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THE CANADIAN MANUFACTURER

DEVOTED TO THE MANUFACTURING & MINING INDUSTRIES OF THE DOMINION.

INDUSTRIAL WORLD.

Vol. 6.

TORONTO, JANUARY 21, 1887.

No. 2.

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AND INDUSTRIAL WORLD.

VOL. VI.

TORONTO, ONT., JANUARY 21, 1887.

No. 2.

THE *GLOBE'S* DAMAGING ADMISSION.

ON two or three occasions, of quite recent date, the *Globe* has made a most damaging admission, which our Free Traders would probably feel inclined to put among *Punch's* category of things that had better have been left unsaid. Thus says the *Globe*:—The uncertainty as to the date of the Dominion elections is doing injury to the country. Business is tending towards a state of stagnation, because people do not like to risk the chances. The present situation is unbearable, and should be brought to an end with all possible despatch. The country will do no good until it has been settled who is to have charge of its interests during the next four or five years. Already business has received a perceptible check from the prevailing uncertainty, and this must not continue. In this way the *Globe* talked up to the close of last week. The fact is admitted, but the inference sought to be drawn from it is miles away from the truth.

About eight years ago it became a settled fact that Canada had adopted a National Policy—a system of protection of home industries, generally speaking. Following this came a remarkable expansion of home production in various important lines. The country positively produced a great deal more of many commodities than before, thereby, as any reasonable man might say—adding to its aggregate wealth. New investments to the amount of many millions were made in *productive* enterprises, as distinguished from the mere buying and selling of commodities, and carrying them from one place to another. So apparent was this to everybody, that many amongst us who had stiffly opposed the new policy all through, felt compelled to admit that, once it had been adopted, and once extensive new interests had been created under it, a reversal of the same would certainly bring on a dangerous crash, and would have to be avoided, no matter what party was in power. All which was, no doubt, intended to be very reassuring, but somehow or other it was not reassuring enough. Not one-fourth of our business men, whether manufacturers or not, ever really believed that the Protection policy of 1879 would long be safe with a Free Trade majority in power. The protestations of Free Trade leaders, intended to quiet prevailing fears, were generally taken, and rightly taken, too, as mere “glittering generalities,” which might mean anything or nothing. And business men's dread of the dangerous party in our midst has certainly not been diminished by Mr. Blake's recent re-affirmation of eternal war against the very fundamental principles of Canada's National Policy. He and his lieutenants repeat now what they laid down, after much deliberation, in 1882. Quite naturally alarm and distrust began to

spread, and the *Globe* invites the public to observe how delay of the Dominion elections is (or recently was) working injury to business.

The real truth of the matter is that there is only one contingency now before the country to create commercial distrust, and that is the possible success of the Free Trade party in the elections. From a business point of view, there is positively nothing else for the country to be afraid of. The opening up of a vast new country to the westward is only now just beginning in earnest, and Canada's transcontinental railway is only beginning to show what it is good for, and what it can do. Much has been said about the hasty rush into various branches of manufacture, a few years ago, in advance of the country's wants. Well, such things *will* happen, in importation as well as manufacture, also in building and speculation in real estate. Free Traders talk as if over-expansion were an evil incident to manufacturing alone, whereas it is common to *all* kinds of business. Given, a promising situation, or what is deemed such, increased facilities of obtaining credit, and enterprise is tempted to overdo itself. Under such influences, people may build too many cotton mills, or they may import foreign goods to such extravagant amount as to stagger the banks to draw bills of exchange enough to pay for them. Or they may build more railways than the country can pay for at the time; or go wild on speculation in corner lots or blocks of real estate. But what are you going to do about it all? As far as entering upon manufacturing enterprises is concerned, you can but give our own people a fair chance generally, after which each individual must look out for himself. A present point is this—that, after recent experience, the indiscreet expansion of manufacturing investments is not likely to be Canada's particular danger for some time yet to come.

The North-West rebellion is over, the Pacific Railway is just beginning to tell on business, and the Dominion finances are rapidly—even very rapidly recovering from the exceptional strain put upon them when the trouble came. A remarkable revival of business appears in store for Canada, only in one quarter does the commercial sky show any darkness at all for this country. Remove but that one thing—the apprehension of an Opposition victory in the elections—and forthwith the country is ready to advance by leaps and bounds.

Suppose it were to become a public impression, very generally entertained, that the Protective system, instead of being minimized and weakened in Canada, were on the contrary about to be greatly strengthened and enlarged. Would that cause any apprehensions of hard times, or of coming disaster? Or would not every commercial man “feel it in his bones,” so

to speak, that a time of higher wages and better profits was at hand? Promise the country that there will be more of the National Policy, rather than less of it; and every prospect brightens—in the banks, on the street, and everywhere. On the other hand, let it appear as if the National Policy were in danger, and immediately "all faces gather blackness," to quote an expression from Scripture. Such distrust as exists among us is due to one cause only—the fear that the Free Traders may win in the present struggle, a result which may Heaven forbid! And the sole creators and promoters of distrust that we have amongst us are the Free Trade papers, and Free Trade political leaders. In the commercial prospect the country sees nothing to be afraid of except the one contingency—that of injury to the fabric of National Policy. When the *Globe* talks of suspense, and distrust, and uncertainty, it is merely admitting the damage that itself and its friends are doing or trying to do.

THE FUTURE OF FREE TRADE AND PROTECTION.

Owing chiefly to the powerful propaganda of English Free Trade literature, diffused throughout the world in books and in periodicals, the belief has gone abroad that Free Trade is the advancing system of the future, while Protection is the old and decaying system of the past, with no future before it among the nations. This widely-spread belief may be thus expressed: Protection is a relic of the dark ages, utterly unsuited to modern times. England, the greatest commercial nation of the world, adopted Free Trade forty years ago, and is it not reasonable to suppose that such a nation knew what she was doing? Ever since then the ablest writers, in other nations, have been calling upon their respective peoples to follow her example. Find a man of standing as a political economist, anywhere abroad, and nine times out of ten you find him a disciple of the English school—a disciple of Cobden, and Bright, and John Stuart Mill. Free Trade, of course, means greater trade, which again means more business done and more profits made. A commercial nation must be a Free Trade nation, otherwise it is wrongly named. In fine, Free Trade is essentially in harmony with civilization and progress, while Protection is indissolubly linked with barbarism, stagnation and retrogression.

It is not too much to say that what strength Free Trade has in the civilized world is mainly owing to the prevalence of the gigantic delusion thus very briefly sketched. It is a delusion, not merely insufficiently supported by facts, but actually in glaring contradiction to the record of great historical facts of our own day and generation, which are open and patent to everybody. Without being too precise as to dates let us say that Free Trade won its great triumph in England forty years ago. After the particular struggle of that time was over, not only the enthusiasts of the school, but even the coolest and clearest heads among its propagandists, prophesied its early, and rapid, and triumphant progress over the civilized world. It was destined to go forth, conquering and to conquer; its conquest of the whole world was only a question of time, and not of very long time at that. Mr. Cobden himself, the leader of the movement, had repeatedly promised his fond and believing disciples that, once Free Trade had been adopted by England, all commercial nations would hasten to follow her example. This was not to be deemed a matter of conjecture or

uncertainty, but what we call in America "a sure thing"—taking rank with the succession of summer and winter, of day and night, and the prediction of eclipses by mathematical calculation. The truths of Free Trade were to be put on a level with the truths of geometry and the irrefutable teachings of Euclid. To doubt that the civilized world would quickly follow England in the path of Free Trade was held as absurd as it would be to doubt the famous forty-seventh proposition. And those who ventured to doubt the former were ridiculed about as unmercifully as doubters of the latter might have expected to be.

Years enough have passed since then to warrant us in taking stock of events, and in appealing to the high arbitrament of old Time himself. For whatever principles which, when put into practice, do not stand the test of time, must be held to be false, while those which do must be held to have proved true. It is not to be said that this would hold good always in questions of religion or morals, for too frequently has it happened that good has been defeated, while evil has triumphed. But on questions of *material progress*, above all, the test of time is the conclusive test of all; and from the verdict of experience there is no appeal. And now for the verdict and judgment of the last forty years on the question at issue.

Not long after Cobden's great victory (1847-48) came the first and greatest Exhibition in Sydenham Palace, which was esteemed the inauguration of a new era of unlimited Free Trade along with boundless happiness to men. The shout of triumph that went up resounded throughout the world. Even then, however, amid the general craze in England, there were a few canny north country manufacturers who did not quite lose their heads along with the rest. They were sharp enough to observe that the visiting foreigners, or a considerable number of them, were not nearly as much interested in the prospect of buying cheap English goods as in the means and methods of making similar goods. And soon this further observation was made: That the foreign demand for English *machinery* was increasing to a wonderful degree, a sure indication that manufacturing was on the increase in the countries to which it was sent. But England as a manufacturing nation was still so far in advance of all other nations that the competition perceived to be coming was after all deemed too far off to be any occasion of present anxiety. And, as a matter of fact, it took a little over twenty years from the event of 1851 for foreign competition to become conspicuously dangerous, and to show itself as a powerful factor in creating "depression" in England.

In 1860 the famous Cobden treaty was made, by which England surrendered a great deal, while France gave very little in return. Still, it was hailed as a welcome first step, soon to be materially improved upon, not only by France but by the whole continent. The year following came the American civil war, also the Morrill tariff, the latter a development most unwelcome to English Free Traders. But they easily consoled themselves with the reflection that "it was just a war measure"—only this and nothing more—sure to disappear when peace returned. But it was found that, even after the war had vanished away, the Morrill tariff and high Protection yet remained in the United States, which was not encouraging.

Since then these things have happened in Europe. The French Republic made haste to repudiate even the insignificant

measure of Free Trade with England to which the Empire had consented. Germany had a brief period of coquetting with Free Trade, under a mistaken impression, on Bismarck's part, that it was the system of *money-making* for any nation; and on the part of the Democrats, his sworn enemies, that it meant the same thing as freedom of government. Both parties soon discovered what a very stupid blunder they had respectively made, and soon Germany became more Protectionist than ever before. Russia was always that way inclined, and also put on higher duties, avowedly for the building up of home manufactures. Austria, Italy, and in fact all the other great nations of Europe, also took the Protectionist track more decidedly than ever before. And now these powers impose duties on British goods much higher than those levied forty years ago, when Cobden was sounding forth the most mistaken commercial prophecy ever uttered by a man of his position.

Since then, too, Protection has been established in Canada, and seems likely to stay. In Australia it is already certain that the Protectionist example of the leading colony—Victoria—will shortly be followed by all the rest. Why, already New South Wales, the leading Free Trade colony, has by a large popular majority, declared that the policy must be changed, and that however Free Trade may have sufficed for the past, Protection is the only thing for the future. In the United States the situation has of late been greatly changing, through the conversion of a heavy section of the Democratic party to Protectionist views. Manufactures, principally of cotton and iron, are largely expanding in the Southern States, and, as the current saying goes, a "New South" is being created. The rapidly-increasing Protectionist vote, and the rapidly-decreasing Free Trade vote, were made conspicuous in the Congressional elections of October last.

In the face of these facts the pretence that the cause of Free Trade is gaining in the world is simply amazing. It would surely bring the question to a sharp test of truth were Free Traders to try to inform us where in the wide world their system is gaining. Note this portentous fact—it is precisely in the most progressive and enlightened nations, outside of England—France, Germany and the United States—that Protection is strongest and Free Trade weakest to-day. The proof is before us that Free Trade is on the wane where the greatest progress and the greatest enlightenment prevails, while right there, too, are the strongholds of Protection to be found. The irresistible conclusion is that Free Trade is a fading system, which has already had its brief day of promise—of promise which has failed—while Protection is most surely the system of the future.

QUESTIONS TO THE POINT.

Those who seek to throw our markets open to outsiders, and to destroy the policy which provides employment for both Canadian labor and Canadian capital, are invited to make square answer to the following questions:—

What business in Canada, of any kind, has ever been injured by the National Policy? Name any important interest, industrial, commercial or financial, that has suffered because of it.

Wherein has the cost of living been increased, and upon

what classes, if upon any, has this alleged higher cost of living fallen?

Is it not true that whatever articles of necessity have advanced in price during the last eight years have all been articles *produced at home*, either from the Canadian farm or the Canadian forest from the former mostly? Instance meat, milk, butter, and cheese, the price of which goes to our own farmers.

Is it not also true that within the same period clothing, boots and shoes, and generally manufactured articles and store goods of every kind, have been going down in price? Along with Protection we have had cheap sugar, tea, and other store goods: while the farmers have had good prices for their produce.

Are you prepared to maintain that good prices for farmers' produce mean ruin to this country? If so, "come out of your shell" and say so plainly. You will find it hard to make good show of maintaining any such doctrine in Canada. Make this a square issue, and take your stand on it. That the lower the prices of grain, meat, and dairy produce go, the better it is for this country.

Bankers are a class of men who observe keenly how business is going, and what causes there are to help or to hinder it. Can you give proof of any instance wherein our bankers, as a body, or any considerable number of them acting together, have complained that the National Policy was injuring business in Canada?

Or, rather, have you not reason to know that any serious apprehension, on the part of the banks, that the N. P. was in danger, would immediately be followed by a tightening of the screws and a contraction of business? That such apprehension would operate as a storm signal in the business world, warning every one to take in sail, and to save himself the best way he could from approaching danger?

In such case it would be a great mistake to suppose that manufacturers and their workmen would be the only sufferers. Every groceryman, every small tradesman, every country storekeeper, and every big merchant too, would have to suffer by the general contraction of business which would ensue. Heavy losses to the banks and a disastrous curtailment of credits would be inevitable.

A LONG EXPECTED REPORT.

The report of the British Royal Commission on the depression of trade was published on Monday last. The causes which have contributed to bring about the depression, as set forth by the witnesses examined, are thus summarized:—

1. Overproduction.
2. A continuous fall of prices, caused by the appreciation of the standard of value.
3. The effect of foreign tariffs and bounties, and the restrictive commercial policy of foreign countries in limiting our markets.
4. Foreign competition, which we are beginning to feel both in our own and in neutral markets.
5. An increase in local taxation and burdens on industry generally.
6. Cheaper rate of carriage enjoyed by our foreign competitors.

