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

Vol. 25.

TORONTO, SEPTEMBER 1, 1893.

No. 5.

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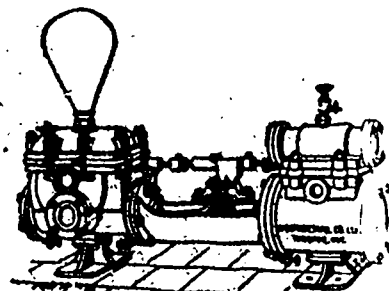
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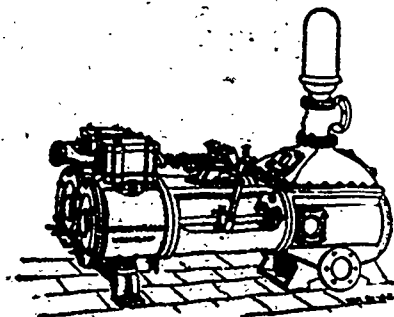
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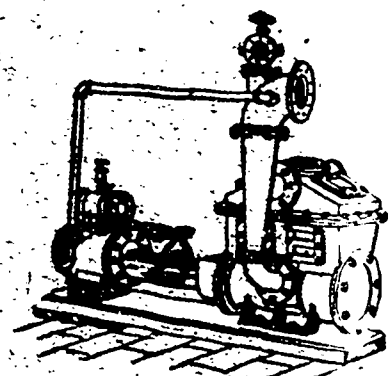


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MANUFACTURERS AND THE FAIR.

The Monetary Times, speaking of exhibitions from a manufacturer's view, and evidently having reference to the great Fair of the Toronto Industrial Exhibition, says:—

We are reminded that the season for fall exhibitions is near at hand; may we venture a word of advice to directors? The success of a fair depends upon the number and quality of its exhibits. It may seem strange that it is deemed necessary to mention this fact; but the course of events during the last few years would warrant its repetition over and over again. Exhibiting is simply a matter of business. A manufacturer expends five hundred dollars upon a display, because in his opinion he can obtain from it more than an additional five hundred dollars in profits. If he did not think so, he would not take the trouble to exhibit; and, we believe, the time has now come when not a few manufacturers are considering whether or no an exhibit gives a return proportionate to the expenditure of time and money. Many there are who will agree with us in saying that the manufacturer's building, the machinery hall and stock sheds do not draw the increasing crowds that they should, while year by year the grand stand is being enlarged to accommodate its frequenters. The feats

of tumblers, trapeze performers, and other acrobats compete with the productions of the manufacturer for the people's approbation. The management, seemingly ever ready to encourage the popular fancy for the marvellous, have catered to it, and vie with one another in securing the most attractive features for the grand stand; but one by one, the exhibitors, if this policy be continued, will withdraw, and at last only a circus will remain to draw a curious crowd.

It may be that exhibiting machinery at fairs is simply a matter of business, but it is not true that our manufacturers make displays at them only because they hope or expect to thereby obtain more than what it costs to exhibit. This has reference to those manufacturers who make exhibits at the Toronto Fair. It is true the exhibitors hope to realize benefit from showing their goods, but in most instances the articles shown are of a standard character well known in the trade, and to consumers and users; and it is frequently the case that manufacturers who display specimens of their products at our fair year after year, at great expense, cannot trace any sales made directly because of such exhibition. We happen to have knowledge of many such. Our contemporary is decidedly wrong in supposing that any considerable number of our manufacturers—we might say any of the more important of them—who for years have been found at our fair with unvarying regularity, are considering the propriety of refraining hereafter from putting in their appearance because they do not receive direct financial returns proportionate to the expenditure of time and money. They are not of that selfish and parsimonious character. On the contrary there are many manufacturers who understand that exhibiting at our fair means a money loss of greater or less extent, but who cheerfully encounter this, pro bono publico, and that the name and fame of the country may be maintained and sustained—knowing that we have the ability to manufacture at home as good and serviceable articles as can be had abroad. And this does not apply only to those whose location is in Toronto, where it is reasonable to suppose local pride would impel them to contribute to the prestige of the fair; but to manufacturers also from all parts of the country, extending from Ontario to New Brunswick and Nova Scotia and Quebec. They understand that the Toronto Fair partakes very much of the character of a national institution, and that during the season when it is in operation, it is thronged not only with Canadians, but with visitors from the United States and even from across the ocean. If it were not that our manufacturers are thoroughly imbued with a patriotic national spirit—although the Monetary Times seems to think that they are not—they would not be so persistent in making displays of their products at our fair year after year; and we take pleasure in pointing our contemporary to the fine, attractive and most creditable exhibitions of Canadian manufacturers at the World's Columbian Exposition at Chicago, where their products bear most enviable comparison with those of similar character made by the manufacturers of any other nation. If our manufacturers were actuated by the narrow spirit attributed to them by the Monetary Times; if they looked only to the money returns which they might reasonably expect from their displays there, it is not probable that many of them would have incurred the expense they were at in building expensive machines and machinery, and in providing attendants to explain and operate them at that far off and expensive place. What they have done and are doing is for love of Canada; and although some

may affect to think that the days of sentiment are past, and that in this stern utilitarian age only sordid motives prevail, this certainly is not the fact as regards Canadian manufacturers.

We are free to admit that some of the buildings on our own fair grounds appropriated to our manufacturers for the display of their products are not as large nor as convenient in their accommodations as they should be. They were built before the time when the Fair had assumed the importance it has since acquired; and it is to be hoped that in the near future the attention of the management will be turned in this direction, and that these buildings will be enlarged and made much more attractive than they now are. But it should be borne in mind that it costs a great deal of money to successfully conduct such an extensive enterprise; that the money must be contributed by those who visit it, and that certain regard must be observed to the tastes and desires of those who patronize it. It could not be expected that the hundreds of thousands of people who annually visit our fair would be satisfied in strolling through Machinery Hall, to observe steam engines and similar machinery, or through the Stove Building, to look at cook stoves and heating apparatus, or through the pavilion in which agricultural implements are shown, gazing on reapers and mowers and churns and cider presses. Such objects are very interesting, and the buildings in which they are displayed are generally thronged; but the throngs would not be there if nothing else was to be seen, and there were no attractions in front of the grand stand and in other parts of the grounds. Manufacturers recognize this, and they are therefore pleased to observe that the grounds possess the largest and most comfortable grand stand in Canada, and that there are tumblers, trapeze performers and other attractions, even including a cat show, for the amusement of the multitudes. The exhibitions of manufacturers are object lessons which create good impressions upon the minds of all who see them, and even the country plow boy, and the milk maid, although they may not be quite aware of it at the time, become impressed with the fact that this Canada of ours is a great country, in that we can and do produce not only the very best cheese and butter, and the biggest cabbage and turnips, and the fattest and finest cattle, horses, hogs, sheep and poultry, and have the finest show on earth, but that we can and do also produce steam engines and machinery, electric light plants, stoves, furnaces, reapers, mowers and even wheelbarrows that cannot be excelled. These are the lessons taught by our fair, and to the inculcation of which our manufacturers so freely and liberally contribute.

CANADIAN MANUFACTURERS AND THEIR EXHIBITS AT THE WORLD'S FAIR.

FOLLOWING are the names of the principal Canadian manufacturers and their displays who have exhibits at the World's Columbian Exposition at Chicago:

In the Manufactures and Liberal Arts building, which covers an area of over thirty acres of ground, and which is said to be the largest building in the world, is the exhibit of the McClary Mfg. Co., of London, Ont., who show stoves, ranges and tinware. Adjoining is a display of spades and shovels by the Halifax Shovel Company, of Halifax, N.S.

Next comes a hot water boiler shown by Nicholson & Co., of Goderich, Ont. Near by Perkins & Co., of Ottawa, show grease and sediment traps. Adjoining is the Buffalo hot water heater, shown by H. R. Ives & Co., of Montreal. Next is a display of pressed bricks made by Taylor Bros., of the Don valley, Toronto. Adjoining are J. J. Turner & Son, of Peterboro', Ont., with a display of tents, while wall papers are shown by John C. Watson & Co., of Montreal. Near by the Consumers' Cordage Company, of Montreal and Brantford, make a fine display of twines. Opposite their exhibit W. E. Welding, of Brantford, Ont., make a creditable exhibit of stoneware. The Goderich Organ Company, Goderich, Ont., come next with a display of their organs. Biggot & Bryan, London, Ont., show a case of china decorated in Canada. Adjoining is an extensive exhibit of essences by Lyman Bros. & Co., of Montreal. Gloves are shown by F. Galibert, of Montreal, while the Dominion Type Founding Company, of Montreal, make an exhibit of type. An extensive display of mantels, mouldings and mirrors is made by the Cobban Manufacturing Company, Toronto. Next is a display of graphite black lead by the Walker Mining Company, of Ottawa, and Graphite City, Que. Adjoining is a fine exhibit made by the Canada Screw Company, of Hamilton, Ont. An artificial stone coffin is shown by W. J. Anthestle, of London, Ont. C. Wilson & Son, of Toronto, follow with an exhibit of platform and counter scales. Next is the Gurney Foundry Company, of Hamilton and Toronto, with an exhibit of Oxford and double crown hot water boilers and radiators. Adjoining is the extensive exhibit of Shurley & Dietrich, of Galt, Ont., who show saws, straw knives and plastering trowels. Adjoining, Brown Bros., of Toronto, have a fine display of bookbinding. Next is the exhibit of the Cornwall Paper Company, surmounted by a handsome statuette of the late Sir John A. Macdonald. Adjoining is a creditable display of silk manufactures, made by Belding, Paul & Co., of Montreal. The Dominion Organ Company, of Bowmanville, come next with a fine display of organs and pianos. Adjoining is the exhibit of D. Morrice & Co., of Montreal, representing the Canadian Cotton Mills Company, who show Canadian tweeds, colored and white cottons, wick and binding. Horseshoes are shown by Samuel Groves, of Hamilton, Ont., and J. A. Whepley, of Greenwich Centre, N.B.; while near by the Starr Manufacturing Company, of Halifax, N.S., make a fine display of their skates. Adjoining is a display of sanitary ware made by the Dominion Pottery Company, of St. John, N.B. Invalid and reclining chairs are shown by C. E. Anderson, of London, and a fine display of dental chairs by the Harvard Chair Company, of Toronto. Next come two large cases of ladies' work. This exhibit consists of decorated china, lace and art needlework, and was collected by the Dominion Government from all parts of Canada. Adjoining are extensive exhibits of leather made by Beardmore & Co., of Toronto, and F. Gourdreau & Frere, of Quebec. Next comes the paint exhibit of the Canada Paint Company, of Montreal. Warehouse telephones are shown by T. W. Ness, of Montreal. Newlands & Co., of Galt, show imitation buffalo robes and coats. Next is a case of fine boots and shoes, shown by G. T. Slater & Sons, Montreal, and adjoining is an extensive leather exhibit by the Breithaupt Leather Company, of Berlin. The Oxford Manufacturing Company, of Oxford, N.S., make a very fine exhibit of tweeds, and W. E. Sanford & Co., of Ham-

ilton, make a display of clothing and military uniforms. Next is an exhibit made by the Rolland Paper Company, of St. Jerome, Que. A fine display of silk threads and underwear is shown by the Corticelli Manufacturing Company, of St. John, Que., and adjoining, Octavius Newcombe & Co., of Toronto, make a large exhibit of grand and upright pianos. Next Messrs. A. A. Barthelmes & Co., of Toronto, show their patent pianoforte action. The list of Canadian exhibits in this building is completed by the excellent display of carpets by the Toronto Carpet Company.

In the Agricultural Building is the immense cheese weighing eleven tons, manufactured by the Dominion Government at Perth, Ont. This great cheese is in an iron case, and rests upon a heavy truck. Only one other cheese exhibit is shown in this building, that of T. D. Millar, of Ingersoll. Adjoining, Messrs. Hiram Walker & Sons, of Walkerville, Ont., make an extensive display of their club whiskey, for which they are making a large trade in the United States. The next exhibits are those of E. D. Tilson, of Tilsonburg, Ont., and S. Nairn, of Winnipeg, Man., both of whom show rolled oats, split peas and flour. Fine displays of flour are made by Whitlaw, Baird & Co., of Paris, Ont., the Austin mills of Manitoba, the Tavistock Milling Company, J. Steimiller, of Walkerton, Ont., McLaughlin & Co., of Toronto, and N. H. Stevens, of Chatham and Aylmer, Ont. F. W. Fearman, of Hamilton, makes a good display of hams and bacon, with the beer exhibit of George Sleeman, of Guelph, on the one side, and the malt stout exhibit of John Batt, of Walkerville, on the other. Opposite are extensive ale and porter exhibits made by John Labatt and the Carling Brewing Company, of London, the Dominion Brewery Company, of Toronto, J. Lindburg, of Halifax, N.S., Holliday & Co., of Guelph, E. L. Drewery, of Winnipeg, and the Prescott Brewing Company, of Prescott. Next come exhibits of aerated bread by Watersby, Blackwood & Co., of Winnipeg, and Gurd & Co., of Montreal. The last Canadian exhibit in this building is made by Christie, Brown & Co., of Toronto, who make an extensive display of their well-known biscuits.

In the Machinery Building the first exhibit is that of J. Fleury & Son, Aurora, Ont., who show an ensilage cutter, grain crushers, root cutters and ploughs. Next is the Watson Manufacturing Company, of Ayr, Ont., who make a fine exhibit of turnip and ensilage cutters, straw cutters, root cutters, horse powers, and an ingenious butter churn. Adjoining is one of the finest exhibits in the building, that of the Massey-Harris Company, of Toronto, Woodstock and Brantford, showing mowers, binders, horse rakes, the Wisner combined drill, and the Massey-Harris shoe drill. The next exhibit is that of the Verity Plough Company, of Brantford, who show their different styles of ploughs. The Sawyer & Massey Co., of Hamilton, show a traction engine and threshing machine. J. M. Provan, of Oshawa, exhibit hay forks. The Blyth Manufacturing Company, of Blyth, show the Ross reaper knife grinder. M. Campbell, of Chatham, J. O. Gerolaing, of Tara, and C. Jackson, of Orillia, Ont., show fanning mills with bagging attachments. One of the finest plough exhibits in the building, is that of the Cockshutt Plough Company, of Brantford. Good plough exhibits are also made by J. H. Grant & Co., Grimsby, and Coulthard, Scott & Co., Oshawa.

In the Forestry Building Ontario, Quebec and British Columbia show between them nearly four score varieties of woods in logs, square timber, cabinet and finished. The whole exhibit occupies sixty by twenty feet, and makes a creditable display. An axe, said to have been used by Mr. Gladstone, is shown in this exhibit. In the Hall of Mines and Mining I find that all the provinces of Canada make fine displays, and form a conspicuous part in the splendid exhibit by Great Britain and the colonies. Passing on to the great Transportation Building, with an area of eighteen acres, we find Canada represented by a palatial C.P.R. express train. Next are sleighs shown by Verret & Co., of Quebec; carriages and sleighs by G. W. Robinson, of Kingston; road carts by B. S. Vantuyt, of Petrolia; carriage springs by J. B. Armstrong Company, of Guelph; a handsome sleigh by John Burns & Son, of Toronto; buggy bodies by the McKinnon Dash and Hardware Company, of St. Catharines; buggies and wagons by the Chatham Manufacturing Company; canoes by the Gilbert Boat Company, of Gananoque, and Strickland & Co., of Lakefield. The Heald automatic coupler is also shown; an extensive exhibit of railway lumps and signals is made by N. S. Piper & Son, of Toronto; car wheels by the Montreal Car Wheel Company; another exhibit in the same line by the St. Thomas Car Wheel Company. Bicycles are shown by the Brantford Bicycle Company.

In the Horticultural Building Canada makes a fine display of roots and canned fruits. Canada occupies one-sixth of the whole pomological space in the building, and of this Ontario occupies one-half. Three thousand jars of Canadian fruit are on exhibition, and they appear in quite as good condition as those of any other country. All the wine exhibits of America and foreign countries are in the Horticultural building, and some exhibitors have gone to immense expense in getting up elaborate displays. The Pelee Island Wine Company of Brantford and Pelee Island, is the only Canadian wine firm making an exhibit entirely of their own wines. They show several brands, including catawba, claret and communion wine. Next to their exhibit a stand has been erected, and a joint exhibit is made upon it by the Niagara Falls Wine Company, Girardot & Co., and P. Beneteau, of Sandwich; M. D. Kitchen, of Grimsby; M. Montreuil, of Windsor; and J. S. Hamilton & Co., of Brantford.

ICONOCLASM VS. REFORM.

THERE was a love feast of Reformers at the Exhibition grounds at Montreal a few days ago at which Mr. J. D. Edgar was one of the speakers; and in his address the gentleman said in effect:—

Were the Liberals in power they would make free all raw materials entering into Canadian manufactures; and would cut off the duties on all articles the Canadian production of which is controlled by a combination. Beyond this they would lower the tariff steadily, but gradually, to a revenue basis, permitting the adjustment of Canadian business methods to changing conditions. The Liberal leaders are men of business ability and good common sense; and they are not calculated to produce even temporary embarrassment. Reform is one thing; iconoclasm is another. It is no argument in favor of the National Policy to admit, as we do freely, that its immediate repeal and the substitution of a 20 per cent. ad valorem tariff would in many cases work hardship; it is because

it has been an evil system that it is advisable to eradicate it gradually rather than to change it at one stroke. The state is not unlike the individual. The opium fiend or the heavy drinker cannot at one step return to a life of healthy abstinence; he must bring himself slowly to saner conditions of living. So with a country which has been indulging in the unhealthy excitement of protection the wise course would be to pursue a steady, moderate progress to a well-defined objective point. What we need in Canada is a tariff law admitting raw material free, and putting an ad valorem duty on imports at a rate which will raise the necessary revenue with the least possible restriction to trade. It would be impossible to say what experience would show that average rate to be; but probably it would be found to be in the neighborhood of twenty per cent. This, then, would be the objective point; and a Liberal Government would have to solve the problem of reaching it with the minimum degree of disturbance. It would undoubtedly be wise to postpone the going into force of the revising act for at least several months to permit merchants to clear their shelves before the advent of cheaper importations; then there could be a series of annual reductions, according to a scale determined upon, covering two or three years, and bringing the country by the end of that time, back to a purely revenue tariff basis.

