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AND INDUSTRIAL WORLD

DEVOTED TO THE MANUFACTURING INTEREST OF THE DOMINION

Vol. 24.

TORONTO, JANUARY 20, 1903.

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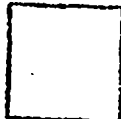
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C



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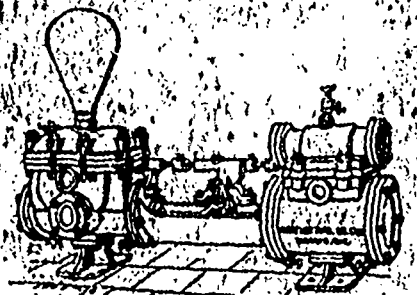
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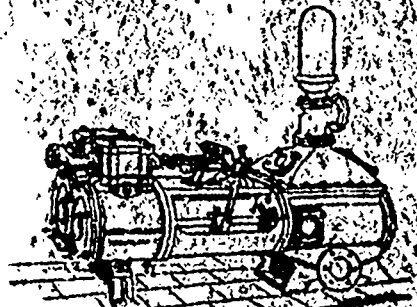
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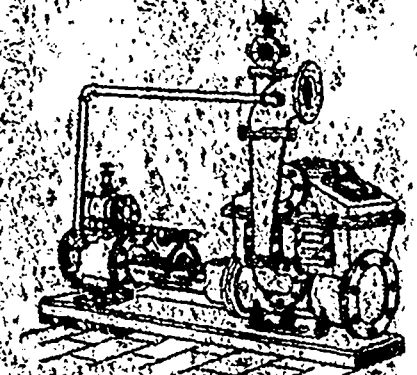


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ESTABLISHED IN 1880.

Published on the First and Third Fridays of each Month

BY

The Canadian Manufacturer Publishing Company

(LIMITED)

Room 66 Canada Life Building, King Street West, Toronto.

TELEPHONE 1274.

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THE NATIONAL POLICY.

If the persistent attacks of the avowed enemies of tariff protection to Canadian manufacturing industries, and the unwise expressions of its fool friends could have demolished our existing fiscal system, it would have been knocked into smithereens and scattered throughout etherial and boundless space, quite after the manner of the tail of the comet that swept across the heavens in the neighborhood of this earth a short time since. But these attacks upon it have been persistent ever since Sir John Macdonald gave us the National Policy, and they have been directed at it by such a great and varied host of hair-brained cranks, with such uniform fatuous results, that we would really become afflicted with ennui if we could not become somewhat interested at what is being said. These continued attacks reminds us of the roar of the surf as the wild waves beat against the rock-ribbed shore. There is much noise and froth and foam, but the rocks remain where they were placed, and the furious storm and the placid murmuring of the wavelets alike do not disturb their position. The fortress of protection does not totter to its fall, although for years and years we have been told that it is

doing so. The masses do not anticipate a collapse, although free trade orators constantly tell us that a great tidal wave of public opinion threatens to destroy the very foundations of a system which has made us a great and important people. The timorous ones, poor weak souls, become frightened at the sounds of fury which the enemy are bellowing forth, and through sheer anxiety for their own bread and butter, tremble at a nightmare. They forget that brave men never become rattled in the presence of danger. We are more than thankful to say that the outlook for the maintenance of the National Policy is much brighter now than for some time past. We have a man at the head of affairs at Ottawa who is, we believe, a devoted adherent of our existing system, and who, having the courage of his convictions, will deliver the country from the toils in which the enemies of protection would entangle it. As this journal has persistently and consistently contended, the friends of the National Policy should be the ones who should correct the anomalies which exist in it. We do not shut our eyes to the defects. We know they exist. We know that the welfare of the country demands that the defects should be removed. We do not wish unfriendly hands to use the knife. They must not be allowed to do it. The friends of protection must be the ones. We must not rely upon ex-school masters, theorists and abstractionists, but upon men who, with keen practical knowledge of the necessities of Canada, understand what is best for her interests. Canadian manufacturers will uphold the Government as long as the Government stick to the principles and declarations upon which they were elected to office.

TO BOOM TORONTO.

A FEW weeks ago at a meeting in the City Hall, Toronto, at which a large number of prominent gentlemen were present, attended by considerable enthusiasm, birth was given to the Citizens' Industrial Association. The meeting was called to consider the fact that manufacturing industries in Toronto were not in a flourishing condition, and to devise ways and means for encouraging those to remain which were already located here, and to induce others to come. As reported in this journal at the time, a large amount of wind and gush was ejected from the mouths of the speakers, going to show that Toronto possessed superior advantages for manufacturing purposes; that there was a good and sufficient demand for the products of as many establishments as could be conveniently crowded into our boundaries, and that the raw materials were cheap and within easy reach. From what many of the speakers said it might fairly be inferred that the passage of a few well worded resolutions, plus the enthusiasm and the speeches, would be all that would be required to make Toronto the rival and equal of Sheffield, Birmingham, Pittsburgh, or any other manufacturing city in either the new or the old world. Some formalities were to be observed, of course, including the organization of the association and the appointment of a few formal committees, the duties of which were to be merely perfunctory. It is very true that a number of manufacturers were present, some of whom indulged in speech-making, but it required no very extraordinary keenness of vision to discover that the management of the association was not to be in the

hands of practical mechanics; and that those who were to control it were professional men engaged chiefly in buying and selling real estate. We are betraying no confidential secret when we state that the material prosperity of Toronto has been, and is suffering most sorely from the effects of a land boom precipitated upon it by real estate speculators; and the impression prevails that these speculators, finding that of themselves they could do very little in restoring confidence in land values, were very willing to have their interests forwarded by such results as might be hoped for from the Citizens' Industrial Association.

In the discussion at the City Hall meeting the industry that received the most attention, being considered of the greatest importance, was the manufacture of iron from the ore, and the erection of blast furnaces in Toronto for that purpose. The facts mentioned in the speech-making were not new, although very interesting. It was well known beforehand just what it would cost to build a plant, just how much per ton it would cost to produce iron and steel, just how much protection the tariff afforded, just how much bounty the Dominion Government offered for such production, and just how little or much additional encouragement would be required from the Ontario Government. These were not new facts, but they were interesting. It would seem, then, that if the establishment of blast furnaces and steel works were so essential to the prosperity of Toronto (and they certainly are), and that those who were so deeply interested in that prosperity, were anxious to see it brought about, they would have applied themselves in that direction. But as far as the public know they have done nothing of the kind, nor are we advised that they intend to. The atmosphere is thick with talk, but no actions are being performed from which desired results might be expected.

With the facts before them, to our mind there is but one course to be pursued by the Association. The gentlemen should call public meetings, and out of the mouths of fluent and well-informed speakers, explain to the people that no iron and steel manufacturing industry can be established in Toronto until it receives necessary tariff protection; that this protection, or its equivalent, must be guaranteed by the Dominion Government, to be continued a specified number of years, and that the Ontario Government must also guarantee similar assistance. If such meetings were held, and an enthusiasm evoked which was formulated into imperative demands upon the two governments, no doubt they would be complied with. The Dominion Government would, no doubt, be very willing to accept such views, for they would be in direct accord with their acknowledged policy; and the Ontario Government would, we think, guarantee an acceptable arrangement. If this were done—if the proper representations were made to those in power, backed by the strong voice of the voters, the encouragement necessary to establish the industry would be guaranteed; and if thus guaranteed the capital necessary to materialize the industry would be forthcoming in short order. Then, why do the Association not do something in this direction?

No doubt Toronto would be but too glad to do all that might reasonably be expected in the matter. Instead of Ashbridge's Bay being a pestilential and expensive stink hole, it might be made the site of a valuable industry—yes—a score

of them. Taxes, too, would have to be adjusted on a more equitable basis than now exists, and the system abated that now punishes the manufacturer who has the temerity to establish his industry in this city, by taxing him to death. Perhaps it is to avoid this that the real estate men have captured the Association. These dear generous men are perfectly willing to give other people's land for manufacturing purposes, and to see capital invested which will increase the value of their vacant corner lots, but they are not willing to donate any of their land, or to have their vacant lots assessed at a value which would enable the city to offer the absolutely necessary inducements for manufacturers to locate in Toronto.

"CONCESSIONS" TO MANUFACTURERS.

At a recent meeting of the Toronto Ratepayers' Association, Major Carlaw moved, seconded by Mr. R. W. Prittie:

That the City Council be asked to secure, as speedily as possible, such legislation as may be necessary to empower the city to give to all the manufacturers employing twenty heads of families or over, the inducements of a free lease of land or water lots, of a size and location within the city of Toronto to be agreed upon, and to be taken from such portions of the city property as at present yield no revenue; and such lands, water lots and buildings that may be erected, and plant, to be free from taxes for fifteen years, and at the expiration of that time a renewal lease of the land or water lots to be granted for twenty-one years on a basis of three per cent. per annum on their value at the time of such renewal, and the land, buildings and plant to be exempt from taxes to the amount of one-half their value during such further term of twenty-one years; and to aid manufacturers in taking advantage of these privileges, a fund of \$1,000,000 be set apart to be loaned at 4½ per cent. in the proportion of one-half the cost of such buildings as they may require to erect, with the consent and approval of the following gentlemen, viz: Sir Casimir Gzowski, Hon. Frank Smith, the Mayor, President of the Board of Trade, George A. Cox, G. R. R. Cockburn, James Austin, S. F. McKinnon, George Gooderham, Robert Jaffray, Alexander Manning, W. R. Brock and Sir William Howland, who shall exclusively control such fund, and advances from it upon application duly passed by the City Council, and the consent of the gentlemen named to be also secured by the Council to all free leases granted; and that manufacturers at present established in Toronto, not desiring to remove their present factories to the land so offered, be also exempt from taxes to the extent per capita of employee that competition may bring to the city affecting such existing manufacturers, and after five years that they shall be at the discretion of the City Council, entitled to all exemptions enjoyed by manufacturers enjoying city lands.

The proposition created considerable excitement, and, after some discussion, was laid over for further consideration at a future meeting.

There are quite a number of substantial business men in the Ratepayers' Association who think that municipal taxes should be levied on buildings and merchandise of all descriptions as well as upon real estate; and there are a great many members of that Association whose business it is to speculate in real estate, holding it for increase in value not through or because of any improvements they may place upon it, but through what other people may place upon adjoining or neighboring real estate. The prevailing system has been and is a

curse to Toronto, and will continue to be a curse as long as it is continued. If it were not for the existence of this system; if it were not that under it every manufacturer who ventures to erect a valuable building in the city, to equip it with expensive machinery, to purchase large quantities of raw materials and to convert them into finished products, ready for the use of consumers, and who give employment to large numbers of men and women, boys and girls, is most outrageously taxed for his temerity, with the great advantages Toronto possesses it would be the most prosperous and extensive manufacturing centre in Canada. A walk along any of the streets of the city, even in the best and most prosperous thoroughfares, will disclose the existence of wretched, antiquated and dilapidated buildings probably in close proximity to stately, expensive and elegant business structures. The old traps realize enough in rents, perhaps, to pay the taxes on the land upon which they stand, and having stood there for years it is to be supposed that they will remain there indefinitely, the owners being well content with the knowledge that the increasing importance of the city, and the close proximity of the expensive structures will increase the value of their land a hundred fold. There are scores, hundreds of such instances observable in Toronto where the owners of the land have never exerted a muscle or bestowed the value of a day's work to improve their land, the hundredfold value of it to day above what it was a few years ago having been given to it by the increasing growth and importance of the city, and by the investment of immense wealth in fine buildings. The policy of these old fogy land holders has always been to favor themselves in the matter of taxes at the expense of their more enterprising neighbors. Their idea seems to be that they hold a divine right in their land, and that they must be favored above all other mortals. Under this impression, formulated into law, every manufacturer who has ever ventured to establish works in the city has been punished for his temerity by the imposition of enormous and unjust taxation. When a wealthy concern, such as the Massey Manufacturing Company, threaten to abandon the city unless some abatement is conceded to them, they are granted the use of city water at rates which cannot be obtained by less wealthy concerns; and so we find the practise of class favoritism fatal to the industrial prosperity of Toronto.

This fatal class favoritism has driven so many factories out of Toronto; has built up so many neighboring towns, and has kept so many enterprises from locating here that these real estate men are alarmed. They built hundreds of small houses in the neighborhood of industrial establishments for the accommodation of the workmen in them, and now, the factories having been driven away, they have their hundreds of small houses on their hands with cards announcing "To Let" conspicuously displayed in every widow. And then they foregather and discuss the situation and propose impossible schemes by which some others beside themselves may put up bait money and talk about "concessions" to manufacturers who may be gulled into accepting and improving lots in Ashbridge Bay, now under ten feet of stinking ooze and sewage. And this only to those who will become obligated to give employment to twenty heads of families or more.