7. Legislation affecting the employment of labor in industrial undertakings.

8. The superior technical education of workmen in foreign countries.

On all of which we remark at present merely this : that the British Free Trader who can see in these conclusions a proof of the success of his favorite system must have a mind singularly constituted. Very singularly constituted, indeed, we should say.

IRON IN CANADA.

WE take the following from the introduction to a valuable book on "The Manufacture, Consumption, and Production of Iron, Steel and Coal, in the Dominion of Canada," by Mr. James H. Bartlett, published in Montreal in 1885 :—

"The manufacture of iron and steel is, in most countries, considered of national importance ; and there can be no doubt that England's present advanced position in the sisterhood of nations, is largely attributable to the development of her coal and iron deposits.

"The Dominion of Canada, however, which holds its own in so many other industries, which among the nations 'stands third with regard to its population, as to the tonnage which it floats on every sea,' which 'in 1883 had 39,350 miles of telegraph and nearly 10,000 miles of railway in operation,' which has '\$104 invested in railways for each inhabitant, being only excelled by the United Kingdom, which has \$107, and the United States, which have \$112,' is behind the rest of the world in that special industry which may be regarded as the keystone of all manufactures, failing, indeed, in this particular, as respect other nations, to obtain the slightest nominal rank or recognition. In any statement of the world's production of iron and steel, after Great Britain, United States, Germany and Luxemburg, France, Belgium, Austria and Hungary, Russia, Sweden, Spain, Italy, are mentioned, the name of Canada never appears, but is simply supposed to be included under 'other countries.' There is no other country in the world with ten thousand miles of railway that does not make its own rails.

"The subject of the manufacture of iron and steel has at various times and places been discussed, for, in the Dominion Board of Trade reports from 1871 to 1879, the question is almost annually referred to. In the Houses of Parliament, both Dominion and Local, the matter has at times created some interest, and a feeble effort has been made to assist it, but no material progress has been made."

Not only does the position of the few iron manufacturers we have steadily get worse, in fact they can hardly be said to exist, but from its being *the most important manufacture in the late Province of Canada*, fifty to seventy-five years ago, when iron and stoves were articles of export, it has fallen off to such a point that a sort of hopeless feeling has been engendered, and a great number of people believe that we have not the facilities to enable us to manufacture iron in Canada. The actual facts of the case are that there is very little known in regard to this subject, that very few people know the difference

between cast and wrought iron, and, that this being essentially a wooden country there are few opportunities of seeing or hearing anything about the detailed processes of manufacture.

If it was true that Canada had not the materials out of which to make iron or steel, or had never attempted to do so, there might be some reason for the apathy which exists ; not only is such not the case, but it can be proved without fear of contradiction, *that there are few, if any, places in the world which have such natural advantages for the manufacture of iron as we possess in Canada.* In addition to that, our annual consumption is of sufficient extent to justify the erection of works and the expenditure of capital necessary for the production of what we require, and it only remains for us to follow the example of *every nation which to-day has any importance in this manufacture*, and make use of the advantages so bountifully provided for us by Nature.

A FINANCIAL VIEW.

THE annual meeting of the Canada Landed Credit Company was held at the offices, here, on Wednesday. In the Directors' report we find these paragraphs, which are of general interest :—

In Ontario the business of the Company has proceeded steadily. The crops last year in most sections were good, but the low prices which have prevailed for grain have induced many of the farmers, who were in a position to do so, not to sell, while they have rendered it necessary for many others who sold, from the smallness of the returns received, and their consequent inability to meet their obligations in full, to obtain an extension of time, and have thus tended to increase the amount of interest in arrear. The interest, however, in such cases is perfectly secure, and will eventually be received.

Money has been in somewhat better demand from the large building operations in progress in the city and other causes, but it has, at the same time, as for a good while past, been in superabundant supply, and as the result of this the year has witnessed a further subsidence in the rates of interest, rendering it more than ever difficult to obtain investments at remunerative rates.

In Manitoba the harvest last year, though rather light in some parts, was upon the whole good, and having been secured in fine condition the grain has proved to be of very superior quality, which will in a great measure make up for any deficiency in quantity, and enable the farmers to get rid of a large part of their heavy indebtedness, incurred mainly for machinery, which has for some years weighed them down, and so tend to bring round a better state of things. The extension of much needed railway facilities in different parts of the Province during the year will also contribute to the same end, by enabling them to obtain better returns for all kinds of produce. Until, however, land becomes more saleable from a greater increase in immigration, the directors are decidedly of the opinion it would not be prudent to materially extend the business of the Company there.

THE Boston *Manufacturers' Gazette* says, that one of the apparent effects of the Knights of Labor and other secret organizations in the cities is the driving out of many substantial industries from the city to the country. Manufacturers are inclined to believe that there will be less labor trouble in the smaller towns and villages of New England than in the thickly settled populations where the political organization controls so large a percentage of the laborers,

THE
Canadian Manufacturer
 AND INDUSTRIAL WORLD.

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EDITOR: FREDERIC NICHOLLS,
Secretary Canadian Manufacturers' Association.

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

As a medium for advertisements of machinery, steam appliances, mill and factory supplies, etc., it is unequalled, and our rates will be furnished on application.

Communications from Manufacturers, Exporters, and others, are respectfully invited.

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

Editorial Notes.

A NEW rubber company, with a capital of \$200,000, is in process of organization in Montreal.

A MEMBER of the Canadian Geological Survey staff, engaged in investigating the coal deposit in the Saskatchewan region, states that the coal supply in the Northwest is absolutely inexhaustible. The whole district lying between Rocky Mountain House and Fort Pitt is one vast series of coal-beds, both hard and soft, of the best quality.

THE statement of the chartered banks of the Dominion, at the close of 1886, is much more favorable than a year ago. Circulation has increased nearly \$2,250,000, and deposits after notice over \$4,250,000, while deposits on demand have decreased nearly \$1,400,000. Dominion and Provincial Government deposits show a decrease of about \$2,000,000, and loans to Provincial Governments an increase of nearly \$300,000. Current loans and discounts have increased \$12,000,000, and overdue debts secured, and unsecured, have decreased over \$1,000,000.

THE Protectionist press is getting pretty strong in the Southern States these days, and the Nashville (Tennessee) *Union* is on that side. "Congress," it says, "is not able to agree about a tariff-reform bill, and never will be while the Free Trade element insists on revising all the Protection out of the tariff." Here the *Union* hits off our Canadian tariff reformers to a dot. The tariff will never suit them until they get all the Protection revised out of it. All their pretences of moderation are but "springs to catch woodcocks," as Shakespeare says. The Canadian people are not likely to be caught with their deceptive devices, however.

THE *Iron Trade Review* (Cleveland, Ohio.) has completed its summary of strikes, readjustments, etc., of iron-workers' wages throughout the United States in 1886, so far as reported, and finds that in 359 establishments wages were advanced: in only 12 were they reduced, and in 139 they were settled, generally in the latter instance at the pre-existing wages. Space is not at hand for an enumeration of the various works affected by questions of wages during the past quarter, but it may be said in a general way that the strikes among iron-workers have been comparatively few in number, and the advances recorded were, as a rule, voluntarily made. Most of the existing strikes at the close of the year were among foundries.

THE Atlanta (Georgia) *Constitution* is one of the leading journals of the South, and it is Protection Democrat to the backbone. And thus it discourses on the benefits which Protection brings to the farmer:—"The industrial improvement will help the farmer very much. It brings his market home to him, and it is the farmer who has a home market that prospers. In the country about Birmingham chickens sold before the town was built at 10 cents, and now bring 25 cents; eggs at 6 cents, and now at 18; butter at 8 cents a pound, and now at 30, and other produce in proportion. Wherever a factory is planted, or a city built, a home market is created for the farmer's truck and his land advanced in value."

On another page of this issue we copy from the *Bulletin* an interesting account of the American Iron and Steel Association, which has its headquarters at Philadelphia. This is without doubt the model Protectionist Association of the world. Canadian manufacturers would do well to make themselves acquainted with its methods, and in a general way to profit by its example. Over the border it is already accepted by both parties as a fact settled upon, that in the Presidential election to come off in November, 1888, the trade question will be the leading one among all before the country. There is really nothing else now in sight to match it in importance. The A. I. and S. Association will, therefore, have a particularly busy time of it for eighteen months or so to come.

“MR. EDWARD ATKINSON has just made to the Bureau of Statistics a report in which he shows that the average annual wages of mechanics have advanced from \$468 in 1860 to \$720 in 1886, and that the difference in the purchasing power of their wages is even greater than these figures would indicate. This difference he puts at an advance in the purchasing power of the wages of the skilled laborer of from 80 to 100 per cent. within the past twenty years, and in the wages of the unskilled laborer at from 40 to 50 per cent. within the same period. These conclusions Mr. Atkinson arrives at with his usual care. They are calculated to startle even those who thought they had a tolerably accurate notion of the industrial condition of the country.” Thus says the *New York Times*, a leading organ of Free Trade in the United States. But it forgets to add that all this rise in wages took place during a period of high Protection. Workingmen who make the application for themselves will scarcely vote on the Free Trade side, we should say, either in the States or in Canada.

THE folly of the Nova Scotia free traders is simply immense. That Province has large deposits of coal and iron, and has natural facilities for manufacturing beyond those of any other part of the Dominion. It has been pointed out by one of her own writers that for the making of iron cheaply and profitably she has these advantages:—The existence of coal and iron near together, and all within easy distance of tide water. These, the same writer adds, are the distinguishing advantages which have made the iron trade in the great iron districts of England and Scotland. And, it might be added, putting the superior inland navigation along with that by tide water, that they are the same advantages which made the iron trade of Pennsylvania. Again, the *Montreal Star* says that the district of Pictou, in Nova Scotia, must prove itself the leading iron producing district of all Canada. What, then, has hindered Nova Scotia from having long ago realized her destiny as a great manufacturing Province? Nothing but the insane craze which many of her politicians have for free trade, falsely so called. There are few instances in which the folly of man has so long availed to defeat the beneficence of Nature

A REMARKABLE fallacy is that which is current down by the sea, with regard to a certain alleged reason why it must be better for the people there to buy American flour than Canadian. All the supply they want they can get in Boston or Portland, which are near at hand, whereas under the N.P. they are forced to use Canadian flour, brought from far away

Ontario. Well, if the flour offered in Boston and Portland were the produce of Maine or Massachusetts, there might be *something* in this argument. But as a matter of fact, the flour for sale in American warehouses, on the seaboard, is made itself or is made from wheat raised in the West—in Ohio, Illinois, Iowa, Wisconsin, Dakota, etc. And the American centre of wheat production has in our time shifted so much further west than it used to be, that the bulk of the flour sold on the seaboard is the produce of fields lying twice as far away as those of Ontario. If the Halifax buyer of American flour would only stop and think that the flour he sees stored in Boston has already been carried more than a thousand miles, on an average, he would get over the absurdity that he is saving distance by buying there, rather than in Montreal. But, it may be said: Now, or very soon after this, the bulk of Canadian flour will be coming, not from Ontario, but from Manitoba and the North-West. Admitted, but even then Canadian distances will still compare favorably with American distances, on the average, when Dakota, Nebraska, and even California and Washington Territory, on the Pacific coast, are brought into the account. This notion as to American flour being *nearer at hand* for the buyer at Halifax or St. John is a monstrous delusion, which prevents people from seeing the real facts. Any sensible man who gives a few minutes' thought to it must see its absurdity.

OUR CARD BASKET.

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

R. W. Elliot, Toronto; George Booth, coppersmith, Toronto; Wm. Chaplin, president Welland Vale Manufacturing Co., St. Catharines; J. Y. Shantz, M. B. Shantz, button manufacturers, Berlin; J. F. Ellis, treasurer of the Barber & Ellis Co., Toronto; E. A. Dalley, of F. F. Dalley & Co., Hamilton; T. D. Craig, tanner, Port Hope; W. K. McNaught, secretary of the American Watch Case Co., Toronto; Oliver Wilby, president of the Weston Woollen Mills Co., Weston; L. Breithaupt, tanner, Berlin; W. D. Beardmore, leather merchant, Toronto; George Lang, tanner, Berlin; D. W. Alexander, leather merchant, Toronto; W. H. Cross, tanner Barrie; Hy. Bickford, of S. Lennard & Sons, hosiery manufacturers, Dundas; W. H. Storey, glove manufacturer, Acton; Wm. Bell, organ manufacturer, Guelph; Thos. Cowan, wood-working machinery, etc., Galt; J. B. Armstrong, manufacturer of carriage goods, Guelph; P. Lawson, tanner, Port Dover; W. G. A. Hemming, of the Toronto Case Co., Toronto; — King, of King Bros., tanners, Whitby; James Goldie miller, Guelph; Jno. Bertram, of John Bertram & Sons, manufacturers of machine tools, Dundas; W. D. Gillean, secretary of the Canada Paper Co., Toronto; Geo. Inglis, of the Blake Steam Pump Co., Boston, Mass.; C. Raymond, sewing machine manufacturer, Guelph; Samuel May, billiard table manufacturer, Toronto; John Fensom, of the Fensom Elevator Works, Toronto; Geo. Wagner, of Wagner, Zeidler & Co., piano key manufacturers, Toronto; — Copeland, of the Weston Woollen Mills Co., Weston; P. Feyseng, cork manufacturer, Toronto; Emil Boeckh, of Charles Boeckh & Sons, woodenware manufacturers, Toronto; Chas. Knees, tanner, Milton; Gerhard Henitzman, of the Lansdowne Piano Manufacturing Co., Toronto; Thomas Goldie, miller, Guelph; G. B. Fraser, manufacturers' agent, Toronto; J. Ironsides Thomson, manufacturers' agent, Toronto; W. W. Laidlaw, representative of Inglis & Hunter, engineers, Toronto.

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Leather Belting

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IT will make the leather more durable.
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Best Belt Surface, Lightest, Strongest, Best Balanced, and Most Convenient Pulley in the World.