It will be observed that Mr. Edgar failed to explain what he meant by the term "raw materials," and upon this hinges a vital phase of the question. What are raw materials? Can Mr. Edgar or any one else state explicitly what are the raw materials from which the duties are to be removed? We can understand that there would be no great objection to removing the duty upon such products of the forest as Canada abounds in and exports in large quantities, such as saw-logs; but wheat is the raw material of the miller who manufactures it into flour, but it is the finished product of the farmer who grows it. Does he desire the duty upon wheat removed because it is the raw material of the miller? Pig iron is the raw material of many industries, but it is the finished product of the furnaceman who smelts the ores; therefore pig iron is not a raw material. A certain quality of steel is the raw material of the manufacturer of agricultural implements, but it is the finished product of the steel works; therefore such steel is not a raw material, and would Mr. Edgar and his party put steel on the free list and force the closing permanently of the works of the Nova Scotia Steel Company? Lint cotton is the raw material of the manufacturer of cotton goods, but raw cotton not being produced in Canada is not the finished product of any Canadian industry, and therefore is very properly on the free list. So, too, it would be proper that raw sugar should be in the free list, not being produced in Canada. Before Mr. Edgar and his party begin to make free all raw materials entering into Canadian manufactures, they should really prepare a list setting forth what are and what are not raw materials.

The gentleman tells us that the leaders of his party are men of ability possessed of good common sense, not likely to do anything calculated to produce even temporary embarrassment in the business affairs of the country, and therefore in reforming the tariff it would not be deemed advisable to root up and destroy the existing system at one stroke, but rather do it piecemeal, a little at a time, somewhat after the style of the man who found it desirable to cut off the tail of his dog, and to spare the feelings of the animal and not to be too sudden about it, chopped it off an inch at a time, deeming it advisable to eradicate protection gradually rather

than to change it at one stroke. In other words they view protection as an outlawed criminal who should be deprived of life, but are moved by kind and humane instincts to take that life somewhat as the Chinese do, by lopping off one arm at a time, one leg at a time, destroying one eye at a time, in much mercy, and not electrocute or otherwise immediately destroy the victim. This is the Liberal idea of tariff reform; and Mr. Edgar kindly informs us that this slow way of punishment is not iconoclasm but reform. "Reform," he says, "is one thing; iconoclasm is another." The country, he tells us, has been indulging in the unhealthy excitement of protection, and the wise course his party will pursue, when the opportunity offers, will be a steady progress towards the well defined objective point where tariff protection to Canadian manufacturing industries will cease to exist.

Aside from the vagueness of what is meant by raw materials, which would be admitted free, Mr. Edgar explains just how high up the amputation of the dog's tail would be made for a starter whereby the duty on imports would be fixed at a rate which would raise the necessary revenue with the least restriction to trade; and which he at the time of expressing his views stated that it would be impossible to say what experience would show that average rate would be, he ventured the suggestion that it would be found in the neighborhood of twenty per cent. This, then, would be the objective point; and a Liberal government, if it attained to power, would have to solve the problem of reaching it with the least possible disturbance of the business of the country. The manufacturers and the labor employed in the manufacturing industries of the country are given to understand that the outlawed culprit, to wit, protection, although condemned to death, would be allowed to contemplate the preparation for its execution for a time, or, as Mr. Edgar puts it, it would undoubtedly be wise to postpone the going into effect of the revising act for at least several months to permit merchants to clear their shelves of Canadian-made goods before the advent of the cheaper made importations, products of pauper labor in foreign countries, which were being held in readiness to deluge the Canadian market. And then when the shelves were cleared and Canadian manufacturing establishments closed; when smoke ceased to belch forth from our tall chimneys, and our laboring classes scattered like the dry leaves of autumn, seeking their precarious living wherever they might find it; then there would ensue a series of other reductions of the tariff—other chopping off of the dog's tail—the operation to be performed annually, according to a scale determined upon, covering two or three years, at the end of which time the country would be brought fully within the grip of the tariff for revenue octopus.

If that Grit millenium should ever arrive the effects of it would be disastrous indeed. As we have shown, the aim and object of the party to destroy the manufacturing industries of the country would be accomplished. We would have no necessity for the raw materials of other countries, for we would have no factories for their consumption. We would then be a people of producers of raw materials which would be sent to other countries to give employment to artisans and workmen there. We would be a nation of hewers of wood and drawers of water for others who would be our industrial masters, and who would regulate the prices of whatever we might have

to sell to them. On the other hand, as Mr. Edgar so forcibly suggests, the shelves of our merchants, having been denuded of merchandise manufactured in Canada, would be loaded with the goods produced by cheap labor in foreign countries. But they would not be cheap to us—no cheaper to us than what such goods are to the masses in London, who can but feast their eyes upon them but unable to purchase because of lack of money. The men and women also who now find remunerative employment in thousands of Canadian workshops and factories, and who live in pleasant homes in our industrial centres, would be forced to jostle the farmers of the country and become producers of agricultural products, but only of that character that would bear transportation abroad; or they would be forced to migrate to seek more favorable conditions than obtained at home.

The Grit papers inform us that the Liberal line of action would be of the character here suggested—that the Democrats of the United States will deal with this problem of tariff reform in much the same way. Perhaps. The dread of such "reform" quite as much as the silver or any other question, has precipitated a crisis in that country from the disastrous effects of which it will not recover for years. And this is what Mr. Edgar and the Liberal leaders promise Canada.

INDIGENOUS MANUFACTURES.

The Grit party have adopted a new fad. They propose to bring about free trade, or as close to it as possible, when they attain to power, not by immediately placing the tariff on a revenue basis, but by gradual reductions extending over several years. The Montreal Herald assures us that this would be the programme, and takes comfort in the fact that the Democrats of the United States are preparing to deal with their problem of tariff reform in much the same way—that Hon. David A. Wells has publicly advised Congress to adopt this course, and it expresses its opinion thereon as follows:

The advantages of such a course need no elucidation. There would be year by year a lessening of taxation, and merchants would know in advance what to expect. We firmly believe also that all the manufactures indigenous in Canada, would be actually better off with free raw materials and low tariff than under the present excessive tariff which gives them protection with one hand and piles burdens on them with another.

What it means by merchants knowing in advance what to expect is, that when the iconoclastic Grit party win, as they hope to do, that fact would be a notice to merchants to dispose of whatever merchandise they might have on hand of Canadian manufacture as rapidly as possible, and prepare for the reception of the overflow of cheap goods made by cheap labor in foreign countries. The cry of cheapness is one of the fads by which the party hope to gain favor with the unthinking; and if that favor is accorded it to the extent they hope for, the country would be overwhelmed by a season of cheapness that would be its ruin.

The Herald does not inform us however, what it means by indigenous manufactures. What are they? We can understand that certain trees and animals are indigenous to Canada, but what are indigenous manufactures? Perhaps some of the tribes of Indians we have among us are indigenous, and the industries they carried on when the white man appeared among them, and have continued to carry on ever since, such as the

manufacture of bark canoes and moccasins, are of like character; for these industries are natural to the country, and not exotic or imported; but it cannot be these that the Herald alludes to, because they are in no way affected by the tariff, nor indeed can be, seeing that the raw materials of them, to wit, birch bark and deer skins, have never been imported into Canada for the manufacture of canoes and moccasins. We do not recall any other manufactures indigenous to Canada, though there may be some of similar character; and we fail to see how these would be actually better off with free raw materials and low tariff than under the present tariff which the Herald says gives them protection with one hand and piles burdens upon them with the other. Come to think of it we might have enumerated the manufacture of lacrosse sticks, snow shoes, bows and arrows and flint spear heads as being indigenous to Canada, and these may properly be embraced in our remarks.

But the prestige that Canada has acquired as a manufacturing country is not based upon what the Indians do in the way of constructing bark canoes, moccasins, lacrosse sticks and snowshoes; but rather upon what we are doing in the way of building steam engines and all sorts of iron and wood working machinery; of cotton and woolen textile fabrics equal to any made anywhere else in the world; in steamboats, in electric appliances and a thousand other things. Now not one of these industries, according to the proper definition of the word, is indigenous, and so according to the Herald, every one of them, in fact every manufacturing industry of Canada, not being indigenous, must go. They are all exotic and imported. They must all go, and those of us who will then desire to continue in manufacturing pursuits must become competitors with the Indians in the manufacture of bark canoes, moccasins, lacrosse sticks and snow shoes, which, as we have shown, are our only indigenous industries.

Nor are we informed by our contemporary what is meant by raw materials which, for the benefit of the manufacturers, it would place upon the free list. The manufacture of cotton and woollen fabrics is one of our most important industries, the mills giving profitable employment to thousands of men and women, boys and girls; and the raw materials consumed in them are already on the free list. Our sugar refineries manufacture all the refined sugar we require, and raw sugar is free or is said to be. We have foundries and machine works that supply us with all manner of machinery, but the raw materials consumed in them are the finished products of other and equally important industries. We have clothing factories in which cotton and woolen fabrics are the raw materials, and these suggestions might be extended indefinitely. Will the Herald kindly inform us what "raw materials" it desires to put upon the free list? If this question must be discussed, pray let the discussion be of an intelligent character, but chattering of "indigenous industries" and "raw materials" in the manner the Herald indulges in is not edifying. It should publish a diagram and an explanation.

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THE

CANADIAN MANUFACTURER

THE BALANCE OF TRADE.

ABOUT a year ago allusion was made in this journal to a pamphlet that had just then been published by Mr. R. H. Lauder, dealing with the commerce between Canada and the United States, and containing observations on trade reciprocity between the two countries. In this brochure Mr. Lauder showed first, that the balance of trade, as between the two countries, was largely in favor of the United States; and, second, that if that country persisted in its unfriendly attitude towards Canada, the only thing left for us to do would be to adopt a reciprocity of tariffs.

Since that time there has been a political revolution in the United States, in which the opponents of the McKinley tariff acceded to power; and it is to be hoped that when the Democrats are reforming the tariff, as they were pledged to do, less antagonism may be exhibited towards Canada.

Following up his previous effort Mr. Lauder has recently written another able article on the subject of reciprocity in which he considers the probable effects of any new treaty that may be made, as predicated upon the results of the former treaty; and he calls attention to the fact that at that time Canada did not include the provinces of Nova Scotia, New Brunswick and Prince Edward Island, which now form part of the Dominion; and that these provinces at that time transacted nearly all their trade with Quebec, Ontario and the west through the United States, and consequently the trade of the Maritime Provinces appeared as having been done with the United States. There is also now to be considered the commerce and interests of Manitoba and the other Canadian North-Western possessions.

A statement is given showing the total values of merchandise imported into the United States from the British North American possessions, and the merchandise imported from the United States into and entered for consumption during each year from 1850 to 1892 inclusive. The imports into the United States in 1850 were valued at \$5,179,500, as against \$35,334,547 in 1892; and the imports into Canada in 1850 were valued at \$11,608,641, as against \$64,185,640 in 1892.

The imports into the British Possessions from 1850 to 1867 comprise the imports into the Provinces of Quebec and Ontario, as taken from the Canadian accounts, plus the exports to the other Provinces of the present Dominion, as taken from the United States accounts; the imports into the British Possessions for the remaining years being taken exclusively from the Canadian accounts. The imports into the United States for 1864, and from 1868 to 1892, include the imports from all British North American Possessions.

The table includes the trade with Newfoundland, but this is not material, not being of sufficient extent to affect the comparisons. The table is also defective, as it does not show what proportion of the imports into the two countries was taken for consumption, or what other proportion merely passed through either country for export to other foreign countries; nor does it show the gold as compared with the currency value of imports and exports in those years when gold commanded a high premium. It shows, however, the absurdity of the contention so frequently urged, that inasmuch as the imports into the United States from Canada increased so enormously between 1854-55, the first year of the old reciprocity treaty, and 1865-66, the last year of the treaty, there-

fore, a new reciprocity treaty would produce as great an expansion now. It is seen that in the years ending June 30th, 1862 and 1863, being the eighth and ninth years of the treaty, and during which the war of secession was raging, the imports into the United States from Canada were very little more than during the year ending June 30th, 1855, the first year of the treaty. The large increase in imports during the years ending June 30th, 1864, 1865 and 1866, was clearly attributed to the extraordinary demand produced by the exhausting effects of the last few years of that devastating war; and this demand would have been necessarily experienced in Canada, with or without reciprocity.

Any argument or conclusion based upon unusual or extraordinary conditions is worthless, except under a well-founded assurance of a recurrence of a similar or equally influential conditions. The effects of that costly war were felt for some time after its termination, in continuing the demand for Canadian produce; and, during 1866-67, very large quantities, especially of wheat and flour, were imported into the United States for home consumption, although subject to the new rates of duty imposed. The small exports from the United States to Canada, from 1864-65 to 1871-72, afford further evidence of the very exhausting effects of the war; and not until 1872-73 had the United States recuperated, so as to revert to its normal condition of being able to export to Canada much more extensively than it imports to that country. Owing to considerable variations in seasons, soil and climate, each country, can to mutual advantage, supply the other in about equal value, with many articles of raw products of the farm, the forest, the mine and the fisheries; and the United States with its longer experience and greater skill in manufacturing, can supply Canada with a large variety of manufactured goods, which, from its thorough acquaintance with Canadian tastes and requirements, it can manufacture, so that in point of cheapness and adaptation to the purposes for which required, they are of as good, if not better, value than those obtained in any other country.

The conditions in the United States and Canada have changed so greatly since the years of the old reciprocity treaty, that the results of that treaty's operations hardly afford any basis for judging as to the probable effects of a similar treaty now. In the former period, the great grain and cattle-producing territories of what are now vast and important States, were unsettled and inaccessible; the extensive pine regions of Michigan, Wisconsin and Minnesota were hardly even explored; the large eastern cities on the Atlantic seaboard were extensive purchasers of Canadian grain, flour, meal, provisions, etc. Now, the United States has a large surplus of all kinds of farm and animal products, and has become the largest exporter of these commodities to be found in the whole world. Nor have the changes in Canada's position been less remarkable. At the close of the treaty referred to, there was little or no inter-provincial trade with the Maritime Provinces; the Welland and St. Lawrence river canal system was little better than a series of huge ditches; the capacity of the harbor at Montreal and the channel of navigation to the ocean, and the light-house system on the Lower St. Lawrence were all inadequate to the requirements of the then limited trade; the Canadian ocean steam-ship service was in its infancy, and struggling painfully through many difficulties. Owing to all these defects, not only the inter-provincial trade, but a large

proportion of the trade with Europe was transacted through the United States, via their railways and the Erie and Oswego Canal. The rates of ocean freight and insurance between New York, Boston and Portland and Great Britain, were so much lower than those to and from Montreal, that much of the import and export trade of Upper Canada was transported over New York canals, although subjected up to the year 1869 to canal tolls levied by New York State, at the rate of 6.21 cents per bushel of wheat, from Buffalo to tide-water, and proportionably on other merchandise. Now, Canada has its Intercolonial and Prince Edward Island railway, the former connecting the Maritime with the Upper Provinces, and a large inter-provincial trade has been built up; Canada has its splendid Grand Trunk Railway system completed; and its magnificent trans-continental Pacific Railway, with their complete net-work of branches extending into every section of the Dominion; its Welland and St. Lawrence canals have been greatly enlarged, and the Minister of Railways and Canals promises that by the end of the year 1894, Canada will have a complete lake, river, and canal route of navigation from the head of Lake Superior to the ocean, with a minimum depth of fourteen feet of water. At and below Montreal, the harbor and channel of navigation have been so improved as to admit of the use of ocean steamers of the largest capacity. Instead of one ocean steamship company struggling against many adverse conditions, there are now many strong and successful companies with first-class steamships, and also a large transient fleet of freight steamers. Canada's ocean steamship trade has attained to dimensions and achieved a success far exceeding the most sanguine expectations of thirty years ago. Instead of being dependent on the United States routes, during the season of navigation, for an outlet to Europe, Canada's route, via the St. Lawrence, has become such a favorite with the grain dealers of the Western States that all the available space that can be obtained in ocean steamships at Montreal is quickly secured; and a much larger volume of United States traffic is now transported over the Canadian route during the season of navigation than there is of Canadian traffic over American routes during the whole year.

It is by the light of present conditions, not those of thirty years ago, that the advantages and probable results of reciprocity must be considered and estimated. In endeavoring to arrive at a fair estimate of these prospective advantages and results, a careful examination must be made of the value of the leading articles of the commerce exchanged between the two countries at the time of the termination of the old treaty, as compared with the value of the commodities which are now being interchanged. In this way some idea may be formed of the extent to which this trade has been influenced by the abrogation of the treaty, and also the extent by which the commerce may be increased in the future, by a treaty of a similar character, under the greatly altered conditions of the two countries.