The scheme won't work. It is entirely too attenuated, too

gauzy, too thin. No manufacturer who would give employment to twenty hands would desire to erect his factory in a cess-pool—no self-respecting workmen would live there, or near it. Manufacturers are not paupers nor beggars for "concessions." Make the taxes right; lay them equitably on land values, and while Ashbridge Bay might be utilized for extensive iron works, the smaller factories and their employes would occupy more salubrious situations. There are plenty of them which would soon be occupied for such purposes if taxes were levied equitably.

INDUSTRIAL PARTNERSHIP.

On a recent occasion Principal Grant addressed a meeting of workmen at Kingston on "Profit Sharing." He told them that there were rights in equity as well as rights in statute. The rich manufacturers were indebted to their employees for their wealth. The workmen, therefore, were entitled to more than the amount of money they receive as wages. It was nothing more than justice that the employer should share the profits of his business with his employees. Profit sharing will do a great deal towards solving the questions relating to labor and capital.

How much more Dr. Grant said on this subject on that occasion we do not know, but considering the title of his discourse and his known views on this question, we presume the lecturer had reference to industrial partnership and not to commercial partnership, as some seem to think. In fact, a correspondent of the *Montreal Gazette* has a long letter in that journal challenging the position he supposes Dr. Grant occupied in his address to the Kingston workmen. If that position was that labor should be in commercial partnership with capital in manufacturing enterprises, the argument of the correspondent is, we think, good. But if the contention was that the partnership should be only industrial in its character, as we imagine it was, then the correspondent is astray in his facts, and of course all wrong in his conclusions. The error with many is that they do not comprehend the difference between industrial and commercial partnership. In previous issues of this journal we have explained this difference.

In any commercial partnership which might exist between employer and employee the latter would be privileged of course to inspect the books of the concern and to have a voice in its management. In an industrial partnership the employee is stimulated by an expectation of gaining something more than his regular wages; and he knows that faithfulness, sobriety, and good work will ensure him a share of whatever profits may accrue through his exertions. In the business working of an industrial partnership it is recognized that the buildings and plant employed in it must be kept insured and kept in good order and repair, the cost of which must be borne by the business. It is also recognized that the capital invested in the business is worth the current rate of interest, and that this interest is also a charge upon the business. It is also generally recognized that some provision should be made for those who may become ill or meet with some disabling accident while in the employ of the concern; this provision usually being of the character

of a provident fund. After these charges are provided for out of the profits of the concern, in the distribution of the balance it is recognized that a dollar's worth of work is entitled over and above ordinary pay to the same share that a dollar of capital is entitled to over ordinary interest. This is generally the basis of the division in industrial partnership. If the profits are large, labor gets a large return over ordinary wages. If the profits are small, the share to labor will be correspondingly small. If there is no profit, or if there is an actual deficit, labor receives its full wages, the loss being borne by the employer and not by the employee. The employee is interested in making the enterprise a financial success. If it is not, he receives his full wages only—if it is he shares with the capital of his employer whatever the surplus may be. There is nothing to be gained by industrial partnership if the system and the business in which it is operated does not produce more benefit with it than without it; if it does not result in more effective labor and for a better and more cordial understanding and agreeable relations between employer and employee. Where labor is employed by the day a share in the ultimate gains of the business is an incentive to greater industry. Where labor is bestowed upon piece work, the incentive is to produce better articles, to avoid waste of materials, and to take greater care of machinery and tools. All gains from these sources accrue to the benefit of the employee as well as to the employer; while on the other hand carelessly made goods, inferior workmanship, wasted material, ill-used machinery and slovenly kept or unnecessarily broken or destroyed tools injure the workman as well as the proprietor.

This method of industrial partnership is not a new or untried thing. It has been a practical success in France, where it originated, for a great many years; and it is also in successful operation in Great Britain, in many states of Europe, in the United States, and also in Canada. One of the most noticeable instances of this method of profit sharing in this country is that of Messrs. T. S. Simms & Co., St. John, N.P., regarding which we have kept our readers fully advised. It will be remembered that that concern adopted the system a little more than a year ago. We are informed by them that, although they have since then labored under certain adverse circumstances, the scheme has proved a success, working so well and so satisfactorily to all concerned that the agreement previously entered into has been renewed for the current year.

It would be well if manufacturers generally would investigate this system, and if it commended itself to their better judgment, adopt it in some of its many forms. It might be worthy of a trial; and if it resulted as successfully here as it has in many other places, one of the greatest problems of the age would be solved. A general adoption of it, and its successful operation, would introduce a millennium where strikes, lock-outs, labor disputes and unpleasant relations between employer and employee would be known no more.

DEAN SWIFT said:—"Whoever makes two blades of grass to grow where only one grew before, deserves better of mankind, and does more essential service to his country than the whole race of politicians put together." Jay Gould was not that sort of a man. He was not a producer, but an accumulator, and the world is no whit better because of his having lived in it.

EDITORIAL NOTES.

Two big steel works in Middlesborough, England, are about to close down owing to depression. What's the matter with free trade?—*Toronto Empire*.

The consumption of steel in Canada would give constant occupation to two or more big steel works, and if we had the right sort of protection we would have just such works. Will the *Empire* please answer "What's the matter with protection?"

CANADA has a government of the manufacturers, by the manufacturers and for the manufacturers.—*Toronto Globe*.

If this were a fact it would be much better to have such a government than one of professional politicians. If the Government of Canada were in the hands of the manufacturers it would be better for the whole country. It would be a government of business men, by business men, for business men. More than that—it would be a government of Canadians, by Canadians, for Canadians. See!

ANY subscriber to or advertiser in the CANADIAN MANUFACTURER who may desire to purchase any sort of machine or machinery, or any sort of mill, factory, workshop, foundry or other supplies; or any materials for manufacturing purposes, and will notify us of his wants; the same will be published in a prominent department of this paper; and his name and address will be furnished to any subscriber or advertiser who may desire to supply the want; for which services no charge whatever will be made. Our friends are cordially invited to avail themselves of this invitation.

THE Brickmakers' section of the Builders' Exchange will send a deputation to interview Dr. Chamberlain, Inspector of Prisons, with a view to making some arrangement for the withdrawal of prison-made bricks from the Toronto market. And still the *Star*, the new labor advocate, preaches that the laboring men of Canada need no protection—that they would be better off with free trade. This despicable competition of convict-made goods with the products of free labor ought to be suppressed; but the existence of it is an object lesson which laboring men would do well to study.

TARIFF reform is coming with sure foot across the border, and it behooves Canada to lead the procession.—*Montreal Star*.

Lead what procession? If the *Star's* "tariff reform" means correcting the anomalies and incongruities which exist in the tariff, then we say, Let the procession proceed. But if it means cutting down the duties looking in the direction of free trade and the destruction of our manufacturing industries, then we are "agin it." Why not Canada hold off from tariff reduction until the reduction of the United States tariff is brought down to the level of ours? But if we wait until then we will linger a long, long time.

THE forthcoming edition of the chart of the Mining Statistics Division of the United States Geological Survey, in showing the metallic products of the United States for 1891, states that the production of nickel in that country in that year was 118,493 pounds, valued at \$71,099. This quantity is not

sufficient to meet the demand in that country for nickel for the manufacture of subsidiary coin and in the arts, to say nothing of what is required in the manufacture of armor plates for war vessels. And yet the American duty upon refined nickel is \$200 per ton. Canada is the dependence of that country for nickel, and thousands of tons of the ore and matte are taken there every year, leaving us nothing to show for it than the holes in the ground at Sudbury. An export duty should be imposed. Impose the duty.

The popular vote for President of the United States last November was as follows:

Cleveland	5,567,000
Harrison	5,176,611
Weaver	1,025,060
Bidwell	258,347
Total vote	12,028,008

It is true Cleveland has 391,379 majority over Harrison, but it is also true that the majority of the popular vote against him is 892,028. Weaver encountered greater opposition from the Democrats in the solid South than from the Republicans; and it is silly to claim that Mr. Cleveland's free trade views represent the sentiments of the majority of the American people. His election was the result of an accident.

"It is safe to say," says the *Evening Star*, "that wages are higher to-day in Great Britain for skilled men than they are either in Canada or the States, where protection is vaunted as the only means of salvation." Although statisticians agree that wages are higher on the American continent, those who know substantiate the position of the *Star*. Wages estimated by the hour are higher in Canada and the United States, but men are driven at such a rate through the pressure of the unemployed and the fear of dismissal that the price for any stated quantity of work will average higher in free trade England.—*Toronto Globe*.

This is a most abominable slander upon our manufacturers, a lie in every detail. There are fewer unemployed workmen in Canada, in proportion to population, than in Great Britain, and no Canadian workman labors any the harder through fear of dismissal to make room for the unemployed.

The million dollars which J. D. Rockefeller is giving to the University of Chicago, and \$200,000,000 besides were made out of the Standard Oil combine, under the control of which the Grits wish to place the oil consumers of Canada.—*The Empire*.

We do not know just how many millions of dollars Mr. Redpath and the Canada sugar combine have garnered out of the people of this country, nor do we know just how much Mr. Redpath's palace in England has cost him, but we do know that none of his enormous wealth has been given to Canadian Universities, or even to common schools. And we also know that the Dominion Government, through the operations of the tariff, have made it possible for the Canada sugar combine to reap a richer harvest of dollars out of their business than the wildest dreams of McKinloyism ever imagined.

In their recent presentment to Judge McDougall, the grand jury of York County stated that they had ascertained from Warden Massie that \$76,000, accruing from work done in Central Prison, had been paid into the Provincial Treasury;

and they thought the principle of making institutions of this kind self-sustaining a good one. If the labor of the convicts who had earned this \$76,000 had been devoted to making clothing and other necessary articles for those incarcerated in prisons, it would have been well; but the fact that money was realized shows that the labor was employed in competition with free labor, and that the remuneration to free labor had been curtailed to that extent at least. Considering the coolness of the season, it is remarkable the off-hand manner with which a grand jury can make themselves ridiculous in deciding economic questions which statesmen have not yet solved.

So at the end of October this poor, impoverished Dominion of Canada had actually lent our friends over the border, through its banks, \$22,792,466 for the purpose, presumably, of helping them through their money "tightness."—*The Empire*.

This is where our esteemed and celebrated political economist puts his foot into its mouth as usual. Money is in demand at high rates of interest to enable enterprising Yankees to manufacture refined nickel from Canadian ore and matte, and lumber and wood products of logs cut in Ontario and rafted across Lake Huron to the American side. But who ever saw any demand in the *Empire* for the Government to impose export duties upon nickel ore and matte and saw logs, to the end that this outflow of Canadian capital to the United States be diverted from its present course and employed in profitable manufacturing enterprises in Canada.

There is a heartrending moan in the *Ottawa Journal* about the price of coal oil, but the article bears internal evidence that the writer thereof never bought a gallon of coal oil in his life; has a vague suspicion that it is sold by the glass; and that in winter it freezes and is passed over the counter in solid chunks.—*The Empire*.

This is an exceedingly flippant manner in which to discuss so important a subject; but these few lines of the *Empire* constitute all that that able journal has ever said on a question that is of the utmost importance to all the people of Canada. It is impossible, however, that the matter shall be ignored and denied discussion; and the better way for the *Empire* and the other go-it-blind supporters of the Government to do would be to face the music. It might be quite as bitter a pill to take as that which the *Telegram* had to swallow when it pasted a union label on the seat of its trousers. The duty on coal oil must be modified.

The esteemed *Toronto Globe*, in printing all the things the Toronto Conservative baldheads have been saying against the Conservative party, every fault found is carefully set forth in the *Globe*. Of course, the Government, being merely a human affair, has its faults. Nobody but a fool Grit would ever think of claiming absolute perfection for his party. But there was one thing made manifest in the Conservative baldhead squabble that the *Globe* doesn't print, and that is the fact, made most manifest, that every man of the kickers would infinite prefer the Conservative party, were its faults ten times as great, to the miserable concern known as the Reform party.—*Hamilton Spectator*.

The "kicking" alluded to by the *Spectator* was nothing more nor less than the protest of sensible men who decline to be coerced by the massbacks of the Conservative party into

supporting men and measures which reflect no lustre upon Canada. Calling these men baldheads and kickers don't hurt any; but it may be a fatal mistake to suppose that they will continue to adhere to the Conservative party indefinitely, even as it now is, and without a tenfold multiplication of its faults, if no resolute and effective efforts are put forth to pacify a disgusted people. The serious situation which is now menacing the Conservative party, but of which the leaders seem oblivious, is the direct outcome of the two-thirds majority in the House of Commons.

A FEW days ago the *Empire* published the following telegram from Ottawa:—

Before Hon. J. A. Chapleau left his office in the Customs Department he recommended to the Council that cigars, wines, spirits, malt liquors, etc., and silverware, when imported by the various permanent military schools for officers' messes in Canada, be duty free, the same privilege being now extended to the Imperial troops.