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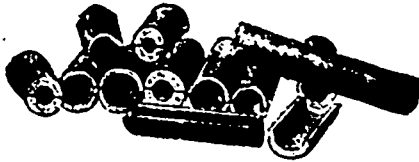
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We will furnish a Pulley for any service for 30 days free of charge, if it does not meet the warranty. Prices as low as any other good Pulley. Send for Catalogue, Price List & Guarantee

70 PER CENT. LIGHTER THAN CAST IRON

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



READ THE FOLLOWING.

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

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

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

THE WORLD'S INDUSTRIAL AND COTTON CENTENNIAL EXPOSITION,
DODGE MFG. CO., MICHIGAN, IND. NEW ORLEANS, March 10, 1885.
Dear Sir: I have a number of your Patent Wood Split Pulleys in use here at the Worlds Fair and Cotton Centennial Exposition, driving Dynamos for Electric Lighting. They are doing heavy work, and are held upon the shaft by the compression of wood on iron. They hold firmly, and do not slip. I have watched with a great deal of interest the many Pulleys of your make running at this Exposition; and I think them the best Pulley I have ever seen. I believe them to possess the following points of merit over any other Pulley: All Pulleys being split or in halves; best belt surface; best shaft fastening; best method of utilizing Pulleys to shafts of different sizes; best balance; lightest on the shaft; strong, and I believe durable. I heartily recommend them.
Yours very truly,
S. H. GILMAN,
Chief Consulting Engineer.

Waste of Power.

According to the best scientific authority it costs one horse power to keep in motion one ton of metal or weight; thus for every unnecessary 2,000 pounds weight on your line shaft, cost you one horse power. To maintain a horse power costs from \$2 to \$125 per year. Any manufacturer who will take the pains to investigate the unnecessary weight by Heavy Iron Pulleys, *too tight belts, etc.*, will be surprised to find the enormous waste of power consumed in this manner. **40,000 Dodge Patent Wood Split Pulleys** now in use. Our capacity being now equal to 100 Pulleys per day, we shall hereafter keep in stock for immediate shipment all sizes.

Send for Illustrated Circular and Reference List.

THE DODGE WOOD SPLIT PULLEY CO.,

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

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

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

Business Notes.

ADAM SIMPSON milliner at Aylmer, has assigned in trust, owing \$2,500.

MISS SANDERSON, a fancy goods dealer at Harrison, owes \$800 and has no assets.

EDWARD MAHONEY, a city fancy goods dealer, has assigned in trust, owing \$2,000.

S. K. JAMES, coal dealer and ship broker, of St. John, N.E., has failed for a considerable amount.

IN Kingston, Wm. Lewes & Son, ship chandlers, and W. J. Lindsay, shoe dealer, have assigned in trust.

W. Y. LONGHEAD & Co., grocers at Truro, N.S., are offering 75c. on the dollar, which is likely to be accepted.

WM. MITCHELL, general dealer of Mount Albert, owes \$2,500 and has an apparent surplus of \$500. Has assigned in trust.

THE liabilities of J. B. L. Rolland amount to \$3,000, and the assets \$1,500. Until 18 months ago he was an undischarged bankrupt.

TWENTY-FIVE cents on the dollar is all that T. Wicks & Son, jewellers, of this city, are able to pay creditors. The liabilities amount to \$5,200.

THE dry goods firm of E. Senecal & Co., Montreal, has failed. They have been in difficulties several times, and the present failure is a bad one.

THE old established milling firm of John Read & Sons, Port Elgin, N.B., is in difficulties. Sir Albert Smith has security on the real estate for \$0,000.

SEVERAL judgments having been entered up against the clothing firm of L. J. Guilmette & Co. A meeting of creditors was held and an assignment carried out.

A. J. CAMPBELL, of Brockville, who has been in the hat and fur business for the last two years, has assigned in trust, owing considerable to Toronto firms.

E. F. BOURDON, a Yonge Street hatter, has liabilities of \$7,000, and assets \$4,800. Creditors are likely to receive about 35c. on the dollar for their claims.

FOR two years past Wm. Challenger, of Mitchell, has been struggling to pay his creditors in full, but now finds it impossible, and wants a compromise.

THE sheriff has seized the stock of Conley & Co., shoe dealers, Stratford. The name is well known to the trade in connection with former business troubles.

THE liabilities of Wm. Kelly, shoe dealer, Port Hope, are \$2,500, and assets \$3,000. He is trying to obtain a compromise from creditors. He had a similar experience in 1880.

CREDITORS have decided to close on the gents furnishings business of W. R. Ecclestone, of Hamilton. The liabilities are \$4,203, and the stock is \$3,000. The business was commenced in July, 1886.

AN assignment has been made by D. A. Fraser & Co., general dealers, Park Hill, to J. B. Laing & Co., of London. The liabilities are \$8,500, part of which are secured. The stock amounted to \$4,500, and has been sold at 60c. on the dollar.

THE departure of James Belton from this city has caused an investigation into his affairs, and apparently he owes about \$2,500, with very small if any assets. A few days before leaving he sold the upholstering business to E. Gegg, for a nominal amount.

J. H. LEV, a London confectioner and grocer, offered his creditors 40c. on the dollar on liabilities amounting to about \$10,000. The assets are placed at \$6,900 and creditors refuse to accept the offer, believing that there was more in the estate. He has amended his offer to 55c. on the dollar.

THE chattel mortgage held on the stationery stock of W. H. Darlington, of this city, has been foreclosed by Warwick & Sons, the amount of that firm's claim being \$2,000. The stock and plant are nominally valued at \$5,000, but it is doubtful if they will realize more than 30c. on the dollar. Darlington had several houses on Mutual Street, but his wife now claims to be the owner.

FOR some time past the affairs of A. Friendly & Co., Toronto, have been the subject of considerable comment, and the fact of their selling goods at very close prices caused anxiety to creditors. A meeting of creditors was held on the 11th inst., when it transpired that the liabilities amounted to about \$10,000, and the assets estimated considerably less. A motion was made at Osgoode Hall for immediate execution and the firm assigned in trust.

IN July, '84, the wholesale dry goods firm of Daniel & Boyd, of St. John, N.B., obtained an extension of two years. Their liabilities at that time amounted to \$770,000, and assets over a million. The firm has not been able to retire the extension notes and are offering to compromise on the old liabilities at 75c. on the dollar, extending over 20 months from Feb 1, '87. The Canadian creditors have consented, and one of the firm has gone to England to arrange matters with them. The house has been established a long time, and is one of the best-known firms in the Province.

BURSTING OF WATER BACKS.

(1) Is there any way of telling if a water-back or pipe is frozen without waiting for the explosion?

(2) If there is any way of finding out the above, what is the best way of thawing it out?

(3) It frequently happens in both summer and winter that when we turn on the hot tap at the sink the water won't run, although the cold one will. What is the cause of it?

(4) Please describe to me what the inside of a boiler is like. Is there a coil of pipe in it, or is the water loose in the boiler; in short, how does it do its work?

(5) When I open the waste-cock at the bottom of the boiler is it supposed to drain ever drop of water out of the boiler, water back and pipe leading thereto?

[(1) and (2) One way is by slightly bending the upper pipe leading from the water-back to the centre of the boiler, and if it is frozen the ice will be heard to crack. This part of the pipe is what causes the trouble generally. In case it is found frozen take a hot cloth or burning pieces of paper and run them along the pipe for four or five minutes. The rag or paper should not be held in one place. Of course the thawing process can be gone through without testing the pipe. The opening of the valve and cocks is not a safe way of discovering whether the pipes are frozen or not.

(3) There was not enough pressure to carry the water to the faucet.

(4) A cold-water pipe enters the boiler at the top and goes down to within a few inches of the bottom. Right underneath where this pipe terminates is the cold-water pipe leading to the water-back. The cold water as it enters circulates around the water-back and then re-enters the boiler through another pipe at about the centre. The hot water in the boiler is kept continually at the top by the pressure of the cold water beneath, which forces it through the hot-water pipe at the top.

(5) In many cases a little water is left in the water-back, but this does not matter if the pipes are thawed out and the circulation made clear. Cast-iron water-backs are more apt to retain a little water than wrought iron, and the former is more dangerous in an explosion. Different plumbing requires different handling, and explosions often occur from other reasons which the plumber could easily explain. The only really safe way is to keep a fire going over night during the zero weather.]—Chicago Tribune.

Iron and Machinery.

DULUTH.

THE little city of Duluth, up in the far north, is waging a bitter war against Chicago, and is bent on wresting a great deal of the latter city's trade, commerce and manufacture. That it has succeeded within the past year or so in taking away the bulk of Chicago's grain trade is admitted on all sides. Much of the commerce of the north and north-west that formerly found its way to Chicago is also intercepted half way. Now the citizens of Duluth, not content with the huge elevators, warehouses and stores, talk of furnaces, and a movement is on foot to erect at that place three modern blast furnaces, Bessemer plant, rail mill and everything complete with all modern improvements, having a capacity of 500 tons per day, which will cost \$1,000,000. The scheme is well under way, all the preliminaries being arranged, it is said. The question of fuel has been solved. One of the largest coal companies doing business at Duluth recently made a proposition to enter into a contract to bring coal there and manufacture all the coke required at the same price as the steel mills at Chicago pay for coke delivered there. So far what Duluth has undertaken she has succeeded in carrying. — *Midland Industrial Gazette.*

IRON PRICES.

(From the Bulletin.)

THE foreign iron markets improved somewhat during the last half of 1886, but the improvement did not extend to all iron and steel products, nor can it be said that the advance in prices in any direction was very notable. The improvement was chiefly in an increased demand for certain products. In Great Britain the improvement is most marked, and there it is largely due to the increased demand from the United States. An impression prevails in this country that British steel rails are rapidly advancing in price, but this view is not sustained by the quotations which we find in English newspapers at the close of the year, nor in recent cable despatches. The *London Iron* for December 24th says:—"Considerable competition is experienced in the steel rail trade, more particularly from Germany, which has lately obtained a large Australian order. The price for steel rails of ordinary kinds is given at £4, but less would be taken by some firms." The Australian order was for 50,000 tons, and it was taken by Krupp for the Government of Victoria. Generally speaking it may be positively stated that European prices for iron and steel are not materially advancing. Our manufacturers on this side ought to be able to see a reason for this European policy.

DURING the months of November and December, and especially during the last two weeks of December, the condition of the steel-rail and pig-iron markets of the United States undoubtedly bordered on excitement. Steel rails advanced between two and three dollars per ton, and pig iron between one and two dollars. These advances were, in trade parlance, very sharp. While justified, perhaps, by the advance in the cost of raw materials, by the apprehension of increased freights at the beginning of the new year, and by a legitimate demand for an extraordinary supply of rails and pig iron, it was clearly not desirable that prices should keep on advancing. An excited state of the market and increased importations are two evils which we certainly do not want. We are glad, therefore, to observe strong indications that the new year has opened with a disposition among manufacturers to let well enough alone. The boom of 1879 and 1880 is not so old an affair that its consequence should now be forgotten.

FUTURE CENTER OF THE CANADIAN IRON INDUSTRY.

UNQUESTIONABLY there is at the present time a splendid opening in Canada for the manufacture of iron. In the Canadian handbook for the Colonial and Indian Exhibition, prepared under the direction of the Hon. John Carling, Minister of Agriculture, it is stated:—"For a country having 11,000 miles of railway, with a weight of over a million tons of rails, and possessing for the manufacture of iron natural advantages which few, if any, places in the world surpass, the development of Canada's iron industry is wonderfully slow. There appears to be a good field for skill, enterprise, and capital in connection with our iron industry."

The future centre of the Canadian iron trade may be expected in the county of Pictou, N.S. Nature here has done all she can do. A radius of ten miles from Stellarton would include the entire Pictou coal field, four large collieries in active operation producing over half a million tons of coal per annum, a coal particularly suitable in quality for the manufacture of coke and for iron working; within this radius, too, would be included immense deposits of limestone and five different varieties of iron ore, with deposits of fire-clay and moulding sand. It would take in Pictou harbor, the finest harbor on the south shore of the Gulf of St. Lawrence, with five loading and shipping wharves and piers, and over 75 miles of railway, radiating from Stellarton, and would also include the towns of Pictou, New Glasgow, Westville, Stellarton and many villages and hamlets, aggregating over 15,000 inhabitants, together with steel works, forges, foundries, boiler and machine shops, glass works, saw mills, stone quarries, brick yards, ship yards, etc., some of the largest ships ever built in Canada having been launched from New Glasgow. The county of Pictou has a grand future before it, if the people there are alive to their own interests, and we shall heartily welcome any iron enterprise situated there. We re-echo the words of the inspector of mines for the Province of Nova Scotia, who in his last annual report says:—"It may be remarked that in Pictou county, the conditions for making iron and steel cheaply are unsurpassed, as within a few miles are collected numerous iron ores, fluxes, and good furnace fuels, and there is railway and water communication with all parts of the Dominion." — *Montreal Star.*

THERE are but two gun foundries in the United States, one at West Point and the other at Boston.

ANDREW CARNEGIE and his partner pay out more money in wages every month than Krupp, the celebrated gunmaker of Essen, Germany, disburses among his men. Krupp employs 10,000 men and Carnegie's various Pittsburg mills are operated by 6,000 men. The difference in the aggregate of salaries is the difference between American and European pay. The monthly payroll of the Pittsburg ironmaster is over half a million dollars. The plants owned by the Carnegies cover 200 acres of ground. Upon this there are laid and maintained thirty-five miles of tracks, and the firm own twenty-two locomotives. — *Pittsburg Commercial Gazette.*

JOHN BERTRAM & SONS, of the Canada Tool Works, Dundas, have now under construction three new patterns of iron turning lathes with V shears, which promise to have an unprecedented sale; two with twenty feet bed being ordered by a Montreal firm before the patterns were completed. These lathes have all the parts interchangeable, and though the finished tools will be heavier than any made, the system of construction will enable them to be put on the market at prices which will defy competition. A new iron shaper and milling machine made by this firm are also attracting the attention of machine men, having found a place for special illustration in the *London, England, Engineering*, five of these machines being selected by the *Mechanic* Edition of that journal for engraving as specimens of Canadian machine tools, at the Colonial and Indian Exhibition in London.