A statement is given, taken from the Trade and Navigation Returns, showing the value of the produce and other merchandise imported into Canada from the United States during 1866, being the year preceding the termination of the Elgin Reciprocity Treaty, and during 1867, being the year immediately following that event; also showing the value of like merchandise imported during 1892, all entered for consump-

tion. These values were: in 1866, \$20,424,692; in 1867, \$20,272,907, and 1892, \$53,137,572. The imports during 1865 were valued at \$19,589,055, and in 1866, under the Reciprocity Treaty, \$8,751,931.

Another statement is given, obtained from the same source, showing the value of Canadian produce and merchandise exported to the United States, during the years alluded to. This shows that our exports to that country were: in 1886, \$38,953,953; in 1867, \$28,679,392, and in 1892, \$36,475,188.

The years 1866 and 1867 were prior to Confederation, and the figures given having reference to those years, refer only to the trade of what are now the provinces of Ontario and Quebec. These figures, apart altogether from the pecuniary consideration then existing of obtaining a considerable amount of revenue from many articles which had been formerly admitted free of duty, and from the general feeling of irritation towards Canada on account of the alleged sympathy of many Canadians with the South, afford a fair clue to the disinclination on the part of the United States to consent to a renewal of the old reciprocity treaty. They appear to present a strong business argument in favor of this course. The balance of trade between the two countries, which, up to the early years of the war of secession, had been largely in favor of the United States, had now become largely in favor of Canada; and without attempting to inquire whether this adverse balance would—now that the war was over—continue to rule in the same direction, it was contended that reciprocity was a one-sided arrangement largely in favor of Canada, and as this contention was in accordance with public sentiment, the renewal of the treaty was refused.

It was and is very natural for a large country like the United States to assume that the privilege of free access to its markets must necessarily be of much greater value than the privilege of access to the markets of the smaller country. That this was and is a very erroneous conclusion is evident from a glance at the figures given, which show that the exports from the whole of the Dominion of Canada to the United States during 1892 were hardly so large as those from Ontario and Quebec in 1866; whereas the imports into the Dominion from the United States during the same year show an enormous increase from those of 1866. By analyzing a few of the important features of the commerce between the two countries some opinion may be formed as to the soundness of this supposition. It may be noted that nearly the whole of the reductions in the exports from Canada during the year following the termination of the old treaty, as compared with the exports during the last year of the treaty, was in animals and their products; a result which was clearly attributable to the rapid recuperation of the resources of the United States after the termination of the war. The arguments of Mr. Lauder will be further discussed in subsequent issues of this journal.

AN Oklahoma correspondent of a Chicago paper says: "The inclosed dollar is the hardest got I ever received. It took just three bushels of wheat to get it. But I must have your paper. Wheat is now selling here for 28 cents per bushel. They wanted a change and they have got it, and it beats h—l." And still the Globe wants Canadian farmers to look to the sixty million American market.

BACKWARD OR FORWARD—WHICH ?

THE Toronto Globe, discussing the Sunday labor agreement entered into between the Toronto Railway Company and the authorities of the City of Toronto, declaring that there can be no doubt that the protection of the railway workmen against seven days' work a week is absolutely necessary, asserts that "experience elsewhere proves that only in exceptional cases have the men been able, of their own effort, to secure one entire day in seven off duty;" and that this being so the City Council was justified in providing that the company be required to "enter into an agreement with the corporation that none of their employees shall be required or permitted to work more than six days in any one week." In pursuance of this instruction the city attorney tried to make an agreement with the railway company providing for a forfeiture of a penalty of \$1,000 for each breach of the proposed regulation, to which the company very properly objected, seeing that a mutual and satisfactory agreement had already been arrived at between the company and the employees looking to their interests in this matter. The agreement between the company and the employees provides that no man shall be required or permitted to work for the company more than ten hours in any day or sixty hours in any one week of seven consecutive days; giving due consideration to extraordinary occasions when an excess of such work might be imperative and unavoidable. An agreement was finally arrived at between the company and the city authorities in which it was stipulated that the City Council might pass a resolution annulling any right which might be acquired by the company by virtue of a vote to be had to run street cars on Sunday; and upon the passing of such resolution any such right which might be thus acquired by the company, should cease if the men should be injured by the company in the manner indicated. It is interesting to know that a popular vote was held on August 26th by which the company were denied permission to run street cars on Sunday.

In view of the fact that a perfectly satisfactory agreement had already been arrived at between the railway company and their employees, as indicated, and that these two elements were really the only ones interested, it is more than strange that the city authorities should have persisted in insisting upon injecting another element into the question. This interjection, we are told, was entirely in the interests of the employees, the city authorities assuming a paternal character entirely unnecessary under the circumstances, and quite objectionable to the employees. It was unnecessary because the employees had already made an agreement with the company which was entirely acceptable to them, and to the Trades and Labor Council, representing the labor element generally; and objectionable because it complicated a matter that had already been adjudicated. Why should the city authorities assume a paternal attitude towards the employees of the railway company when no request, made or implied, had been made for them to do so, and in the face of the fact that all that the employees requested had been already granted by the company? On the other hand all that the city authorities obtained from the company, supposedly in favor of the employees, was that should there be any violation on the part of the company of the requirement that the company should not wrong the men with regard to working more than ten hours per day or sixty

hours per week, the city would have a right to withdraw from the company the privilege to run cars on Sunday. We fail to see what benefit would accrue to the employees by preventing the running of Sunday cars.

The salient evil in the action of the city authorities, in our opinion, lay in meddling in business that did not concern them. We do not question the advisability of stipulations providing that the employees should not work more than ten hours per day, or sixty hours per week; that no employee who had conscientious scruples against working on Sunday should be required to do so, and that every employee should have an opportunity of attending divine worship on Sunday if he desired to do so, and that the hours for operating the cars on Sunday should be dictated and controlled by the city engineer. The employees demanded these concessions and the company very willingly granted them. And the company very willingly did more than that. They expressed a perfect willingness that the employees should, as many of them as desired to do so, form a labor union—that they should organize themselves as such for their protection and defence—and this seems to be quite as much as employees in any industry demand. With no antagonism between employer and employee; with the most friendly feeling on both sides; with all the concessions made by the company to their then unorganized employees that any labor union or organizations might require, we fail to see any reason why the city authorities should interfere in the matter; and we also fail to see why, having thus interfered, the only point accepted should be a stipulation that should the company violate its agreement respecting the hours or days of labor of employees, the penalty should be the withdrawal of the privilege of operating Sunday cars, thus to that extent depriving the employees of their employment. Truly the company might be punished, but the employees would quite as undoubtedly be made to suffer by the officiousness and intermeddling of the city authorities.

This interjection of officiousness and meddling on the part of the city in the affairs between employers of labor and their employees, is an innovation as unnecessary as it is mischievous. If it is right in this instance why would it not be right in all other instances where the city, or the inhabitants thereof, are in any degree interested? And if it is right in such instances why would it not be right in all instances, of whatever character, where any labor is or may be performed on Sunday? The gas company, the electric light companies and the ferry companies are all quasi-city institutions, seeing that their operations are carried on in the interest of the citizens; and the pumping works of the Water Department are, like the Police and Fire departments, part of the city government machinery. It may be contended that gas and electric light are essential to the convenience of the citizens at all times, Sunday included; and this might very well be claimed for Sunday street cars, judging by the fact that in the election on August 26th forty-eight per cent. of the qualified voters of Toronto demanded them. Those opposed to them declare that they are not necessary, and that the presence of them would tend to increase the immorality already existing in the city. But the answer to this argument is that if it is immoral to operate street cars on Sunday for the convenience of forty-eight per cent. of the citizens, it is equally immoral to manufacture gas and electric light for the use and benefit of the

churches which use these illuminants where probably not more than ten per cent. of the citizens attend. If Sunday street cars tend to immorality because they imply manual labor on Sunday, certainly gas and electric lights in churches on Sunday are immoral on identically similar grounds. It is claimed that Sunday cars are an unnecessary luxury; but if this is so, then gas and electricity in churches on Sunday are an unnecessary luxury also, for candles and coal oil are common articles of merchandise. Certainly if the city authorities have either the moral or legal right to dictate to the railway company restricting and regulating their employment of labor, they have an equal right in the direction of the gas and electric light companies. They might go even further than this and suspend the working of the pumping engines in the water works on Sunday, requiring that the citizens store up in buckets, tubs, pails, kettles and pans on Saturday all the water they may require to use during Sunday.

Our objection to the action of the city authorities in meddling in this matter is that it is entering the thin end of the wedge of paternalism in government entirely at variance with our laws and institutions, carrying us back from the advanced enlightenment of the Nineteenth Century to the unhappy days of puritanism, roundheadism and the inquisition.

Our objection to the sentiments promulgated by *The Globe* that "experience elsewhere proves that only in exceptional cases have employees been able, of their own effort, to secure one entire day in seven off duty" is that it is not the fact, and if the *Globe* should endeavor to prove it to be such it would ignominiously fail. In all the discussion that grew out of the popular debate re Sunday street cars, in no instance was the *Globe* sustained in such an unwarranted assertion.

EDITORIAL NOTES.

ENGLAND imported from the United States during the first half of 1893 leather and shoes to the value of \$5,245,941, which shows an increase in value of \$1,237,296 over the same period last year.

AT a meeting of the Lumber Manufacturers' Association held at Gravenhurst, Ont., on Aug. 29th, it was decided to let prices remain as they now are, and to reduce the cut for the coming season one-third.

"THE Allegheny county banks" says the *Pittsburg Post*, "have \$90,000,000 on deposit in their vaults," and yet manufacturers are discouraged, the workshops closed, and thousands of men are idle. They know it is no silver law that is playing the mischief with business, but the dread of the Damoclean sword of tariff reform that is doing the business.

In an article entitled "Protection from Lightning" in the *Popular Science Monthly*, Mr. Alexander McAdie says:—

During the year 1891 two hundred and five lives were lost (that we know of) in the United States, east of the Rocky Mountains, directly through the action of lightning. How many were lost indirectly, and how many cases there were of shattered health and more or less permanent injury, we can only surmise. The financial loss due directly to lightning was certainly not below one and a half million dollars. To get at something like a commercial estimate of the damage done by lightning in the past few years, in this country, I have made use of the *Chronicle Fire Tables* for the six years 1885—1890,

and find that some twenty-two hundred and twenty-three fires, or 1.3 per cent. of the whole number, were caused by lightning, and the total loss was \$3,386,826, or 1.25 per cent. of the whole amount lost by fire. During 1892 we have a record of two hundred and ninety-two lives lost. The damage may be estimated at as high a figure as in 1891. These losses are the more appalling when we recall that the year is virtually less than six months. Over ninety-five per cent. of the casualties due to lightning occur between the months of April and September.

AN English Parliamentary return, recently issued, gives the results of one of the most, if not the most successful purchase of a property ever made,—viz: the purchase of the Suez Canal shares in 1876 by Lord Beaconsfield. The cost of the purchase, including the commission and charges, was £4,076,662. There has been received in respect of interest on the shares a sum of £3,320,375, which has exceeded the charge upon the 3½ per cent. Exchequer bills issued in payment for the shares, and the purchase money has been reduced by £1,302,654. Next year the 176,000 shares rank for full dividends, instead of the 5 per cent. which has been paid upon them since the date of the purchase.

CURRENT commercial quotations in Toronto for bar iron place the value of that article at 1.95 cents per pound, or \$39 per short ton of 2000 pounds, while No. 1 wrought scrap iron is quoted at 35 to 40 cents per hundredweight, or from \$7 to \$8 per long ton of 2,240 pounds, No. 2 wrought scrap being only worth from 10 to 15 cents per hundredweight, or about \$2 to \$3 per long ton. It is this sort of thing that makes one tired. It costs but about \$5 or \$6 to work up wrought scrap, costing from \$3 to \$8 per long ton, into bar iron for which the rolling mills charge \$39 per short ton. This condition prevails because of the low duty of only \$2 per ton on wrought scrap iron, the duty on bar iron being \$13 per ton. The duty on scrap iron should be practically prohibitory; and if it were those who have scrap for sale would obtain a fair price for it, while the consumer would have to pay no more than now for finished iron.

WHEAT is lower in price in Canada to-day than it has been since we began to export it many years ago. Yet it is subject to a protective tariff!—*London Advertiser*.

Yes, it is a fact that wheat is lower in price in Canada at this time than it has been for many years, and it is also very much lower in the United States. In fact it is very much lower in the United States than in Canada, and if it were not for the duty of fifteen cents per bushel imposed by the N.P., Canadian farmers would be compelled to accept American prices. See?

IMMEDIATELY following the decision of Secretary of the Navy Herbert, in favor of all Harveyized plates for naval construction, the Carnegie Steel Company began arranging for the erection of forty Harvey furnaces in addition to the eighteen now in use. Preparations are also advancing for the erection of an additional armor plate mill, of a size that will handle the very largest plates with ease. It is stated that the requisite machinery will be purchased at Whitworth's works in England.—*Cleveland, O., Marine Review*.

The Harveyized armor plates alluded to are made of nickel steel; and without the nickel supplied from Canadian mines, the Carnegie Steel Company would be unable to manufacture armor plates for the American navy. It has been demon-

strated that Harveyized armor plates are more effective than those made by any other process; and it is probable that hereafter the armour to be placed on the war vessels of not only the United States but all other countries, will be of that description. This means a revolution in the manufacture of armor plates, involving a demand for immense quantities of nickel. Except the Canadian deposits, those of New Caledonia, an island in the South Pacific belonging to France, are the most extensive known, and that source of supply is barely sufficient to provide the nickel necessary in the manufacture of armor plates for the French navy. All other known deposits of nickel are barely sufficient to supply the demand for the article in the ordinary arts and sciences; and therefore the navies of Great Britain, and of the rest of the world, like that of the United States, must necessarily depend upon Canada for the nickel necessary in manufacturing armor plates. And Canada, generous country that it is, suffers its nickel deposits to be depleted for the enrichment of other countries, acquiring nothing therefor except the holes in the ground from which her wealth is being abstracted. And while the United States is glad to obtain our nickel ore and matte, it generously refuses to admit our refined nickel except upon the payment of a duty equivalent to \$200 per ton. Why not impose an export duty on the nickel contained in the ore and matte going to that country? Impose the duty.

THE Boston Herald publishes an interview had with a United States Supervising Architect named O'Rourke, who was supervising the erection of a public building in that city. Mr. O'Rourke, in discussing the merits of drain pipe, says:—

I do not believe in giving the American article an undue advantage, either by protection or subsidy, or by preference in government work, as against meritorious articles made elsewhere. I have even felt obliged to discriminate against my own State, New Jersey, in drawing specifications for sewer pipe. At one time the New Jersey pipe-makers produced a very superior article. Finally they secured a duty against the Scotch-made pipe. The duty was just sufficient to remove the spur of competition from the Jersey pipe-makers, and as a result they have felt they had things all in their own hands, and have turned out a very inferior article. I therefore put as a provision in specifications drawn by me the words, "No Jersey pipe shall be used," and yet I am from Jersey, and no one will question my loyalty to that State: but, as an architect and builder, I have made a practical observation of the fact that our home products are being degraded by the protection bonus, until in many cases they were not fit to use.

This means that at one time American manufacturers made a good quality of pipe, to-wit, in New Jersey, but that at this time Scotch pipe is more desirable than Jersey pipe. This may be the case; but it is ridiculous to suppose that no really good pipe is made in the United States merely because it is not produced in New Jersey. We know that as good pipe as can be made in the world is made in quite a number of places in the United States, notably in Ohio. Mr. O'Rourke is of that class of men who imagine that no home product can possibly be as good as that made abroad; and in this respect he is very much like some of our Dominion officials who, in making specifications for work to be done in Canada, demand that home-made Portland cement shall not be used, but that the article shall be imported from abroad. Canadian sewer pipe, and Canadian Portland cement is equal to any in the world; and while the ex-cathedra statements to the contrary

by prejudiced officials are not worthy of notice, they illustrate the character of the men who make them.

MANUFACTURERS, many of them, like merchants, sell their products directly either to consumers or to retailers, and, like the merchants, are often put to much inconvenience in collecting their accounts. It often occurs that the cost of collecting an account amounts to quite as much or more than the profit arising from the manufacture of the article sold. Considering the great cost of collecting accounts, manufacturers frequently find it to their advantage to place their collection business in the hands of agencies established for that purpose. But these are not always conducted according to proper methods, and consequently both annoyance and vexation, sometimes attended with pecuniary loss, frequently follow. It is a satisfaction then to know that there is a concern always available, always ready to accept accounts for collection, of the best and most reliable financial responsibility, and whose charges are very reasonable, into whose hands manufacturers may confidently entrust their business. We allude to the Legal and Commercial Exchange, of Toronto, of which Mr. T. G. Wilson is business manager. This concern, which has been in successful operation for a number of years, and which has branch offices in all the principal business centres of the Dominion, has recently increased its staff in both office and field, indicating that its system of collections meets with general approval.

WHILE professing, and to a certain extent, practicing, the principles of free trade, the British government has ingenious methods of giving protection to industries which it desires especially to foster. The artisans of India have remarkable skill in manufacturing articles of silver, and the British Government, wishing to protect its own inferior manufactures of silver-plate from this dangerous competition, has long required that no articles made of that material shall be sold in the islands unless they shall first be tested by the Company of Goldsmiths and stamped with the so-called "Hall" mark. As subjection to this process would mutilate and, of course ruin, any article already completed, the silver manufactures of India have been as completely ruled out of the British market as if there were a prohibitory duty upon them. This matter came up for discussion in the House of Lords, on Monday last, when the statement was made that India would suffer greatly from the depreciation of its hoards of silver, unless these restrictions upon Indian plate should be removed. The reply of the government was expression of disbelief that any great hoards of silver exist in India, and that "silver manufacturers of England are opposed to abolition of the law compelling their goods to bear the 'Hall' mark." The government manifestly intends to stand by the domestic industry and to continue a practice which applies the principle of protection with far greater severity than it was ever applied by any tariff-law in operation in the United States.—Philadelphia Manufacturer.

