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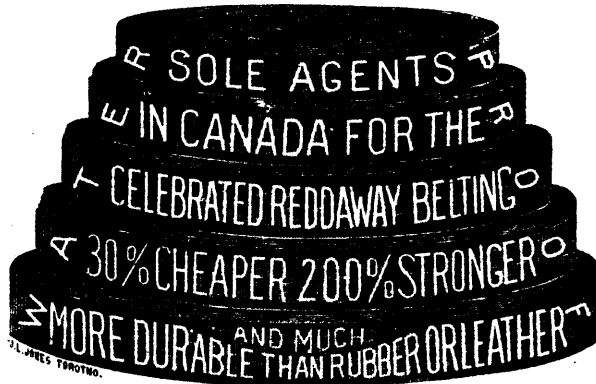
Vol. 5.

TORONTO, NOVEMBER 4, 1886.

No. 21.

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THE CANADIAN MANUFACTURER

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

AND INDUSTRIAL WORLD.

VOL. V.

TORONTO, ONT., NOVEMBER 5, 1886.

No. 21.

STAND BY THE NATIONAL POLICY.

In the course of speeches made recently in the Bay of Quinte district, Sir John Macdonald advised friends of the National Policy to be prepared to stand by it. He said in effect that the Free Trade party was not dead in Canada yet, but merely sleeping with one eye open, watching opportunity to renew the attack. Now, it does appear as if a good many people, even among those who favor the building up of home manufactures by means of Protection, have of late been giving themselves over to the comfortable belief that the battle is fought and won for good, that the question is settled now, and that the issue of Protection or Free Trade has practically disappeared from politics. Others again, themselves friendly to the N.P., have not hesitated to express, strictly among themselves, the shrewd suspicion that Sir John has really no fear of any attack on Protection, but merely wants to keep up the N.P. as a popular cry, because it is a good thing to beat the other party with. We say emphatically that both these views are grave and serious mistakes. There is a Free Trade party in Canada yet, and it is still hard at work, although not in so open a manner as formerly. And there is really good reason why the man who gave us the National Policy should warn its friends that they had better not forget the fact, and that they had need to keep arms and armour bright for the battles that are yet to come.

As for progress and probabilities with regard to the trade question, we can always refresh our comprehension of the facts by turning to the older and larger record of our American neighbors. The Morrill tariff was adopted nearly twenty five years ago, since which time it has undergone considerable changes of detail, its essential spirit and purpose, however, remaining unchanged. In the interval the expansion of industry, the country's prosperity generally, and the progress made in paying off the public debt, have all been wonderful, in fact without parallel in the history of the world. One might have supposed that, with such a splendid proof by experience, opposition to the policy under which all this had been achieved would years ago have died out. But no, nothing of the kind: the enemies of home industry are still as active and as determined as ever. In both the last two sessions of Congress the Free Trade party attacked Protection with might and main, and did their possible best to loosen its hold on the country. Their method was to attack sections of it in detail, selecting here and there a point which they thought to be weak, or such as might be carried without too much alarming the country. Now, the present Congress, which remains in office until March next, is composed of 184 Democrats and 141 Republicans.

The Democrats have long been called the party of Free Trade, though of late years more and more of its representatives in Congress have been going over to the Protectionist side. However the Free Trade preponderance within the party was still decided enough to secure the election as Speaker of Mr. Carlisle, of Kentucky, a pronounced and even we may say a violent Free Trader. He, again, promptly justified the choice made by selecting for Chairman of the Ways and Means Committee Mr. Morrison, of Illinois, as ardent a Free Trader as himself. The latter followed up with two attempts—one last session and one the session before that—to begin the breaking down of the Protective tariff by effecting breaches in its walls. He failed both times, but not for want of trying. What beat him was the refusal of some thirty-five or forty staunch Democrats to vote against the policy which they knew their constituents approved. But for the fact that in years recently before Protectionist principles had been spreading and taking hold in Democratic constituencies, he would undoubtedly have succeeded in crippling Protection, and that most seriously. However, let it not be forgotten that he and the majority of the party leaders tried their level best to work what destruction they could; no thanks to them that they did not succeed.