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Textiles.

COTTON PRICES IN 1886.

(From Bradstreet's Review.)

THE year 1886 has witnessed a decline in the value of cotton to a point as low as that reached but once since 1856. The exception was just after the failure of the Glasgow Bank in 1878. It is worth noting that the lowest quotation reached was the same on both occasions, viz., 8½¢ for middling uplands. The lowest point touched this year was on February 26th. A characteristic which is becoming more evident every year is the continued narrowing bounds of price fluctuations. This was helped some last year by the decline of outside interest in cotton. The price of middling cotton at the beginning of 1886 was 9½¢. This price was but little modified until February (the latter part), when the sharp decline took place which, by February 26, had depressed uplands to 8½¢, as above noted. The causes of this decline were the apparently critical political outlook in eastern Europe, continued unfavorable reports as to European consumption, some labor troubles at home and the steady run of liberal receipts from the 1885-86 crop. The reaction from the low quotation was fairly prompt, and was aided somewhat by the improved statistical position reported by the Agricultural Bureau's February estimate of 6,500,000 bales as the probable crop. The natural covering movement and light receipts coming in had, by March 4, put the price up to 9¼¢. The range of prices from then to July 1 remained close to that figure. The large acreage, equal to that in 1885, added to unfavorable foreign advices, prevented much fluctuation upward until July. About the end of June the reports of damage to the growing crop began to exert an influence, which culminated in a rise to 9¼¢ for middlings by the middle of July, but the conviction that an average crop would be gathered, notwithstanding this and the unsatisfactory trade conditions prevailing, had depressed the price of middlings to 9¼¢ by the end of August. As the harvest advanced crop prospects remained fairly satisfactory, and a crop fully equal to last year's was, by many, thought probable. The figures of United States consumption for the year ending September 1 showed that all previous records had been surpassed. As the season for picking advanced the expectation of a very large crop began to be modified, and the consequence was a lowering of crop estimates. The advices from England were also more cheerful as the year advanced, and the reasons existing for an advance in prices began to receive more attention. The weather for picking the American crop in November was not of the best, and the lateness of the season, with the consequent frost damage, caused crop estimates, as above stated, to be reduced. The first of December saw a marked increase in improved trade reports, which affected the market considerably. By December 10 uplands were selling at 9¼¢ against 9½¢ the preceding week. With only a slight reaction from this price the quotations of middling uplands remained practically unchanged during the remainder of the year.

THE BRADFORD WOOL AND WOOLLEN INDUSTRY

BRADFORD, Eng., Dec. 30.—The "boom" in the wool trade was perhaps the most noticeable feature of the year, and the state of excitement prevailing during the latter half of the year has probably had no parallel during its previous history. During the first four months prices of colonial wool touched the lowest point known for a long period. Then came the rush following the June sales, which reached its climax at the September series, when prices marked an advance of from 60 to 70 per cent. upon the April rates. During this interval the wool dealers of Bradford "lost their heads," and many of them are

suffering from an undue depression in which half of the advance noted has been already lost. The English wool trade has been far steadier, and an improvement in rates equal to 20 per cent. has been established and maintained. So far as the finer sorts are concerned, this rise has been mainly due to the large purchases from America.

With regard to mohair it may be noted that a much larger importation has this year been received from Turkey than previously, and a very much larger supply has been sent to America than at any former period. All through the year there has been an exceptional demand for the lower qualities, with a consequently enhanced value. For fair average the current price is 14d., as it was at the beginning of the year. Alpaca is worth about 12d. per pound, a decline of 1d. on the year.

The demand for cotton was unusually brisk during September, October and November, owing to the high price of wool, the run upon twofold 40s. being large. This has been checked by the fall in the price of wool and other causes, and at present there is not an average quantity being called for. There is a development going on in fancy goods made from cotton, with bright colored risen stripes in numerous variations, making very effective dress goods.

The trade in Bradford spun yarns is now fairly good, and with good prospects. Comparatively, the net result of the year's trade shows a larger turnover than in many previous years, and a fair increase in values. For various reasons the consumption of articles made from wool has steadily increased, among the rest goods made upon Dr. Jaeger's system, which have found considerable favor in this country, and calling for particular classes of yarn. From the backward feeling in the trade prices of lustre and demi-lustre yarns have not kept uniform pace with the rise in wool. The heavy use in Botany yarns has given place to a rapid fall, leaving room for even a further reaction.—Bradstreet's.

CURRENT NOTES.

(Boston Manufacturers' Gazette.)

THE American manufacturers of sewing silk and machine twist have decided to advance the price of manufactured goods 10 per cent., in consequence of the increased cost of raw silk.

FOR many years we have not seen the season open so auspiciously as this year for manufacturers of engines, boilers, tools, and for cotton, woollen and wood-working machinery. Every live concern is full of orders.

THE woollen manufacturers of New Hampshire expect the Legislature will enact a ten-hour law. A large manufacturer in that State says that though they claim to work eleven hours, practically it does not amount to as much. The help are given many privileges now, such as brief absences to go to their homes or to the post office. There has been very little trouble in the New Hampshire woollen mills the past year in relation to labor.

THE year just elapsed has been the most remarkable in the history of the cotton goods trade of the United States, inasmuch as that we have been able to relieve our markets of the largest foreign shipments of cotton goods we have ever made. From New York alone we have exported to foreign countries 209,779 packages, valued at \$11,470,444, while from Boston 20,306 packages were exported. Here we have in round numbers shipped from two of our principal ports 230,000 cases and bales of domestics, sent, we may also say, to all quarters of the globe, but wherever sent they were found to be the best made goods ever offered at the prices obtained, and hence we have every hope that our export trade in coarse, if not fine domestic cotton goods, will keep expanding and extending, as the wearers will learn to appreciate their intrinsic worth.

Mining.

INTERESTING FACTS IN REGARD TO NATURAL GAS.

A LECTURE on the subject of natural gas was delivered at the Franklin Institute in Philadelphia, on Saturday evening, December 18th last, by Mr. Charles A. Ashburner, Geologist in Charge of the State Geological Survey. The lecturer stated that natural gas was by no means a recent discovery. Even its utilization for the purposes of mechanic arts had been successfully attempted in China, where, by pipes of bamboo, it had been conveyed from natural wells to suitable furnaces, where, by means of terra cotta burners, it was consumed. In the confines of Persia, south of France, and in our own Western States, burning springs had long been known. When Lafayette visited this country in 1821, the inn in the town of Fredonia, New York, was illuminated in his honor by gas procured from a neighboring well. It is, however, only within recent years that natural gas has arisen to an importance in its bearing on the mechanic arts. At present the great iron and glass works of Pittsburgh and of other places are supplied with natural gas as their only fuel, and millions of cubic feet are yearly consumed in Pittsburgh and similarly situated cities.

Of the origin of natural gas there seems to be no reasonable doubt. It arises from the decomposition of forms of animal or vegetable life embedded in the rocks of suitable situations. The gas is not believed to be generated continuously, but merely to be stored in porous or cavernous rocks overlaid by impervious strata. When these collections are tapped the gas is set free, but a new supply is not being formed to take its place. The position at which the gas is found is very variable, depending upon the force of gravity and upon the position of the porous layer in which the gas is confined. The lecturer entered into an accurate description of the localities in which the gas was found, and gave the reasons why it was hopeless, from geological grounds, to look for natural gas east of the Alleghanics. The region in which the gas is found is practically embraced in that portion of Pennsylvania west of the Allegheny Mountains, and extending a very short distance into Ohio, New York and West Virginia, and it is also stated to have been found to a very limited extent in Illinois and Kansas.

The most important economic locality is that in the immediate vicinity of Pittsburgh, which supplies that city with the fuel for the vast iron and glass works and for numerous private dwellings. There are 66 natural gas companies in that city, managing 107 wells, and supplying the gas through over 500 miles of pipe, of which 232 miles are situated in the city proper. The total area of pipe leading into Pittsburgh is given as 1,346,608 square inches, and the total capacity of the lines are estimated at over 250,000,000 cubic feet of gas per day. The largest company is the Philadelphia Natural Gas Company, which supplies over 100 manufactories and over 7,000 dwellings with the entire amount of fuel consumed. The composition of natural gas varies greatly, both in specimens from different wells and in those from the same at different times. In general terms it can be described as a mixture of hydrogen, nitrogen, and marsh gas, with occasionally higher carbon compounds. It burns with a nearly colorless flame, and gives off no odor or deleterious matter.

In speaking of the use of natural gas for domestic purposes, Mr. Ashburner pointed out the great advantages which a gaseous fuel has over a solid one like coal, and stated his belief that the greatest of the advantages of the discovery of natural gas was that it had proven the great economy and practical utility of such fuel. A thousand cubic feet of gas was calculated to equal in heating capacity 55 pounds of coal. He stated that the use of natural gas for domestic purposes would not have

been possible without the inventions of Mr. Westinghouse, of Pittsburgh, two of whose inventions the lecturer illustrated. One of these inventions was intended to prevent leakage from gas pipes, and to locate leaks accurately when they occurred. The leaking gas is conveyed to the nearest lamp-post and there consumed. Another invention was a most ingenious pressure regulator, which not only regulates the pressure at which the gas is supplied to the burners, regardless of the pressure in the mains, but in the event of the pressure in the mains dropping to zero automatically shuts off all gas from the house; nor is it possible to turn the gas on again without violence to the regulator until every source of escape of gas larger than a pin-hole leak has first been corrected. A model of the regulator was exhibited. The lecture was illustrated by drawings and maps and by a small working model of a well-boring apparatus.

In answer to inquiries the lecturer stated that the source of natural gas was certainly capable of exhaustion, but that he did not think there was any imminent danger of such a calamity. The sources of supply would certainly last many years, and he believed that before they would give out a method of producing an artificial gas would be invented which would certainly supplant the present natural gas. The cost of natural gas could not be compared with our coal gas, for the reason that the natural gas was not sold by meter. The consumer makes a yearly contract with the company to supply him with light or fuel or both, at certain rates. A house containing twelve rooms costs, to heat and light, from \$70 to \$90 a year. The use of the gas is most satisfactory, for by means of an automatic regulator every room of a house may be kept at a temperature not varying two degrees, regardless of the condition of the outside temperature or the pressure on the mains. Defects and troubles were met with from lack of understanding how to properly regulate the supply or the combustion.—*Coal Trade Journal.*

ACCORDING to the Bureau of Mineral Statistics, the production of metallic aluminium in the United States increased from 1,800 troy ounces in 1884 to 3,400 ounces in 1885, valued at \$2,550. Aluminium bronze, containing 10 per cent. aluminium, was made to the amount of about 4,500 pounds, valued at \$1,800.

No record is kept of the yield of natural gas in cubic feet, but the chief of the American Bureau of Mineral Statistics estimates that the amount of coal displaced by gas in 1885 was 3,161,600 tons, valued at \$4,854,200. In 1884, the coal displaced was valued at \$1,460,000. The yield has increased ten fold since 1883.

THERE IS no antagonism between capital and labor, but there is antagonism between work and idleness.—*Mr. Arthur, Chief of the Brotherhood of Locomotive Engineers.*

THE *Lowell Times* says that the insurance organization connected with the incorporated manufacturing companies of that city has not been called upon to pay a cent insurance for loss by fire since ten years ago in January, 1886.

THE tonnage carried by the New York canals in 1886 was 500,000 tons heavier than in 1885, and the freights obtained were considerably better than for many years. The season lasted 215 days, the longest since 1882. The cost of maintenance was \$750,000, the same as in 1885, while the volume of business done was much greater.

MESSRS. SAMUEL MAY & Co. are about shipping two large English billiard tables to England, in fulfillment of an order recently received. This firm also sold the tables exhibited by them at the Colonial Exhibition and as an outcome of this exhibit, a permanent trade is likely to result. Messrs. May & Co. are also sole manufacturers in Canada of the Dodge Wood Split Pulley. Besides experiencing a large home demand for these popular pulleys five foreign shipments have been made since the firm commenced their manufacture last year, including shipments to China, Australia and Germany. [81 to 89 Adelaide Street W., Toronto.]

Permanent Exhibition of Manufactures.

Toronto.

NICHOLLS & HOWLAND.

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

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

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

The following list contains the names of those having already secured space in the building.

Armstrong J. A. & Co., Guelph, Ont., Carpets.
 Bertram, John & Sons, Dundas, Ont., Iron Working Machinery.
 Blake, Geo., F. Manufacturing Co., Boston, Mass., Steam Power Pumping Machinery.
 Brush, Geo., Eagle Foundry, Montreal, P.Q., Blake Stone Crusher.
 Breithaupt & Co., Berlin, Ont., Leather.
 Clark Bros. & Co., Preston, Ont., Stoves and Furnaces.
 Cavan & Co., Galt, Ont., Woodworking Machinery, Engines and Boilers.
 Creelman Bros., Georgetown, Ont., World's Star Knitting Machines.
 Dalley, F. F. & Co., Hamilton, Ont., Extracts, Essences and Grocers' Sundries.
 Doulton Baby Carriage Co., London, Ont., Baby Carriages and Rattan Furniture.
 Dominion Hat Co., Hamilton, Ont., Felt Hats.
 Donald Produce Co., Norwich, Ont., Evaporated Fruits.
 Finwick & Selator, Montreal, P.Q., Files and Mill Supplies.
 Globe Tobacco Co., Windsor, Ont., and Detroit, Mich., Tobaccos.
 Goldie, James, Guelph, Ont., Flour.
 Goodhue & Co., Danville, P.Q., Leather Belting and Lace Leather.
 Grand River Knitting Mills Co., Paris, Ont., Smyrna Rugs and Knit Goods.
 Grand & Toy, Toronto, Ont., Ticker Automatic Letter and Document Files.
 Grape Sugar Refining Co., Walkerville, Ont., Syrups and Glucose.
 Hamilton Industrial Works Co., Hamilton, Ont., Wringers, Mangles, etc.
 Hamilton Rolling Mills Co., Hamilton, Ont., Bar Iron, etc.
 Hamilton, J. S. & Co., Brantford, Ont., Native Wires.
 Hart Emery Wheel Co., Hamilton, Ont., Emery Wheels and Emery Wheel Machinery.
 Hay, Peter, Galt, Ont., Machine Knives.
 Hearle, J. G., Montreal, P.Q., Toilet Soaps and Perfumery.
 Howland, H. S., Sons & Co., Toronto, Ont., Hardware Specialties.
 Howland, H. S., Kleinburg, Ont., Flour.
 Hemming Bros., Toronto, Ont., Fancy Goods and Jewellers' Cases.

