have been on the average 25 per cent. less than the hitherto exacted rates, and that it is in addition to this that the further reduction by way of dividend of ten per cent. has been declared, making a total saving to the policy-holders of this Company of 32½ cents on each dollar of premium paid, or an average of over 48 per cent. in the cost of their insurance, your Directors feel that they have good ground for congratulation at such important results achieved at so early a stage of the history of the Company.

The retiring Directors, this year are: W. Wilson, H. N. Baird, George Pattinson and W. Bell, who are eligible for re-election.

All of which is respectfully submitted.
 HUGH SCOTT,
 Managing Director.

JAMES GOLDIE,
 President.

REVENUE ACCOUNT.

<i>Debit.</i>	
To balance cash premium income, 1885...	\$4,606 77
To premium income cash, 1886.....	\$17,755 38
To premium income undertakings in force, 1886.....	15,801 67
	\$33,557 05
To commission income.....	314 25
To interest.....	799 23
	\$1,113 48
	\$39,277 30

Credit.

By statutory assessment, printing, stationery, advertising, etc.....	\$453 61
By rent, postage, telegrams and auditors' fees	589 90
By inspector's salary, 1886.....	784 52
By travelling expenses inspecting risks, 1886	960 30
By directors' fees.....	812 30
By manager's remuneration from the inception of the company (say 18 months), at \$1,000 per annum.....	1,500 00
By clerical work from the inception of the company (say 18 months), at \$400 per annum.....	600 00
	\$5,700 63
By re-insurance.....	1,019 52
By cancelled policies.....	1,236 70
	2,256 22
By dividend 10 per cent. to shareholders on paid up capital.....	1,191 08
By claims paid.....	10 00
By balance carried to profit and loss acct..	30,119 37
	\$39,277 30

PROFIT AND LOSS ACCOUNT.

Debit.

To balance (as above) from revenue account, 1886.....	\$30,119 37
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Credit.

By dividend, 10 per cent. appropriation to policy-holders estimated at.....	\$2,164 75
By Claim Appropriation for Loss unadjusted (since paid).....	3,430 00
	\$ 5,594 75
By Preliminary Expense Account, portion written off..	\$ 1,000 00
By Re-insurance Reserve, 50 per cent. of Cash Premiums of existing risks.....	7,722 95
By Balance.....	15,801 67
	\$30,119 37

BALANCE SHEET.

Liabilities.

To capital stock subscribed.....	\$125,000 00
To profit and loss balance, 1886.....	15,801 67
	\$140,801 67
To re-insurance reserve.....	\$7,722 95
To dividend appropriation to policy holders	2,164 75
	9,887 70
To sundry creditors.....	\$2,756 95
To claim appropriation.....	3,430 00
	\$156,876 32

Assets.

By sundry debtors.....	\$ 2,073 08
By cash on deposit in Central Bank.....	15,251 57
By debentures Man. & N. W. Loan Co (Ltd)	10,000 00
	\$27,324 65
By undertakings in force Dec. 31, 1886...	15,801 67
By capital stock not called up.....	112,750 00
	128,551 67
By preliminary expenses (originally \$2,000)	1,000 00
	\$156,876 32

Ratio of assets to amount at risk over twenty per cent. (20 per cent.) Ratio re-insurance reserve only, Government standard, to amount at risk, over one per cent. (1 per cent.) The ratio of losses and expenses combined since the organization of the Company (exclusive of preliminary expenses) amounts to only forty per cent. (40 per cent.) of the cash income.

AUDITORS' REPORT.

To the President and Directors of the Millers' and Manufacturers' Insurance Company:

GENTLEMEN,—We hereby certify that we have audited the books and examined the vouchers and securities of the Company for the year ending 31st December, 1886, and find the same correct, carefully kept and properly set forth in the above statements.

WILLIAM A. WILSON, }
 DOUGLAS SUTTON, } Auditors.

ELECTION OF DIRECTORS.