Mr. Chapleau was elected to the Dominion House of Commons on the distinct claim by him that he was a supporter of the National Policy; and he has definite knowledge that cigars, wines, spirits, malt liquors and silverware—all of them articles of luxury—are manufactured in Canada. He also knows that although such supplies intended for the Imperial troops in Canada are admitted free, none of these enumerated are admitted duty free into Great Britain. And then, common people—those who are not connected with the officers' messes of the militia—want to know why these well-fed and well-paid men, who delight in gaudy clothing and brass buttons, should be favored by the Government to the extent indicated above their fellow Canadian mortals. Davis cigars, Pelee Island wines, Gooderham and Walker whiskies, Cosgrove and O'Keefe ales, and Acme and Toronto silverware are all good enough for common people, and to most Canadians who indulge in such luxuries the Canadian articles are quite good enough for them. We most seriously object to Mr. Chapleau's exhibition of favoritism. We are opposed to any class legislation.

A WRITER in the *Montreal Herald* who signs himself "Experientia Docet," in attempting to show that the cost of living to workingmen is greater in Canada than in Great Britain, points to the fact that the rent of a residence in Canada which costs \$450 per year is not equal in accommodation to a similar one in the Old Country which cost only £40, (\$195), that gas rates, water rates and municipal taxes are in the same proportion, and that a person with a salary of \$1,500 in England can live more comfortably than on \$3,000 in Canada; and he wails about "our outrageous customs tariff" which imposes "duty on perfumed soaps £51, 6s., 8d. sterling, per British ton." If "Experientia Docet" is not a myth he is a chump. Workingmen in Canada do not usually live in houses for which the rent is \$450 per year, for first-class solid brick residences with all modern improvements can be had for half that amount, or less. And then if he can get \$1,500 per year for his services in England, and only \$3,000 in Canada, why in the name of common sense don't he return to the place whence he came and do better. And the *Herald's* chump must be a sweet-scented one if he can't keep himself clean on good Canadian soaps upon which he has to

pay no duty whatever, but has to import perfumed soaps upon which he has to pay duty to the tune of, say, \$250 per ton. Of course the letter of "Experientia Docet" is just the sort of an argument the *Herald* wanted to show the laboring men of Canada how much better off they would be under free trade.

MR. DEALON McCARTHY, Mr. G. R. B. Cockburn, the *Montreal Star* and the *Toronto Globe* are alleging that the N.P. is a serious tax on Canadians, and especially on the farmer. We are still pressing for one specific case of hardship. For two or more specific cases. Please give them to us. Tell us while you are about it how much the average farmer pays toward the N.P. revenue and on what articles. No general statement, but specific instances. We've been asking for these for six months. After we have got answers of this nature we may have another nut to crack, namely, what easier way is there of raising a revenue, and we must have a revenue, than the N.P. tariff? Come now, gentlemen, get down to the acts.—*Toronto World*.

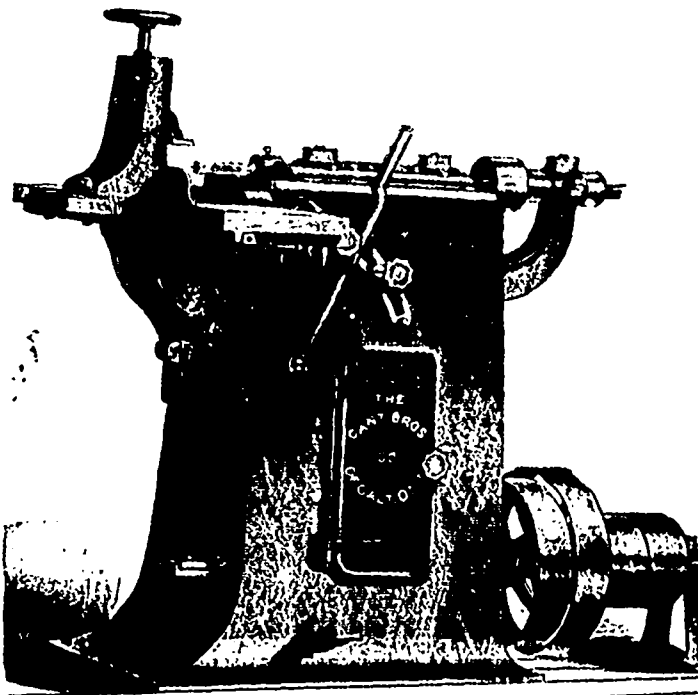
This invitation is not addressed to us, and for fear those who are questioned may not be able to respond to the *World's* challenge, we suggest that the present sugar schedule of the tariff imposes a serious and unnecessary tax not only on the farmer but upon all Canadians, and that the Order-in-Council passed only a few days ago accentuates the wrong. This is one specific case of hardship. The present duty on refined illuminating oil is another specific case of hardship upon the whole country. The present duty on crude petroleum, and the prohibition of it except in Yankee barrels is another specific case of hardship. Hard upon our manufacturers because it denies them the use of cheap liquid fuel, and hard upon our coopers because oil, crude and refined, can only be imported in Yankee-made barrels. We have specified as many cases as the *World* asked for, but we could extend the list.

MR. THOMAS COOMBS, a manufacturer of Bedford, England, has been in the city for the past few days, and so greatly taken is he with the future prospects of our nickel mines that he has invested largely in the purchase of some properties, and together with certain Toronto capitalists have decided to form a company under the name of the Anglo-American Nickel Mining Company, with capitalization of \$400,000. What is wanted is British capital with Canadian enterprise, and our nickel mines, the best in the world, will soon be developed.—*Toronto World*.

What is wanted quite as much, or more, is an export duty on nickel ore and matte, going to any country that imposes an import duty on Canadian refined nickel. Our nickel mines are now developed to an extent commensurate with the demand for the refined nickel in the United States. With no other as available sources of supply as Canada, the selfishness of the United States imposes a prohibitive duty of \$200 per ton on Canadian refined nickel, but admits the crude material duty free. Of course as long as Canada submits to that sort of thing, just so long will we be without a nickel-refining industry. If we impose an export duty of \$200 per ton on the nickel contained in the ore and matte going to the United States, that country would either contribute very largely to the Canadian treasury, or it would remove the duty on Canadian refined nickel, and on several other articles also. If that were done both British and Canadian capital and enterprise—and Yankee too—would find rich reward in refining Canadian nickel in Canada. Impose the duty.

LET Grits who are talking about an American victory for Free Trade and a coming Canadian one for their old-time fad, remember that the Canadian National Policy embraces a tariff one-half as high as the American, and is designed primarily and principally to protect our producers against overwhelming competition, whilst guarding our consumers against the greed of combined capital in the shape of huge trusts and monopolies. —*The Empire*.

That item is just as delicious as peaches and cream, and as fragrant as new mown hay. Yes, yes! Our N. P. is designed primarily to protect our producers against the overwhelming competition of combined capital in the shape of huge monopolies. It seems like sweet music, that does. American duty on refined sugar, \$10 per ton; Canadian duty, \$16. Wholesome raw sugar of 16 Dutch standard, in the United States free, in Canada \$16 per ton. In the United States, under the McKinley bill, the poor man has free sugar on his breakfast-table—in Canada the sugar on the poor man's breakfast-table is taxed \$16 per ton. In the United States water white and headlight illuminating oil is worth only ten cents per gallon—in Canada thirty cents. American manufacturers who use liquid fuel pay only 50 cents per barrel for petroleum—Canadian manufacturers pay \$1.30 per barrel. We have not yet read of any secret Orders in Council putting raw edible sugar on the free list, nor making coal oil any cheaper, nor giving the farmers cheaper binding twine. Great is the saying that our N. P. guards Canadian consumers against the greed of the monopolies represented in sugar refineries, oil wells and binder twine factories.



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THE *Cleveland Marine Record* has an item to the effect that Lieutenant Corden, of the United States Revenue Marine, states that "the eastern shipbuilders will talk the treaty of 1817 till you can't rest when there seems to be any inquiry regarding the building of some of Uncle Sam's war vessels of such type as could get to the sea coast, by lake shipbuilders, but I think a little concerted action on the part of the latter would compel the Government to consider their bids, as that treaty was abrogated by Congress in 1861, and has never again been officially declared in force." To which the *Record* says: "The fact that Lieut. Corden is making a tour of the principal shipbuilding ports of the lakes to inquire regarding their ability to construct vessels of war, makes the opinion he expressed of considerable significance. It was also learned that the Government has been ascertaining what class of armament could be mounted on the big steel freighters of the lakes in case of trouble with England, as against the armed naval force the latter country could place at once on the inland seas." Under certain circumstances it suits our neighbor to contend that the treaty is in force and the provisions of it must be observed, the spirit of it to be interpreted from the Yankee standpoint, as in the canal imbroglio, while under certain other circumstances the position is taken that the treaty is dead and buried, and this with a view to violate a plain provision of it relating to building and maintaining war vessels on the lakes. A poor excuse is better than none, but it is very thin indeed to suggest mounting armament on the big Yankee freight steamers as a precaution against imaginary British aggressiveness. When Uncle Sam really begins business in that line—but not till then—Britain may consider it well to keep a few gun boats on the lakes, in case an armed naval force of the United States were placed on the inland seas. Britain has some very long range guns, and plenty of men who know how to handle them. But we protest against the presence of any armed ships whatever on the lakes. In the language of the late lamented Mr. Grant, "Let us have peace."

SOME wicked wag has been stuffing the *Globe* upon the oil question. Somebody who does not live in Lambton, no doubt, and is not on speaking terms with Mr. Lister, the Grit authority from the oil district. That gentleman's views are on record, and can be found in *Hansard*. Said he:

"We know perfectly well, as far as the United States is concerned, that the whole oil interest of the United States is practically controlled by the Standard Oil Company, and we know that they have been bringing oil into this country to sell at a less price than the cost of producing it, in order to get the control of this market. * * * The moment you strangle that industry you will get the price put up at once. The people of Canada are to-day getting their oil much cheaper than they ever did before."

That pretty well covers the case. It is easy to go into figures. Figures, of course, cannot lie, but we know, sad to relate, that the Grits who manipulate them often do. It seems to be a shabby trick for some Grit humorist to have gone and led the organ astray on one of the trade issues of the day.—*The Empire*.

This is slippancy of the slippiest sort, and what the *Empire* supposes the easiest method of avoiding a vexatious question. As we have heretofore shown, there are manufacturing establishments in Canada where oil is used for fuel, and that they are handicapped to a painful extent by the cruelly high duty

on imported oil. Before coming to Toronto to become managing editor of the *Empire*, Mr. Creighton's home was at Owen Sound. In the shipbuilding works of the Polson Iron Works Company at Owen Sound is a furnace for bonding the iron frames of vessels in course of construction, in which oil is used for fuel. The market price of such oil at Petrolia is \$1.27 @ \$1.30 per barrel, and for similar oil at Lima, Ohio, it is 50 cents per barrel. The Canadian oil costs 150 per cent. more than the American oil. The Polsons have industrial works which should give employment to hundreds of men where there are now less than scores, all owing to the incongruities of the tariff. Why should shipbuilding and other important industries which should give employment to thousands of men, languish, to the end that a few oil men be made rich through the operation of a tariff which guarantees them exorbitant profits? The *Empire* may imagine a world of fun and humor in this oil duty question, but then it should remember that Nero fiddled while Rome burned.

The Pennington-Baker Seating Co., Dundas, Ont., will add more machinery, and enlarge their works on account of the rapid increase in their business.

Messrs. R. Spence, & Co., proprietors of the Beech File Works, Hamilton, Ont., are now manufacturing new files. They have heretofore been recutting only. They will employ more hands and enlarge their business.

The Commercial Mining Company, of Algoma, whose headquarters are at Toronto, have sent us a prospectus of their company, which informs us that their capital stock is \$100,000; that the intention of the company, when formed, was the acquisition and developing of mining locations, and that, owing to the rich developments of the mines of which they are owners, they are embarking largely in mining. They own in fee simple about 140 acres of land near Nairn Station, on the Sault Ste Marie branch of the Canadian Pacific railway, some thirty miles west of Sudbury. They are working in four shafts, which have been sunk 95 feet, and from which over 250 tons of rich ore have been taken. Prof. Thomas Heys of Toronto, has made analyses of specimens of these ores, some of which show 42 pounds of nickel and 220 pounds of copper per ton. Mr. H. A. Hilyard, 4 Victoria Street, Toronto, is secretary-treasurer.

= Wants =

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Any subscriber to or advertiser in THE CANADIAN MANUFACTURER who may desire to purchase any sort of machine or machinery; or any sort of mill, factory, workshop, foundry or other supplies; or any materials for manufacturing purposes, and will notify us of his wants, the same will be published in a prominent department of this paper, and his name and address will be furnished to any subscriber or advertiser who may desire to supply the want, for which services no charge whatever will be made.