This, be it remembered, was after Protection had been for more than twenty years the established policy of the country. Now, shall we consider our National Policy a thing settled and safe against all attack, after seven years only? Not at all a prudent estimate of the situation we should say. The truth of the matter is that Sir John, instead of saying too much about the necessity of rallying to the defence of the N.P., did not say half enough. He might well have said a great deal more, and said it still more emphatically; and we should certainly expect him to do so soon after this.

But for everything which is there must be a reason, so it is said; there can be no effect without adequate cause. May it then be within our compass to light upon the chief cause of the vitality of Free Trade opinion in this Protectionist country of ours? We think it may; if we look in the right place we shall discover the fountain whence flows the perennial Free Trade stream. Let us then fix our eyes on the Mother Country: there is the place to look for the principal cause or causes of various effects which we see in Canada. All our standard works, or nearly all, on the subject of political economy, come from England, and nearly all are of the Free Trade school. Similarly, in the United States Free Traders have taken possession of the colleges, and all the Protectionist occupants of college chairs there may be counted on the fingers of one hand. In any library of much consequence we are con-

fronted with weighty and learned volumes on the trade question, but all opposed to Protection. The leading monthlies and quarterlies, in both England and America, form a Free Trade library which is being perpetually renewed. True, of late years a few bold spirits, who speak to the public through first class magazines, have actually had the audacity to call the long-established orthodox faith in question, and to assert that the boasted "science" of political economy, as now mostly taught in the schools, is really no "science" at all, but crude and unscientific to a degree. These "new light" teachers are making themselves felt, and the effects of their teaching will be seen on the present younger generation, and others that are to come after. But the majority of literary men over forty have years ago had the whole web and tissue of their opinions dyed of a Free Trade color, from the reason simply that when they were filling themselves with reading there was scarcely any thing of any other color available. As between the two schools, there will be something more of literary fair play in time to come; but years must elapse ere anything like a fair balance in point of volume be reached. Meantime we continue to grow under a weight of error which has been accumulating upon us ever since the days of George the Third.

And still another influence there is, which in these days of ocean ferry steamers and seven day passages across the Atlantic, is even more potent than the weight upon us of the Free Trade volumes on our library shelves. Many Canadians visit "home" every year, some of them to renew old associations, others to see the land of which they have only heard. Every year, too, the number of Canadians making the trip to the old country is increasing. Now, have you ever thought of this, that no Canadian can mix much in business circles there without hearing Protection ridiculed as an absurdity? It is described as foolish, antiquated, and out of date—a relic of the dark ages, something altogether unsuited to this enlightened age. Our old country friends, who know so much more than we do about the mysteries of exchange, and imports, and exports, and such like, would not say anything to us to offend against politeness, of course. But really they cannot help giving us to understand, quite in a courteous way, that Protection is something for backward or barbarous peoples only, and that they hope soon to see us become enlightened enough to adopt Free Trade. From our youth we have read of great men in England statesmen, philosophers, financiers and business men, all of world-wide fame. Well, which of us can help being impressed by the fact that *all* these great men, or all but one in a thousand of them, are as clear in favor of Free Trade as they are on the truth of any proposition in Euclid. In fact, they do not hesitate to say that the principles of Free Trade are as unchangeably true as the law of gravitation or as anything in mathematics. Surely the Canadian visitor to England had need of considerable "cheek" to be able to stand up against all this.

It is not philosophical argument, however, or scientific and literary reasoning, merely, that lends to the Free Trade propaganda its main force. No, it is something far more powerful, the motive of strong self-interest on the part of our old country friends. Not so much because Protection is opposed to economical science, as because it diminishes the profits that they can make out of us—do they ply us with persuasion against it. They are not half-satisfied with our answer sometimes made,

that, whether under Protection or Free Trade, we buy as much from England now as ever we did, at all events about as much as we are able to pay for. They know, though they will not tell us so, that our Protection compels them to lower prices in order to sell to Canadian buyers, and that large business may in this way represent only small profits. And hence powerful motive which keeps them up to the scratch against Protection all the time—that of self-interest.