THE value of the United States exports last year fell off nearly two hundred millions, while the imports were increased by one hundred and fourteen millions, the aggregate commerce declining sixty-nine millions, or nearly four per cent. In Canada the value of the exports increased nearly five millions, and of imports there was an increase of more than eleven millions over 1892, the aggregate trade having been \$247,000,-

000, as against \$231,000,000, in the preceding year, a gain of sixteen millions, or sixteen per cent. The population of the United States may be taken as sixty-five millions; the per capita foreign trade of the country last year was, therefore, \$27.50. The population of Canada is five millions: her per capita foreign trade last year amounted to \$49.46. That is to say, the value of Canadian imports and exports per head of population is \$21.90, or 80 per cent., greater than that of the United States.—Montreal Gazette.

This may show that the foreign trade of Canada is larger, per capita, than that of the United States; but like a two edged sword, it also shows that the merchandise required for home consumption in the United States is supplied to a much larger extent by American manufacturers than is the case with Canada. The foreign trade of Canada should consist only in selling abroad what we cannot consume at home, of our own products, and in buying abroad only what we cannot conveniently produce at home.

THE syndicate which have in hand the project of connecting lakes St. Clair and Erie by a canal large enough to admit the passage of the largest lake boats, have had engineers at work some time past, and have now definitely decided to put the proposed canal through by way of the Two Creeks route. The right of way has been purchased, the route will be surveyed, and everything put in readiness to begin excavating as soon as the company receive a charter from the Canadian Government. The company are already having plans prepared for dry docks, machine shops and coal shutes. From lake to lake, across the isthmus through which the canal will be built, is but a distance of fourteen miles.

THE Manufacturer's Review, of New York, speaking of the alterations in the classification of wool recently made by the customs appraisers, tell us that the reductions of duty on some grades amount to 100 per cent. Why not call it free trade at once?

THE New York World has published statistics from no less than fifty-seven trades unions in that city giving the number employed and unemployed. The showing is startling. It must be remembered that the World is a Democratic organ, and not under political temptation to make things appear to be worse than they really are. On the contrary the political bias would be in just the opposite direction. The total membership of these fifty-seven unions is 99,950. Of these 36,171 are unemployed, or 37 6-10 per cent. There are four unions where 75 per cent. are unemployed, namely clothing cutters, liners and trimmers, gilders and picture frame makers, horseshoers and shoemaking industry. There are fourteen unions which show 50 per cent. of unemployed membership, including several of the largest unions. In this list figure the cigar makers, 3,000 of whom are obliged to be idle. The World says that "the great army of the unemployed is increasing by the thousand every day." A year ago this same New York World was daily appealing to the workmen of the country to vote the Democratic ticket on the ground that it was for their interest to do so. At every Democratic rally was heard a campaign song to the effect that the election of "Grover" would mean "four more years in clover." After a six months' trial and test of the experiment the World rises to announce the result. Will Congress heed the

lesson? It is in the power of that body to stop this appalling paralysis of labor. If the more sensible Democrats will join with the Republicans in removing all apprehension of either a depreciated or a contracted currency, also in removing all apprehension of any serious disturbance of the tariff, the good times will come again.

AN interesting example of electricity as applied to farm work is now in operation on a farm in Scotland. The whole of the usual farm machinery, such as threshing and the like, are there driven by an electric motor. The electricity is generated by water power, the turbine wheel which drives the dynamo being about 100 yards from the farm. The electric current is conveyed by underground wires to the house and farm, in each of which a storage battery is placed. These supply the electric current for lighting and motive purposes when the machinery is not working. The whole of the mansion is illuminated by electric light, and an electric motor is provided for pumping the water for domestic purposes. At the farm there is a large electric motor of 16-horse power, which is arranged to drive the farm machinery. It requires no governor, as the speed does not vary whatever the load may be. Another feature of interest is the ease and quickness of starting; there is no waiting to get up steam, as the motor is at once started by moving over the switch handle. There are many places in Canada where water power now running to waste could be utilized in a similar manner.

THERE is much to be said in defence of the resolution offered at a convention of Scotchmen the other day wherein the practice of using the word "England" when meaning the Island of Great Britain was deprecated, because it ignored Scotland as of no account. It is certainly the case that persons often speak of "England" when referring not only to that part of the island but also to Scotland and Wales, and including Ireland also. Yet it is as inaccurate as it would be to speak of "Prussia" when one meant the German Empire, of which Prussia, though the most important part, is only a part. It would be equally erroneous to call the whole Scandinavian Peninsula "Sweden," or the Empire of Austria-Hungary Austria merely. It is better to use words which leave no doubt as to the meaning of the speaker or writer. If a person says "Great Britain" every one will understand that he means to refer to England, Scotland and Wales. If he speaks of "Britain," then he means to include Ireland as well as the Island of Great Britain. When he talks of England he ought to be understood as referring only to the southern portion of that island, just exactly as when he mentions Scotland all understand that he has in mind the northern portion of that island, inhabited by the "North Britons." There is not, however, any reason why Scotchmen should feel specially sensitive on this subject, for even if England has annexed Scotland the Scots have not been swallowed up by the Englishmen. At the time of the union many Englishmen protested against the union on the ground that the Scots would pour in, and, with their greater thrift, economy, and superior business ability and money-making capacity, get the better of the duller English, and gradually absorb the bulk of the property of England. They felt regarding them much as the South used to feel about the Yankees. Nor were they altogether wrong. In manufactures, foreign commerce, and the ship-

building trade the Scotch have pushed to the front. The present Premier, the real head of the British Empire and Government, is a Scotchman by blood and ancestry.

MR. GEORGE G. LOBDELL, president of the Lobdell Car Wheel Company, of Wilmington, Del., has written to U. S. Senator Higgins, of that State, an open letter on the business situation. He thinks the troubles arise primarily from the fear that the protective features of the tariff will be destroyed, as the party in power and the President are pledged to do. "What confidence," the letter says, "can capitalists have in the financial ability of men who thought it necessary to give the country such an object lesson as they have on the silver question, or in the majority in Congress to properly legislate for such emergencies; or what confidence can manufacturers and men employing labor have in a party controlled by men whose aim has been to create dissension between the laborer and his employer; telling the former that he was being robbed by his employer whose hands have been in his pockets up to the elbow? I doubt there being any permanent improvement in business as long as the uncertainty about the tariff exists, it being the primary cause of the trouble."

THE speech of the mayor of Newark, N.J., the other day, to the handful of foreign anarchists, who, under the guise of a "hungry demonstration," were marching through the streets of the city carrying black flags, is worthy of preservation. It was short, and might well serve as a model for the authorities of other cities on similar occasions. "I don't care what you are or who you are," exclaimed the mayor, with commendable earnestness, "but you must understand that no body of men will be permitted to march through the streets of Newark under the black flag of piracy. It must be the Stars and Stripes or nothing at all. One flag is enough and bodies who refuse to carry 'old glory' should not be allowed to carry any flag at all."

THE only White House mistress to permit the opening of its parlors and conservatories to the public, regardless of days, was Mrs. Patterson, the daughter of President Johnson, who is at present living in Tennessee, and of whom a pleasant sketch, with portrait, is given in the September Ladies' Home Journal. Mrs. Jefferson Davis contributes to the same number a sketch of the widow of Stonewall Jackson, and Alice Graham McCollin writes of "The Blind Reader at Washington," Mrs. Patti Lyle Collins, the clever woman who is the presiding genius of the Dead Letter Office. "Women's Rights and Wrongs" are discussed by Rev. T. De Witt Talmage. Robert J. Burdette is particularly happy in his dissertation on "The Six-Fingered Man." Palmer Cox gives a page of his inimitable "Brownies," as they disport themselves in Holland. "When Choosing a Home," by Agnes Bailey Ormsbee, and "Furnishing a Moderate House," by Helen Jay, are both helpful autumn articles, following close in interest on Miss Maria Parloa's paper on "Opening the Winter Home." Altogether this September Journal, with its seashore cover by W. St. John Harper, and its attractive table of contents, is worth many times its price of ten cents. The Curtis Publishing Company, Philadelphia. Ten cents per number; and one dollar per year.

A LARGE part of the contents of The Popular Science Monthly for September is devoted to important topics of the time. The number opens with a paper showing "Why Silver Ceases to be Money," by Prof. F. W. Taussig, of Harvard University, and pointing out the future prospects of the white metal. "The Pilgrim Path of Cholera" is traced by Dr. Ernest Hart, who points out how the disease is carried to the Mediterranean by the hordes of Asiatic pilgrims who drink polluted waters at the sacred resorts. Prof. Frederick Starr contributes the first of a number of illustrated

articles by different writers on special branches of science at the World's Fair. His subject is "Anthropology." Under the title "Scientific Cooking," Miss M. A. Boland, of the Johns Hopkins Training School for Nurses, points out the dangers of improperly prepared food and the need of systematic instruction in cooking. In "Reformatory Prisons and Lombroso's Theories," the views of the noted Italian specialist are set forth by Miss Helen Zimmerman. M. Charles Letourneau describes the "Origin of Literary Forms." There is an appreciative biographical sketch and a portrait of Dr. Henry Carrington Bolton, President of the New York Academy of Sciences, and the departments are well filled with minor articles. New York: D. Appleton & Company. Fifty cents a number; \$5 a year.

THE September number of the Political Science Quarterly opens with a rejoinder to "Giffen's Case against Bimetallism," by Dr. Charles B. Spahr; Dr. Max West presents a condensed discussion of the "Theory of the Inheritance Tax;" Alexander Winter discourses sympathetically on "The Modern Spirit in Penology;" Prof. J. B. Moore reviews the course of "The Late Chilean Controversy," as disclosed by the official documents; Prof. H. L. Osgood describes "The Prussian Archives" and their publications; and Prof. W. Cunningham, of England, critically reviews the latest volume of "Ashley's English Economic History." The number contains also notices of about fifty publications in the departments of "Reviews" and "Book Notes." Ginn & Co., publishers, 7-13 Tremont Place, Boston, Mass.

SCRIBNER'S MAGAZINE for September contains sixteen titles in prose and verse, seven of them illustrated. The three hundredth anniversary of the birth of Izaak Walton is noticed by an article on his life in London and at Dovedale, with illustrations from recent sketches. The author has collected a great deal of interesting information about Walton which is not easily accessible. One of the most entertaining contributions to the series on "Men's Occupations" is Fred J. Miller's description of the every-day life of "The Machinist." The author writes from practical experience of this life, and in his paper shows what unusual qualities of ingenuity, pertinacity, and insight are necessary to the making of a successful machinist on whom rests so much of modern progress. The illustrations from life are by O. H. Bacher.

OUTING for September is a delightful number, containing a complete story and many sketches of travel, adventure, and reasonable sport and pastime. The illustrations are numerous and beautiful, the frontispiece—a wounded black-tail buck—being an artistic gem. The contents are as follows: "Donald Grey; The Luck of a Good-for-Nothing;" "Lenz's World Tour A-Wheel;" "A Family Camp in the Rockies;" "Woodcock-Shooting in Illinois;" "Temecula Canon;" "Our Sailor Soldiers;" "A Seal Hunt on the Basket Islands;" "Through Erin A-Wheel," (concluded); "Football on the Pacific Slope;" "A Tunisian Jewish Wedding;" "One Cast in the Rio Grande;" "By Canoe from Lake George to the Atlantic;" "A Wolf-Hunt;" "Anita;" and the usual editorials, poems, records, etc.

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MECHANICAL.

- 43,850 Pneumatic tyre for the wheels of velocipedes, etc., J. B. Dunlop, Sr., August 8th.
 43,861 Supplying railway storage heaters with hot water, Consolidated Car Heating Co., August 8th.
 43,862 Sash holder, L. A. Hathaway and E. W. Elkins, August 8th.
 43,864 Automatic fire alarm, L. J. Tizard, August 8th.
 43,865 Knitting machine, G. E. Nye and E. Fredrick, August 8th.
 43,866 Domestic fire range, H. Leggatt, August 8th.
 43,867 Power hammer, J. O'Brien, August 9th.
 43,868 Glove package holder, R. H. Moore, August 9th.
 43,869 Inhaler, H. D. Cushman, August 9th.
 43,870 Case for storing and handling such goods as shot, seeds, and certain kinds of groceries, etc., H. Hayden and J. Yates, August 9th.
 43,871 Surface printing plate, J. Mullaly and L. L. Bullock, August 9th.
 43,872 Rolled paper and fixtures therefor, O. H. Hicks, August 9th.
 43,873 Screw propeller, A. M. Case, August 9th.
 43,874 Petroleum motor, O. Brunler, August 9th.
 43,875 Roller grinding mill, J. Jones, August 9th.
 43,877 Shells for distributing oil on water, J. C. Simmonds and A. Peniston, August 9th.
 43,878 Bolting reel, J. P. Sterling, August 9th.
 43,879 Scutching flax, hemp, rhea, jute, or other like fibrous stems or plants, G. E. Donisthorpe and T. Burrows, August 9th.

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- 43,880 Wrench, F. B. Wells, August 10th.
 43,883 Food preparations, W. Clark, August 10th.
 43,884 Preparing clay, P. Arnold, August 10th.
 43,886 Drying the residue of spirit distillation, brewery grains and starch works for cattle feed. The Aetion-Maschinenbau-Anstalt Vormals Vemuleth und Ellenberger, August 10th.
 43,887 Paper feeding machine, J. L. Morrison, August 10th.
 43,888 Feed machine attachments to printing machines, J. L. Morrison, August 10th.
 43,889 Perforating attachment for printing presses, C. T. Chauncey and H. Peters, August 10th.
 43,890 Window lock, J. A. Leaman, August 10th.
 43,891 Water supplying device for locomotives, The Automatic Water Tank Co., August 10th.
 43,892 Rotary engine. The Consolidated Car Heating Co., August 10th.
 43,893 Preventing horses from running away, S. Birtz and W. Hewson, August 10th.
 43,894 Stone-cutters' bush hammer, J. O. Donnell and C. Watson, August 10th.
 43,896 Hydro-carbon motor, J. Martink, August 11th.
 43,897 Oil stove, A. Q. Allis et al, August 11th.
 43,898 Button-hole finishing machine, J. L. Herridge, August 11th.
 43,899 Dyeing machine, Klander Weldon Dyeing Machine Co., August 11th.
 43,900 Fire box and steam boiler, C. W. Hulings and J. W. Thatcher, August 11th.
 43,901 Cloth board, A. Lucas, August 11th.
 43,902 Boats and means for propelling the same, A. Marty and R. J. Lecomte, August 11th.
 43,903 Can labelling machine, Automatic Gravity Labelling Co., August 11th.
 43,904 Pianoforte. The A. B. Chase Co., August 11th.
 43,905 Coupling hose, J. Gates et al, August 11th.
 43,907 Steam boiler or water heater, A. Boyce, August 11th.
 43,908 Door holder, C. Kerner, August 11th.
 43,909 Corset and dress stay, C. S. Cole, August 11th.
 43,910 Ore stamp, J. C. Marshall, August 12th.
 43,911 Brick press, B. C. White, August 12th.
 43,912 Corset stay, J. W. Van Orden, August 12th.
 43,913 Nail driving apparatus, L. Kowden, August 12th.
 43,914 Check on a conductor issuing transfer tickets, E. C. Boeckh, August 12th.
 43,915 Knitting machine, W. W. Clay, August 12th.
 43,916 Breaking, scutching and decorticating flax, rhea (China grass), and similar fibres, G. E. Donisthorpe and G. Burrows, August 12th.

G. de G. LANQUEDOC,

PATENT SOLICITOR

CIVIL ENGINEER AND ARCHITECT

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- 43,917 Faucet, J. M. McFarland, August 12th.
- 43,918 Centrifugal ore separator, O. B. Peck, August 12th.
- 43,919 Ticket box, J. J. Murphy, August 12th.
- 43,920 Opening cans, H. Woodley, August 12th.
- 43,921 Means for advertising, etc., P. M. Daigmault, August 14th.
- 43,922 Triturating and emulsifying machine for grinding and mixing medical substances, W. B. Cowan, August 14th.
- 43,923 Metal barrels and other like vessels, D. Caird, August 14th.
- 43,924 Back for the covers of books, pocket books, etc., E. Schufer, August 14th.
- 43,925 Utilizing water power for heating and smelting, S. H. Emmens, Aug. 14th.
- 43,926 Dioptric appliance for lamps, A. Nieuwenhuys, August 14th.
- 43,927 Making candy, B. Theous, August 14th.
- 43,928 Making candy, B. Theous, August 14th.
- 43,929 Metallic waggon frame, W. P. Bettendorf, August 14th.
- 43,930 Metallic waggon tongue, W. P. Bettendorf, August 14th.
- 43,931 Metallic waggon frame, W. P. Bettendorf, August 14th.
- 43,932 Suspending scaffolding, C. Heinemann, August 14th.
- 43,933 Manufacture of coke, M. Ziegler, August 14th.
- 43,934 Stove caster, Z. D. Morrow, August 14th.
- 43,935 Coin operated, or automatic delivery machine and means for facilitating the storage and delivery of postage stamps therein, C. F. A. Hoell, August 14th.
- 43,936 Ink holder for pen, C. W. Vose, August 14th.
- 43,937 Separable collar and pulley, O. C. Little and D. T. H. Mackinnon, August 14th.
- 43,938 Dating stamp, N. Mathieson, August 15th.