Stationary and marine engineers with proper certificates, and engineers competent to take charge of electric plants, and first-class mechanics and expert electrical workmen desiring situations, are invited to make their wants known in this column. No charge will be made for putting applicants in communication with employers who may desire their services. Our friends are cordially invited to avail themselves of this invitation.

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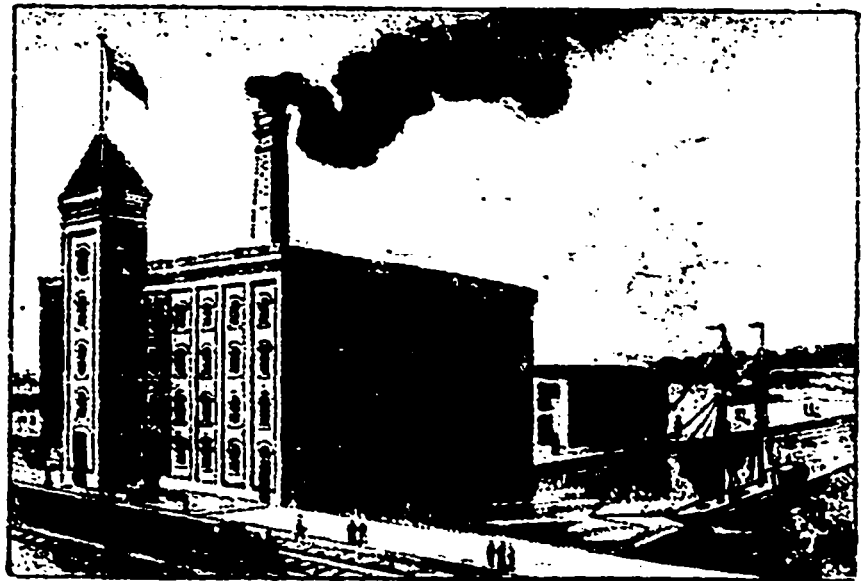
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CANADIAN PATENTS.

The following patents have been issued from the Canadian Patent Office from December 16 to December 31, 1892, inclusive.

Information in regard to any of these patents may be had free on application to THE CANADIAN MANUFACTURER, or copies of American patents corresponding to these, where the American patent has been previously granted, can be procured through us for the sum of twenty-five cents.

NOTE.—The new Canadian Patent Law has come into effect, whereby the life of Canadian patents is for the term of eighteen years. Patent numbered 39,264 and all subsequently numbered are granted for the longer term.

MECHANICAL.

- 41,264 Car coupling, O. Wells and F. A. Schumpert, December 16th.
- 41,265 Velocipede. The Gondron Mfg. Co., December 16th.
- 41,268 Corset, F. Rothschild jr., December 16th.
- 41,269 Fluid pressure brake mechanism, R. Batye, December 16th.
- 41,270 Pressing wood, P. Gassen, December 16th.
- 41,271 Steam engine, C. D. Mosher, December 16th.
- 41,272 Driving vehicles of any kind, F. Ruhs, December 16th.
- 41,274 Hose coupling, E. E. Gold, December 16th.
- 41,276 Distilling oil, A. Mason, December 16th.
- 41,277 Spring hinge, A. J. McCauley, December 16th.
- 41,278 Hand hay rake, S. Buschlen, December 16th.
- 41,279 Egg beater, masher, etc., U. D. Seltzer, December 16th.
- 41,280 Gas meter, J. B. Knickerbocker and E. Kirkpatrick, December 16th.
- 41,281 Collapsible ladder, A. Leo, December 16th.
- 41,282 Sad iron, J. E. Singer, December 16th.
- 41,282 Self-feeding ratchet brace, W. H. Heeson, December 16th.
- 41,284 Guard for railway track and switch, M. Riley, December 16th.
- 41,285 Air valve, P. La Force, December 16th.
- 41,286 Reel or holder for wool, thread or twine, J. Dennis and J. Hilton, December 16th.
- 41,287 Distributing liquid poison, M. J. Caswell, December 16th.
- 41,288 Ice cream freezer, D. C. Camp, December 16th.
- 41,289 Ink well cover, A. R. Sprague, December 16th.
- 41,290 Rotary engine for pumping, P. F. Oddie, December 17th.
- 41,292 Friction clutch operated by steam, A. W. Robinson, December 17th.
- 41,293 Inkstand, W. J. Sawyer, December 17th.
- 41,295 Organ, R. H. Jones, December 17th.
- 41,296 Pneumatic tyre, G. W. Rowo and W. G. Keys, December 17th.
- 41,297 Pneumatic tyre, W. R. Foster, December 17th.
- 41,298 Knitting machine, A. J. Gulick et al., December 17th.
- 41,299 Removing grease from textile fabrics, T. J. Nutchinson, December 17th.
- 41,305 Iron sand treatment, A. S. Minett, December 17th.
- 41,306 Railway frog, The Canada Switch Mfg. Co., December 17th.
- 41,309 Cultivating land, F. C. Darby and J. E. Stevenson, December 17th.

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PATENTS,

Patents obtained at lowest fees, compatible with first-class practice. (25 yrs.)

- 41,310 Sewing machine, E. Kuhler, December 17th.
- 41,311 Destructive distillation of mineral oil, J. Leung, December 17th.
- 41,312 Spark arrester, J. W. Ramsay, December 17th.
- 41,313 Checkrein holder, F. P. Thompson, December 17th.
- 41,314 Car coupling, J. W. Klingler, December 19th.
- 41,316 Band cutter and feeder, A. Wemple and G. W. Smith, December 19th.
- 41,317 Runner to wheel child's perambulator, C. Gladman, December 19th.
- 41,318 Baby walker, M. Hoyer, December 19th.

- 41,319 Hay press, L. Primeau, December 19th.
 41,320 Rod coupling, L. Buess and J. Cowling, December 19th.
 41,321 Nailless horse shoe, J. Benfield, December 19th.
 41,322 Car wheel, G. W. Cushing, December 19th.
 41,323 Portable heater, J. Graves, December 19th.
 41,324 Steam generator, R. Cauliffe, December 19th.
 41,325 Filler for cigars, M. Van Gulpen, December 19th.
 41,326 Propulsion of vessels, J. S. Morton, December 19th.
 41,327 Indented type impression upon paper, W. J. Howell, December 19th.
 41,328 Gill net puller, R. O. Neil and J. Coffey, December 19th.
 41,329 State room for sleeping cars, etc., C. L. Lockwood, December 20th.
 41,330 Portable stove, F. T. Schneider, December 20th.
 41,331 Vegetable boiling pan, W. Wyndham, December 20th.
 41,332 Gas burner, C. S. Dean and C. O. Rano, December 20th.
 41,333 Leather skiving, N. Dufresne and R. White, December 20th.
 41,334 Refrigerator and elevating cupboard, J. T. Westwood and D. H. Taylor, December 20th.
 41,335 Bridle bit, N. Stalker, December 20th.
 41,336 Horse attaching and detaching device, C. E. Harris, December 20th.
 41,337 Window seat, W. Engler, December 20th.
 41,338 Vehicle running gear, E. Stoin, December 20th.
 41,339 Wire stretcher, G. Chamberlain, December 20th.
 41,340 Logging boom section, R. G. Peters, December 20th.
 41,341 Sleigh, M. Desautelsdit Lapointe, December 20th.
 41,342 Hose coupling, The Consolidated Car Heating Co., December 20th.
 41,343 Braking mechanism for railroad cars, The Longbridge Brake & Car Co., December 20th.
 41,344 Car coupling, B. Mayer and W. H. Mitchell, December 20th.
 41,345 Trapping animals and birds, G. Andrews, December 21st.
 41,346 Lumber drier, L. C. Van Duzer, December 21st.
 41,347 Feed-water heater and purifier, V. H. McConnell, December 21st.
 41,348 Feed-water heater and purifier, V. H. McConnell, December 21st.
 41,349 Extension chamber, T. Overholt and M. Fretz, December 21st.
 41,350 Cess pool, Union Construction Co., December 21st.
 41,351 Hot air furnace and cooking stove, F. Moses, December 21st.
 41,352 Pneumatic tire for velocipede, The Cleveland Tire Co., December 21st.
 41,353 Pneumatic tire for velocipede, The Cleveland Tire Co., December 21st.
 41,354 Drying and burning bricks, H. J. Kinzel, December 21st.
 41,355 Forging horse shoe nails, Albany Horse Nail Co., December 21st.
 41,356 Furnace, J. S. Ecker et al, December 21st.
 41,357 Railway signal, J. W. Lattig et al, December 21st.
 41,365 Label holder, E. E. Smith, December 23rd.
 41,366 Deep well drilling apparatus, W. Webber, December 23rd.
 41,367 Dovetailing machine, C. E. Parks, December 23rd.
 41,368 Loom for weaving slat and wire fabrics, C. E. Parks, December 23rd.
 41,369 Hot blast stove, G. W. McClure, December 23rd.
 41,370 Temporary binder, H. W. Scattergood, December 23rd.
 41,371 Sled, G. B. Paquette, December 23rd.
 41,372 Shirt collar holder or stay, F. L. Robinson, December 23rd.
 41,373 Operating jerker wheel, J. McKee and R. Warwick, December 23rd.
 41,374 Toilet soap tablet, D. Richards, December 23rd.
 41,375 Horse shoe machine, J. E. Bucklin et al, December 24th.
 41,376 Treating leaf tobacco, C. A. Snyder, December 24th.
 41,377 Dress form, G. R. Sherman, December 24th.
 41,378 Fishing device, C. A. Kuenzel, December 24th.
 41,379 Machine for making nets, W. J. Hooper, December 24th.
 41,380 Carving machine, W. Loettler, December 24th.
 41,381 Collar button, D. O. Parks, December 24th.
 41,382 Regenerative hot-blast stove, G. W. McClure and C. Anisler, December 24th.
 41,383 Steam generator, W. J. Hanton, December 24th.
 41,384 Tool for threading bottle neck, T. F. McCoy, December 24th.
 41,385 Chicken brooder, E. Barney, December 24th.

BELTING Patent Rolled Shafting, Hangers and Pulleys

WRUGHT IRON PIPE and FITTINGS.

RICE LEWIS & SON, Ltd., General Hardware Merchants, Toronto.

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

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

Stop The Leaks!

You can save your valves.

You can Save the loss of Steam, and thereby Save Fuel.

You can avoid the Annoyance and Expense of Disconnecting the Valves from the Pipe by using the Morse Valve Resetting Machine.

Can you afford to be without one?