The retiring directors, Messrs. W. Wilson, H. M. Baird and Geo. Pattinson, were unanimously re-elected. After the cus-

tomary votes of thanks were tendered, the meeting adjourned. At a subsequent meeting of the board, Mr. James Goldie was re-elected President and Mr. W. H. Howland Vice-President for the current year. The Board of Directors, including the retiring members who were re-elected, is now constituted as follows:—James Goldie, Guelph, President, W. H. Howland, Toronto, Vice-President; H. N. Baird, Toronto; Wm. Bell, Guelph; Hugh McCulloch, Galt; S. Neelon, St. Catharines; Geo. Pattinson, Preston; C. Riordon, Merritton; J. L. Spink, Toronto; Hugh Scott, Toronto; A. Watts, Brantford; W. Wilson, Toronto.

IN one of the French schools there is a natural magnet which is capable of lifting four times its own weight.

A WINDOW open a slight distance at both top and bottom, and a chimney draught also open, are the only sure ways of keeping pure air in a sleeping-room whose doors are closed.

\$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 178 page pamphlet. Address,
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MACHINE BRUSHES,

All kinds, Made to Order.

Highest Quality of Work Guaranteed.

Send full particulars of Dimensions and Quality when ordering

OLD ROLLERS OR BLOCKS RE-FILLED WITH SPECIAL CARE.

CHAS. BOECKH & SONS,

MANUFACTURERS.

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TORONTO, CANADA.

ARMSTRONG'S BUGGY AND CARRIAGE GEAR.

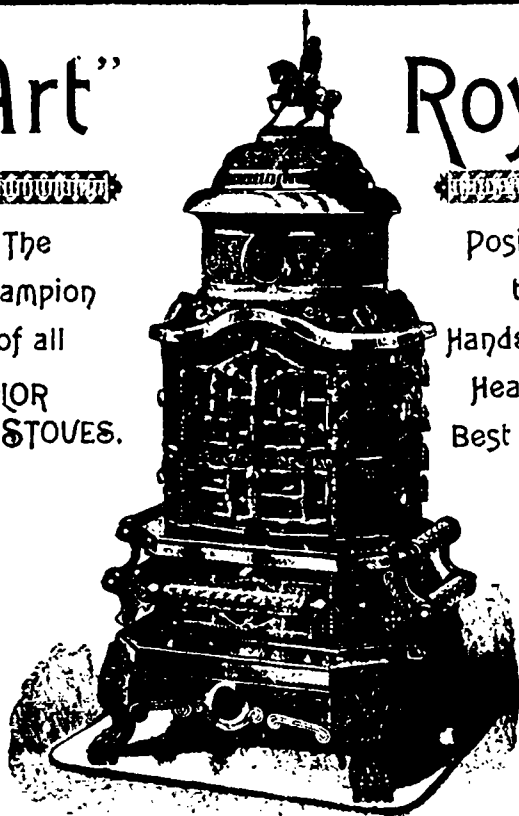
The "Defiance"

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.

"Art"

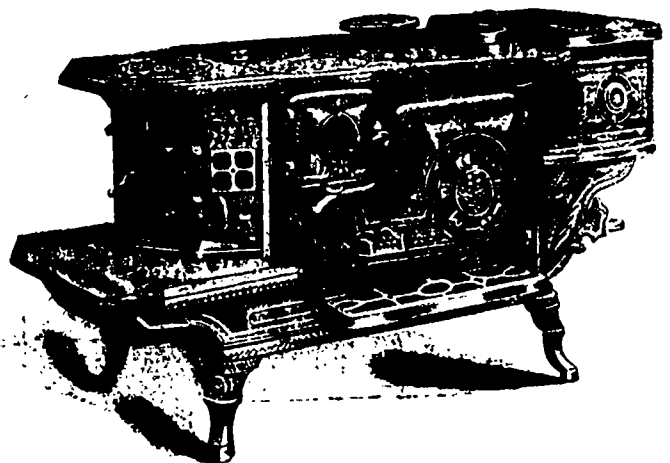
The
Champion
of all
PARLOR
STOVES.



Royal

Positively
the
Handsomest,
Heaviest,
Best Made.

NEW COMBINATION FOR COAL OR WOOD.



WINNIPEG, MAN., MARCH 9th, 1886.

McCLARY MANFG. CO.,

DEAR SIR, --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.



ROBIN & SADLER,
 MANUFACTURERS OF
LEATHER BELTING

SEND FOR PRICE LISTS AND DISCOUNTS.