It is Canada's interest to continue Protection, and to expand and strengthen the system as best she can. But it is the interest of two great nations—Britain and the United States, to wit—that Canada should adopt Free Trade. Even our American neighbors—themselves Protectionists of the extreme sort—are deeply offended because we have presumed to take a leaf out of their own book. Let Canadians be content to raise grain and cattle, and to fell trees. They may also mine ore, and send it to our furnaces, but the idea of their manufacturing for themselves is utterly preposterous. So in effect say our kindred of both Great Britain and the United States respectively to us. And we may depend our lives upon it that, as long as it is the interest of both English and Americans that Canada should adopt Free Trade, every sort of persuasion, and, still more, of influence, will be brought to bear, in order to get us to yield. This influence and persuasion will not slacken as long as British interests and American interests are opposed to Protection in Canada. While interest lasts—the motive will remain too; in other words, practically we may accept it as something to endure for ever. Just think of the situation—a young State, of large resources but of only small population as yet, tries to build up home manufactures by means of Protection. But that she should do this is clearly against the interests of two great nations—the Mother Country on one hand, and the neighboring Republic on the other. Can we guess now how powerful a certain perpetual pressure must be upon us, to make us drop our National Policy? Truly it will be some time yet ere we dare withdraw the sentinels from the battlements, and cease that eternal vigilance which must be the main guarantee of Canada's commercial independence.

There are foes within our own household as well, that require to be watched. We admit, say some, in a mumbling and half-hearted sort of way, that it would not do now to go back to Free Trade. But let us at least abolish the bread-tax, the coal-tax, and the sugar-tax, and so do what we can to relieve the poor man. In other words, let us remove the keystone of the arch, and then let the rest of the fabric come down when it gets ready for the tumble. It is to be hoped that these sneaking enemies of Canada's National Policy, and the deceptive arguments they are trying to impose on the public, will be properly attended to "ere long."

PRICES OF RAW MATERIALS OF TEXTILES FOR SIX YEARS.

On another page, in the department of "Textiles," we print a valuable table, which we find in an English trade journal *Wool and Textile Fabrics*. It gives the market prices of raw cotton, cotton yarn, wool, silk, flax, hemp, and jute, for the first week in January and July respectively, for six years—1881 to 1886 inclusive. We present, besides, a condensed

view, as under, taking the medium between the January and July prices as the average of the year, for these articles only: Cotton, raw middling upland; cotton yarn, 40 mule twist; Wool, South Down Hogs; ditto, Sydney unwashed. Prices per lb., stated in English pence and fractions of a penny:

	Raw	Cotton	Wool,	Wool, Syd-
	Co ton.	Yarn.	South	ney un-
	d	d	Down.	washed.
			s d	s d
1881.	6½	10½	1 2	0 10½
1882.	6½	10½	1 0½	0 10½
1883.	5½	9½	0 11½	0 10½
1884.	6	9½	1 0	0 9½
1885.	5½	9½	0 10½	0 9½
1886. Jan.	5	9	0 10½	0 9½
April.	4½	8½	0 10½	0 9½
July.	5½	8½	0 10	0 11½
Oct.	7½	8½	1 0½	1 0½

We see both wool and cotton running very low in 1883, 1884, and 1885, but touching a still lower point in the beginning or middle of 1886. During the latter part of the present year we see a pronounced rise in both cotton and wool, with indications of a still further rise for the opening of the next crop season.

The Liverpool *Journal of Commerce* quotes from voluminous returns made by American Consuls to the Department of State at Washington, giving prices of wool in England for each year, 1860 to 1885 inclusive. We append prices in cents per lb. for the first of these years and the last respectively, which show a remarkable fall in twenty-five years:

Wool, cents per lb.	1860	1885
Port Philip, good to soap fleece	54c.	34c.
" average	50	19
Sydney, average grease	25	26
Adelaide, "	24	13
New Zealand, super grease	31	20
Cape, super snow-white	56	32
" average fleece	35	17
Buenos Ayres, average grease	20	9
Peru, middling	32	14
Donskoi, average carding	10	14½
East Indian, yellow	15½	14½
Lincoln hogs	44½	20
Alpaca Islay, super fleece	51	26
Mohair, Turkish average	71	30