- 43,939 Expansion drum, J. J. Magee, August 15th.
- 43,940 Furnace, for treating refractory ores, F. C. Butterfield, August 15th.
- 43,941 Earthenware water tank, W. B. Madhu, August 15th.

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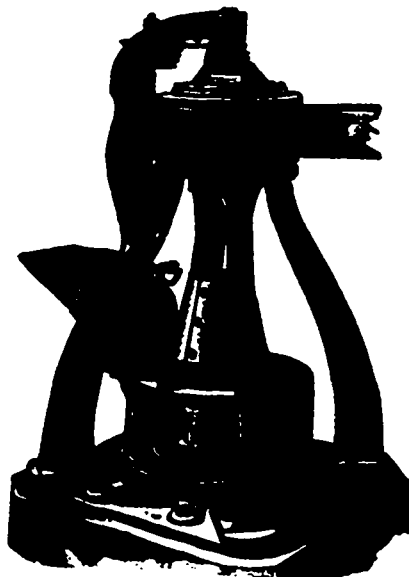
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 43,926 Packing confectionery, etc., J. R. Stout, August 16th.
 43,927 Oil can, R. McVicar, Jr., August 16th.
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 43,930 Folding furniture, H. Ludwig, August 16th.
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 43,932 Preparation of cellulose for the manufacture of spun fabrics, C. Kellner, August 18th.
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 43,935 Time table, J. F. O'Brien, August 18th.
 43,936 Manufacturing white lead, A. B. Browne, August 18th.
 43,937 Bath tub, F. J. H. Hazard, August 18th.
 43,938 Spraying ball, O. Scherff, August 18th.
 43,939 Means for charging liquids with carbonic acid gas, A. Lauderer, August 18th.
 43,972 Elevator cup attachment, M. Campbell, August 18th.
 43,973 Keyseat cutting machine, MacGregor, Gourlay & Co., Aug. 18.
 43,974 Means for consuming petroleum and apparatus for making combustible gas therefor, J. Lesle, et al, August 19th.
 43,976 Heating and ventilating drum, R. Pugh and W. Grovenor, August 19th.
 43,977 Construction of umbrella frames, F. Giles and J. Paterson, August 19.
 43,978 Sight feed lubricator, F. J. Carroll, August 19th.
 43,979 Spool and article holder, F. Hoag and J. E. W. Braum, August 19th.
 43,982 Wire structure, J. Horrocks, August 19th.
 43,983 Reversing mechanism for counter shafts, F. Holderman, August 19th.

- 43,984 Ore pulverizer, gold sayer and mineral concentrator, B. J. Atterbury, August 19th.
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 43,992 Winch-fitting for fishing rods, O. S. Ruddock, August 21st.
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 43,996 Dental hot air syringe, F. B. Morris, August 21st.
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- 43,860 Trolley, J. A. Stewart and J. S. Baker, August 8th.
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 43,895 Telephone. The Bell Telephone Co. of Canada, August 10th.
 43,906 Unison apparatus for printing telegraphs. The Equitable Mfg. Electric Co., August 11th.
 43,953 Smelting by electricity, A. F. M. Kreinsen, August 16th.
 43,954 Electricity meters for alternating pulsating, intermittent and polyphase currents, T. Duncan, August 16th.
 43,962 Electric reduction of refractory metallic compounds, T. L. Wilson, August 18th.
 43,971 Heating cars by electricity, The Consolidated Car Heating Co., August 18th.
 43,975 Telephone transmitter circuit, The Bell Telephone Co. of Canada, August 19th.
 43,980 Electrode for use in the electrolytical decomposition of metallic salts, F. M. Lyte, August 19th.

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 43,950 Reducing and smelting sulphide ores, A. L. Engelbaecht and S. E. Bretherton, August 15th.
 43,951 Reduction of sulphide ores and manufacture of carbon bisulphide, M. Wanner, August 15th.
 43,958 Production of chlorine conjointly with the purification of lead and the recovery of silver, F. M. and C. H. M. Lyte, August 16th.
 43970 Manufacturing gas, F. D. Moses and E. S. Austin, August 18th.

THE CHENEY ADJUSTABLE AND FLEXIBLE
LOOM REED.

FIFTY thousand dollars in cash is a big price to pay for any invention. Add to that sum \$100,000 in stock of the new company, and the improvement must be an important one to command such a price. Yet it is understood that these were the figures paid to Joseph W. Cheney for his improvement in looms. The price is all the more significant of the value of the invention when it is known that the purchasers who comprise the controlling interest in the Cheney Flexible Loom Reed Co. were such careful, conservative and practical cotton mill men as James W. Cummoek, agent of the Dwight Manufacturing Co., at Chicopee; Charles J. Goodwin, president of the Indian Orchard Co.; Herbert L. Pratt, agent of the Bates Manufacturing Co., of Lewiston, Me.; Joseph M. Dunham, superintendent of the Merriek Thread Co.; John L. McKemie, foreman of the same concern; and Benjamin F. Nichols, late manager of the Metallic Roll Co.; to say nothing of such eminent capitalists as Emerson Gaylord, of Chicopee, and John Ohmsted, of Springfield. These men did not invest except after extended practical tests of the Cheney device and an elaborate investigation of the patent.

It appeared that the Cheney adjustable and flexible loom reed applied to nine hundred looms with the same speed, the same work and the same help as before, gave an average increase in production of 16 2/3 per cent., as the result of a four months' test. This was on a wide variety of goods at the Palmer Mills, Three Rivers, Mass. In tests at the Dwight Manufacturing Co. the increased production on a 108-inch reed went as high as 20 per cent. In addition to this extraordinary result the following objects are attained by this device:

It will weave over 90 per cent. more spiders' knots or any other kind of a knot, or any tender place in the yarn, such as may be caused by piecing up on spinning, etc., than the old way. Furthermore, work can be shown now running where it is utterly impossible to weave knots in of any kind the old way, where this invention weaves practically all.

It does not need as strong yarn, nor such heavy sizing as the old way, but will weave tender yarn and slack-sized warps where it is utterly impossible to weave them without it.

It makes more first quality and better looking cloth.

It increases weavers' pay and they can run more looms.

It will make cloth heavier by not chafing off the short fibre and starch while being woven in.

It will make brighter-looking cloth on colored goods, for the reason that about all colored goods are dyed in the yarn, the color-

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no matter being mostly on the outside. There being less friction on the yarn the fibre is not roughened up so much with this invention, therefore makes brighter-looking cloth.

It also takes less power to run a loom, there being less friction on the yarn through the reed, and having an adjustment which can adjust the reed so perfectly making a perfect track for the shuttle which is driven across easier, also making a great saving of the shuttle.

The essential principles of this device are: First, the flexibility of the reed, by reason of which the yarn will pass through readily and without injury, even though it be knotted, woven, highly dyed or of imperfect quality; second, the adjustment of the reed, whereby it is made to line with the boxes, thus enabling the reed to be kept in an absolutely true position. The above described advantages from this device are due mainly to the patented adjustment, without which it is impossible to secure the results noted. Looms have been made with the reed dropped below the race board, but have not proved satisfactory or practical on a large scale until the invention of the Cheney adjustment.

A great point in favor of this device is that it can be readily applied by any loom fixer to old looms now in operation, while its application to new looms need not materially add to their expense. It requires the use of a wide or deep reed, so that the present nar-

row reed would have to be discarded on old looms, but, aside from this, the cost of labor and material for applying the device will be but a dollar or so per loom.

With a view to its immediate and universal adoption, the company has wisely established a merely nominal royalty for the use of this device, ranging from \$1 to \$2 and upward per loom, according to width and class of goods. At these prices the device will pay for itself in a very few weeks' operation, and no mill can afford to run looms without it.

The Cheney patents were taken out in June, and the Cheney Flexible Loom Reed Co. has since been organized with a capital of \$300,000 and these officers: President, Charles J. Goodwin; vice-president, H. L. Pratt; treasurer, Herbert Myrick; agent, Joseph W. Cheney. The foregoing, with James W. Cummock, Benjamin F. Nichols and Henry A. Chapin (the well-known patent attorney), constitute the board of directors. The company's office is with the Metallic Drawing Roll Co., at Indian Orchard, Mass. The two concerns are distinct corporations, but several of the same gentlemen are interested in both, and Mr. Myrick has the management of both enterprises.

Both the Cheney Adjustment and the Metallic Drawing Rolls are patented in Canada.

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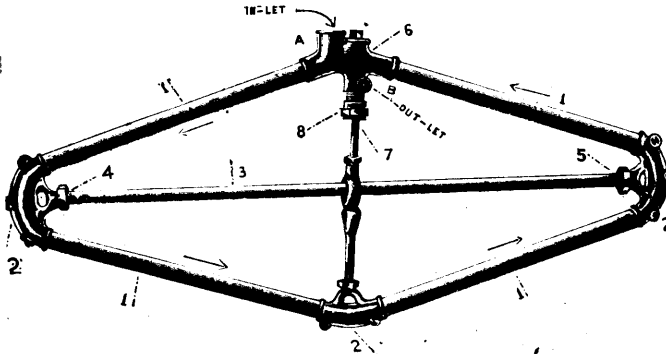
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REHM'S DUPLEX STEAM TRAP.

THE accompanying illustration is of Rehm's Duplex Steam Trap, manufactured in Canada by Messrs. Thos. Downs & Co., 28-30 Dalhousie Street, Toronto.

In this trap the steam circulates entirely around through the frame portions, 1 and 2. A is the inlet and B the outlet. The adjusting rod, 3, has a right and left hand thread, 4 and 5, which screws into parts, 2, at each end of the trap.



Turning the adjusting rod a trifle to the right, reduces the flow of water; turning it to the left, the flow is increased. This adjusting rod, 3, is solid, and does not connect with the trap, hence does not receive the steam, consequently does not change temperature. It remains rigid, and holds the two ends of the trap, 2, 2, an equal distance apart at all times.

The principal involved in this trap is the expansion of metals by heat, and their contraction by cold. The expansion or contraction of the outer frame governs the entire working of the trap. When the outer pipe which constitutes the trap becomes heated and expands, the expansion cannot find vent lengthwise or laterally, because of the adjusting rod. The trap, therefore, vents its expansion vertically or in a line across the center. Just here rests the secret of the entire mechanism of the trap. The valve and valve stem are in this vertical line, and influenced by the slightest variation.

Expansion causes the valve to close and stop flow of water. Contraction opens the valve for ready discharge of water. The adjusting rod, 3, passes through an opening in the valve stem. The valve is mounted on a ground seat within case 6; 7 is the valve stem, 8 is the stuffing box. The trap must always be adjusted with steam on by turning the adjusting rod sufficiently to prevent escape of steam. Then when water enters the trap and cools it off, contraction ensues, thus opening the valve allowing the water to flow out of the outlet, B. Care should be taken not to adjust too tightly. The delicate adjustment admits of discharging water of any desired temperature.

The advantage of this trap is, that no water accumulates to condense steam, thus giving the full benefit of it.

This trap may be attached to steam engines, pumps, boiling kettles, railroad coaches or any heating apparatus, or wherever steam is used for heating purposes.

The trap may be set in either horizontal or vertical position, as is most convenient.

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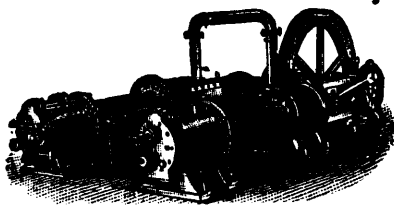
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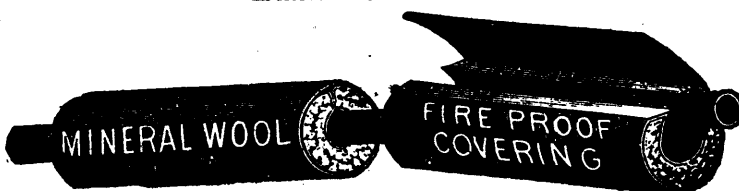
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Our covering is the best fuel saver on the market.

Canadian Mineral Wool Co., Ltd., 122 Bay Street TORONTO

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.

W. A. GRIFFITH, of Emerson, Man., is building an elevator of 25,000 bushels capacity to replace the one burned recently.

The new farmers' joint stock mill at Oxbow, Assa., is now running and turning out first class flour. Gen. Bishop has been appointed managing director.

A motion by-law for the purpose of raising \$4,000 for the erection of a 150-barrel flour mill at Wawanesa, Man., was voted on recently and carried. It is also proposed to ask for \$1,000 each from sections of the municipalities of Turtle Mountain and Cypress, making the amount \$6,000, as these districts are tributary to Wawanesa.

The Manitoba Elevator Company is erecting an elevator at Rosebank, Man.

The Kingston Hosiery Company, Kingston, Ont., of which Mr. John Hewton is manager, have acquired the right to manufacture and use in Canada a new patent knitting machine, and an outfit of such machines is now being made in Kingston with which the mills of the company will soon be equipped. It is claimed that one of these machines will have capacity to turn out 160 pairs of men's hose per day.

Messrs. S. TAYLOR & Co., whose knitting factory in Merritton, Ont., was recently destroyed by fire, have started a new factory in St. Catharines, Ont.

The R. Forbes Company, Hespeler, Ont., manufacturers of fine woollens, are making important additions to their plant and machinery.

Messrs. BROWN & WIGLE, manufacturers of blankets, etc., Kingsville, Ont., having largely increased the capacity of their mill, will double their output this year.

Messrs. THORNTON & DOUGLAS, Stratford, Ont., who recently began the wholesale manufacture of ready made clothing, have 75 machines in operation and are meeting with much success.

Messrs. MICKLE, DYMEST & SON, Gravenhurst, Ont., are building a new saw mill at Severn, Ont. The building is 115 x 50 feet, two stories. They will run band and circular saws.

A SPECIAL train of sixteen cars, containing 200 binders, left the Messy-Harris Works, Brantford, one day last week for Buenos Ayres. They form half of a 4th order.—Monetary Times. Our impression is that no through trains run between Brantford, Ont., and Buenos Ayres, South America. Perhaps there will be a trans-shipment of cargo at a neighboring sea port.

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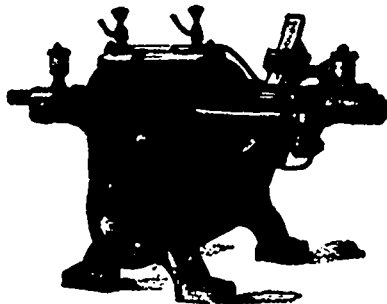
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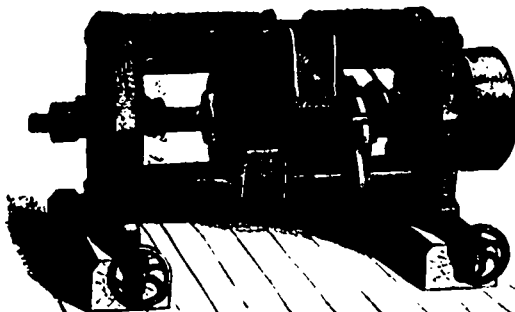
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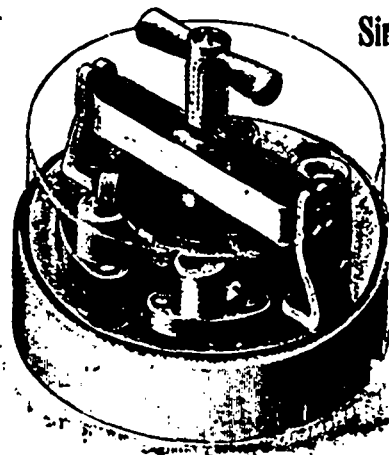
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THE Central Bridge & Engineering Company, Peterborough, Ont., inform us that they are having a good demand for the Optimates power hammer manufactured by them, the invention of Mr. W. H. Law, the engineer and manager of that company. They tell us that this is the only power hammer ever made in which the stroke of the ram can be set to travel any distance required between zero and full stroke by the manipulation of the treadle only, and while the process of forging is going on. It is the only power hammer made that will give blows varying in force from a few ounces to the full force of the blow the hammer is designed to strike without any decrease in the number of blows given. It is the only hammer in which the power consumed is in proportion to the work done, therefore effecting a great saving over other hammers. We are further told that the Optimates is the only power hammer in the world in which the ram can be made to travel the full length of stroke, or make short strokes for all thicknesses of metal the hammer is designed to forge, without the operator leaving the anvil or stopping the operation.

THE St. Thomas Car Wheel Company, St. Thomas, Ont., have sent us a beautiful souvenir portfolio of the World's Columbian Exposition at Chicago, which contains illustrations from water color drawings, and appropriate descriptive reading of the Manufactures and Liberal Arts Building, which covers more than 30 acres of ground and is the largest building in the world; the United States Government Building, the Casino and Pier, Machinery Hall, Electrical Building, Fisheries Building, Horticultural Building, Birdseye View of Grounds and Buildings, Woman's Building, Transportation Building, Administration Building, Gallery of Fine Arts, Mines Building, Agricultural Building and of the ironclad man of war Illinois. Alluding to the special machined car wheels manufactured by the St. Thomas Car Wheel Company, we are informed that these wheels are made of special mixtures of carefully selected charcoal iron, having a transverse strength of 72,000 pounds per square inch. They are bored in the hub, ground true on the tread, and balanced. They have been adopted by a number of leading railroads formerly using steel tired wheels. The company have a fine exhibit in the Transportation Building at the World's Fair.

THE Baldur Farmers' Elevator Co., Baldur, Man., are applying for incorporation.