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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.

Nova Scotia Steel Co., Limited,

NEW GLASGOW, NOVA SCOTIA,

(Only Steel Works in Canada),

MANUFACTURERS OF

Hammered and Rolled Steel

MADE BY THE

SIEMENS-MARTIN (OPEN HEARTH) PROCESS.

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

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

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

STEEL MOWER BARS.

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

Steam Pumps
AND
Hydraulic
Machinery
OF
All Descriptions.

NORTHEY & COMP'Y

HYDRAULIC ENGINEERS.

SPECIALTY:
Northey's
PATENT
STEAM
PUMPS.

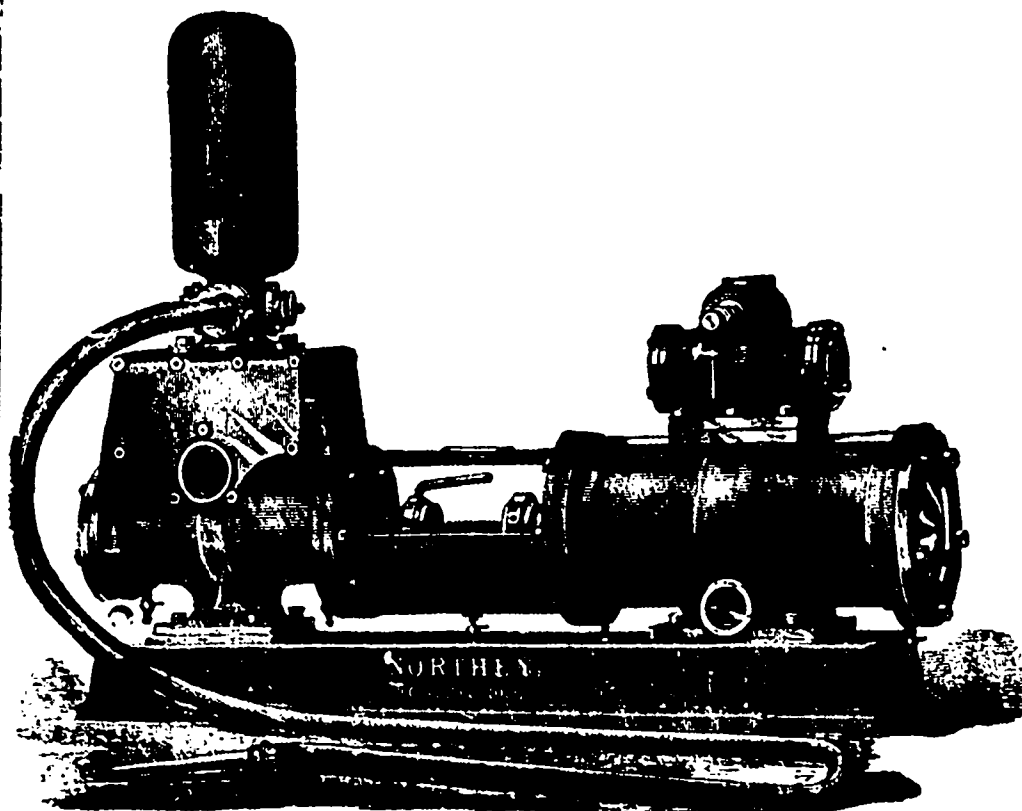
Works and Office: Corner Front and Parliament Streets, Toronto, Ont.