Ives, H. B. & Co., Montreal, P.Q., Stoves and Hardware Novelties.
 Kerr Bros., Walkerville, Ont., Water, Steam and Gas Valves.
 King, H. W. & Co., Georgetown, Ont., Power Knitting Machinery.
 Leslie, James, Montreal, P.Q., Woollen and Cotton Mill Supplies.
 Metaskill, D. A. & Co., Montreal, P.Q., Varnishes and Japan.
 Miller Bros. & Mitchell, Montreal, P.Q., Machinery and Baudry's Steam Hammer.
 Morris, A. W. & Bro., Montreal, P.Q., Cordage and Binder Twine.
 Muddrloh & Co., Montreal, P.Q., Watchmen's Clocks.
 Northey & Co., Toronto, Ont., Steam Pumping Machinery.
 Northumberland Paper Co., Campbellford, Ont., Straw Board and Tarrad Paper.
 Ontario Bolt Co., Toronto, Ont., Bolts, Nuts, Spikes, etc.
 Oshawa Stove Co., Oshawa, Ont., Cooking and Heating Stoves, etc.
 Paris Manufacturing, Paris, Ont., Knit Goods.
 Pepper, T. & Co., Guelph, Ont., Carriage and Wagon Axles.
 Pillow, Hersey & Co., Montreal, P.Q., (Geo. A. MacAgly, Western Representative, Toronto.) Nails, Tacks, Bolts, etc.
 Ramsay, A. & Son, Montreal, P.Q., Plate and Stained Glass, Paints, Oils, etc.
 Robin & Sadler, Montreal, P.Q., and Toronto, Ont., Leather Belting and Lace Leather.
 Rumpel, Geo., Berlin, Ont., Felt Boots and Shoes.
 Simpson & Co., Berlin, Ont., Furniture.
 Smith's Falls Malleable Iron Co., Smith's Falls, Ont., Malleable Castings and Carriage Hardware.
 Smith, R. H. & Co., St. Catharines, Ont., Every Description of Saws.
 Stahschmidt & Co., Preston, Ont., Office Furniture.
 Storey W. H. & Son, Acton, Ont., Gloves.
 Walker, James, Hamilton, Ont., Household Soaps.
 Watts, A. & Co., Brantford, Ont., Household Soaps.

Further information will be promptly furnished.

NICHOLLS & HOWLAND,

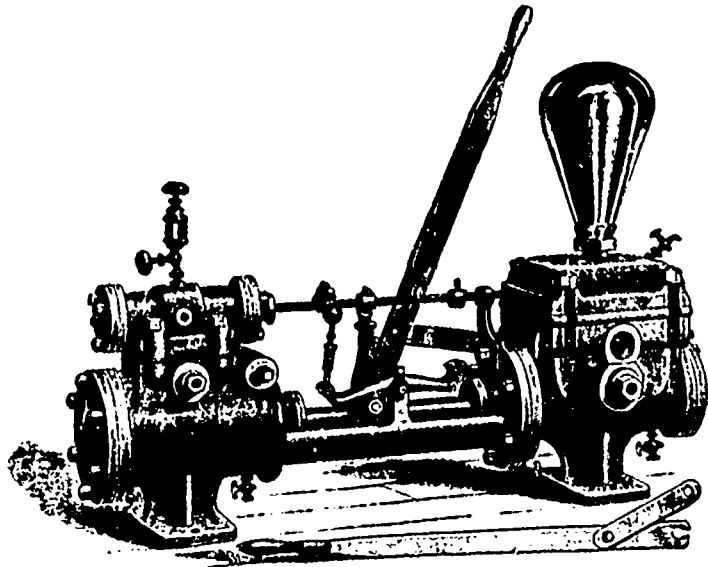
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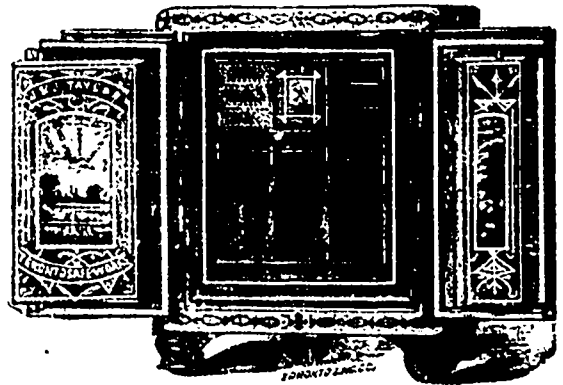
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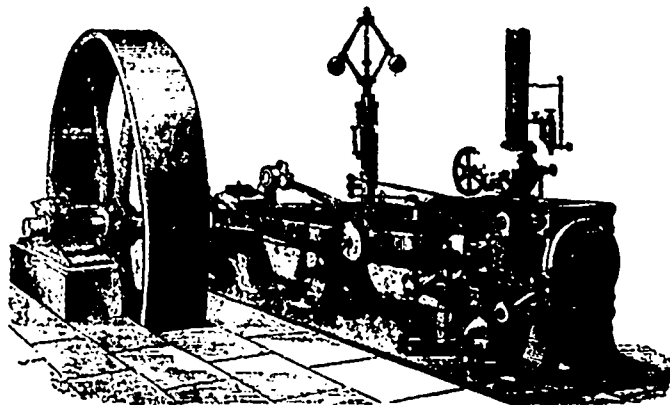
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Write for Circulars.

Milling.

CURRENT NOTES.

(From the American Miller.)

THE average price for the wheat crop of the United States the past year was not over \$9 per acre.

THERE is one town in Dakota that is mad clear through. It paid \$1,000 as a bonus to have a grist-mill put up, and now the owner has picked up themill and moved it twelve miles away.

THE syndicate of fifty grain men, mentioned in our last issue, who formed the Grain Dealers' Lloyds for insuring their own grain, took in \$35,000 in premiums the first month of its operations, and incurred \$9,000 in losses on the grain in the burned Duluth elevators.

A DUST arrester in a wool-working establishment in Columbus, Ohio, exploded on December 11th, and damaged the building to the extent of \$2,000. The insurance companies will now read homilies on the dangers of explosions in lumber yards and logging camps.

A NEW YORK grain dealer writes his agent here (at Chicago). "Duluth is full of wheat. This country is loaded with the stuff. Elevators, granaries, depots, lofts of houses, and all other conceivable places are glutted with wheat. I predict seventy cents for wheat in Chicago and Duluth within the next sixty days."

C. A. PILLSBURY recently said:—"Last year was a short-crop year, and most of the wheat was consumed in this country. That accounts for New York's very light receipts. This year the crops were large, and the wheat went to the seaboard for export. Most of the Chicago wheat was bought there for export. Look out for big figures at Chicago in 1887. The great decline in the receipts is only apparent. The rapid building of country elevators accounts in part for the short receipts at the cities; the farmers storing the grain at home."

AN ENGLISH VIEW OF CORN LAWS.

IT is a curious circumstance that in 1836, when bread was 5d. a loaf, wheat was 48s. 6d. per quarter; and in 1885, when bread was again 5d. a loaf, wheat was sometimes less than 32s. per quarter, so that cheap wheat does not always mean proportionally cheap bread. If we follow the question up and seek to ascertain how it is that the prices of bread do not regularly follow the prices of wheat we must find our answer in the fact that when wheat is very low it seems to be the middlemen, the dealers, the millers and the bakers that get the advantage. These traders know that so long as bread is 5d. or 6d. a loaf, people will not complain or stint their quantity, hence they profit by the very low price of wheat, not the consumer. And now comes the moral of our pamphleteer's story. We made a great outcry at the proposal to put 5s. or 6s. a quarter duty on corn, because it would tax the food of the people; but he maintains that it would make no difference to the consumer, but would only lessen the profits of dealers. As it is, free corn benefits wheat consignors and those engaged in the "trade" at home, but is helping to ruin one of our greatest industries, agriculture. A tax of 6s. per quarter on imported wheat would yield £7,000,000, and this sum, though, of course, paid by the consumer, would go to reduce the taxation of the country. Everybody would directly and indirectly benefit by that reduction, bread would not be any dearer, and only certain classes in the breadstuff trade would be any the worse off.—*Midland Herald (English Paper).*

INTER-STATE COMMERCE BILL.

THE Western farmers are as anxious to have Congress pass the inter-State commerce bill as the Eastern people are. The Live Stock Breeders' Association recently called the attention of the railroads to the fact that, on account of the unparalleled drought, the farmers in eastern and central Iowa had a surplus of stock, while western Iowa and Nebraska had a surplus of corn, and yet the railroad tariff was driving to Chicago corn that was needed at home. A reduction in local freights would have enabled the farmers to obtain grain to feed out to their stock. On the sixteenth day of December, corn was selling in western Iowa at from twenty to twenty-five cents per bushel, in Chicago it was quoted at thirty-six to thirty-six and three-quarter cents a bushel, while at Ottumwa, in south-eastern Iowa, the price was forty to forty-two cents per bushel. So that western Iowa corn was selling in Chicago at three to six cent less than the eastern Iowa farmer could buy it for use on his farm to feed his stock. By reason of the refusals of the railroad to make reasonable local freight tariffs, the farmers have been forced to sell their horses and cattle and hogs in a depressed market, and at whatever prices they could get. The agitation of the inter-State commerce bill will soon render these railroad magnates willing to make some concessions, and perhaps to make special low rates on corn from points in western Iowa to points in eastern Iowa, where corn is scarce and needed for feeding purposes.—*Eastern Manufacturers' Gazette.*

GREECE, which was formerly dependent on Austro-Hungary for her flour, is now independent in that respect, and Athens has fifteen steam flour mills.

THE British wheat crop is not turning out as well as expected, and the Mark Lane Express believes the British wheat crop is materially over-estimated. France, too, is supposed to have officially over-estimated its wheat crop from 30,000,000 to 40,000,000 bushels.

THE December crop report of the Department of Agriculture shows a material reduction in the returns of average former prices, as compared with the values of the wheat, rye and barley crops of 1885. Corn has made an advance, and oats, in sympathy with corn, average slightly higher values than last year.

THE Buda-Pest mills, it is reported, have been obliged to shut down, as they cannot sell their flour for export. This is attributed to the fact that the quality of the English, German and French crops this year is such as to enable the millers of these countries to supply the demand at home for superior brands of flour.

A LEADING Chicago speculator says:—"Not until we have reached a point where our visible supply begins to show weekly decreases, instead of increases, can we expect to reap the full benefits of the improved conditions abroad, and the indications are that we shall not reach that point until about the 1st of February."

THERE is talk of a large flour mill and elevator being built at Keewatin, the mill to have a capacity of 1,000 barrels daily. A. Mitchell, of Montreal, and J. Mather, of the Keowatin Lumbering Co., are mentioned in connection with the scheme. There is fine water-power at Keewatin for running machinery.—*Winnipeg Commercial.*

THE Montreal Bulletin says:—"Since the close of navigation a large export business has been done in Canadian grain via Portland, Halifax, and Boston to Liverpool, London, Glasgow, Bristol, Antwerp and Hamburg. In fact some of our large shipping firms have already handled three times more grain this winter than any former season, and it is stated that they could have doubled this volume, if sufficient ocean tonnage had been offered. There has been lively times in the wheat market along the line north and west of Stratford, some large sales having been effected at 75c. per bushel for red winter, on a through freight rate to Liverpool via Portland of 35c. to 36c. per 100 lbs."

Lumber.

THE Cheboygan *Democrat* says it learns on most excellent authority that one of our most extensive lumber firms only cleared five per cent. on their capital last year, though one of the liveliest and best managed firms in Northern Michigan. This is a very poor return for capital actually engaged in productive industry, and surrounded by conditions that make it very precarious, it being only about what money invested in absolutely safe bonds and mortgages net the capitalist, who has no worry or work when his money is so invested, and goes to show how careful the wage-worker should be, not to cause trouble and drive out capital invested in productive industry which now furnishes the laborer with means of subsistence. The firm we allude to employ over one hundred men the year around at good wages, and it would not be very difficult for any man to find out that they pay their men their full share of the wealth they produce. The slightest raise in the wages of the men, a raise so slight not a single man could realize he had had a raise at all at the close of the season, would not only wipe out all profit, but show a heavy loss.

THE following are the wages paid on the Wisconsin river and its tributaries: Choppers, \$30; skidders, between \$35 and \$20; four-horse teamsters, \$40; ox teamsters, \$24 to \$26; swamper, \$22.

ED. BUCKLEY, of Manistee, sold recently for next season's delivery, one million feet of longitudinal and one million feet of miscellaneous timbers at 50 cents per M better than the best price of last year.

THE Chicago *Times* says:—"The completion of numerous railway lines is diverting considerable lumber trade from this city. The new Chicago, Burlington & Northern will carry lumber from St. Paul, Minneapolis, La Crosse and the Chippewa valley into the central and western countries of this state at such rates of freight as will enable northern dealers to successfully compete with those of this city. The Illinois Central is reaching up through Madison, Wis., for northern pine, and as soon as it 'gets there' the entire territory in Illinois traversed by that system will be supplied with lumber from Wisconsin. Menominee and Marinette concerns have been shipping lumber over the Northwestern and St. Paul lines through this city and by connections down into the interior of the state. The Wisconsin Central has been doing the same thing. The Wabash roads have for years distributed Michigan lumber in the central and southern countries direct from the mill."