DARLING BROTHERS

RELIANCE WORKS

MONTREAL

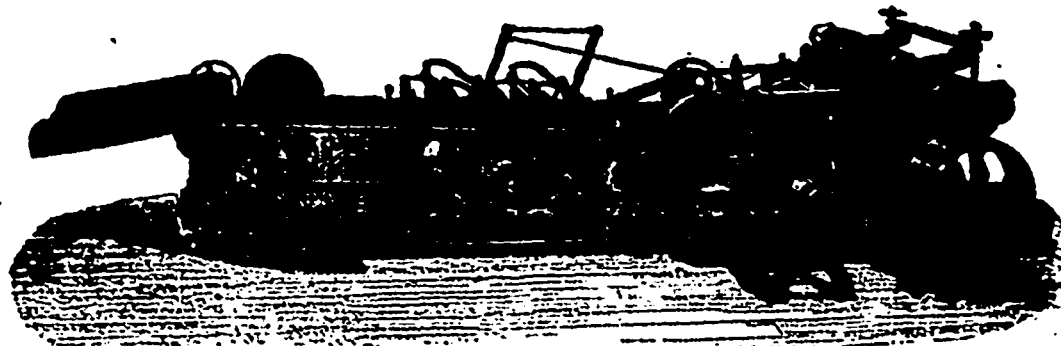
- 41,386 Watchmaker's tool, G. W. Cameron, December 28th.
 41,387 Paper feeding machine, R. Burnet, December 28th.
 41,388 Buckle, G. M. Aylsworth, December 28th.
 41,389 Stove pipe, W. A. Kemp, December 28th.
 41,390 Continuous kiln, W. Johnson, December 28th.
 41,391 Glass vessel, W. K. Elson, December 28th.
 41,392 Game counter, P. Hale, jr., December 28th.
 41,393 Folding hay rack, E. White, December 28th.
 41,394 Cleaning cistern, O. J. Searls et al, December 28th.
 41,395 Automatic air cock, O. Parent, December 28th.
 41,396 Sulky, S. Elliott, December 28th.
 41,397 Wire fence rail, O. Preston, December 28th.
 41,398 Adjustable seat for stools and chairs, G. J. Waldrogl, December 28th.
 41,399 Bearing of journals of railroad cars, C. E. Stanfield, December 28th.
 41,400 Crowning floor joist and apparatus therefor, J. Friedrich, December 29th.
 41,401 Stopper for bottles, jars and similar vessels, C. Kanisch, December 29th.
 41,403 Window ventilator, G. W. Greig, December 29th.
 41,404 Constructing gas stoves, T. Batty, December 29th.
 41,405 Wood-working machine, S. Hurtean, December 29th.
 41,406 Barrel or keg, J. J. Magee, December 29th.
 41,407 Bulletin board, A. J. Taplin, December 29th.
 41,408 Trousers shield, J. H. Prutzman, December 29th.
 41,409 Ice cream freezer, J. E. Neichouse, December 29th.
 41,410 Journal box, J. Z. Nyquist, December 29th.
 41,411 Saw handle, E. W. Miller, December 29th.
 41,412 Furnace for metallurgical operation, J. N. Lauth, December 29th.
 41,413 Delineating cotton seed, J. M. Gardner, December 29th.
 41,414 Stave sawing machine, W. Merrill, December 29th.
 41,415 Regulating or controlling the passage of the heated gases in the tubes of locomotives or other steam boilers, J. F. T. Schwabb, called Van Hecke, December 29th.
 41,416 Revolving fortifications for coast defence, A. D. Huff et al, December 29th.
 41,417 Mechanical movement, J. Morningstar and J. W. Wurzel, December 29th.
 41,418 Cut-off for pipes, W. A. Smith, December 29th.
 41,419 Umbrella frame, D. Pike, December 29th.
 41,420 Silicate compound, M. W. Beylikgy, December 29th.
 41,421 Valve for reciprocating engine, H. C. Sergeant, December 30th.
 41,422 Bath tub, G. Booth, December 30th.
 41,423 Lock, F. P. Cobham and F. E. Windsor, December 30th.
 41,425 Boiler tube cleaner, J. M. Drum, December 30th.
 41,426 Means for distinguishing vessels in fogs, W. Nelson, December 30th.
 41,427 Belting of paper, A. L. Lounorberg, December 30th.
 41,428 Preservation of wood and iron embedded in the earth, R. A. Chesebrough, December 30th.
 41,429 Combined hot air pipe and air flue, E. A. Eversman and D. Wagner, December 30th.
 41,430 Railway car heating apparatus, Consolidated Car Heating Co., December 30th.
 41,431 Waggon spring, J. A. Smale, December 30th.
 41,432 Elastic tire, The Gendron Mfg. Co., December 30th.
 41,433 Recording compass, The Townsend Marine Inventive Co. December 30th.
 41,434 Polishing machine, H. Trost, December 30th.
 41,436 Type composing machine, J. Gustafson, December 30th.
 41,437 Wrench, D. R. Porter and F. M. Bardwell, December 30th.
 41,439 Type writing machine, H. E. Harnberger, December 30th.
 41,440 Corn popper, A. B. Olson, December 30th.
 41,441 Letter and bill file, C. H. Ahrens and W. O. Gottwalls, December 31st.
- ELECTRICAL.
- 41,266 Current director, The Consolidated Car Heating Co, December 16th.
 41,267 Current regulator, The Consolidated Car Heating Co., December 16th.
 41,291 Electric lamp holder, J. J. Wood, December 17th.
 41,294 Electric motor, C. J. Van Depoche, December 17th.
 41,299 Electrical distribution system, C. G. Young and F. Harris, December 17th.
 41,301 Electric arc lamp, J. J. Wood, December 17th.
 41,302 Electric arc lamp, J. J. Wood, December 17th.
 41,303 Regulator for dynamo electric machine, J. J. Wood, December 17th.
 41,304 Phonograph, T. A. Edison, December 17th.
 41,307 Plates for use in secondary batteries, Foreign and Colonial Arc Accumulator Co., December 17th.
 41,308 Incandescent electric lamp, C. Fauthonier, December 17th.
 41,315 Insulator pin, F. M. Locke, December 19th.
 41,424 Electric elevated railway, National Unicycle Elevated Railway Co., December 30th.
 41,435 Armature for dynamo or electric motor, B. D. Southard, December 30th.
 41,438 Electrically reproducing uneven, irregular or undulating surfaces, N. S. Amstutz, December 30th.

IMPROVED WOOL WASHER

BUILT BY
C. G. Sargent's Sons

Granitoville, Mass.,
 U.S.A.

Builders of Wool Washers,
 Surr Pickers, Wool
 Dryers, etc.



The above represents our New Hydraulic Wool Washer, superior to Rake Machine. Send for Illustrated Catalogue.

SCIENTIFIC PROCESSES.

- 41,273 Purifying liquids, S. H. Millikin, December 16th.
 41,275 Distilling liquid hydro carbon, P. Dvorkovitz, December 16th.
 41,358 Systematically separating impure sugar masses into pure white sugar and molasses, Hon. G. A. Drummond, December 22nd.
 41,359 Systematically working up sugar juices into grain sugar, Hon. G. A. Drummond, December 22nd.
 41,360 Combined systematic washing and boiling process for sugar juices for obtaining grain sugar, Hon. G. A. Drummond, December 22nd.
 41,361 Obtaining pure white sugar by lixiviation, Hon. G. A. Drummond, December 22nd.
 41,362 Systematically separating raw sugar or other impure sugar molasses into white sugar and molasses by means of lixiviation, so that the resulting molasses does not contain any crystallizable sugar, Hon. G. A. Drummond, December 22nd.
 41,363 Purifying saccharine solutions, Hon. G. A. Drummond, December 22nd.
 41,364 Cleaning and washing raw sugar, Hon. G. A. Drummond, December 22nd.
 41,402 Extraction of gold and silver from ores or compounds containing the same, H. Parkes and J. C. Montgomerie, December 29th.

MESSRS. BURNLEY BROS., proprietors of the Brantford Steam Laundry, Brantford, Ont., finding their present premises inadequate for their increasing business, have purchased a large three story building, and are placing in it a 60 horse-power boiler, engine, and a new equipment of latest improved machinery. The Canada Machinery & Supply Co., of Brantford, have the contract of supplying and placing same.

Captains of Industry.

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

THE GERRARD MICA MINES, near Ottawa, are installing electric light plants in both their mines.

MESSRS. CHAS. BOECKH & SON, Toronto, are increasing the capacity of their brush factory.

THE WILLIAMS, GREEN & ROME CO., of Berlin, are preparing to put in a 75-horse-power Wheelock engine.

THE CROMPTON CORSET COMPANY, Toronto, have installed an electric motor and dynamo in their factory.

MR. ALEXANDER WILLIS, Woodstock, N.B., is interested in a new woolen mill about being started at that place.

THE LELAND HOUSE, Winnipeg, Man., are putting in an electric light plant, bought from A. R. Williams, Toronto.

MESSRS. FERGUSON & PATTERSON, Preston, Ont., are inviting estimates for an electric plant for their woolen mills.

MR. S. PATTERSON, Toronto, manufacturer cider presses and machinery, has added a heavy engine lathe to his plant.

THE TAUNERY of Mr. J. H. CARON, at Maskinonge, Que., near Three Rivers, was destroyed by fire January 7th, loss about \$4,000.

MR. THOMAS McCLOY, of Woodstock, has placed his order for a 90-horse-power Wheelock engine with the Goldie & McCulloch Co.

THE

"OPTIMATES" POWER HAMMER

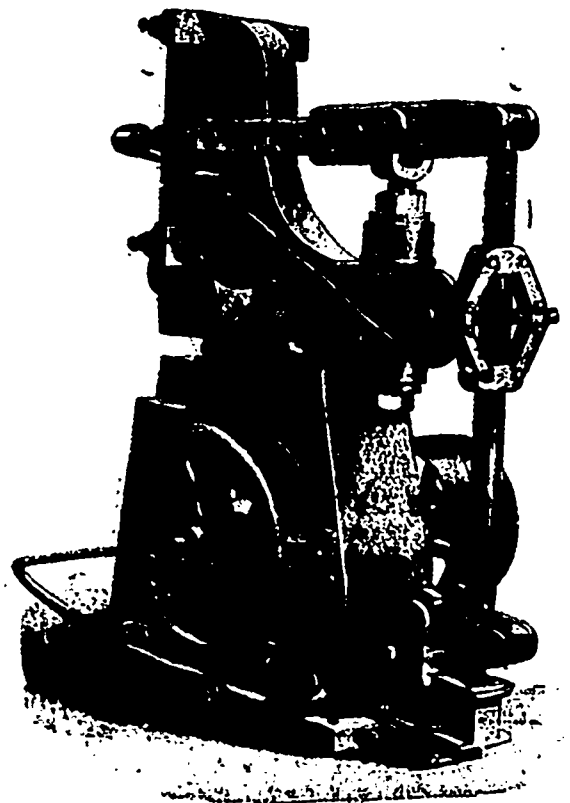
Patented in the United States, Canada, and England.

W. H. LAW,
Inventor.

MANUFACTURED BY

The Central Bridge and Engineering Co., Ltd.

PETERBOROUGH, ONTARIO, CAN.



MESSRS. J. Y. SHANTZ & Co, Berlin, Ont., are putting in a Sturtevant heater and dryer procured from A. R. Williams, Toronto.

The Leland House, Winnipeg, is to be lighted by electricity. The Kay Electric Works, Hamilton, are putting in dynamos for 300 lights.

MESSRS. WEIZE & GUIRE, New Westminster, B. C., are enlarging their oat-meal mill, the machinery for which was supplied by A. R. Williams, Toronto.

MESSRS. BUNTS, GILLES & Co, Hamilton, Ont., are operating their elevator with an electric motor supplied by the Kay Electric Works of that city.

The Canadian Canoe Company, Peterborough, Ont., are applying incorporation with a capital stock of \$5,000, to build canoes, skiffs, sail-boats, etc.

MR. W. M. WILSON, Creemore, Ont., will light that village by electricity. The Kay Electric Works, Hamilton, are installing a 300 light plant for him.

MESSRS. GILLARD & Co, wholesale grocers, Hamilton, Ont., are using an electric motor supplied by the Kay Electric Works, of that city, for mixing their teas, etc.

The Canada Machinery & Supply Company, Brantford, Ont., are shipping a lath-making equipment to Hermenegildo Arseneau, Grand Digue, New Brunswick.

MR. W. B. McCulloch, of Brampton, Ont., has purchased the machinery for a small planing mill from the Canada Machinery & Supply Company, of Brantford.

The Gurney Scale Company, Hamilton, Ont., have just erected a 50-ton weigh scale for the works of the Canadian General Electric Company at Peterborough, Ont.

MESSRS. STIRLING BROS., boot and shoe manufacturers, London, Ont., are running their factory by electricity. The Kay Electric Company, Hamilton, supplied the motor.

The Gould, Shapley & Muir Company, of Brantford, Ont., has been incorporated with a capital stock of \$100,000, to manufacture refrigerators, fanning-mills, hay-forks, etc.

MESSRS. RITCHIE & RAUSAY, New Toronto, have just received and placed in their works a five roll super callender machine, which completes their plant for coating papers.

The Abell Engine Works, Toronto, are supplying the engine, boilers, and all machinery for the new 100-barrel flour mill now being built at Oxbow, N.W.T., by the Oxbow Milling Company.

The Canadian Office & School Furniture Company, Preston, Ont., have purchased from the Royal Electric Company, Montreal, a 125 light dynamo, and are installing seventy-five lights in their factory.

The Oxbow Milling Company, Oxbow, N.W.T., have contracted, we are informed, for all the coal they may require as fuel at their new flour mill at that place at \$2 per ton, delivered at mill.

The Waterloo Wood Manufacturing Company, Waterloo, Que., are erecting a new factory 140 x 60 feet, two stories high, for the manufacture of woollen goods for the South American trade.

The Niagara River Electric Railway Co. have placed their order with the Goldie & McCulloch Co. for two condensing Wheelock engines of 150-horse-power each, and steel boilers with all connections.

MESSRS. WHALEY & ROWE, Toronto, have just installed an electric light plant motor and dynamo, supplied by the Kay Electric Works. They get their power from the Toronto Electric Light Company.

The E. B. Eddy Mfg. Co., Hull, Que., have placed their order with the Goldie & McCulloch Co. for a Cross compound condensing Wheelock engine of 200-horse-power for their new paper mill at Hull.

JAMES MURRAY & Co, printers, Toronto will run their printing establishment by electricity. The Kay Electric Light Works,

HIGH GRADE WRAPPING PAPERS

Manilla and Brown Wrapping and English Glazed Casing carried in stock and made to order. Quality unexcelled. Prices right.

Special attention to letter orders.

CANADA PAPER CO., (Ltd.), 15 Front St. West, Toronto.
CRAIG STREET, MONTREAL.

A. LEFRED,

Graduate of Laval and McGill : Mining Engineer

Main Office: QUEBEC. BRANCH OFFICE: Sherbrooke Montreal, 17 Place d'Armes Hill.

MINES, MINERAL PRODUCTS.

New Glasgow. I. MATHESON & CO. Nova Scotia.