THE Niagara Falls Park & River Railway Company, whose electric railway extends from Queenston to Chippewa, via Niagara Falls, have determined to double track their road, to be ready for operation in the course of a few months. A full description of this road and the beautiful scenery along it was given in a recent issue of this journal. It is understood that a line of excursion steamers will be run in connection with this road next season between Chippewa and Buffalo.

THE Whitman & Barnes Manufacturing Company are now placing a line of hammers on the market in addition to their other numerous lines. They have also purchased the good will and business of the Capital Manufacturing Company, of Chicago, so far as pertains to the wrench business. This covers the steel twisted handle wrench known as the Acme wrench, together with all their patents on combination wrenches, pipe wrenches, etc. The Canadian branch of the Whitman & Barnes Manufacturing Company is at St. Catharines, Ont., where all orders should be sent.

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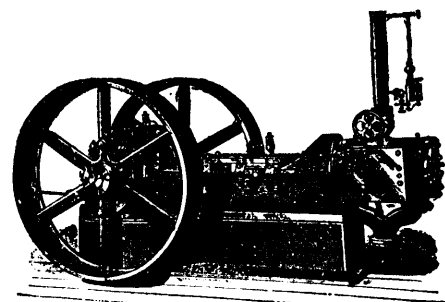
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AUTOMATIC HIGH SPEED ENGINES



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Electric Lighting

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Perfect Regulation and
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STEAM PUMPS
SHAFTING, PULLEYS

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Nie & Whitfield - Hamilton, Ont.

Established in 1848

STEEL

Singer, Nimick & Co., Ltd.

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HOT AND COLD
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MANUFACTURERS
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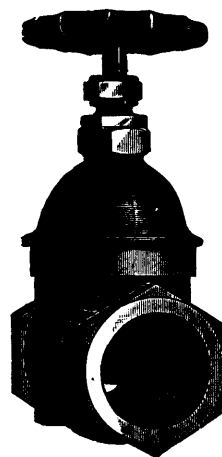
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THE WEBBER PATENT

Straitway Valve

FOR

STEAM, WATER OR GAS

EVERY VALVE TESTED

THE KERR ENGINE CO. (Ltd.)

WALKERVILLE, ONT.

Sole Manufacturers for Canada.

Send for Price List.

The J. C. McLaren Belting Company, Montreal, are supplying a large quantity of leather belting for the new works of the Slingsby Wooden Manufacturing Company at Brantford, Ont.

The Toronto Glass Company, the organization of which is elsewhere alluded to in these pages, have purchased a site near the Bell Engine and Machine Works, on Blair Street, in the western portion of this city, and have begun the erection of their factory, which it is expected will be ready for operation in the course of two months. At first a force of about 35 hands will be employed, to be increased later to about 75. The output will be gem preserving jars, apothecaries' glass ware, etc.

The Toronto city authorities have issued the permit for the erection of the new Union railway station, which will cost \$475,000. The iron and steel work for the building is being made by the Central Bridge & Engineering Company, of Peterborough, Ont.

The workshops of the Richelieu & Ontario Navigation Company at Sorel, Que., were destroyed by fire Aug. 29, loss about \$25,000.

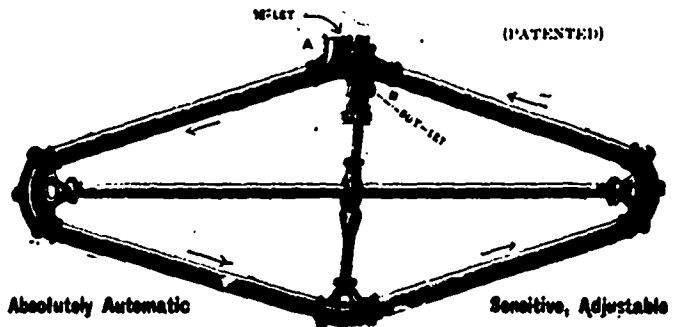
The saw mill of Messrs. John Hann & Sons, at Ten Mile Lake, near Rosseau, Ont., was destroyed by fire August 28, loss about \$3,000.

JAMES LESLIE, Montreal, manufacturer of card clothing, loom reeds and leather belting, has issued the following circular to the woolen and cotton mills:—"I beg to inform you that I have added to my card clothing department a complete plant of the latest improved card grinding machinery, and I am now prepared to grind all hardened and tempered steel wire clothing. You will find this addition to my plant to your advantage, a saving of time and labor in the mill, without increasing the first cost of the card clothing. A trial order will convince you that I can produce card clothing that will give you every satisfaction, as good as can be imported. I guarantee all my clothing against defects in material or workmanship." Mr. Leslie has been appointed agent in Canada for Dronsfield Brothers, Ltd., Oldham, the celebrated English makers of patent card grinding machinery.

The Worsted & Braid Company, Toronto Junction, Ont., have recently put in ten new braiding machines at a cost of \$1,200.

An electric railway is projected to connect Brantford, Ont., with Selkirk, Ont., a place of about 1,000 inhabitants, situated on Lake Erie. The distance by the proposed route between the two places is about thirty miles over a level country where no engineering difficulties present themselves. Places through which the road would pass are Oshwekin, Hagersville, Nelles Corners and Balmoral. The projectors say that trailer cars could be attached to the passenger trolleys to haul farmers' produce to market, and coal which all will require soon for fuel, because of the depletion of forests, at city prices. Selkirk has every facility for a summer resort; good hotels, beautiful groves, fine fishing, mineral springs, etc. Connection could be made with the Northern & Northwestern and the Michigan Central railways at Hagersville and the Loop line at Nelles Corners for passengers for receiving and delivering heavy freight. Farmers anywhere along the line could find ready sale for their milk for city use, by delivering on board, as the electric cars would stop wherever hailed. The removal of the bar at the lake which could easily be done, would make Selkirk an excellent harbor.

REHM'S DUPLEX STEAM TRAP



Absolutely Automatic | Sensitive, Adjustable
THOS. DOWN & CO. | Sole Manufacturers for the Dominion
 28 AND 30 DALHOUSIE ST., TORONTO, ONT.
 FINE BRASS CASTINGS. | A Trial Order Solicited.

Equalled by Few

Excelled by None

CANADA'S GREAT INDUSTRIAL FAIR

And Agricultural Exposition

TORONTO

SEPTEMBER 4TH TO 16TH, 1893

\$150,000 Expended in Improvements in 1892, and \$125,000 being Expended this year. No Standing Still

The Best and Largest Exhibition in the Dominion of Canada,

And Attended Annually by over 300,000 Visitors. The Newest and Best Attractions Attainable. Brighter and Greater than ever. The best time to visit the Metropolis of Ontario.

CHEAP EXCURSIONS AND LOW RATES ON ALL RAILWAYS, Etc.

ENTRIES POSITIVELY CLOSE AUGUST 12TH

For Prize Lists, Entry Forms, and all other Information, address

J. J. WITHROW, President.

H. J. HILL, Manager, Toronto.

MESSRS. McRAE & POWELL's saw mill at Madawaska, near Kingston, Ont., was destroyed by fire Aug. 12. Loss about \$4,000.

THE Slingsby wincey mill at Brantford, Ont., is to be enlarged and considerable new machinery added. The proprietors will invite tenders for the improvement of their water power.

THE York Milling Company, York, Ont., is being incorporated with a capital stock of \$6,000 to erect and operate a flour mill.

THE Oxford roller flour mill at Norwich, Ont., and the elevator connected therewith, owned by Messrs. Walker, Harper & Co., were destroyed by fire Aug. 22nd., loss about \$40,000. The mill had a capacity of 200 barrels per day.

FERDINAND ALLARD, the blacksmith, of Levis, Que., the Canadian who claims to have discovered the long-lost secret of tempering copper, was in Ottawa a few days ago on business connected with his discovery. He has with him several copper articles tempered by his process. Perhaps the most interesting of these was a small cannon about eighteen inches in length, tested by Col. Montzambert at Quebec. The little gun was loaded to the muzzle with the strongest powder, driven into it with a sledge, but which, on explosion, produced no expansion on the barrel. Dynamite, Allard says, would only produce the same result. He showed also a copper plate, three-eighths of an inch in thickness, containing impressions of rifle bullets fired against it at forty yards' distance with the force of 2,000 pounds. The indentation did not exceed one-third the diameter of the balls, while a plate of hardened steel, two inches thick, at its side was shattered to pieces. A plate of this copper, fourteen inches thick, he alleges, could not be penetrated by the most powerful projectile known. Mr. Allard has now a cart on exhibition at Chicago, the tires, springs, and "ironings" throughout made of copper, all as bright as the day it was constructed. The tires show no indentations, though driven hundreds of miles over stony roads, and the delicate springs are much stronger, lighter and more elastic than steel, the oxygen of air or water having no power to dissolve or corrode the metal. President and Mrs. Cleveland with four others drove through the streets of Chicago during their visit to the World's Fair in this wonderful cart, and greatly admired its gold-like trappings and its tiny springs. The aluminium knife, in the form of an ordinary dinner knife, sent him to temper by the Cincinnati Aluminium Company,

was particularly interesting. Before tempering he wound the blade around his finger as if it were putty, but now it is hard and cuts wood like an ordinary steel knife. It is difficult to conceive that a light metal, while like and so much lighter than silver, could be extracted from ordinary clay and be endowed with such hardness. For more than 2,000 years this secret of tempering copper, now re-discovered by Mr. Allard, was a lost art. Locomotives made of his metal, in which is pure copper without any alloy, would be doubly more powerful than those now in use; his boilers and engines would materially shorten the time of transatlantic steamships, and the British fleet wrapped up in his golden mail could defy the projectiles of the world.

Cotton Manufacture and its Machinery

WEAVING CALCULATIONS.

A Guide to Calculations Relating to Cotton Yarn and Cloth. By C. P. Brooks. New edition, cloth, 12mo. \$2.00.

COTTON MANUFACTURING.

By C. P. Brooks, illustrated, 12mo, cloth, \$2.25.

MODERN COTTON SPINNING MACHINERY;

Its Principles and Construction. By J. Nasmith. 200 illustrations, 4to, cloth, \$6.00.

COTTON.—See Spon's Dictionary of Engineering: part 35: price 40c.

COTTON.—See Spon's Encyclopædia of the Industrial Arts, parts 12, 13, price 75c. each.

THE STUDENT'S COTTON SPINNING.

By J. Nasmith. With 100 illustrations, 12mo, cloth, \$2.50.

DYEING AND CALICO PRINTING.

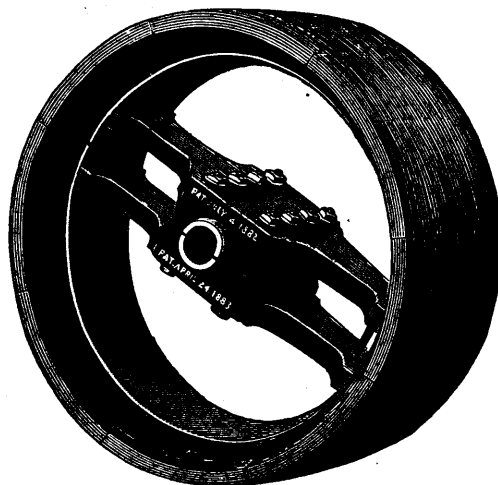
See Spon's Encyclopædia, parts 13, 14, 75c. each.

Write for Descriptive Circulars. Books Mailed, post paid, to any part of the World on Receipt of Published Price.

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12 CORTLANDT ST., NEW YORK, U.S.A.
Mention this paper.

Dodge ^{PATENT} Wood Split Pulleys

33 ¹/₃ Per Cent. More Power
with Same Belt
Over
Iron or Steel Pulleys



50 to 75 Per Cent. Lighter
Than
Iron Pulleys
and Much Cheaper

Remember that every Pulley is fully guaranteed by us. Rim of our Pulley is Thoroughly Nailed, as well as being glued and pressed up, making it the only perfect Wood Pulley made. We fill all orders on day received. We solicit your orders knowing we have the best Wood Split Pulley in the World. Send for Catalogue.

DODGE WOOD SPLIT PULLEY CO., Toronto

The London (Ont.) Street Railway Company will build and operate an electric street railway in London West, a connecting suburb of London, and when it is in operation a bridge will be built connecting with the London street railway system, where there are no electric cars at this time. The London West road is to be completed by November 1st.

Mr. Whyte, of the Canadian Pacific railway, says regarding the building of a grain elevator at Winnipeg: "We have decided to build at once. The condition of the crop to-day warrants it. Last year there was not sufficient storage accommodation at Fort William and it is necessary to furnish more accommodation either there or at Winnipeg. The Company have decided to build at Winnipeg as it will suit the trade better. In addition to further storage it will provide a cleaning and sorting elevator, for which a large section of the grain trade have been agitating for some time. We have already received the foundation plans. No piles will be sunk but it will be one foot and a half concrete bound together with old rails. On this will be built seven feet of masonry piers. The capacity has not yet been determined, and will not be until the plans for the superstructure are received. The intention is to have it ready for this year's crop, so work will be started immediately."

Fire in the tobacco works of the Empire Tobacco Company, at Montreal on Aug. 27th, destroyed property valued at \$40,000.

Fire in Machinery Hall at the fair grounds of the Toronto Industrial Exhibition Association on Aug 27, did damage to the extent of about \$1,000. The building has been put in good repair and the incident will in no manner interfere with the forthcoming exhibition.

The paper mill of Messrs. Miller Bros., at Glen Miller, Ont. was destroyed by fire, Aug. 26, loss about \$100,000.

A Kingston, Ont., dispatch says that a Pennsylvania company have purchased a quantity of iron ore from the mine at Caledonia. It will be experimented with, and if satisfactory the property will be purchased and operations resumed. Ore has not been shipped from that district for over three years.

Messrs. A. G. VAN EDOMON'S Sons, Seaforth, Ont., have recently built a new dye house and have put a number of new looms into their woolen mill.

Dominion Wire Manufacturing Company

MONTREAL AND TORONTO.

Wire Drawers, Galvanizers

AND

MANUFACTURERS OF

**IRON WIRE BRASS
STEEL WIRE COPPER**

FOR ALL PURPOSES

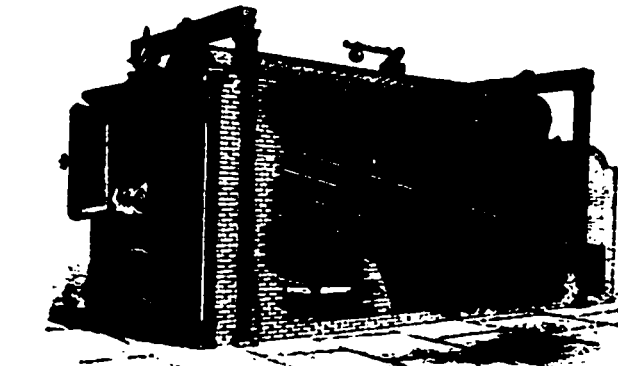
Also

Steel and Brass Wood Screws, and
Wire Nails.

Crescent Coat and Hat Hooks, Steel and
Brass Jack Chain.

2 and 4 POINT BARS and PLAIN TWIST FENCING.

WRITE FOR PRICES AND DISCOUNTS



The Babcock & Wilcox Co.

WATER TUBE STEAM BOILERS

Now being manufactured in Canada

Agents for the Dominion

A. HOLDEN & CO.

Waddell Building - 30 St. John St., MONTREAL

Send for book "STEAM" free on application.

**THE CANADIAN
COLORED COTTON MILLS CO.**

SPRING, 1893

Ginghams, Zephyrs, Cravenettes, Bedford Cards,
Cheviot Suitings, Flannellets, Dress Goods,
Skirtings, Oxfords, Shirtings, Cotton-
ades, Awnings, Tickings, Etc.

See samples in Wholesale Houses : **NOW READY**

D. MORRICE, SONS & CO., Agents
MONTREAL AND TORONTO



"STARR"

**Incandescent
Lamps**

HAVE NO SUPERIOR

UNRIVALLED QUALITY

HIGH EFFICIENCY

MOST ECONOMICAL

FULL CANDLE POWER

LONG LIFE

CHEAP

The "Starr" Lamps are Made of any Candle-power and Voltage, and with bases to suit the different sockets in use. The quality of these Lamps is unsurpassed, and users of Lamps will find it greatly to their interest to give them a trial. They have a long life, give out full-rated Candle-power, and do not blacken.

QUOTATIONS GIVEN ON APPLICATION

Stating Candle-power, Voltage, Base, and quantity wanted.

These Lamps are packed in an improved manner, each Lamp being done up in a separate package, with particulars stamped on the outside. This renders them most convenient to handle, and avoids breakage. They can also be packed in smaller compass.

CORRESPONDENCE SOLICITED.

John Starr, Son & Co., Ltd.

Manufacturers and Dealers
in Electrical Apparatus and Supplies
HALIFAX, N.S.

The Haworth Belting Co.

MANUFACTURERS

OFFICE AND FACTORY: 9 AND 11 JORDAN STREET

Toronto

We call attention to the advertisement of "Starr" incandescent lamps by John Starr, Son & Co. (Ltd.), of Halifax, N.S. These lamps are giving excellent satisfaction wherever used, and although they have only been on the market since January 1883, many thousands of them have been sold to most of the electric light companies in Canada. They are made with bases to suit the standard sockets and these are so attached to the bulb that they will not work loose. These lamps are all uniform in construction and give a good light, the end in the filament adding to the beautiful appearance of them. The mode of packing these lamps is very convenient, each lamp being done up in a separate package with particulars printed on the outside, which enables the lamps to be carried about without fear of breakage. We would advise electric light users who have not already tested the "Starr" to send a sample order.