THE American consul at Ottawa, Ont., furnishes the following summary of the values of the various products of the forest exported to the United States from the Ottawa consular district for the fiscal year ending June 30th, 1886. Sawed pine lumber, \$2,045,309; box shooks, \$46,428; lath, \$26,456; railroad ties, \$11,604; pickets, etc., \$25,751; match blocks, \$8,450; telegraph poles, \$2,033; hemlock bark, etc., \$4,500. Total export, \$2,225,000. In addition to this, 35 per cent. was used for home consumption. The total amount of lumber manufactured by the Ottawa mills of the year is placed at 283,000,000 feet. The principal destinations for the consignments sent from Ottawa to the United States were Burlington, Albany, New York, and Boston. A large proportion, however, of the lumber sent to the United States has been exported from thence to South America, the West Indies and Africa. The square timber trade, which at one time was so largely carried on along the tributaries of the Ottawa river, has been almost entirely abandoned, nothing having been done in that way during the past year.—*Canadian Lumberman*.

DR. PORRET has published some very curious instances of exhausted muscular power. Of course, the writer's cramp is a case in point; but there are "professional movements" other than writing which exhausts the powers of those who use them. Violinists lose the power of manipulating the strings with their left hand, violoncello players that of "making the nut" with their left thumb; composers cease to have power over the stick; tailors can no longer sew, and even nail makers can at last no longer use the hammer. It is sagaciously suggested that, in view of this disastrous state of things, everybody should have a second calling to fall back upon when the first gives out.

COMMERCIAL MUSEUMS

THE Commercial Museum movement appears to be making rapid strides in more than one place on the continent, and particularly in Belgium, which, small as it is, has a truer appreciation of commercial progress than any other country. The museum at Liege is to be divided into two sections, the first embracing articles of import, with a statement in each case of their origin, their prices at the port of shipment, cost of transport, customs' duties, and conditions of sale; the second section will be devoted to articles in demand for foreign markets, with all particulars as to packing, etc. A museum is also to be established at Charleroi. Dresden is acting with great energy in the matter, and its museum already contains samples of almost every Saxon industry, to which no fewer than 250 manufacturers have contributed. The articles are intended for export, and it is hoped that the shippers of Bremen and Hamburg will be induced to co-operate largely. The Buda-Pesth museum lays itself out more for the East; and in connection with its operations it publishes a journal giving all information as to prices, transport rates, and customs' duties, together with lists of liquidations and insolvencies in other countries. Even in such out-of-the-way places as St. Sebastian in the north or Spain, and Bahia in Brazil, permanent commercial museums have been formed. In connection with this subject, we may mention that the French have started a system of floating exhibitions. The *Sarthe* is fitting out at Marseilles, and the *Chateau Lafitte* and *Chateau Liorville* at Bordeaux, with the object of exploiting the West Indies and the northern coasts of South America. It behoves us to make a note of these things, and, more than that, to act upon them.—*Builder (English Paper)*.

WAGES IN SCOTLAND AND IRELAND.

(Extract from a Glasgow Letter by an American.)

I FIND wages low all over Ireland and Scotland, and I have visited many factories and talked with both managers and laborers. The hours are long, the work in many cases is very hard, and the wages are very low. Rents are high in comparison with the accommodations, and the only one thing I find cheaper than with us is clothes. Good food costs the same, and meats are fully as high. The laboring classes live on a cheaper kind of food than our workmen do, and they have less of it. Whole families often live in one or two rooms, costing all the way from \$25 to \$50 per year. They live in the cities in flats, and their conveniences are very few. The wages of mechanics and skilled labor run from \$1 a day to \$2 a day, and it is a very good man indeed who gets the latter. A newspaper proprietor in Dublin told me that he could get good reporters for from \$5 to \$7 per week, and they would be short-hand men and well educated. The managing editor of the largest paper in Ireland, in Dublin, gets only \$2,000 a year, and his salary is considered a large one.

I saw men working on the road in Ireland breaking stone at 25 cents per day, and many of the women in the factories of Belfast get no more, and work from 6 a.m. to 6 p.m. Here laborers get from \$4.50 to \$5 per week and board themselves. Carpenters, printers, cooper, and masons earn about \$7.50 per week, and shoemakers the same. The plumbers receive only \$7.50 per week in Glasgow, and tailors only \$7.25. Many boys and little girls are employed in the factories, and the whole family works to keep the wolf from the door. Still, under all these disadvantages, the Scotch blood makes fortunes, and there are numerous instances of poor boys becoming wealthy right here amid such surroundings.

LAWRENCE has a larger Irish population than any city in the United States in proportion to the number of its inhabitants. Fall River comes second and Boston third.

Miscellaneous.

A RAW MATERIAL WHICH MIGHT BE FREE.

(Chicago Journal of Commerce.)

The extent to which alcohol and cologne spirits enter into industrial operations should suggest to our friends of free raw material, some effort to rid it of the tax of over 400 per cent. with which its consumers are now burdened. In varnishes, many kinds of paints, in shellacs, in chemical industries of an endless variety, in medicines, perfumeries, colors, and little industries of millinery, nearly the whole enormous product of the United States now goes, and were the tax taken off it would be used to three times the extent, and make a market for millions of bushels more of the farmer's corn. While we are on the subject of free raw materials, let us consider these spirits which so largely enter into chemical, mechanical and industrial operations.

AN ASSOCIATION WITH 333 MEMBERS.

(From the Bulletin of the American Iron and Steel Association.)

The American Iron and Steel Association is the legitimate successor of the American Iron Association, which was organized in Philadelphia on the 6th of March, 1855, and which, after the vicissitudes usually incident to trade organizations, was placed on a firm foundation on the 16th of November, 1864, when its name was changed to the American Iron and Steel Association. From that day to this it has enjoyed a healthy existence, and during most of the time mentioned it has been an active and aggressive force. It has a record of achievements and not of promises. Our object in referring to the Association now, however, is chiefly to call attention to the record of the past year. As the Association is essentially an executive rather than a deliberative body, annual or other meetings of its members are rarely held, because they are not necessary, and the practice has gradually been established of explaining its work from year to year through the columns of *The Bulletin*. We have now briefly to deal with 1886.

The work of the Association during the past year has not differed materially from that of preceding years. Our annual and semi-annual statistics were promptly collected and published. The red-backed Directory, the yellow-covered Annual Report, and *The Bulletin* appeared in their appropriate times and seasons. A large amount of miscellaneous correspondence, embracing many inquiries for statistical and tariff information, was promptly disposed of. Special attention was given during the larger part of the year to the distribution of Protective tariff literature in conjunction with the Industrial League, with which the Association is closely affiliated for tariff purposes. It fell to the lot of the writer of these lines to superintend the publication and distribution during the year of 363,560 tariff tracts and of 40,000 tariff cards. The amount of labor required to distribute this large quantity of literature can be but imperfectly comprehended by those who have not participated in it. Thousands of letters have to be written and thousands of packages have to be prepared after the literature itself has been compiled and printed. Arrangements are now being made to continue this work during the coming year. The tracts we have distributed were not mere leaflets, but elaborate essays and addresses occupying not less than eight printed pages and sometimes twenty-four and thirty-two pages. No other organizations in the country than our own Association and the Industrial League have systematically and liberally distributed Protective tariff literature. Other tariff work of the Association in 1886 need not here be referred to.

The receipts of the treasury during the year amounted to \$16,156.73, and the expenditures to \$16,564.93. At the be-

ginning of the year there was in the treasury \$3,798.08, and at its close there is \$3,389.88. The following is the official statement of the treasurer, Mr. Andrew Wheeler:—

Statement of Receipts and Expenditures by Andrew Wheeler, Treasurer, during the year 1886.

MONTHS.	Receipts.	Payments.
On hand January 1, 1886.....	\$3,798.08
January.....	614.38	\$1,148.21
February.....	67.68	1,230.76
March.....	1,218.37	1,362.22
April.....	3,945.91	1,181.41
May.....	870.00	1,030.11
June.....	178.64	1,291.03
July.....	2,376.00	1,205.55
August.....	2,174.75	1,397.82
September.....	555.00	1,807.12
October.....	1,736.00	1,967.93
November.....	764.00	1,104.11
December.....	1,656.00	1,838.66
On hand December 31, 1886.....		3,389.88
Total.....	\$19,954.81	\$19,954.81

The membership of this Association now embraces 333 firms, companies, and individuals engaged in the manufacture of iron and steel, together with a few iron and steel merchants and a few iron ore producers, each firm, company, and individual being counted as one member. Never before during our long connection with the Association has the number of contributing members in any one year been so large as in 1886. Never before could we count so loyal a constituency as at the present time. Our 333 members are found in the following States:—

Massachusetts.....	11	Tennessee.....	8
Connecticut.....	8	Ohio.....	40
Rhode Island.....	1	Indiana.....	4
New York.....	27	Illinois.....	11
New Jersey.....	16	Missouri.....	8
Pennsylvania.....	141	Michigan.....	17
Delaware.....	6	Wisconsin.....	1
Maryland.....	3	Colorado.....	1
Virginia.....	8	Washington Ter....	1
Georgia.....	2	Oregon.....	1
Alabama.....	7	California.....	3
West Virginia.....	4		
Kentucky.....	4	Total.....	333

It will be seen that we have a membership to be proud of. It is a membership that is national and not sectional. Even in Pennsylvania, where a large number of our members would naturally be looked for, more than half of these members are found west of a line drawn through the centre of the State from north to south, although our office is, and always has been, in its eastern part. Our membership also fully represents every branch of our iron and steel industries, nearly all the leading firms, companies, and individuals engaged in each branch of these industries, ore excepted, being members of the Association. By continuing to pursue a policy of strict impartiality in dealing with all the interests represented, and by continuing faithfully to do the work that has been done, we have no fear that the Association will not be as strong in the future as it has been in the past.

“‘Vick's Floral Guide’ is by far the handsomest seed catalogue that is issued in America. It is handsomely bound, and contains illustrations enough of flowers and vegetables to make the amateur gardener crazy.”—*Globe, Boston, Mass.*

LIVE QUESTIONS FOR CONGRESS TO CONSIDER.

(Philadelphia Bulletin.)

1. REDUCE the surplus by repealing all the war taxes on tobacco. No American industry can suffer from a repeal of the tobacco taxes, while the farmers and the small manufacturers of tobacco and cigars would be greatly benefited, and of course consumers would be.

2. Do not reduce the sugar duties. Why meddle with them? Sugar never was so cheap as it is now. Why cripple our cane-sugar industry? Why destroy our infant beet-sugar industry and our promising sorghum-sugar industry?

3. Annul the one-sided Hawaiian reciprocity treaty, which annually adds millions of dollars to the profits of California sugar speculators and correspondingly reduces the receipts of the United States Treasury, but does not reduce the cost of sugar to the people of the Pacific Coast. The treaty is a fraud.

4. Reduce no duties on foreign commodities which compete with American products; increase duties which do not now sufficiently protect American industry.

5. Give careful consideration to the Blair Educational Bill. The poor people of the South need help to educate their children. Let them have it. The country can afford to give it.

6. Regulate immigration by establishing consular supervision over the character of intending immigrants and their ability to support themselves.

7. Extend the same liberal aid to the building up of American commerce that Great Britain, France, and Germany have given to their mercantile marine. In this way only can our surplus products find their way in increasing quantities into foreign markets.

8. Increase the Navy and strengthen the country's fortifications. In time of peace prepare for war.

9. Scotch the Mormon iniquity by effectually prohibiting the importation of ignorant converts from European countries. A nation has the right to protect itself against any foe to its peace and safety.

MR. BLAINE AND THE KNIGHTS OF LABOR.

In his speech at Sebago Lake, Maine, on the 24th August in opening the political campaign in behalf of the Republican party of that State, Mr. Blaine said:

I have no new nostrums to offer for the cure of labor troubles. I have no quack remedies to propose. I am a firm believer in the efficiency of the Protective tariff, and I can look back with serene satisfaction to my record in Congress as never blotted by a single vote that was not friendly to the interests of American labor. I never promised anything when I was a candidate for a public office, and now as a private citizen I have no temptation to flatter any man or state anything else than the simple truth as I see the truth. It is in this spirit that I offer some suggestions which seem to me worthy of attention under the existing situation of the labor question.

In what may be termed the political creed of the various labor organizations I have observed some singular omissions of pertinent and, as I think, controlling facts—facts which in a spirit of friendship and candor I beg to point out. I read, a few days since, in a creed put forth by an association of Knights of Labor, in another State, a recital of eighteen distinct ends which they desired to have secured or maintained by national legislation. Among these there was not the slightest mention of a Protective tariff. That might have been accidental; or it might have implied a perfect sense of safety in regard to the continuance of the tariff; or it might have meant that those who proclaimed the creed are indifferent to the fate of Protection.

In any event it would be well for the labor organizations to diligently inquire and ascertain how the wages of labor in

the United States can be kept above the rate of wages in England, Germany, and France on the same articles of manufacture without the intervention of Protective duties. With the present cheap modes of interchange and transportation of all commodities I inquire of these gentlemen how, under the rule of Free Trade, can wages in the United States be kept above the general standard of European wages? I do not stop for the detail of argument, I only desire to lodge the question in the minds of the millions of American laborers who have it in their power to maintain Protection or to inaugurate Free Trade; who have it in their power to uphold the party of Protection or the party of Free Trade.

SILVER.

SILVER has remained upon a low level during the year. It cannot be said that any decisive effect has been exerted upon the value of the metal by the policy of the United States in connection with its coinage. Owing to the demoralized state of India exchange during the summer the price of silver bars in the London market fell on August the 1st to 42d. per ounce, the lowest price on record. The extreme low prices for silver, indeed, pointed at one time to the closing of many western mines and smelting works as unprofitable, but a stronger feeling appeared a little later on, which carried the price of bars back to about the opening figures of the year. The influences upon the market seem to have had reference mainly to Indian exchange and trade between England and India. The course of the London market for the year 1886, and the highest and lowest price of bar silver per ounce for several years back, are given in the following table:

1886.			
Opening	Lowest, Aug 1.	Last	Highest, March 20.
46 $\frac{1}{8}$ d.	42	46 $\frac{1}{8}$ d.	46 $\frac{7}{8}$
Lowest. Highest.		Lowest. Highest.	
1885.... 46 $\frac{3}{8}$ d.	50d.	1879.... 48 $\frac{7}{8}$ d.	53 $\frac{3}{8}$ d.
1884.... 49 $\frac{1}{2}$	51 $\frac{2}{8}$	1878.... 49 $\frac{1}{2}$	55 $\frac{1}{2}$
1883.... 50	51 $\frac{3}{8}$	1877.... 53 $\frac{1}{2}$	58 $\frac{1}{2}$
1882.... 50	58 $\frac{3}{8}$	1876.... 46 $\frac{3}{8}$	58 $\frac{1}{2}$
1881.... 50 $\frac{7}{8}$	52 $\frac{3}{8}$	1875.... 55 $\frac{1}{8}$	57 $\frac{3}{8}$
1880.... 51 $\frac{5}{8}$	52 $\frac{3}{8}$	1874.... 57 $\frac{1}{4}$	59 $\frac{1}{2}$

—Bradstreet's.