Remarking on the above showing our English contemporary says that the drop in values during the course of twenty-five years has been excessive. Some qualities were, however, lower in 1869-70, just after the monetary panic, than in 1885. The present average prices are 15 per cent. below those of 1869-70 on foreign wools, and nearly 50 per cent. below the prices of English wools ruling in 1869-70. And, further, touching on the question of prices of commodities generally, that the dread of a drain in gold out of the Bank of England, and the recurrence of another panic, has had a marvellous influence on trading and manufacturing affairs. Joint-stock banks hold deposits of from two to twenty millions, which could not be produced in the event of a run. This fact was made patent in 1869, and will serve as an incubus to shipping and commerce, and all industries of the nation, till the Bank Act is amended, and when the rate of interest reaches a fixed and declared percentage, notes may be issued on other securities than gold.

OCEAN STEAMSHIP LINES TO BE SWALLOWED BY THE GREAT RAILWAY COMPANIES

This seems to be the way things are going now. The great Inman line of steamers went into liquidation recently, and the International Navigation Company has made an offer to purchase the vessels and good will of the company. The first move in this scheme was made by Clement A. Griscom two years ago, when he advanced to the Inman Line money on about \$1,500,000 of debenture bonds then out. Soon afterward the agency of the Inman Line was transferred to Peter Wright's Sons, principal owners of the International Navigation Company. Later the Pennsylvania Railroad purchased the controlling interest in the International Company. There seems to be no doubt that the Pennsylvania Railroad and the Standard Oil Company will secure the ownership of the Inman Line. It is reported also that they wish to purchase the *Arizona* and the *Alaska*, now running on the Guion Line. The Inman Line has been in an embarrassed condition for some time. John Birley, the millionaire Manchester cotton spinner, owns the majority of the stock. The above reports, says the *Boston Manufacturer's Gazette*, appear in our New York exchanges, and, though not yet fully confirmed, are believed to be reliable.

AGAINST CUSTOMS FRAUDS.

Our Protectionist neighbors guard well against frauds on the customs, and they are right. Under the last tariff act, imported iron ore has to pay a duty of seventy-five cents a ton. This year it is estimated that over 1,000,000 tons will be imported into the United States, much of which is low grade. Importers are trying to get a rebate of duties on these importations, by reason of the fact that the ore contains a certain amount of moisture. The Treasury Department took the matter under consideration. W. D. Marvel, the iron importer, was applied to by Acting Secretary Fairchild for his judgment in the matter, and that gentleman, being in Europe, cabled to Mr. Fairchild that to grant such a rebate would be equivalent to opening the doors for gigantic frauds on the treasury. On the 12th inst. Mr. Marvel wrote the secretary a lengthy communication on the subject in the course of which he said: "Ore is sold by the ton, based upon its metallic value, and every good ore has its character so well established that such is well known, and the question (?) of moisture or water (as the promoters of the scheme seem to call it) is not a question at all. A decision from your department favoring the scheme will be a direct premium for great frauds. You might just as reasonably make allowance for silica, sulphur, oxygen or any other chemical ingredient of the ore other than the actual iron contained in the ore. The ore is considered as a whole of 100 parts, of which the moisture is only its proper part of 100, the percentage of iron being also its proper part of 100. As an importer, and as owner of foreign mines, I, as a citizen of the United States, interested in honest and strict enforcement of laws, am opposed to any such scheme as allowance for moisture in iron ores, and protest against such as not only improper, but that such will be an open premium for frauds, against which an honest importer cannot compete."

REVOLUTION IN AUSTRALIA.

SOMETHING of importance is now going on in Australia, to wit -- a revolution in the commercial policy of our kin beyond the Southern Seas. All the Australian colonies started out on the line of Free Trade; such duties as they put upon imports being for revenue only, and not at all for Protection. Victoria was the first to break the old tradition, that colony having some years back imposed duties avowedly for the creating of home manufactures. Ever since then, that is, until quite recently, the people of the older colony New South Wales have been almost ostentatious in proclaiming that, whatever others might do, they would stick to Free Trade. They saw before them a certain temporary advantage in this course, though doubtless it has cost them dear in the long run. Sydney, their capital, being almost a free port, supplies were landed there, not alone for the back districts of New South Wales, but also for the border districts of Victoria. In this way the latter colony for long failed to get the full benefit of its protective policy, owing to smuggling extensively carried on throughout a vast back country, where to enforce custom-house laws was not possible. However, time works wonders, and of late the bringing of free goods into Victoria by way of Sydney has not been as profitable as formerly. If we suppose protective duties established in Ontario and Quebec, with Free Trade prevailing in the Province of New Brunswick and the State of New York, it may give us some idea of the condition of matters, during a number of years continued, in Victoria and New South Wales.