The Guelph Herald, one of our many Canadian contemporaries, which has recently been supplied with an outfit of type and printing materials supplied by the Toronto Type Foundry Company, of which Mr. J. E. Johnston is manager, has the following to say regarding its equipment, which we most heartily endorse:—"Some time ago, when deciding to put a new dress of type upon The Herald, the proprietor felt a strong leaning, as all good Canadians should, towards encouraging home manufacturers. At that time the Toronto Type foundry was in its experimental stage, and it was a question whether it was good business to buy an article that had not been demonstrated to be as durable as that made by foreign factories. The fact was also recognized that, if nobody gave the new foundry a fair opportunity to demonstrate what it could do, all Canadian printers would simply be at the mercy of foreign foundries and a new firm would never be able to get a start. Mr. Johnston, the proprietor of the Toronto Type Foundry, assured us that the wearing qualities of his type were equal to those of any other, but to prove this was not so easy a matter, in view of the fact that the foundry had not been long in existence. Taking up a copy of a contemporary, with very nearly as large a circulation as The Herald, Mr. Johnston enquired how long since it had put on a new dress. Our reply was that it was less than three years, and that the type was of foreign make, by a foundry of the highest reputation, whereupon we were guaranteed that after three years' use of the Toronto type The Herald would present a better appearance than our contemporary then did. We decided to give the matter a trial and marked a copy of the paper which was using transatlantic type,

which was carefully put away until the three years should elapse. It is now over four years since, and the marked copy of our contemporary is before us. It must be confessed that the four years' wear of the Toronto type in The Herald, with a larger circulation than our contemporary and hence much harder usage, shows up better than did the foreign type in the other paper after three years' wear. This is especially gratifying, as it is convincing proof that our Canadian manufacturers, when given a fair field, can produce goods at least equal to the best foreign houses, and at much less expense to the purchaser, as was the case in the instance herein referred to. From the manager it is learned that the skilled mechanics required in the manufacture of type have been brought into Canada from Great Britain, Germany and the United States, thus increasing the population and wealth of the country. The Herald heartily recommends the Toronto Type Foundry to Canadian printers, and feels assured that all its customers will meet with perfect satisfaction and the best of treatment."

TO DRAUGHTSMEN, Etc.

We are the Only Firm in Canada preparing our own

Blue Print Paper

Supplying a First-Class Article at a Low Figure, using a very Superior Quality of Paper.

Also, a very Superior Article in **Prepared Blue Print Linen**

And would direct attention to a new **Prepared Black Print Paper**

(Black Lines on a White Ground), for which we are Sole Agents. This is as simple as the Blue Process, only a single water bath, and no chemical developer required. Our usual large assortment of **DRAWING PAPERS, TRACING CLOTH, Etc.** Send for Samples and Price List.

R. SHARPLEY & SONS, 225 St. James St., Montreal.

ECO MAGNETO

WATCHMAN'S ELECTRIC CLOCK

WITHOUT BATTERIES

Write for Descriptive Circular to

Eco Magneto Clock Co.

Room 71 - 630 ATLANTIC AVE.

Boston, Mass.

Michigan Emery Wheel Company

194 Catherine Street, Detroit, Mich.

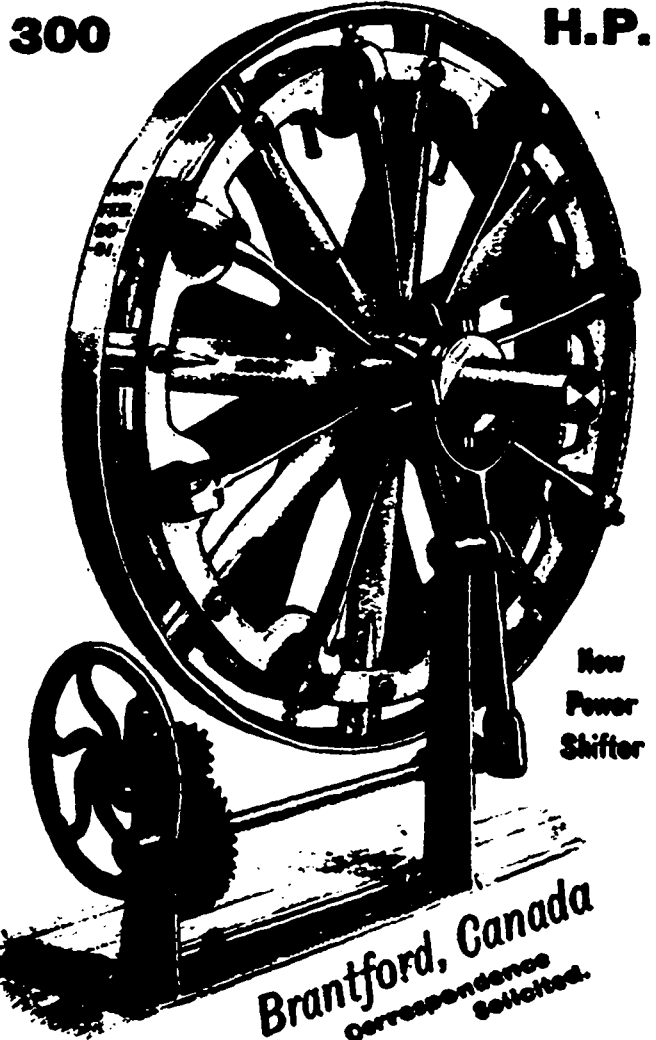


**Solid Emery
AND
Corundum
Wheels**

To Run Wet or Dry Special Shapes

PERFECTION
SAW GRINDERS

SEND FOR PRICE LIST



THE Reimers Piano Company is being incorporated at Toronto, with a capital stock of \$100,000, to manufacture pianos, organs and other musical instruments.

THE Duncan Lithograph Company is being incorporated at Hamilton, Ont., with a capital stock of \$10,000, to conduct a general lithographing business, etc.

THE furniture factory of Messrs. La Joie, at Ste. Cunegonde, near Montreal, was destroyed by fire Aug. 14. Loss about \$15,000.

THE McLennan-French Paint Company is being incorporated at Toronto to manufacture paints, and to manufacture machinery used in connection with the McLennan dipping process. Messrs. C. J. McLennan and John M. French, the well-known paint manufacturers, are on the board of provisional directors.

THE H. C. Frick Coke Co., whose ovens are at Connellsville, Penna., with general offices at Pittsburgh, are sending out a descriptive pamphlet, in which allusion is made to the various sizes of coke manufactured by them, and the uses to which it may be put. Speaking of foundry coke, the pamphlet says:—

“Frick's selected 72-hour Connellsville foundry coke is for stove and machine foundries, lead and silver smelting and refining works, agricultural works, and for cupola work of every description. Minimum percentage of sulphur, peculiar physical structure, enabling it to bear up under heavy burden until entirely consumed, thus ensuring the greatest efficiency, makes it the best and most valuable on the market. The crushed coke is specially prepared for manufacturers of plows, shovels, axles, axes, forgings, brass, cutlery, tools of every description, and blacksmithing. Sulphur is the great enemy of all metals, it prevails largely in coal. Crushed Connellsville coke being nearly pure carbon and containing a minimum percentage of sulphur, the great advantage of its use over coal is apparent. In welding steel and iron the fusion is quicker, more perfect, and the danger of injuring by burning or overheating is much less than when coal is used. Steel worked with coke is finer grained, and carries a sharp cutting edge much longer. The sulphur in coal opens the grain of steel and burns it unless great care is used when welding. The public are learning the superiority of coke-manufactured tools, and are demanding such goods. Suitable sizes:—Pea,

for small open forge fires, carriage smithing, and common blacksmithing. Nut, for large open forge fires, machinery forging, heavy blacksmithing, tools and axes. Small Stove, for drop hammer forging, planing and paper cutting knives, axles, shovels, &c.; also in furnaces used for melting brass and other metals in crucibles. Stove, for drop-hammer forging, agricultural implements, plow shares, &c. Egg, for silver and lead smelting and refining. Frick's crushed Connellsville coke for family use is superior to anthracite coal and cheaper. No smoke; no gas; no clinkers; no ashes; no waste. Clean, quick, hot, strong, cheerful fire. Suits ordinary house furnaces, ranges, stoves, grates. This coke should not be confounded with any other coke—it is much better. One ton equals three tons of gas-house coke. Suitable sizes.—Egg, for large and medium-sized house furnaces. Stove, for small house heaters and grates. Small Stove, for large ranges and stoves. Nut, for self-feeding stoves, cooking stoves and ranges. The size of coke used should be a size smaller than that of anthracite coal for the same purpose.

A SAVING OF 40% IS MADE BY USING OIL FOR FUEL UNDER

THE AERATED FUEL CO. SPRINGFIELD, MASS., SYSTEM

This system uses oil with a higher pressure of air, and is adopted in the United States and Canada for all kinds of iron and steel forging, tempering, welding, annealing, etc.; in glass works, for furnaces, glory holes, etc.; for generating steam; for burning lime, cement, sewer pipes, terra cotta, brick, etc.; for heating chemicals and asphalt; for japanning; for oxidizing lead; for drying sand, salt, etc.; for singeing cloth, etc.

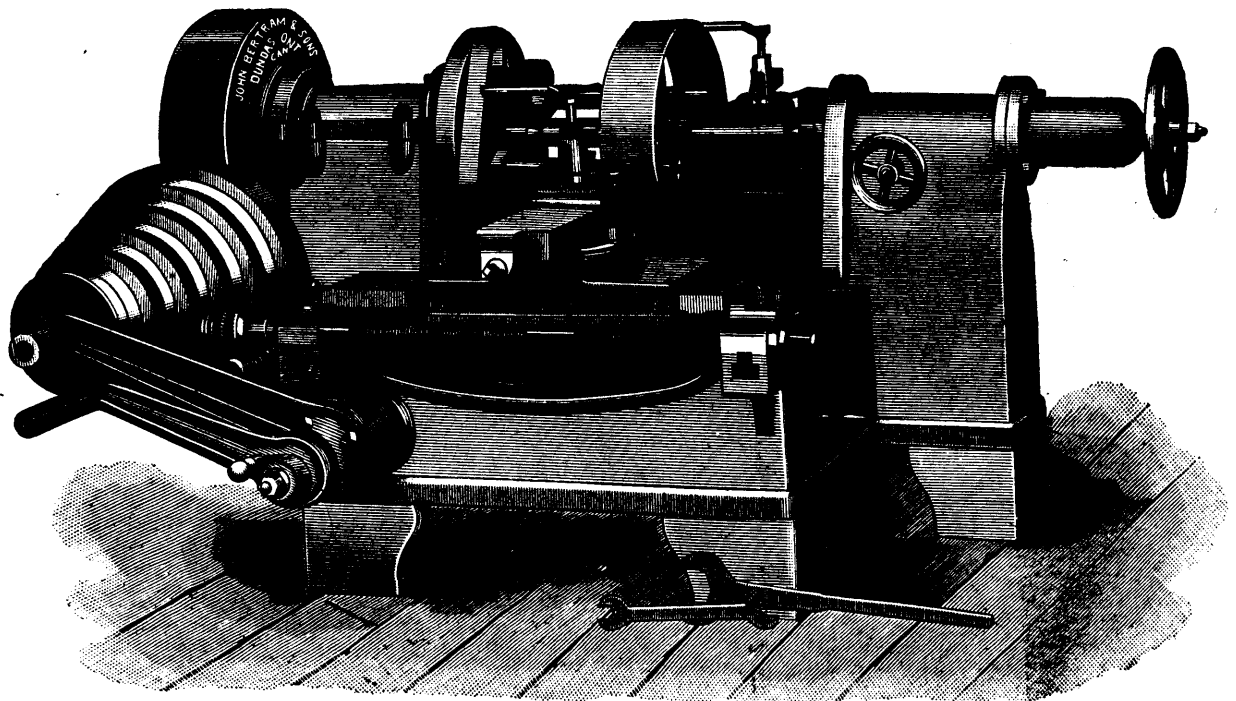
Its advantages over coal and wood are: A perfectly even fire, at all times under complete control, free from gas and dust, and ready for use in a minute after turning valve, and no increase in insurance rates.

Some of the companies now using this system in Canada are: The Massey-Harris Co., the Wilkinson Plough Co. (of Toronto), the D. F. Jones Mfg. Co., the Spring and Axle Co. and Geo. Gillies (of Gananoque), the Dominion Bridge Co. (of Lachine).

CHILION JONES,

Agent for the Dominion of Canada, GANANOQUE, ONT.

John Bertram & Sons, Dundas, Ont.



50-inch. Pulley Turning Machine

Visitors to the World's Columbian Exposition will find John Bertram & Sons in Machinery Hall
With a first-class Display of their Latest Designed Machinists' Tools.

The McLaughlin Carriage Company, of Oshawa, Ont., whose output of carriages of various descriptions is about 100 per week, have begun the manufacture of sleighs and cutters, which will hereafter be a strong feature of their business.

One of the buildings included in the match factory of the Edison Fitch Company at Ste. Telesphore, Que., was struck by lightning Aug. 25th., and totally destroyed by the fire caused thereby; loss about \$20,000.

The oatmeal mill of Mr. R. Pinecombe, at Strathroy, Ont., was destroyed by fire Aug. 25th., loss about \$20,000. This was one of the best equipped oatmeal mills in Canada.

A portion of the lithographing works of Messrs. Rolph, Smith & Co., Toronto, was destroyed by fire Aug. 25th., loss about \$20,000. It was expected that the works would be in full operation again by Sept. 1st.

The new factory of the British Columbia Match Company, at New Westminster, B.C., has been put in operation with capacity to manufacture 4,000,000 matches per day. The wood used is British Columbia spruce which burns as well as the cedar used in the California factories, and the labor is mostly Chinese. Some fifteen hands are at present employed but the number will probably soon be increased.

The woolen mill at Williamsford, Ont., operated by Mr. Charles Kennedy, but owned by Mr. A. S. Elliott, of Chesley, Ont., was destroyed by fire Aug. 17th.

The roller flour mill of Messrs. A. J. O'Brien & Co., at Duart, Ont., was destroyed by fire Aug. 17th., loss about \$6,000.

The Similkameen Gold Gravel Exploration Co., has been incorporated with a capital stock of \$100,000, to engage in hydraulic mining. Chas. E. Hope, T. R. Morrow, and Henry Barwick are trustees.

The Toronto Glass Company is being incorporated at Toronto, with a capital stock of \$50,000, to erect glass works in this city. The chief projectors reside in Hamilton, Ont.

The Wanderer Cycle Company is being incorporated at Toronto, with a capital stock of \$50,000, to manufacture bicycles, etc.

The saw mill of Messrs. J. W. Green & Sons, at Kingsville, Ont., was destroyed by fire Aug. 15. Loss about \$2,000.

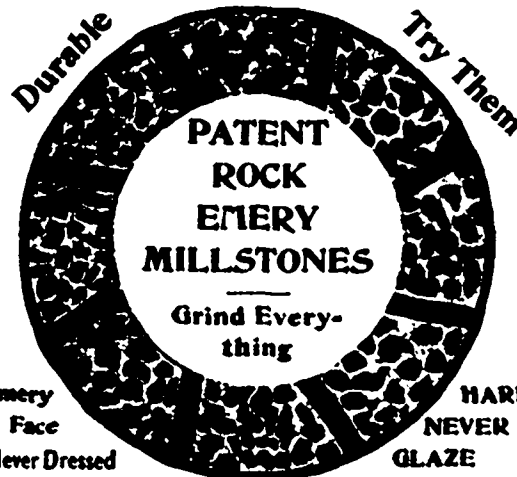
The carriage and blacksmith shops of Walter Hall, at Merlin, Ont., were destroyed by fire Aug. 16. Loss about \$3,000.

The Brantford Soap Works Company is being incorporated at Brantford, Ont., with a capital stock of \$50,000, for the purpose indicated by the name. Messrs. Robert Henry, J. K. Osborne and William Watt are included in the board of provisional directors.

The saw mill of Messrs. McRae Bros., at Calabogie, Ont., was destroyed by fire Aug 12. Loss about \$12,000.

The American system of rope transmission of power, alluded to in the following item, is known as the Dodge System, and is owned in Canada by the Dodge Wood Split Pulley Company, of Toronto.

FASTEST GRINDER KNOWN



Sturtevant Mill Co., Boston, Mass.

RADIATORS

FOR

Hot Water or Steam Heating

USE THE



The Best Construction. All Nipper Connections. No Bolts or Packing

OUR REFERENCES ARE All the Best Buildings Erected or Heated During the Past Five Years

MANUFACTURED ONLY BY THE

Toronto Radiator Manufacturing Co., Ltd.