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
MASH PUMPS
MINING PUMPS
POWER PUMPS
HYDRAULIC PRESS PUMPS

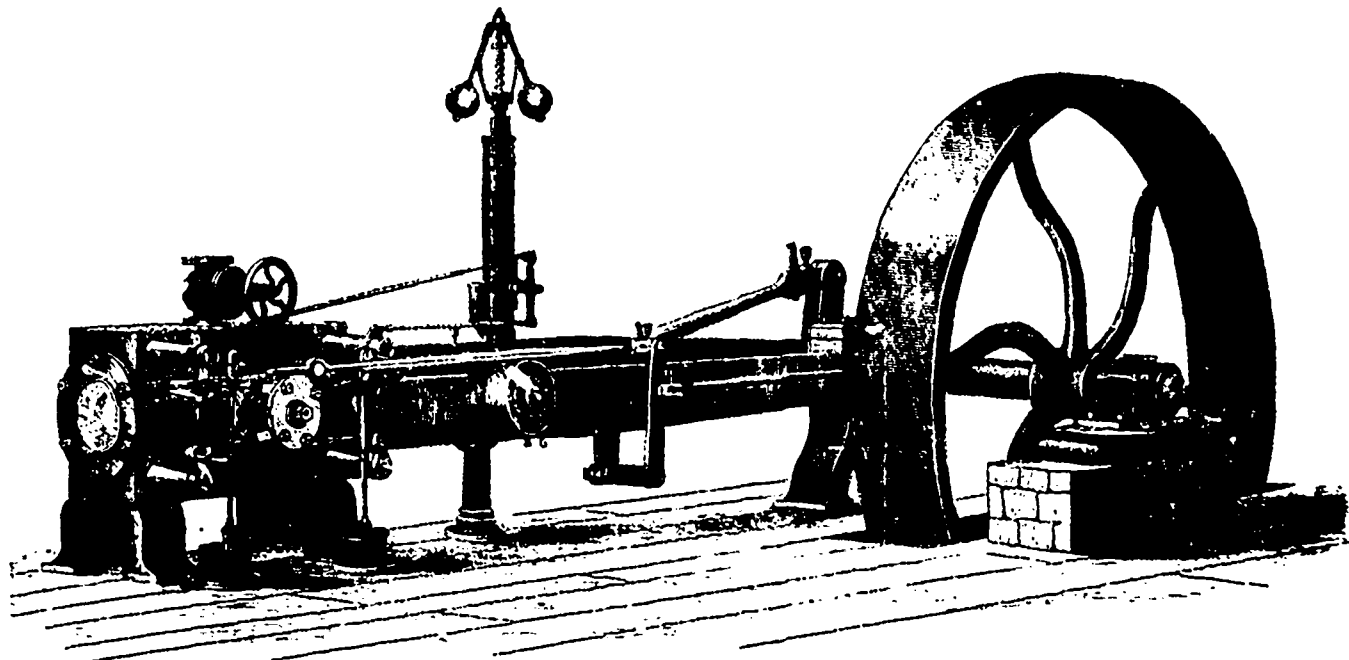
BOILER FEED PUMP
MARINE PUMPS
WRECKING PUMPS
OIL LINE PUMPS
REFINERY PUMPS
AIR COMPRESSORS
GAS COMPRESSORS

ILLUSTRATED
Catalogue and
Price List

ALL
WORK
Absolutely
GUARANTEED

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 of the main valve and is cut off at the same point, the load 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 angular velocity of rotating parts.

3rd - **No parts of the regulating medium enter the steam chest** and thereby go 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.

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Iron and Steel

Gates and Guards

(PATENTED JUNE 8th. 1882.)

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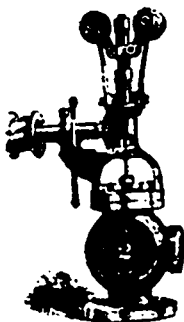
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OFFICE AND MANUFACTORY:

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THE Gardner Governor

OVER 40,000 IN USE.

Adapted to every size of Stationary and Portable Steam Engines. Warranted to give satisfaction. Write for Circular.

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CHAIN PULLEY BLOCKS

LIFTING FROM 1-4 to 5 TONS.