Elsewhere we copy from the *London Times*, as we find it in the *Toronto Mail*, some of what Mr. John Norton, New South Wales delegate to the Labor Congress in England -- has to say regarding labor and employment in Australia. He pronounces it a fact beyond doubt that the lack of employment which has of late years become chronic in New South Wales is largely due to the miserable Free Trade policy which has forbidden the establishment of manufactures, and has left the people to depend upon agriculture and stock-raising alone. The contrast he draws between Free Trade New South Wales and Protectionist Victoria is a sharp one; and altogether to the advantage of the latter. What he relates is something to impress any unprejudiced mind. The day cannot be far distant when, not only Victoria, but all the other Australian colonies, shall have declared for Protection, and when there shall be a National Policy for the fifth continent of the world, as well as for Canada.

RAILWAY DISCRIMINATION.

Bradstreet's remarks on the fact that the Supreme Court of the United States has just rendered a decision of great importance in the case of *The Wabash, St. Louis, & Pacific Railroad v. The State of Illinois*. In this case the court decides that legislation by a state against discrimination in rates, applied to transportation which is continuous over several states, including the one whose laws are in question, is in contravention of the Constitution. A majority of the court hold that this species of regulation of commerce is one which must be, if established at all, of a general and national character, and therefore cannot be remitted to local rules and regulations, but

must be exercised by Congress under the clause in the Constitution giving Congress the power to regulate commerce. This judgment seems to involve an affirmation of the principle that the power to regulate commerce in matters requiring a general system and uniform rule is in Congress exclusively. This principle may perhaps be regarded as settled, but it is plain that there still remains some doubt as to its scope and as to the range of its application in particular instances. This is indicated by the fact of the dissent of the Chief Justice and two of his associates from the opinion of the majority of the court.

The *Wall Street Daily News* says the Supreme Court's decision is of great importance, inasmuch as it settles it that roads running through different States may discriminate as much as they please in favor of one shipper and against another, even to the extent of making and unmaking citizens of the United States engaged in the transaction of legitimate business -- this on the ground that no State Legislature, or State Court, or United States Court, can in any way whatever interfere with commerce between different States, the power to regulate such commerce resting solely with Congress.

The decision conclusively settles it that if Congress continues its refusal to provide a remedy for the abuses complained of, by passing suitable laws and establishing a National Railroad Commission as an agency through which they may be enforced, there is no help for the man who attempts to do business in competition with the man who is favored by the railroads in the matter of rates and facilities for shipping freight. In the case decided by the U. S. Supreme Court the complaining shipper was charged sixty-six per cent. more than another shipper for the same class of freight shipped on the same day and under the same conditions, and, in the case considered by the *Journal of Commerce*, the favored shipper got a rebate of seven and a half per cent.

It is to be hoped now, however, that the decision of the U. S. Supreme Court has put the whole matter in such shape that Congress will feel compelled to give its early attention to measures looking to a remedy for this great evil. One thing is to be remembered -- the decision by no means denies the competency of Congress to legislate in control of through transportation; but rather affirms it by implication. We should expect to see Congress take vigorous action at an early day.

LITERARY AND BOOK NOTICE.

STUDIES OF ANIMATED NATURE. J. Fitzgerald, Publisher, 108 Chambers St., N.Y. Price, post-free, 15 cents.

Here are four delightful essays on natural history subjects. First there is an essay on "Bats," by W. S. Dallas, and then one on "Dragon-Flies" by the same author. The other two essays are "The Glow-Worm," by G. G. Chisholm, B. Sc., and "Minute Organisms," by F. P. Balkwill. Natural history possesses an irresistible charm for all readers, especially when, as is the case with the present book, its beauties and wonders are unveiled by a keen-sighted observer, and are presented in the simple, limpid style that nearly always comes unsought to the student of nature. The book is published as one of the "Humboldt Library" series, a collection of popular scientific works embracing many of the most celebrated treatises of the day upon natural science. For sale by the booksellers.