TORONTO, CANADA

MONTREAL, QUE., ST. JOHN, HAMILTON, WINNIPEG, VICTORIA, B.C.

of which Mr. Samuel May is president:—"In a paper recently read before the Franklin Institute, Mr. J. M. Dodge mentions some interesting facts with reference to rope transmission as worked in the United States. In the American system of rope transmission, a single rope is used, passing round the rope sheaves as many times as may be necessary for the power to be transmitted, and a tension carriage is used on one of the strands of the rope, which insures that the right tension only shall be used, and that each part of the rope shall do its proper share of work. In making the rope pulleys it was formerly the practice to cast the pulley with a considerable allowance for machining the grooves. The rim had to be then sufficiently heavy to stand the cut of the turning tool, but even then there was generally some spring of the rim in making the heavier cuts, so that three cuts were required to finish the pulley, the last being a very light one. At the present time the pulleys are not turned, it having been found possible to cast them with perfect accuracy. The hubs, arms, and pulleys are very carefully designed to avoid contraction strains, and the grooves are cast on green sand cores, a three-part flask being used. In this way

the weight of the pulleys has been reduced by upwards of 17 per cent., as compared with those made by the old method, whilst owing to the total absence of contraction strains they are fully as strong. Multi-grooved pulleys are made by bolting together arm segments and rim segments. The former consist of a pulley with a single groove, and provided with arms, whilst the rim segments have no arms. After bolting together, the sheave is bored out, the metal removed being trifling. The only finishing required by the grooves is effected with a block of emery held in the groove whilst the pulley is rotated at 120 revolutions per minute. About three or four minutes is required for each groove. Thus, made, a 48-in. five-groove sheave for 1 1/2 in. rope weighs in the rough only 433 lbs. and when finished 423 lbs. Manilla ropes are mainly used in the United States owing to their cheapness, but cotton ropes are better. The splice should be 10ft. to 12 ft. long in the case of 1-in. rope, made without increasing the diameter of the rope, though this involves a reduction in the strength. The ropes are best run at from 3,600 to 4,200 revolutions per minute, and the total maximum working tension is taken at 3 per cent. of the breaking-

Crescent  Brand

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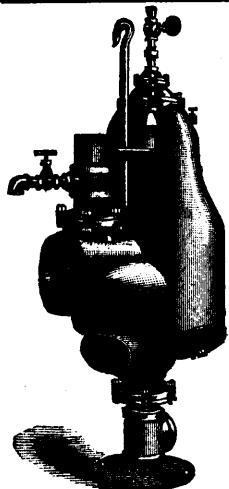
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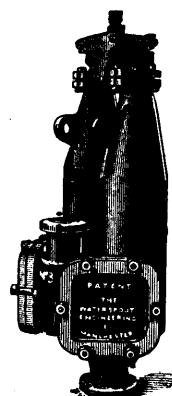
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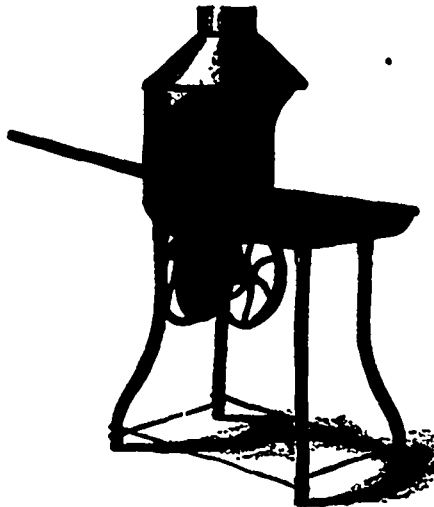


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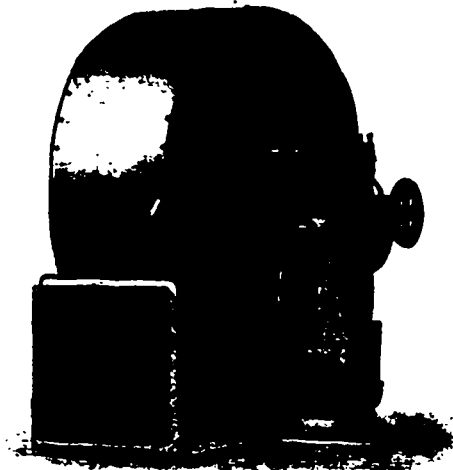
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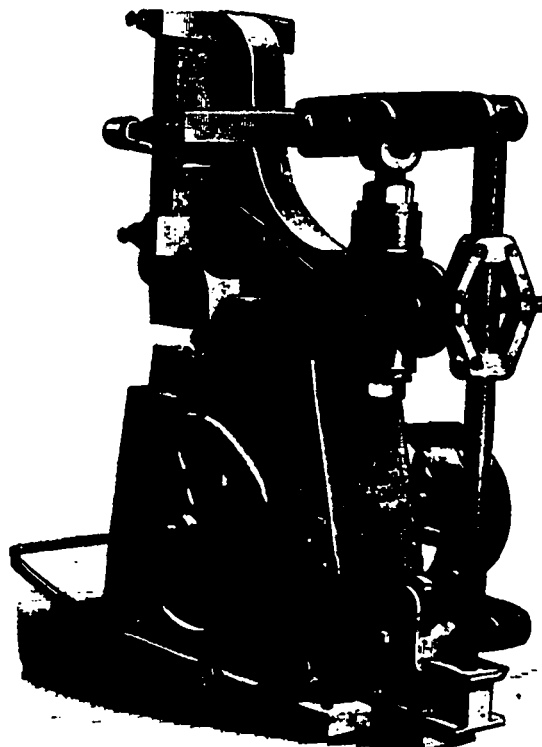
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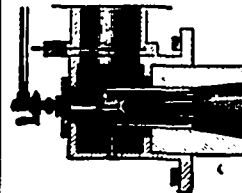
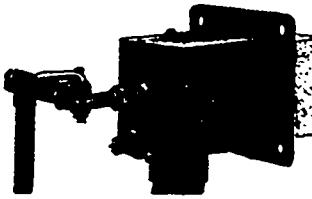
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	30 "	523.70	445.96	312.32	523.44	447.00	190.80	130.28	111.72	53.32
	3 mths	519.12	419.24	350.34	551.84	448.30	349.50	257.88	214.00	134.24
	6 "	651.52	626.20	391.70	589.72	530.30	308.24	326.40	311.80	178.08
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	30 "	421.22	512.30	375.40	532.40	423.88	271.08	131.02	164.10	60.77
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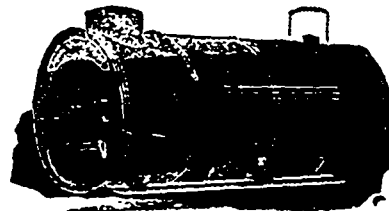
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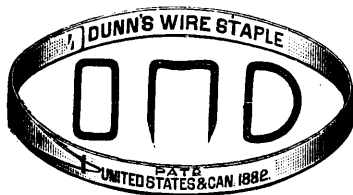
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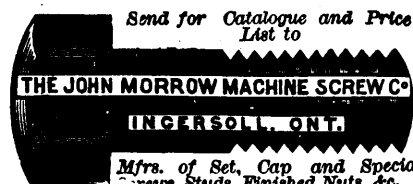
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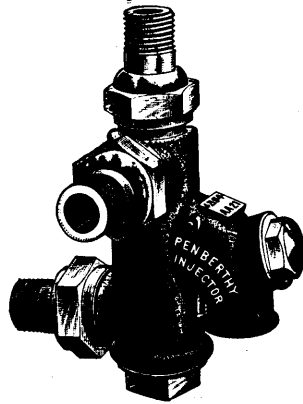
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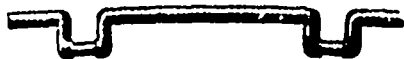
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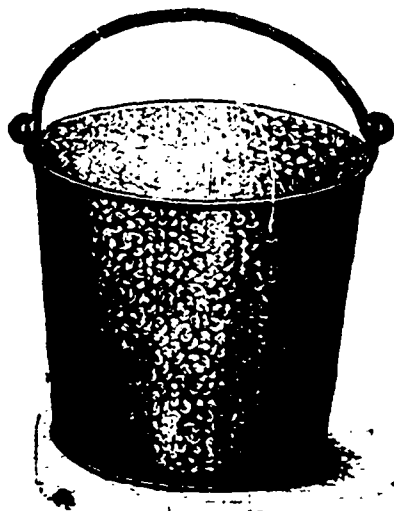
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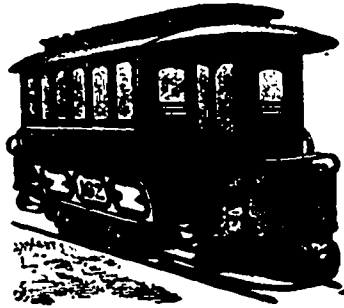
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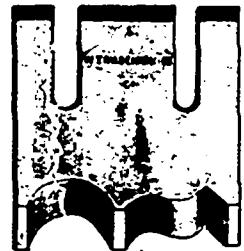
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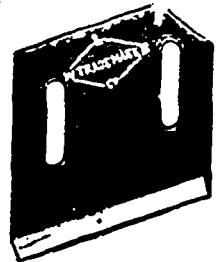
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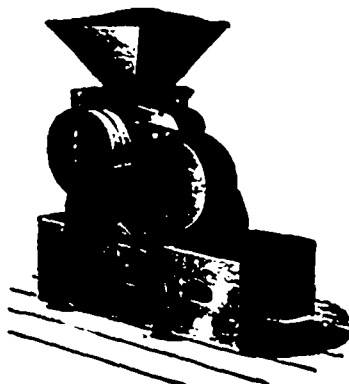
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Up to the present time the insurers with this Company have made a saving, when compared with the current exacted rates, of \$91,001.20. And in addition thereto bonus dividends have been declared to continuing members amounting to \$21,522.72.

Besides achieving such results, we now also have, over all liabilities including a re-insurance reserve based on the Government standard of 20 per cent, a cash surplus of 150 per cent, to the amount of risk in force.

Such results emphasize more strongly than any words I could add the very gratifying position this Company has attained. I, therefore, with this concise statement of facts, have much pleasure in moving the adoption of the report.

The report was adopted and the retiring Directors unanimously re-elected. The Board of Directors are now constituted as follows: James Goldie, Guelph, pres.; W. H. Howland, Toronto, vice-pres.; H. N. Bialal, Toronto; Wm. Bell, Guelph; Hugh McCulloch, Galt; S. Neelon, St. Catharines; George Pattinson, Preston; W. H. Story, Acton; J. L. Spink, Toronto; A. Watts, Bramford; W. Wilson, Toronto.

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Head Office, **YONGE ST., Cor. COLBORNE, TORONTO**

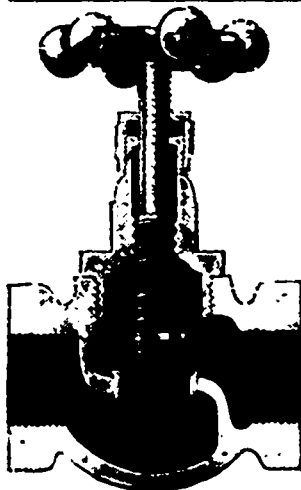
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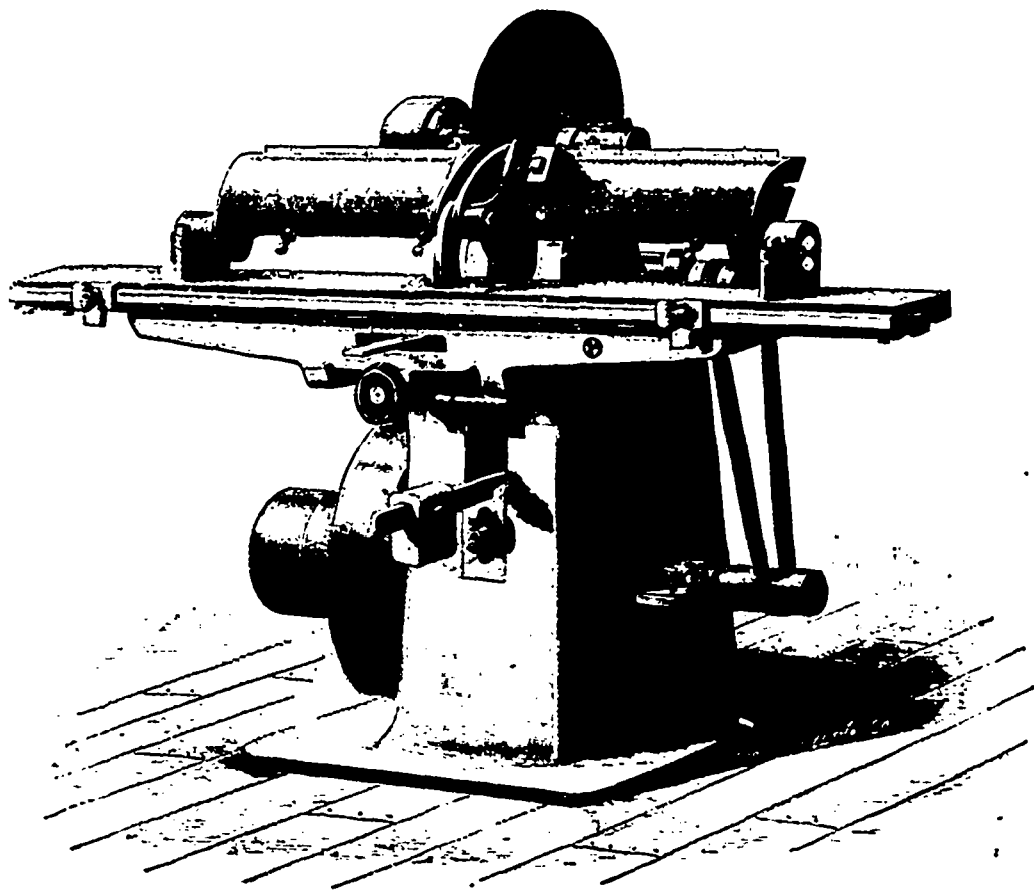
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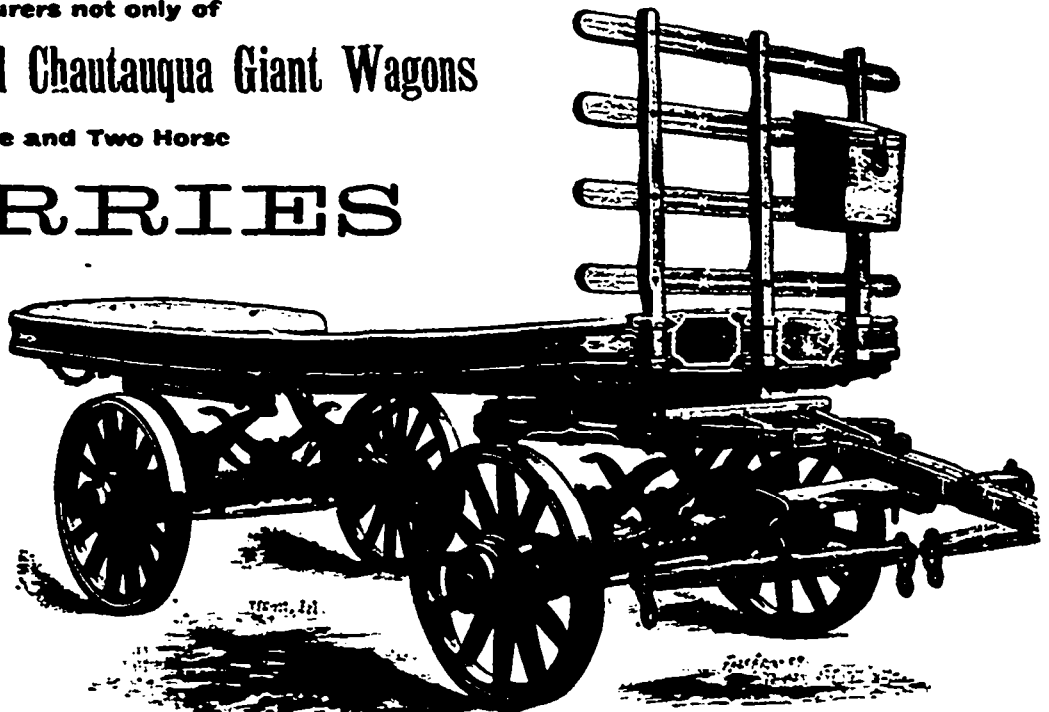
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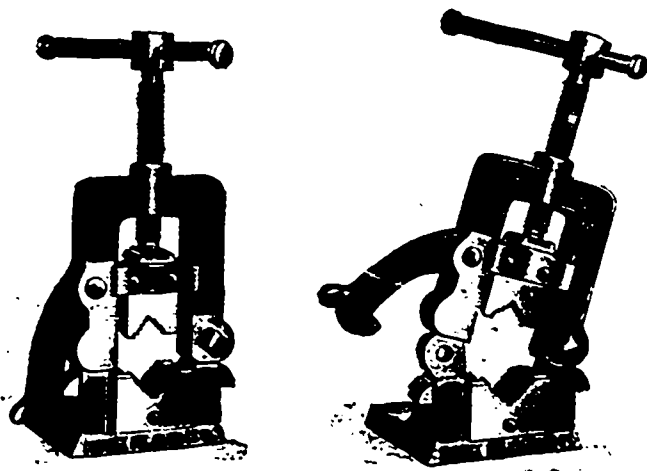
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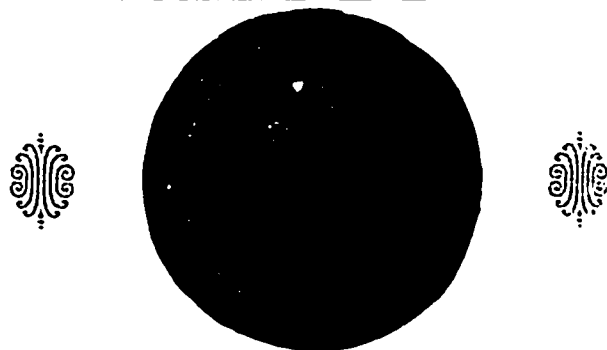
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To secure by all legitimate means the aid of both Public Opinion and Governmental Policy in favor of the development of home industry and the promotion of Canadian manufacturing enterprises.
To enable those in all branches of manufacturing enterprises to concert as a united body whenever action in behalf of any part of industry, or of the whole body, is necessary.
To maintain Canada for Canadians.
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