LABOR SUCCESSES AND FAILURES OF 1886.

From twenty-seven places, embracing the larger cities of the country and the principal manufacturing states, the New York Sun, of December 19th, presented a brief synopsis of the course of the labor movement during the past year. The results, as a rule, will be found to be very similar. In few places has the labor movement really succeeded, in few it has really failed. In most it has met with varying success, winning many small strikes but losing the great strikes. The labor Unions seem to have emerged from the year's work more triumphantly than the Knights of Labor. The latter have increased in numbers, but almost everywhere comes the suggestion that the influence of the order has not increased proportionately. In New York state the number of strikes has increased more than fourfold. Three hundred was the number of strikes begun in 1885; already more than 1,200 have been begun during 1886. The proportion of these strikes which have proved, or shall prove, successful cannot, however, be known as yet. The great strikes of 1886 have been more far-reaching than any yet known, either in the United States or elsewhere. Among these are the South-western strike, the strikes in Chicago, with the disclosure of the anarchistic tendencies of certain of our foreign-born laborers, and the similar strike in Milwaukee. Other strikes, such as the sugar-house men in Brooklyn, and for a time that of the street-car men of New York city, seemed about to develop unexpected strength, and, had the means for

stopping riots been no better this year than they were a few years ago, might have proved as formidable as those of the western cities. As it is, they were merely local, and have as yet exerted little influence.

The average export price of wheat during 1881 was \$1.11 per bushel, and in 1885 it was 86.2 cents, having declined steadily for four years. The average price for 1886 will fall below that of 1885, but farmers of this country (the United States) seem to be alive and able to provide food and clothing for themselves and their families, despite the "crushing competition" of India and other wheat exporting countries. Another generation may be much worse, but this generation can do little, if anything, to avert possible evil consequences from over production of wheat, which is an accomplished fact, and yet which is not causing as much trouble in the producing as in the consuming countries. - *Northwestern Miller.*

The Cary Pump Company of Fairhaven is daily expecting a dynamo and the necessary machinery to light the works by electricity. As soon as received the works will be in running order

A curious application has recently been made of electricity to condense dusts and fumes. If an filled with smoke is charged with electricity, the smoke at once flies to the sides of the containing vessel in a way that appears almost magical. In the same way, electricity will cause fine dusts, which are in suspension, and which are often very difficult to remove from the air, to condense, or coagulate so as to be easily removable.

According to the Belgian savant, Quetelet, a man attains his maximum weight about his fortieth year, and begins to loose it towards his sixtieth year. A woman, however, does not attain her maximum weight until her fiftieth year. The weight of persons of the same age in different classes of society also differs. In the affluent classes the average maximum weight is 172 pounds, and is attained at fifty years of age. In the artisan class it is 154 pounds, attained at forty. Among farm laborers it is 171 pounds, attained at sixty. In the general classes it is 164 pounds, and is reached between forty and fifty years of age.

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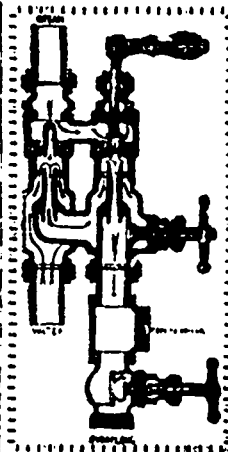
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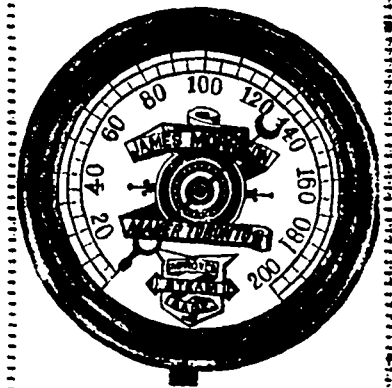
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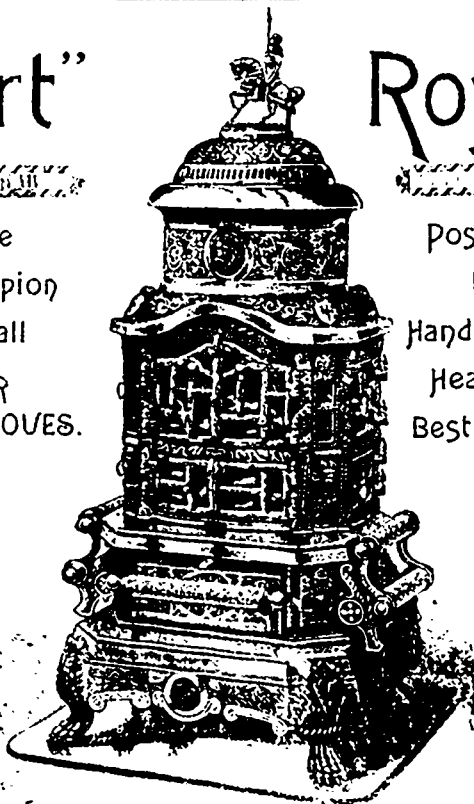
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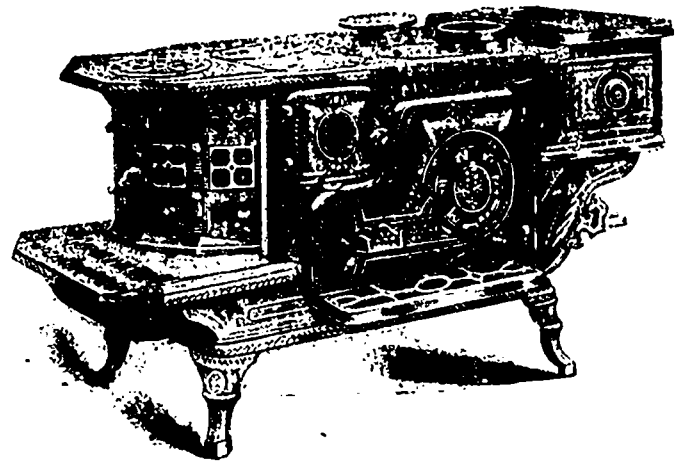