Differential Pulley Blocks,

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ONE, TWO and THREE SHEAVE IRON BLOCKS
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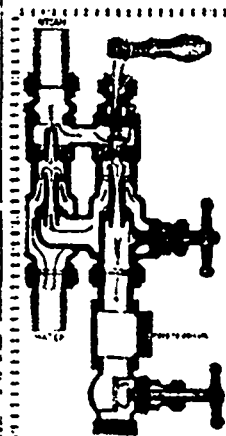
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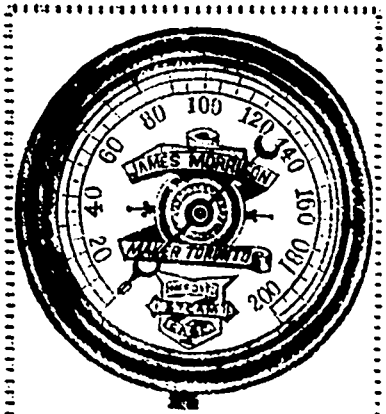
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Steamfitters' and
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- Inodoro Water Closet.
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- Jenning's Valve Closet
- Demarest Valve Closet.
- Alexander Valve Closet.
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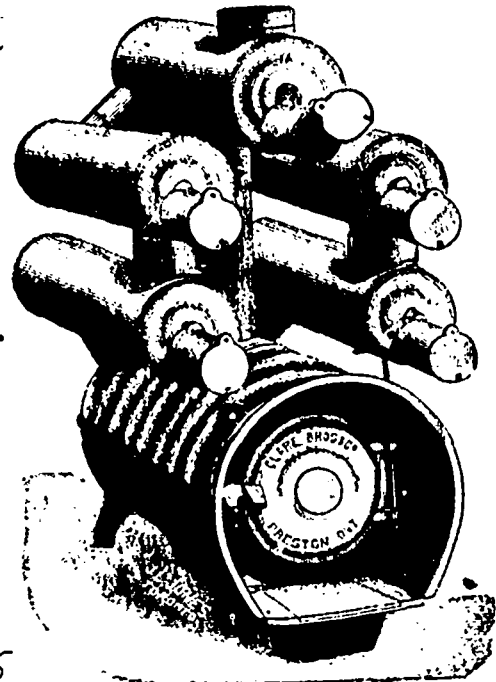
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All Cast Self-Feeding Furnace.



HILBORN

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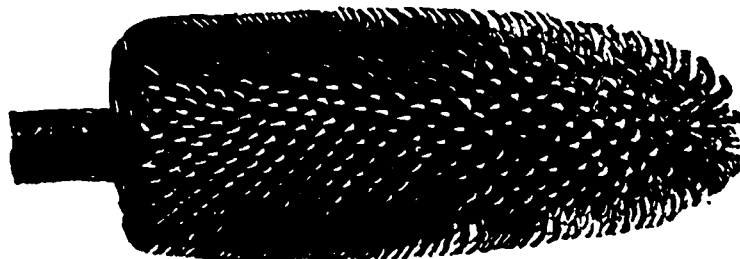
Years in advance of all others. The most economical, durable and powerful gas tight furnace made. Can be operated as self-feeding or fed through the front door. Is fitted with New Dock-Ash Gear Grate, the best grate known—a simple turning of the lever absolutely clearing the fire surface of all ashes 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 undoubtedly the most economical furnace made.

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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.
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ORDERS PROMPTLY FILLED.

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MACHINIST AND DIE MAKER,
MANUFACTURER OF
Foot and Power Presses,
Combination and Cutting Dies,
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THOMAS C. KELLOGG,
SKANEATELES N.Y., U.S.A.,



Teasels are Grown, Curled and Packed on our Premises.
New York Office,
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A. H. KELLOGG, Manager.

DEALER IN
AND
CROWER OF
AMERICAN TEASELS,
CLIPPED AND PACKED
TO ANY
DESIRED SIZE.

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INSTRUMENTS,

Electro-Medical Apparatus,

Fire Alarm Apparatus,

Magnets for Mills

Electrical Gas Lighting Apparatus,

Burglar Alarms,

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Electric Call Bells, &c., &c.

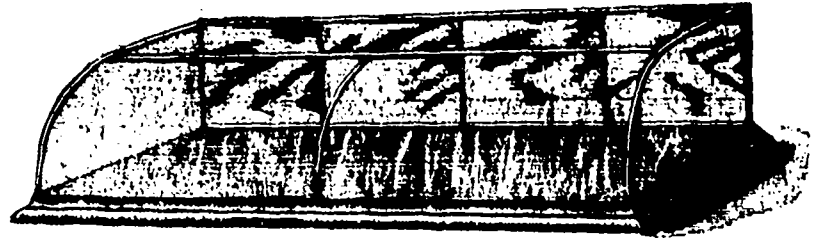
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HARDWOOD STORE FITTINGS, METAL SASH BARS, Etc.