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 AND INDUSTRIAL WORLD.

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Secretary Canadian Manufacturers' Association.

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Editorial Notes.

It is a Philadelphian view of probabilities that the fight for an advance on woollen goods will certainly be made on next season's output of heavy-weight cloths. There appears to be a similar outlook in Canada.

MR. A. G. MORTIMER has assumed editorial and business management of the *Canadian Lumberman*, which is published monthly at Peterborough. The October number we found to be full of matter interesting to the trade, well and clearly arranged.

THE Australians have been importing Indian wheat lately, their own crop having been short last season. But the wheat from the East Indies has proved a failure there. It is full of weevils, and in other respects as well is pronounced unsuited to the Australian market.

MR. MORRISON, the Free Trade champion, and Chairman of Ways and Means in the present Congress, has been defeated in his district (in Illinois) and will not be one of the nation's legislators after the 4th of March next. His successful opponent is Jehu Baker, who ran as a Protectionist and labour candidate. It is yet uncertain whether Mr. Carlisle, the Free Trade Speaker of the House, retains his seat (Kentucky) or loses it. That a Democrat should even as much as run any risk of being defeated in Kentucky is something to wonder at.

THE Railway Inquiry Commission has held several days' sittings in Toronto, hearing what business men have to say on railway discrimination and the advisability of a permanent Government Commission. The Commissioners left for Ottawa, but will visit Toronto again. Some of the witnesses say that no Railway Commission is wanted, and that if appointed it would be useless, or worse. But the preponderance of commercial opinion, we feel quite sure, will be in favor of a Government Commission, with very full powers; and the course of events over the border cannot fail to strengthen materially the movement here for some efficient check upon the arbitrary power exercised by the railways over the fates and fortunes of business men.

THE *Manufacturer's Gazette* observes that with the rapid increase of manufacturing interests in the South and West the number of free-traders is decreasing in corresponding ratio. A man's judgment is often warped by his pocket-book. Most of the free-traders in the New England section are theorists or politicians with the necessity for a hobby to ride. The men who are building up the country, giving employment to thousands of working men and adding to the national prosperity, are those who believe the best markets are home markets, and who never want to see American mechanics working for a mere pittance in competition with ignorant degraded labor of Europe. American tariff laws need adjustment and modification, but better stand as they are than to be amended as proposed by the free-trade professors and those theorists who are living on the earnings of a former generation.

THERE is a strong probability, says the *Montreal Herald*, that the Yale Clock Company, of New Haven, Conn., will shortly transfer its business to Canada, locating in Montreal or somewhere in the adjacent district. The company finds itself hampered by lawsuits over disputed patents, from which they would be free in Canada, and there is besides a promising field in the Dominion for such an enterprise. The goods manufactured by this company comprise a very fine line of clocks, ranging from the diminutive clock with watch movement, used as a paper weight for the office desk, through all the grades of mantel and travelling clocks, in wood and metal cases, to the ordinary sized shelf clock. There is no such enterprise in active operation in Canada just now, and, with a protection of 35 per cent. and the encouragement already promised the company, there can be but little doubt of the ultimate success of such a business.

THE complaint about the rush of boys and youths to get situations as clerks or such like and to get into the professions, is an old one. Far better for the most of them to learn trades, which would assure them an honest and comfortable living, and be better than the risks of the professions, or of those slippery things called 'situations.' This counsel has been so heavily showered upon us that we are all familiar with it, and yet the evil seems to grow rather than diminish. Mayor Howland has taken up the subject with his accustomed vigor, and wants the school authorities to provide manual education, the education of the hand for boys who are willing to avail themselves of it. The movement is a laudable one, but has the Mayor thought of a certain other party that may have to be consulted? Will the workmen's unions stand idly by and see hundreds of boys taught trades and handicrafts without protest? We think not. Just now let any man, be he himself a mechanic or what not, try to get his boy into a foundry, or a shoe factory, or a plumber shop, and he will quickly discover that there is a power behind the throne, and one whose behests must be obeyed. It may be all very well to talk about putting boys to learn trades, but the trades unions, you must understand, have something to say about that. If the unions pronounce in favor of Mayor Howland's proposal we shall be very much astonished.