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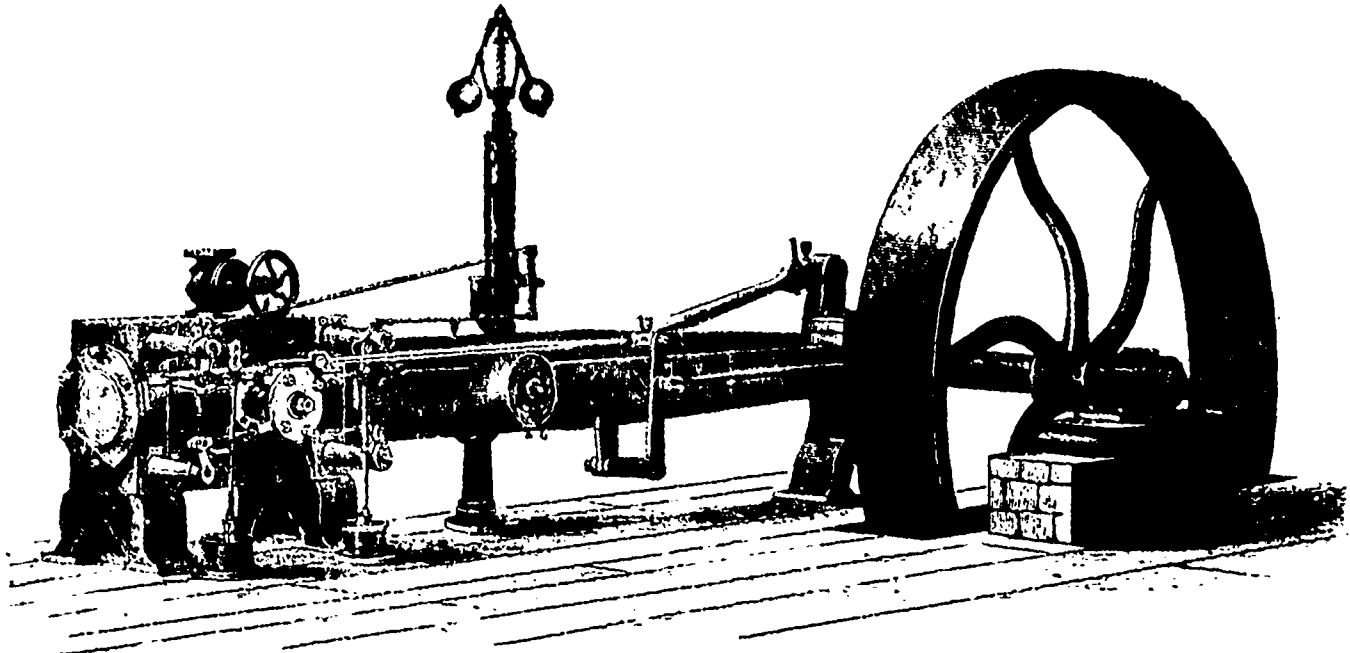
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Northey's
PATENT
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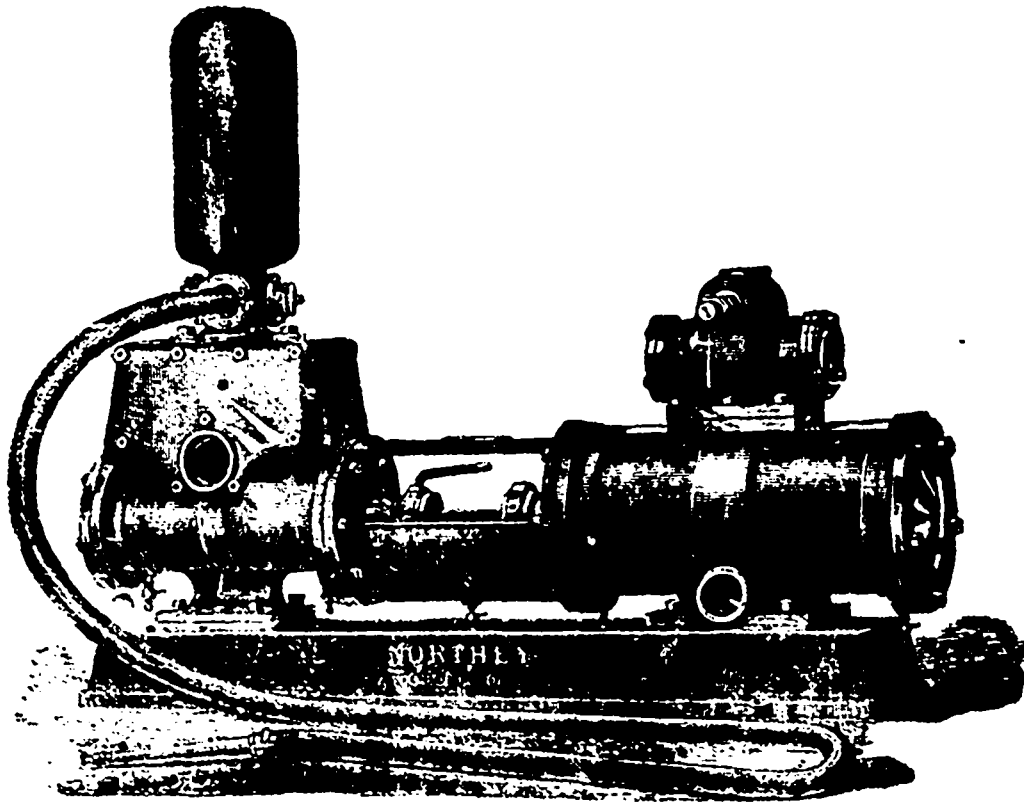
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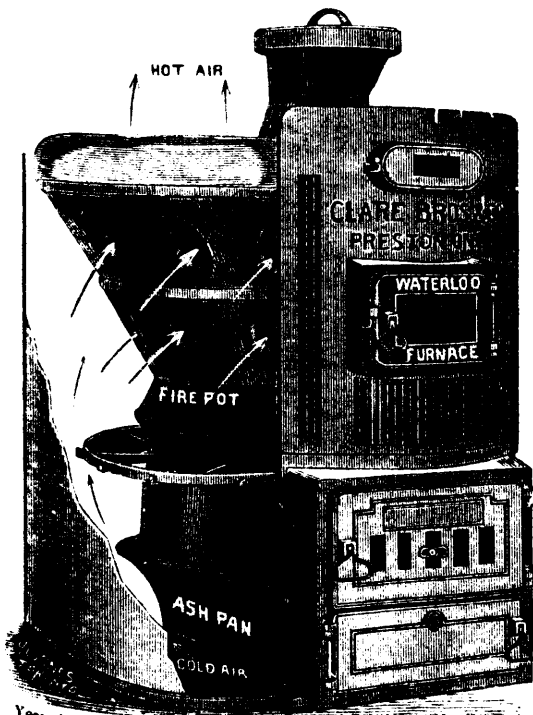
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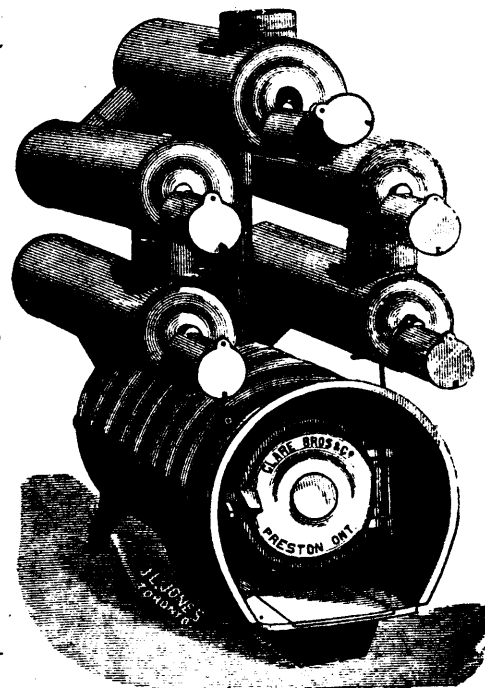
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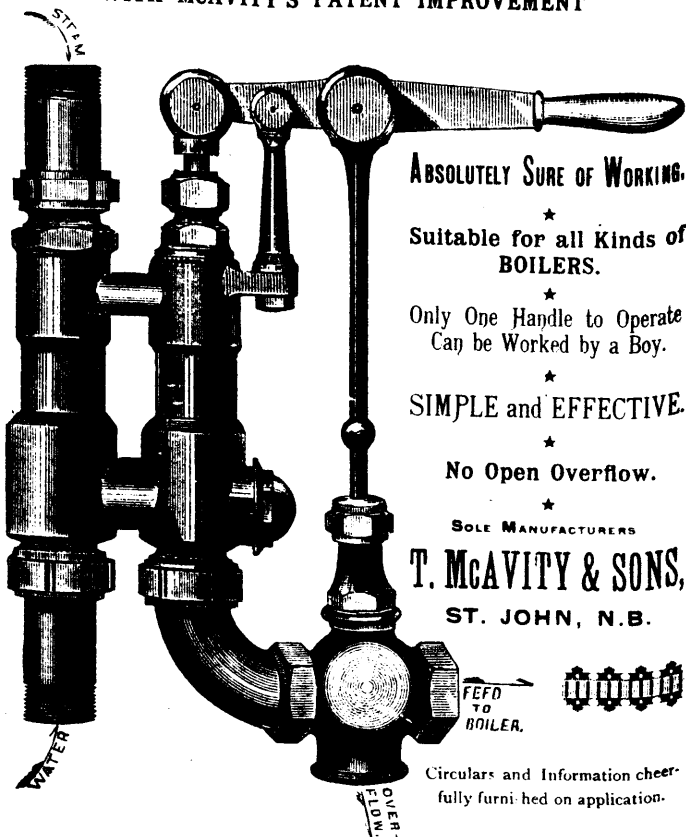
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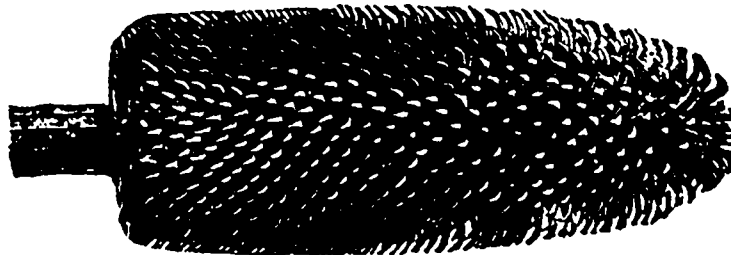
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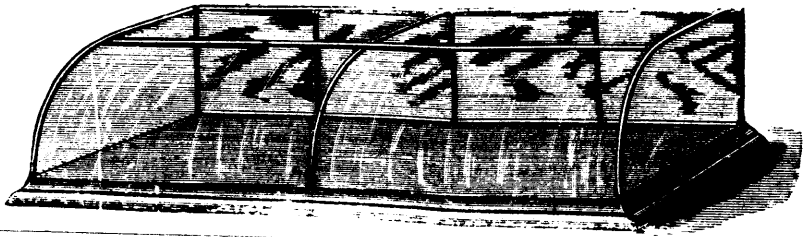
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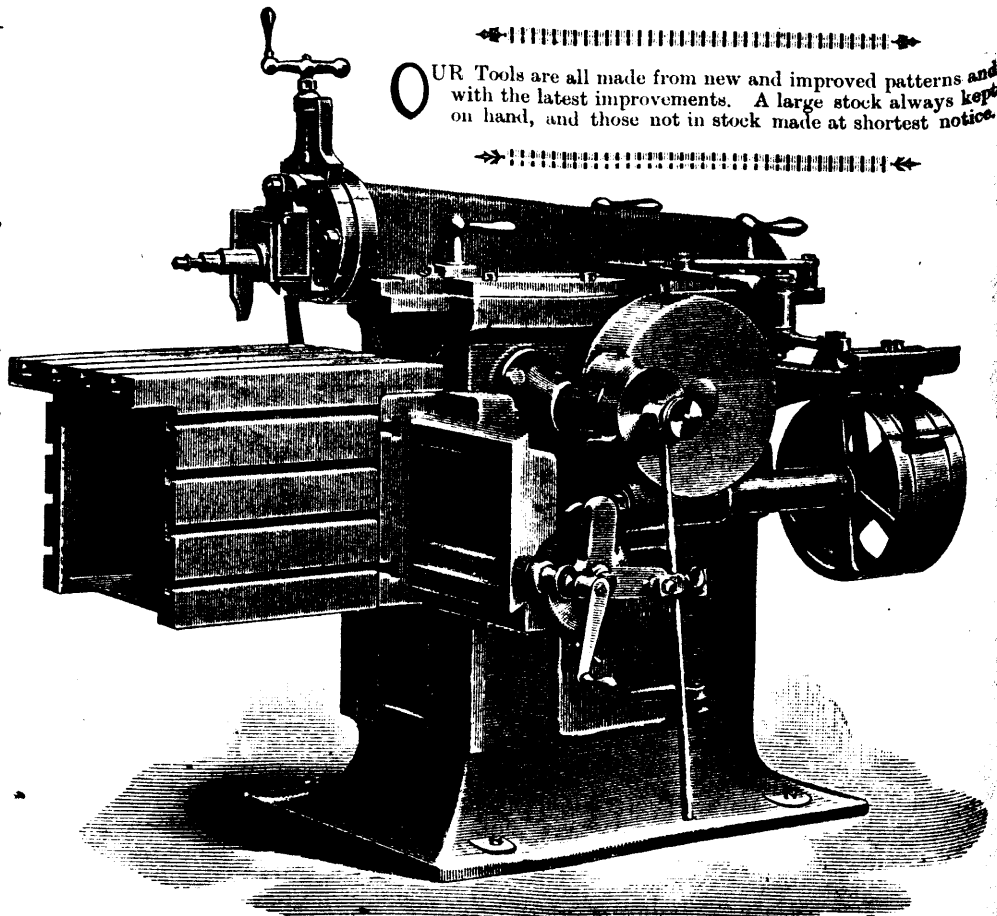
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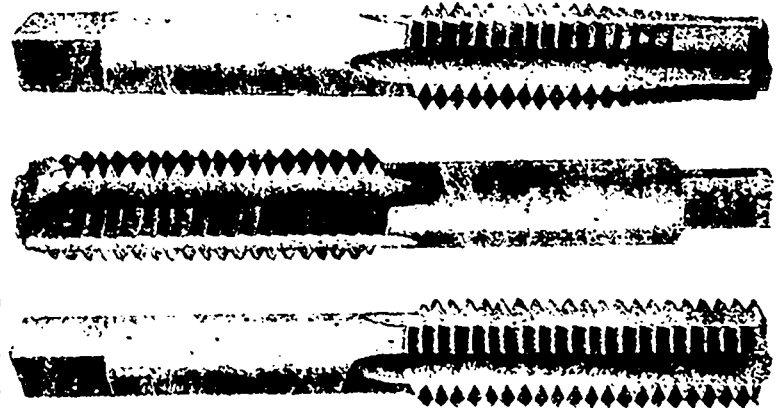
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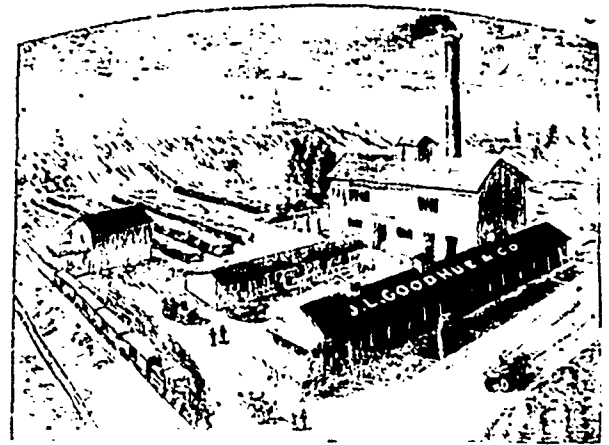
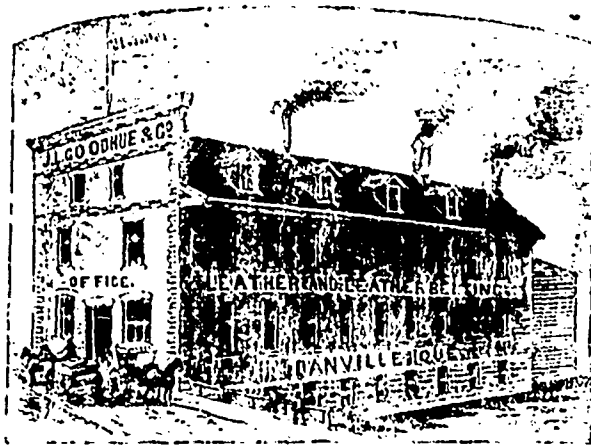
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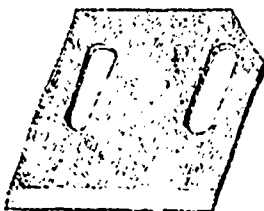
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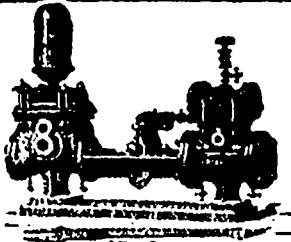
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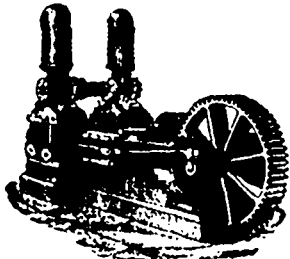
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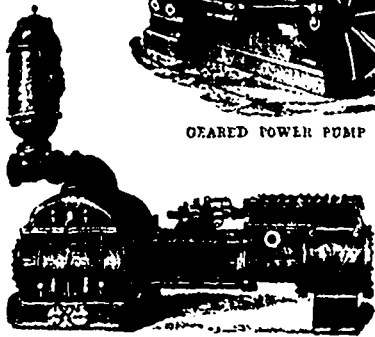
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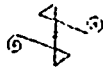


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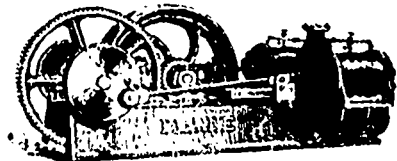
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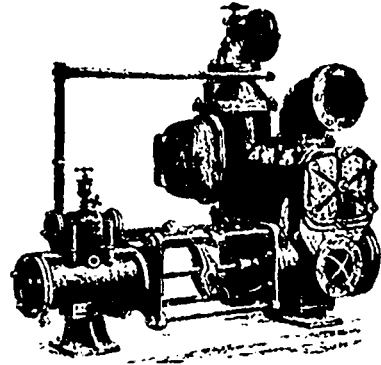
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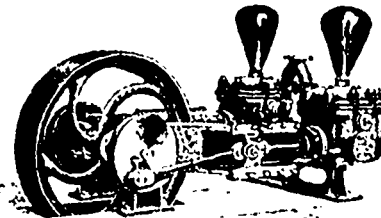
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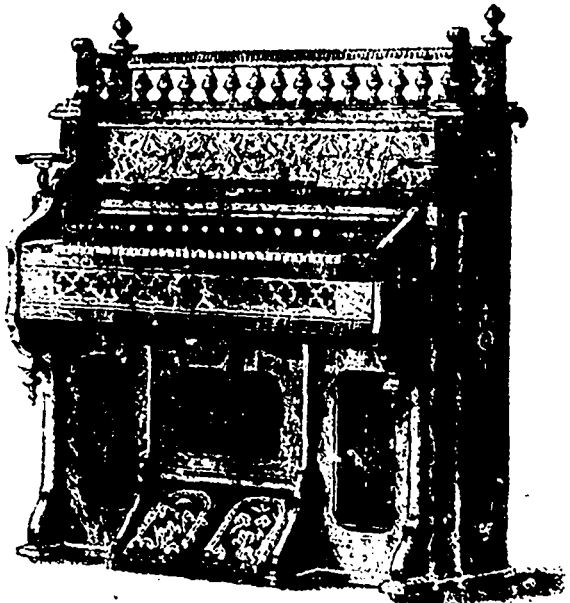
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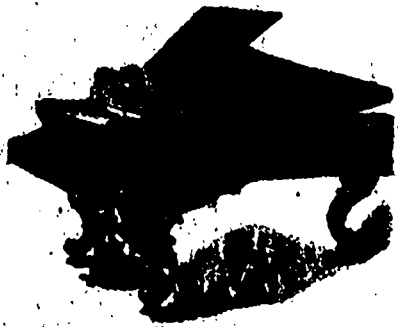
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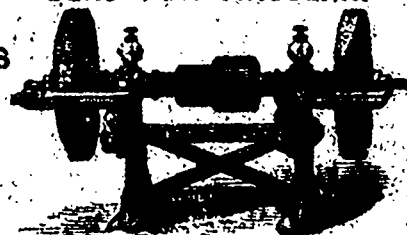
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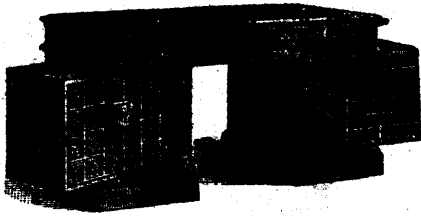
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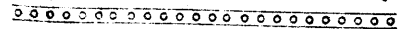


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