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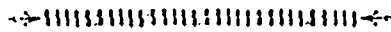
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Canada Tool Works. **JOHN BERTRAM & SONS** DUNDAS, ONT.

MANUFACTURERS OF

MACHINE TOOLS AND WOOD WORKING MACHINERY.

Special attention is directed to our new heavy class of Lathes, *with Inverted V Shears, large Bearing Surfaces,* and all the
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In our List will be found the
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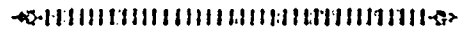
- Lathes, Planers, Drills, Bolt Cutters,
- Punches and Shears,
- Roll Makers' Rolls, Slotting Machines,
- Milling Machines,
- Cutting-off Machines, Shafting Lathes,
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- Surface Planers
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- Tenoning Machines, Band Saws,
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Complete Sets of Machinery for Locomotive
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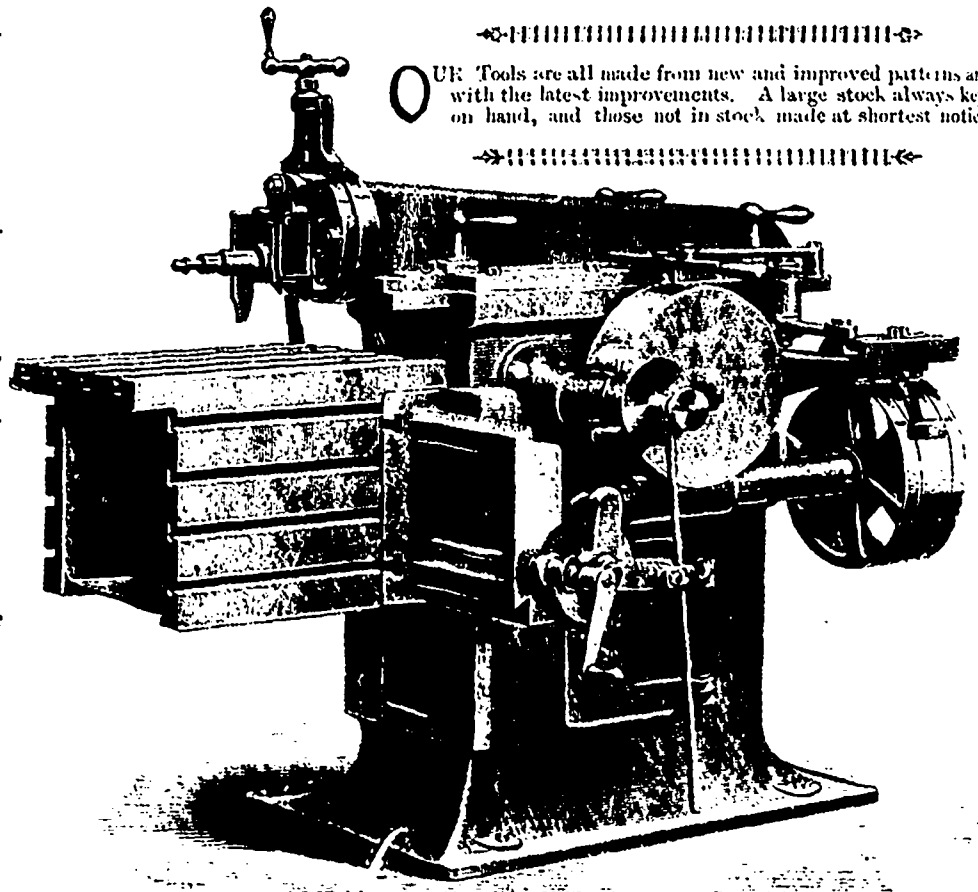
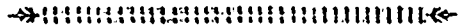
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Awarded the Only "Gold Medal" Given at the Toronto Exhibition of 1885, for Cotton Goods.

Fancy Wove Shirtings.

FAST COLORS, - - - FULL WEIGHTS.
Quality always Equal to Samples sent out.

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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.