Engineers and Boiler Makers

MANUFACTURERS OF

Corliss Steam Engines

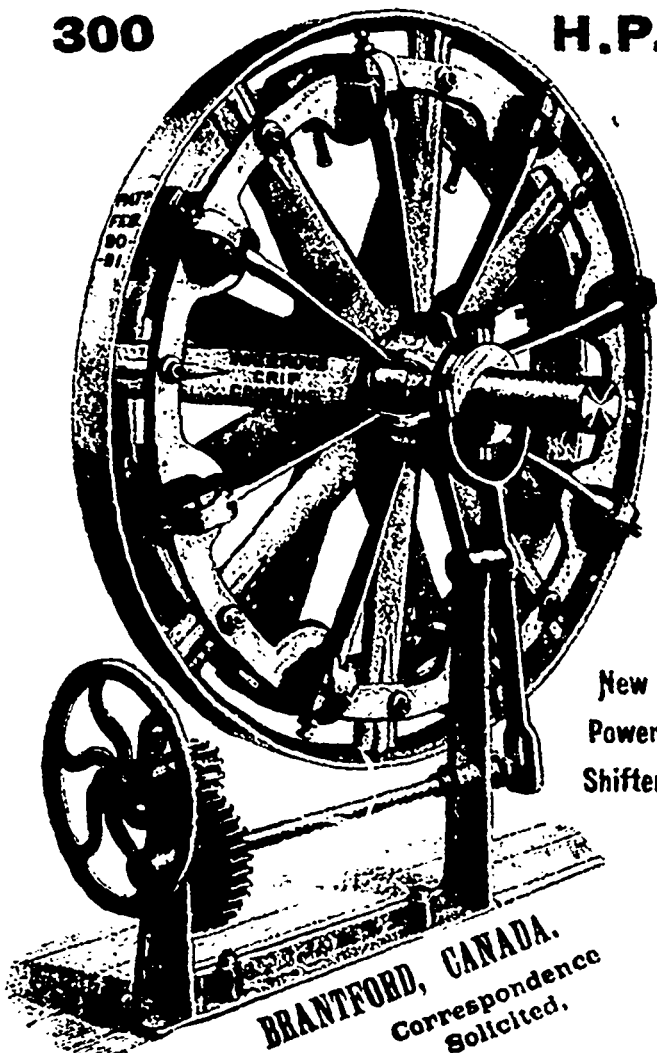
Especially adapted for Mills and Factories.

Agents for

D. H. and C. Maggie's Patent Wire Rope for Mining Purposes

300

H.P.



New Power Shifter

BRANTFORD, CANADA.
Correspondence Solicited.

Hamilton, will supply them with five 3 horse-power and two 4 horse-power motors.

The Edgar Manufacturing Co. Hamilton, Ont., have begun the manufacture of Staple's patent spring support for chairs, etc. This is a branch of Messrs. Staples & Post, Newburgh, N.Y.—more fruit from the N. P. tree.

The Chaudiere Electric Light and Power Company, Ottawa, are applying for permission to increase their capital stock to \$1,000,000, to enable them to enlarge and extend the business for which the company was incorporated.

Mr. A. CAMPBELL, of Toronto Junction, has placed an order for a cross compound condensing Wheelock engine of 200-horse power with two steel boilers and all connections, also a small engine to run his elevator, with the Goldie & McCulloch Co., of Galt.

Messrs. DARLING BROS., proprietors of the Reliance Works, Montreal, are getting out a new catalogue having reference to their business, which they expect to be able to send to their friends in a few days, and which will be more fully noticed in these pages when it appears.

The firm of C. Sellers & Co, Toronto, have dissolved partnership, Wm. Pullan having bought out the interest of his partner, Mr. C. Sellers. The manufacture of hot-water boilers, radiators, soil pipe and fittings, etc., will be carried on by Mr. Wm. Pullan under his own name.

The Canada Machinery & Supply Company, of Brantford, are placing a large 42 inch new style resaw in Messrs. Dickson & Sness' planing mill, at Port Colborne, Ont., also a double boring machine and power feed Dowell machine in E. J. Ellsworth's furniture factory, at Port Colborne.

The Beaver File Works Company, Levis, Que., under the management of Mr. E. Samson, have just installed an electric plant in

their works, the dynamos, wiring, lamps, etc., having been supplied by and placed by Messrs. J. L. O. Vidal & Sons, expert electricians and mechanics, of the city of Quebec.

The Canada Screw Co., Hamilton, are putting in a 400-horse-power cross compound Wheelock engine, and the Northey Mfg. Co., of Toronto, are putting a 50-horse-power Wheelock engine and 75-horse-power steel boiler of Goldie & McCulloch Co.'s make in their new factory, near the King Street subway.

Messrs. NIE & LYNCH, engineers and machinists, Hamilton, Ont., have just shipped a 35 horse-power Armington-Simms engine to Winnipeg, which will be used for electric light purposes. They are also building a 20 horse-power engine of same make for the Bank of Hamilton, which will drive the dynamo in their new building.

The Haworth Belting Company, Toronto, have just issued their 1893 Souvenir, which has reference to the belting manufactured by them. It contains a price list, much useful information regarding belts, and extracts from letters from parties who have been using Haworth's belts for many years, testifying to their excellence.

The Bain Waggon Manufacturing Company, of Brantford, Ont., having purchased the entire premises lately occupied by Messrs. A. Harris, Son & Co., are increasing their facilities by putting in another large boiler and several machines, the contract of supplying and placing which has been placed with the Canada Machinery & Supply Company, of Brantford.

Mr. A. W. SPOONER, maker of copperine, Port Hope, Ont., informs us that he has been admitted as a partner in the firm of Samuel Rogers & Co., proprietors of the Queen City Oil Company, of Toronto, and will be an active member of that concern. Mr. Spooner's copperine business will be continued as usual at Port Hope, under the management of Mr. Samuel Bennett.

When were
YOUR
Boilers
LAST
Inspected ?

JOHN L. BLAIKIE ESQ. PRES. E. W. RATHBUN ESQ. VICE PRES.

BOILER INSPECTION & INSURANCE CO. OF CANADA



CONSULTING ENGINEERS
G. C. ROBB CHIEF ENGINEER A. FRASER SEC. TRES. HEAD OFFICE TORONTO

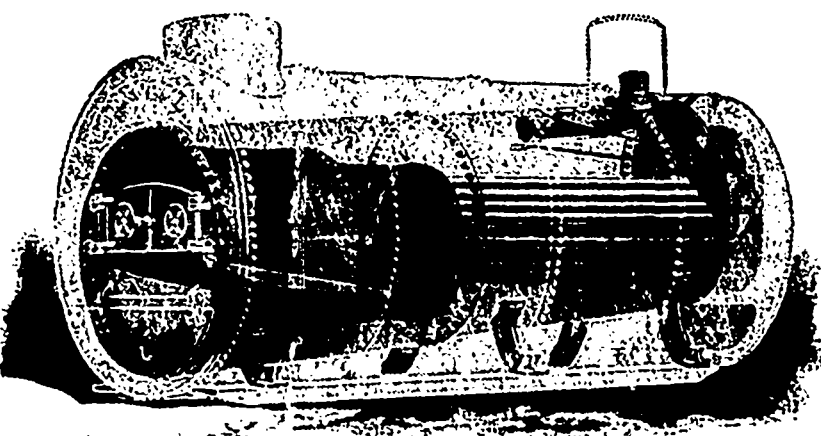
Are you sure
THEY ARE
SAFE
AND IN
GOOD
Condition ?

THE MONARCH ECONOMIC BOILER

Patented Can. May 6, 1886;
Feb. 10, 1887.
Patented U.S.A. Oct. 5, 1886;
Aug. 23, 1887; May 8, 1888.

Is the strongest and most
Portable Boiler
in use, and its high economy
in fuel makes it especially valu-
able to gold miners.

Tested evaporation 10.25 lbs.
water per pound of ordlin-
ary Nova Scotia coal.



Manufacturers of
**The Robb-Armstrong
Automatic Engine,**
The Hercules Engine,
(For all purposes).
Saw Mill, Electric Machinery
BELTINGS,
PACKINGS, OILS, Etc.
Robb Engineering Co.
LIMITED,
Successors
A. ROBB & SONS
AMHERST, N.S.

The Goldie & McCulloch Co. inform us they are building several new and improved feed water heaters to order. These heaters are to fill a long-felt want of a really first-class heater to purify the water before going into the boilers. This heater also extracts the oil from exhaust steam, and effects a great saving in fuel and boiler repairs caused by lime forming on the inside of boiler and tubes.

Messrs. JOHN M. FRENCH & Co., Toronto, manufacturers of paints, colors, etc., whose premises on Pearl Street were recently destroyed by fire, have taken the stores at 1 and 3 Jarvis Street, where they are erecting machinery which will enable them to increase their output about 300 per cent. They make a specialty of supplying the wants of manufacturers of agricultural implements and furniture.

Messrs. RITCHIE & RAMSAY, New Toronto, manufacturers of coated papers and cardboards, have got their new factory in satisfactory operation. Included in their products are porcelain surface book, coated book and litho-label papers, chromo, enamel and art papers, tinted and duplex half-tone papers, surface and gummed papers, chromo, litho, and callender board, tinted and duplex translucent Bristol tinted folding box boards, fine and super paste-boards, etc.

ATTENTION is called to "The Shipping Manufacturers' List," reference to which is made in our advertising pages. The intention of the publishers is, we understand, to give a classified list of all the different products made by Canadian manufacturers. It will be a ready reference book in which the goods are classified alphabetically, giving the names of the manufacturers, and there will also be a classified list of towns in which these manufacturers do business.

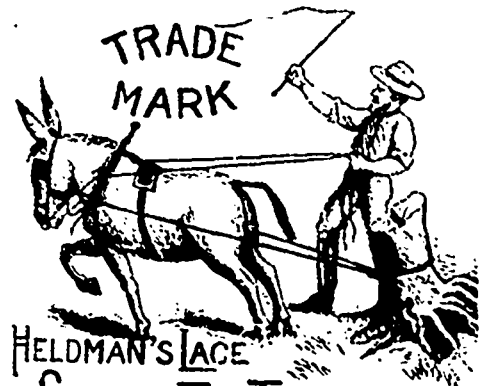
The Dominion Cotton Mills Company, who are owners of about all the cotton mills in Canada, and for which Messrs. D. Morice, Sons & Co., Montreal and Toronto, are agents, call attention in our advertising pages to the Magog prints and spring novelties manufactured by them, including Fazzetta twills, Japonica stripes, West End coris, Teazle cloth, summer suitings, Salisbury costumes, Verona cords, and also a full range in staple and fancy prints, sleeve linings, etc.

The Thermolytic Fuel Company, Napanee, Ont., (Philadelphia and London) state that their Cornell-Goode device for attachment to steam boiler furnaces for developing power and economizing fuel, is meeting with good success. Among others in Canada equipped with it are: plants at the Rathbun Company, Deseronto, The Napanee Mill Cement Works, The Napanee Paper Company, (both mills at Newburgh and Napanee Mills) and The Gutta Percha and Rubber Mfg. Co. of Toronto.

Messrs. J. L. O. VIVAT & Sons, city of Quebec, manufacturers of and dealers in electrical appliances, steam and other machinery, etc., have just equipped their works with an electric plant from which they derive both light and power; supplying light not only for themselves, but to many neighboring places. The expense for operating the whole system, including the heating of their premises by steam, is, they inform us, but a trifle more than that of heating under their previous system.

We recently announced the destruction by fire of Mr. R. B. Elgie's box factory in this city. Mr. Elgie has purchased the premises 17 to 23 Alice Street, where his box factory, planing mill

Established 1880.



TRADE MARK

HELDMAN'S LACE STANDS THE TEST.

IF YOU WANT A LACE LEATHER

Write to Heldman Bros., BADEN, ONT.

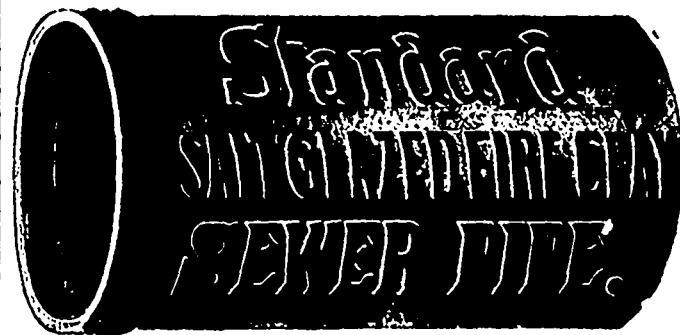
POROUS TERRA COTTA FIREPROOFING

See it in use in new Bank of Commerce Building, Toronto; new Royal Insurance Company Building, Montreal; Imperial Fire Insurance Company Building, Montreal; St. Lawrence Sugar Refinery, Montreal.
The finest thing for suburban cottages. Excludes heat and cold; is cheap and durable.

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

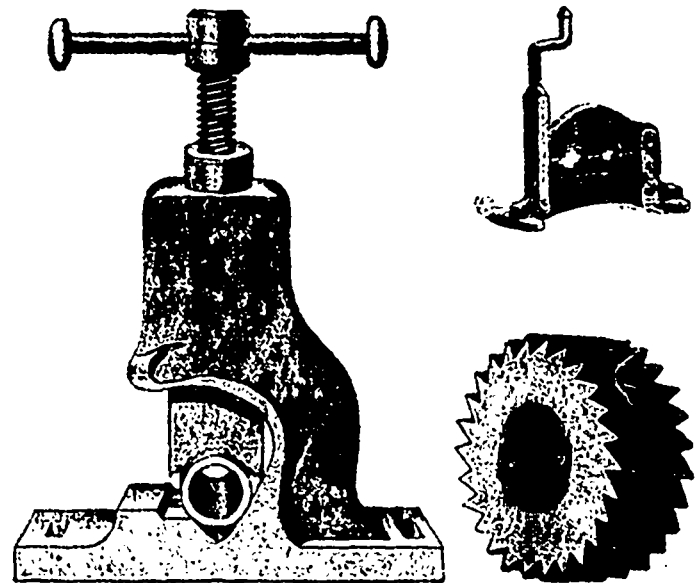
ADDRESS

The Rathbun Company
DESERONTO, ONT.



The Standard Drain Pipe Co., St. Johns, P.Q.

Manufacturers of Salt Glazed Vitrified Sewer Pipes, Double Strength Railway Culvert Pipes, Inverts, Vents and all kinds of Fire Clay Goods. The Standard Drain Pipe Co. of St. Johns, P.Q., Ltd. W. C. THORNTON, Pres.



BUTTERFIELD & CO.,
Rock Island, P.Q.

MANUFACTURE PIPE VISES. CUTTERS, TONGS, WRENCHES. All Styles GUMMER CUTTERS.

Stocks and Dies, Taps, Drills, Reamers, Etc.

SEND FOR ILLUSTRATED CATALOGUE.

and moulding mill are now in active operation. He makes a speciality of manufacturing packing cases for the wholesale trade and for manufacturers. His new works are fully equipped with new and improved machinery, including a machine for printing business addresses, etc., on packing boxes.

Messrs. LERREN & TURNBULL, elevator builders, Hamilton, Ont., are very busy. Some of the elevators built this last month and now being delivered, are: hydraulic passenger elevator for Thos. C. Watkins, Hamilton; two steam elevators for Canadian Coloured Cotton Mills, Hamilton; one for T. T. Coleman, Seaforth; an electric elevator to James Robertson, Winnipeg, Man., and a hydraulic elevator to James Robertson, Toronto; also passenger elevator for the Hotel Dieu, Kingston, Ont.

BRANTFORD manufacturers are greatly interested in the development of the water power at the old canal locks at that place, by the Brantford Electric Light & Power Company, which is estimated at 2,000 horse-power. The Canada Machinery & Supply Company of Brantford, are placing a motor in Mr. J. Fuller's foundry in that town, and if a steady power is found to be maintained, it is thought that the manufacturers will utilize the whole power in the production of electricity, using it for driving their machinery.

THE Toronto Railway Company are applying for authority to extend their railway lines outside the limits of the city; to manufacture electricity for all commercial purposes anywhere in York county; to manufacture for sale all sorts of electrical apparatus, and to erect such plant and machinery as may be necessary to engage in this business. If this authority is granted and the company enter into the scheme as here indicated, it is probable that the proposed works would be among the largest and most important in Canada.

Messrs. JOHN BERTRAM & SONS, Dundas, Ont., commence the current year's business with orders for nineteen machines' tools. Seven of these are of large capacity, consisting of five lathes, radial drills and punches, weighing 25, 23, 19, 17, 12, 10 and 8 tons respectively. The largest lathe takes thirty-four feet between centres and swings sixty inches, and is for turning steamboat crank shafts and heavy forgings. All the other tools are of standard sizes, con-

sisting of lathes, planers, slotters, shapers and drills. Some of these machines are the largest of their kind in use in Canada.

Messrs. ROBIN & SADLER, Montreal, manufacturers of leather belting, lace leather, loom strapping, fire engine hose, and cotton and woolen mill supplies, have sent us a novelty in the way of a price list which the recipient couldn't lose if he desired to do so, and wouldn't lose on any account. It is a white celluloid tablet 3 1/2 x 2 inches - just the correct thing to carry in your pocket book if you have one, the obverse side containing, printed in gold letters, the price list of belting of different descriptions, the other side to be used as a memoranda where one may keep in mind just what is wanted in that line.

THE Lloyd Manufacturing Company, Kentville, N.S., manufacturers of steam engines, sawmill machinery, etc., are building a rotary mill to go to New Brunswick, the fourth of the sort within two months. They are also building a similar mill, of their largest size, and supplied with the latest improvements, to be also sent to New Brunswick in March. Besides machinery now being built to go to Shelburne and Lunenburg, N.S., and to Prince Edward Island, a large shipment is about being made to Vancouver, B.C. The Lloyd Company have been in existence only about three years, and is a remarkably healthy infant industry.

THE Parkin Lumber Company, Lindsay, Ont., having frequently been burned out, losing heavily thereby, are now building a perfectly fire-proof shingle mill, all brick and iron, no timber whatever being used in constructing the building or machinery. There will be four shingle machines, having capacity to cut from 120,000 to 150,000 shingles per day. Messrs. Parkin intend to have this a model mill in all respects, and with this object in view, have given their orders to Mr. F. J. Drake, of Belleville, Ont., to furnish the complete outfit. Mr. Drake is getting up several entirely new machines for this mill, specially designed for doing the most perfect work, and for saving labor. This will be one of the best and finest shingle mills of its size in Canada.

THE Dominion Dyewood & Chemical Company, Toronto, have sent us an exceedingly beautiful and useful office desk calendar, quite different from any other of the many which has reached this office. There are fifty-two pages, each page containing the neces-

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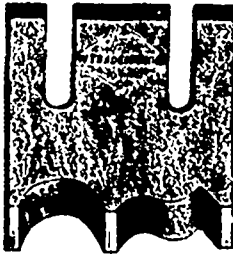
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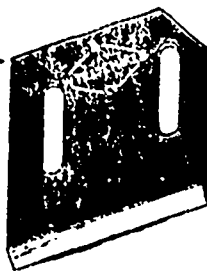
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ary data for the successive weeks, including convenient blank spaces for memoranda. At the bottom of each page is a quotation from the poets, the first on the list being that from Byron, "On with the dance; let joy be unconfined." The rare and roscate colourings of these quotations prove, of course, the excellence of the dyestuffs handled by the company, and also that neither alkalis nor acids, such as they deal in, are acrid enough to destroy or even to disturb the poetic enthusiasm of such a frisky young man as John Taylor.

The B. Greening Wire Company, Hamilton, Ont., have sent us a large and exceedingly useful office calendar, very unique in the method adopted in it of advertising the company's business. In addition to the usual matter having reference to the days of the week, month and year, the balance of the space is utilized in displays of pictures having reference to the company's offices and works, and to certain of their products. And there are also tables giving size, weight and strength of wire rope, transmission of power by wire rope, etc. This company have not issued a new general catalogue since that of January 1890—three years ago—as no very important changes have been made since then; but they have in press a new catalogue having reference to the chain made by them, which will be sent out at an early day.

The Canada Machinery & Supply Co., Brantford, Ont., have recently supplied or contracted to supply machinery, etc., as follows: to Mr. J. Maddaugh, Morriston, Ont., an outfit for a shingle mill; to Messrs. George Nubergall & Co. Godorich and Staples, Ont., an outfit for a mill for making heading; to the Port Elgin Brush Company, Port Elgin, Ont., considerable new machinery for increasing their plant and capacity; a complete outfit for saw and planing mills for Mr. W. Jack, Decowville, Ont., to replace that recently destroyed by fire (the Waterous Engine Works Company are assisting in producing this outfit); to Mr. Neil McIntyre, Glanville, Ont., a large planing and matching machine; to the newly organized St. Catharines Box & Basket Company, St. Catharines, Ont., a full outfit, including boiler, engine, machinery, etc., to Mr. R. E. Bowman, Springvale, Ont., a saw and planing mill outfit, which has just been put in operation, and to Mr. J. Persall, Oakland, Ont., an outfit for saw mill.

The Graham Nail Works, Toronto, recently removed from Pearl Street to King Street West, near the subway, are in active operation and working full time with a full force of hands. This is one of the results of our National Policy. Some four years ago Mr. T. D. Graham, the proprietor, began business in Pearl Street with an outfit for making small nails only. He gave his business his personal attention, and the excellent quality of nails he made soon created a demand for them which required a much larger plant, and the present works is the outcome of that demand. The new works occupy the commodious premises formerly occupied by the Toronto Bridge Company, 1015 to 1053 King Street. There are

two railway switches entering the premises, connecting with both the Grand Trunk and Canadian Pacific railways, affording the very best facilities for receiving fuel and materials, and for shipping goods, the works being steam heated throughout. At present there are twenty-eight nail machines in operation, of capacity to make full lines of all sizes of cut nails and spikes, besides shears, etc. The capacity of these works is to produce considerably more than 1,000 kegs of nails per week, and employment is given to about fifty hands.

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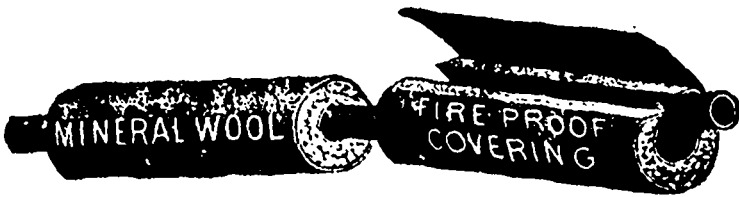
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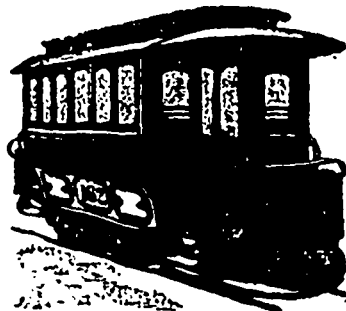
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The accompanying illustrations are of Bristol's recording pressure gauge. Fig. 1 represents the instrument ready for application.

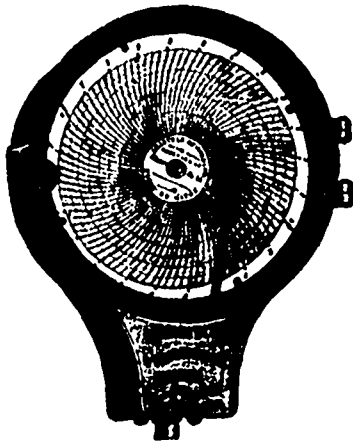


FIG. 1.

In the gauge now exhibited, the disadvantage of using multiplying devices is entirely obviated by simply securing a flexible strip *B*, Fig. 2, along the edges of the diaphragm tube, as it might be called. The effect of applying the flexible strip is two-fold: first, it stiffens the diaphragm tube as a whole; and second, it performs the most important function of resisting the tendency of the pressure to elongate it, which naturally results in producing a greatly multiplied lateral motion.

As in the sinuous tube, the motion thus produced by variation of pressure is ample for directly indicating or recording in connection with a moving chart. By the use of a large number of diaphragms, as shown, it is evident that the change of form of each individual member is very slight for complete range of pressure. It follows that none of the diaphragms will be strained to their elastic limit, and all danger of the gauge taking a permanent set will be avoided. In the application of the diaphragm tube to a recording gauge it is mounted on a back as shown in Fig. 2.

A recording pen is attached directly to the end of the diaphragm tube, and a clock is provided as shown, timed to revolve a dial, in the plane of movement of the pen, once in twenty-four hours.

In Fig. 1 the gauge is shown

Fig. 2 shows the pressure tube with inking pointer attached, the front of case, dial and clock cover being removed. Fig. 3 is a series of corrugated diaphragms placed in cross section. These diaphragms are arranged in pairs and joined, as shown, with a continuous opening through the line of centres of the different pairs, thus permitting the pressure to exert itself simultaneously on the interior of every pair, the effect of variations being to produce an elongation of the whole. This arrangement of diaphragms is employed in the construction of certain self-registering barometers, the small motion of the diaphragms being made available by a train of multiplying mecha-

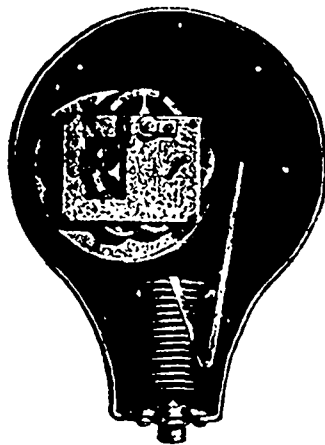


FIG. 2.

complete, with chart, ready for application. The small graduations on the chart indicate tenths of inches head of water.