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

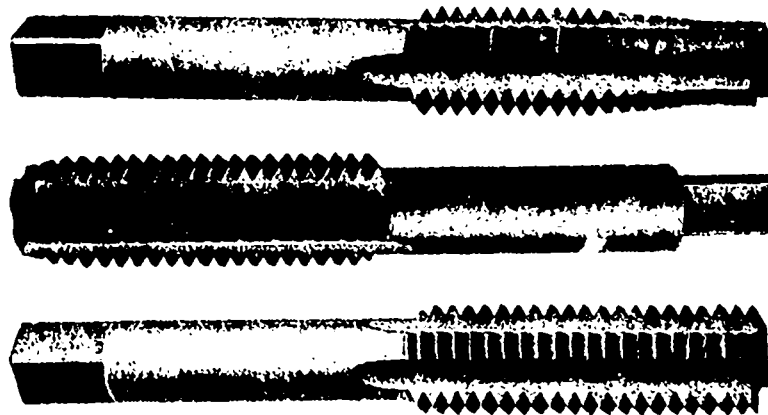
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SCREW TAPS.

SOLID AND ADJUSTABLE DIES. PIPE TAPS AND DIES.

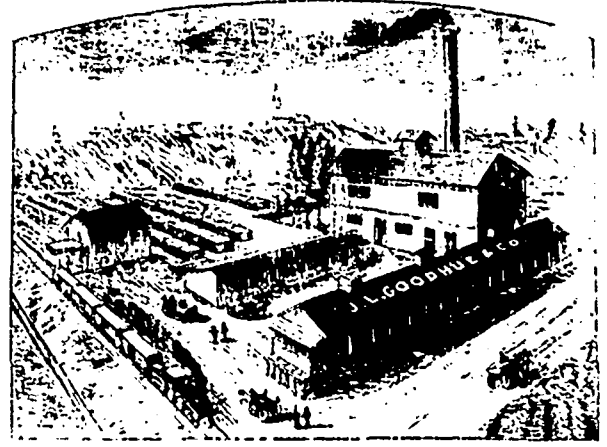
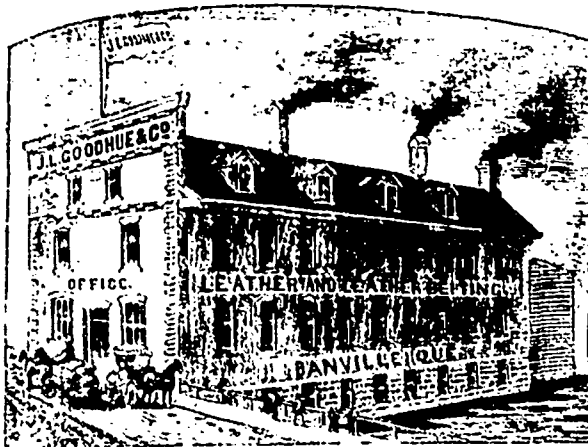
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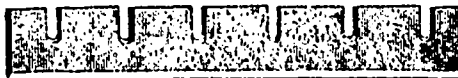
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PLANING MACHINE
KNIVES.



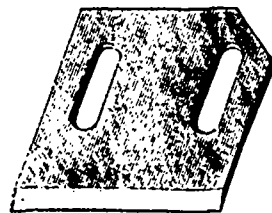
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MOULDING, TENONING,
MITREING,
SHINGLE JOINTER,
And other irregular shapes.



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

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1. To prevent by all possible means the occurrence of avoidable fires.
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3. To reduce the cost of insurance to the lowest point consistent with the safe conduct of the business.

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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.

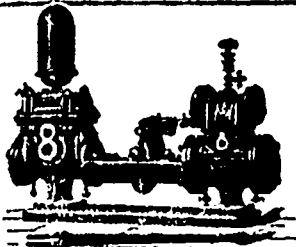
As no agents are employed and the company deals only with the principals of the establishments insured by it, conditions and exceptions which are so apt to mislead the insured and promote controversy and litigation in the settlement of losses will thus be avoided.

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 the company.

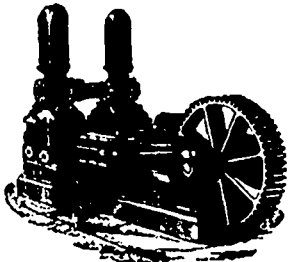
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HUGH SCOTT, Managing Director.