This form of tube is not limited to recording gauges for light pressures only, as it could be equally well adapted for all ranges if the diaphragms are properly proportioned as to size and thickness of metal.

There are other practical applications of this form of tube, if constructed on a large scale, as considerable motion and power could be developed; sufficient to operate directly, without intervening mechanism, regulators, dampers, valves and especially that class of automatic devices in which pressure is the initial motive power.

The operation of the instrument is as follows: Pressure entering the sinuous tube *A*, Fig. 3, tends to elongate it. This tendency is resisted by the flexible strip *B*, which is joined to the bends of the tube *A*, thereby converting the tendency to elongate into a multiplied lateral motion. The inking pointer is attached directly to the end of the pressure tube, and records the fluctuations of pressure upon a uniformly revolving chart. The chart makes one revolution every twenty-four hours, and is marked off with radial arcs and concentric circles. The divisions on the radial arcs correspond to differences in pressure, while those on the concentric circles correspond to the hours of the day. The instrument may be placed in the office or engine room, at any desired distance from boiler or vessel of which the pressure is to be recorded. If required, gauges are furnished with electric alarm for high or low pressure. It makes a continuous record, day and night, of steam, water, gas or air pressure, and is adapted to all ranges of pressure from four inches head of water to 1,500 pounds per square inch.

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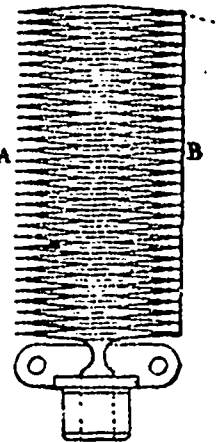


FIG. 3.

Mr. W. H. Frost, proprietor of the Smith's Falls Malleable Iron Works, Smith's Falls, Ont., is sending out a circular to the trade in which he alludes to the fact that having found his capacity of production quite inadequate to fill orders promptly, and in order to meet this demand and give satisfaction to his many customers, he has erected a new moulding shop 250 x 58 feet, which will give him a capacity of 2,000 tons. He has also added another furnace of six tons output per day, and has remodelled his works in a manner which brings them up to a first-class standard. Mr. M. D. Greenwood, late superintendent of the Hoosick Falls Malleable Iron Co., Hoosick Falls, N.Y., one of the largest works of the kind in the United States, has charge of the manufacture of malleable castings. Instead of carrying forty tons of carriage hardware as formerly, the stock carried is 100 tons, so that orders can be filled at once from stock.

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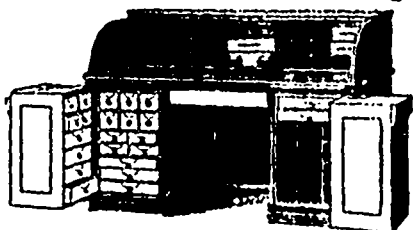
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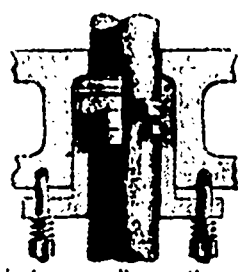
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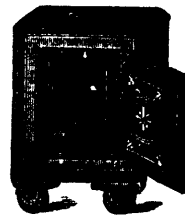
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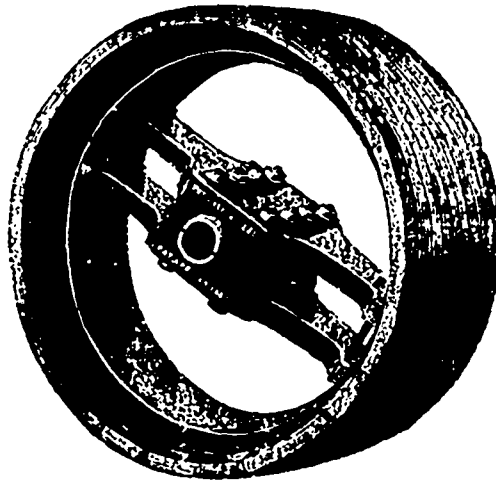
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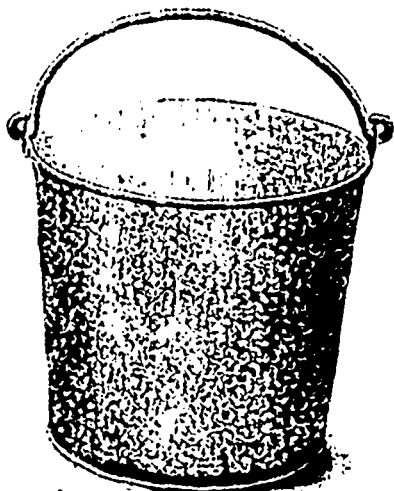
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Constructed to prevent Seals or Gaskets of Dirt being Caught between faces at point of closing.

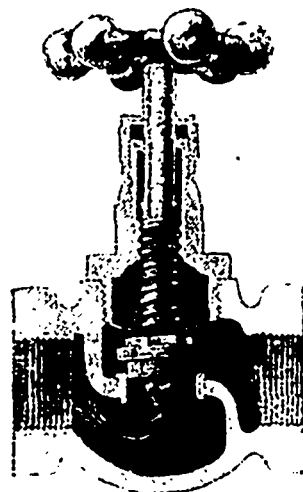
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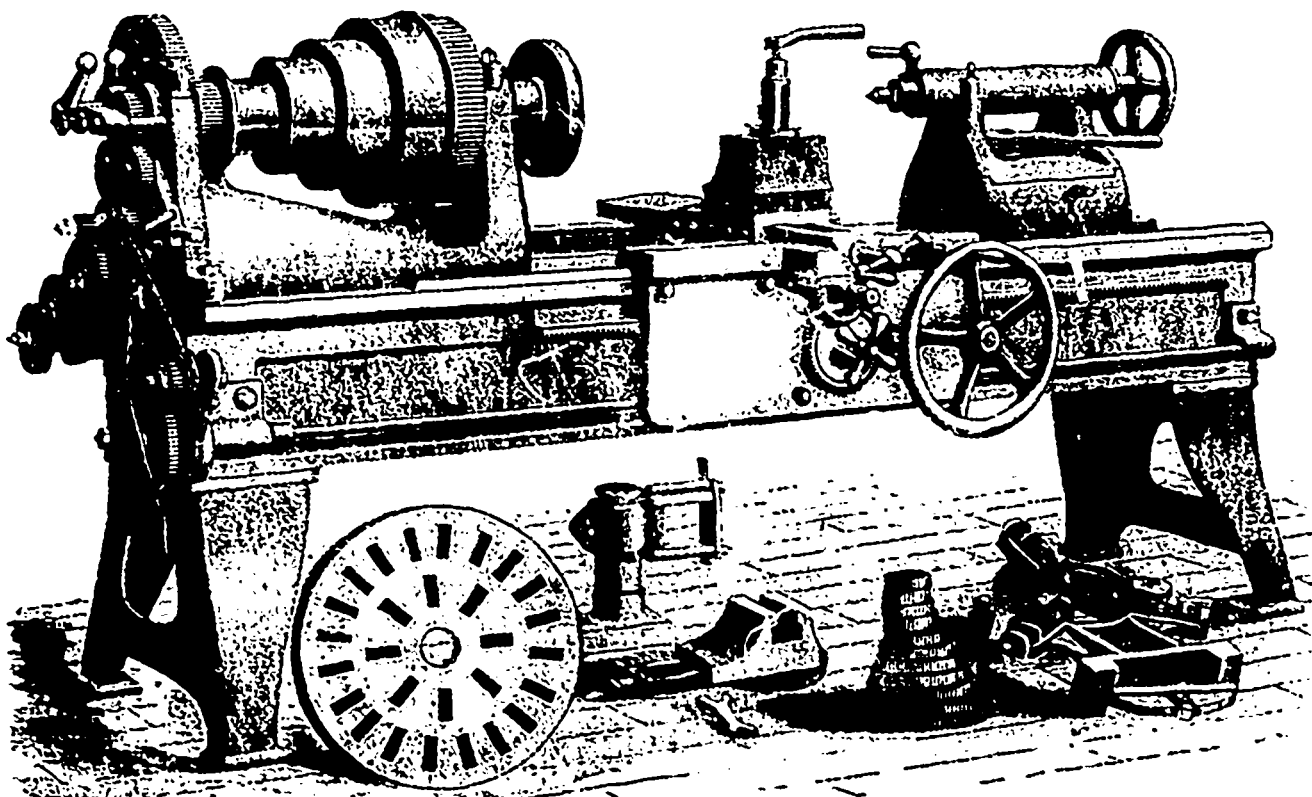
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THE OBJECTS OF THIS ASSOCIATION ARE :

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

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

To maintain Canada for Canadians.

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

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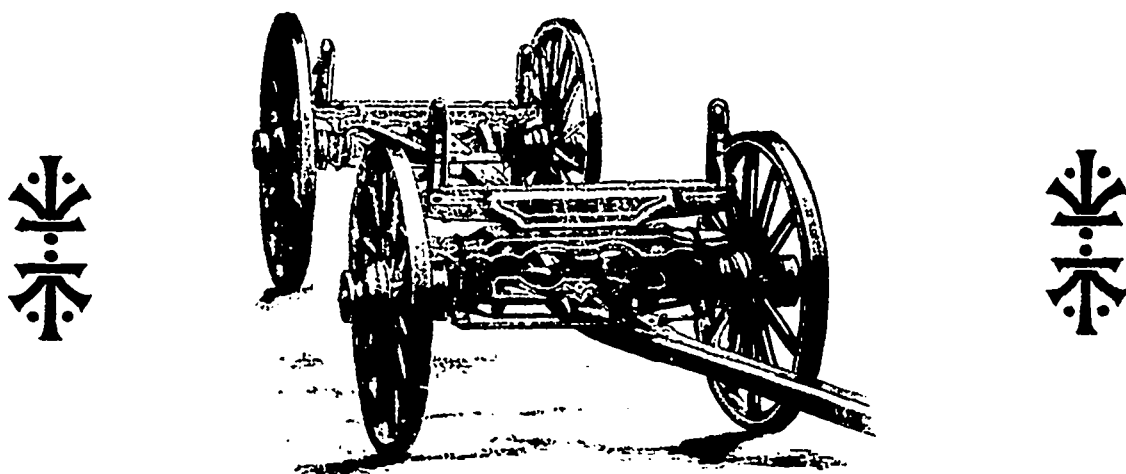
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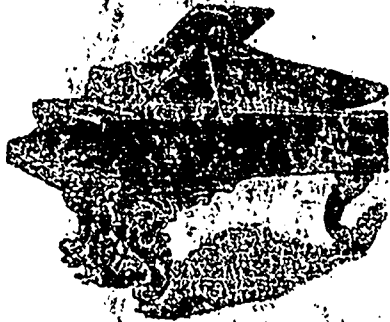
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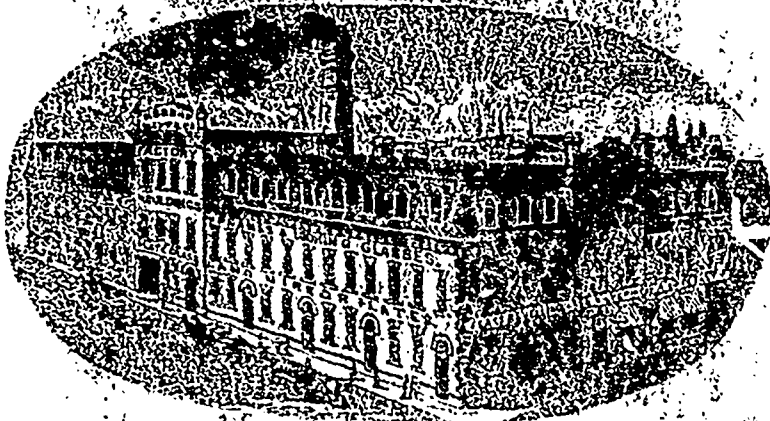
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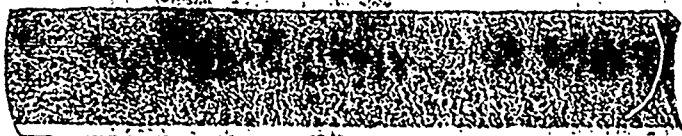
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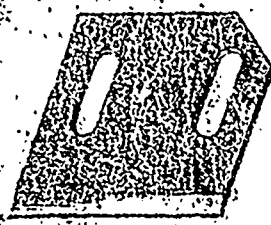


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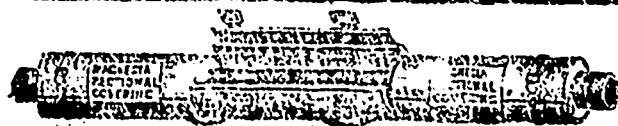
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