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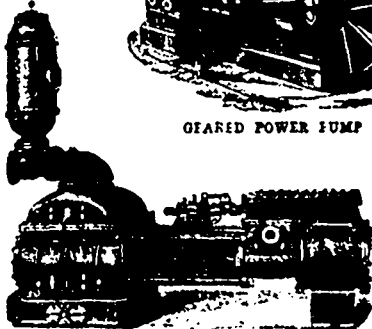
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BOILER FEED PUMP

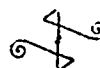


GEARED POWER PUMP



DUPLEX COMPOUND ENGINE

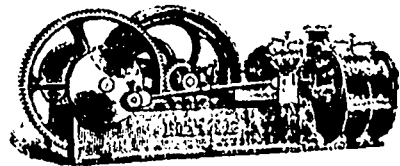
BUILDERS OF
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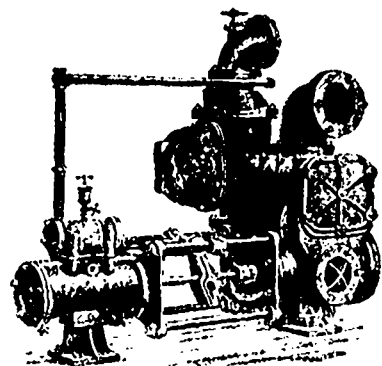
BOSTON,
44 WASHINGTON STREET.

NEW YORK,
93 LIBERTY STREET.

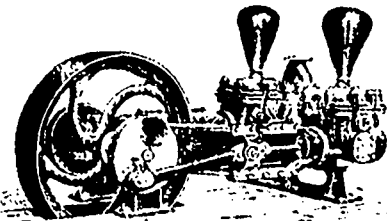
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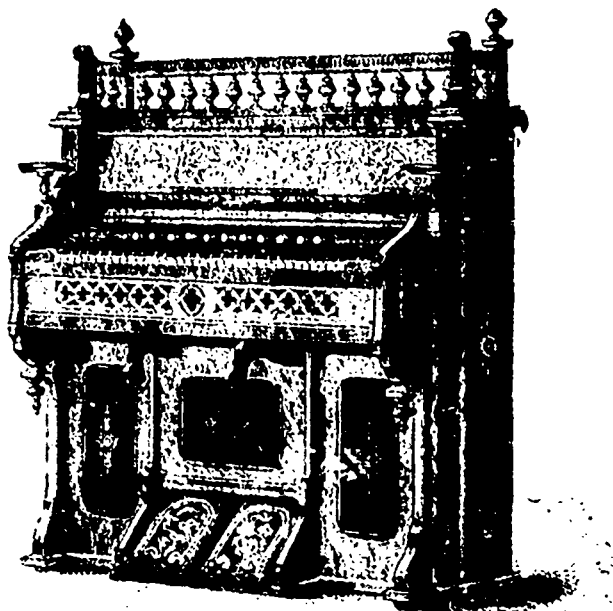
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ARE THE BEST

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Industrial and Trade DIRECTORY.

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

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

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

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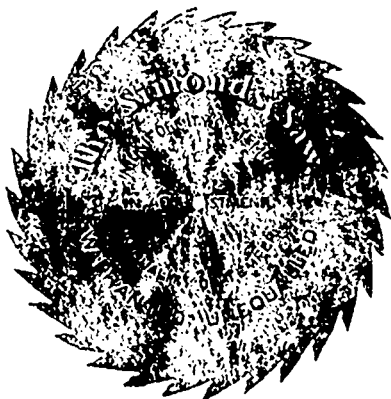
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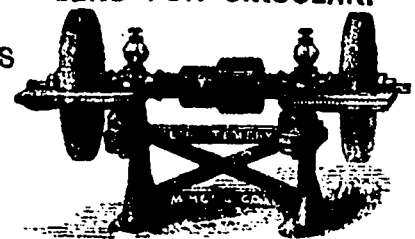


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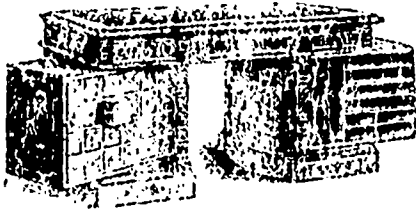
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