FLOUR AND MEAL STANDARD.

ANNUAL MEETING OF THE BOARD OF EXAMINERS—THE DELEGATES PRESENT.—SUGGESTED AMENDMENTS TO THE INSPECTION ACT.

MONTREAL, NOV. 3. The annual meeting of delegates of the Board of Examiners of the Dominion for meal and flour was held here to-day. The following delegates were present. Messrs. W. Galbraith, W. Stark and J. M. Peer, of Toronto; C. B. Hunt, James Slater, and J. D. Saunby, of London; Wm. Scott, of Ottawa; Thos. Brodie, F. Kerouac and John Gross, of Quebec; Edgar Judge, H. Labelle and A. E. Gagnon, of Montreal. Mr. Edgar Judge was appointed chairman, and Mr. Geo. Hadrill, secretary of the Corn Exchange and of the Board of Trade, was appointed secretary. The examiners then proceeded to the work of selecting standards of flour and meal for the coming year.

SUGGESTED AMENDMENTS TO THE ACT.

The following resolutions were adopted "That inasmuch as the system of making flour has been materially changed by

the introduction and use of rollers in its manufacture, it has become necessary to make provision for the grading of such flours. This board therefore recommends that the Inspection Act be so amended as to allow roller flours to be graded and that the grades be as follows: Patent winter wheat, spring wheat, patent and straight roller; and further that inspection by sample should be permitted, the inspector using samples instead of graded standards, and simply inspecting for quantity, weight and soundness.

"That the Government be asked to amend clause 31 of the Inspection Act, so that the designations of different qualities or descriptions of flour shall be as follows: Patent winter wheat, patent spring wheat, straight roller, strong bakers, extra, superfine.

AMERICAN PATENTS TO CANADIAN INVENTORS

THE following patents were granted to citizens of the Dominion of Canada, bearing date of October 26, 1886. Reported expressly for this paper by Louis Bagger & Co., Mechanical Experts and Solicitors of Patents, Washington, D. C.:

Pye, George, Ottawa, Ont., reaping and mowing machine.....	351,400
Stern, P. K., Toronto, Ont., burglar alarm system.....	351,408
The following bear date Oct. 12, 1886 :-	
Cote, Louis, St. Hyacinthe, Que., heel counter.....	350,618
Elliott, C. H., Moncton, N.B., folding paper box.....	350,727
McClelland, Sidney, Hamilton, Ont., roll for reducing old rails.....	350,833
Smith, Richard, Sherbrooke, Que., paper-making machine.....	350,607

Dated Nov. 2, 1886 :-

Dingman, A. H., Toronto, Ont., machine for waxing paper.....	351,748
Fish, J. V., St. John, N.B., water heating apparatus.....	351,859
Harvey, George, Winnipeg, Manitoba, car-seat.....	352,055
Kelly, Peter and J., Hagersville, Ont., Balmoral shoe upper.....	351,778
Kendray, Thomas, Sarnia, Ont., sliding tug-strap holder for power looms.....	351,779
Oldaker, G. G., London, Ont., smoothing-iron.....	351,935
Owen, R. S., South Stuckley, Que., ventilator and heater.....	352,097
Paton, James, Montreal, Que., toboggan.....	351,790
Saye, J. R., St. John, N.B., music-leaf turner.....	351,806
Steele, James, Guelph, Ont., vehicle-seat.....	351,943
Stevens, C. W., Beebe Plain, Que., meat and vegetable slicing machine.....	352,191

D. CONNOR, general dealer, Bedford, Que., has called his creditors together, the liabilities are small.

A WELL-KNOWN mining engineer has brought into notice the successful use of watering the floors of deep mines to allay the dust, and thus prevent explosions. A slight dampness, such as prevails in shallow mines at all times, is, in his words, sufficient to lay the dust effectively, and the systematic watering of deep mines has been introduced at the Llwynfria Colliery and at the Standard Colliery. The water can either be brought into the galleries by tanks or by pipes from a reservoir above ground. A pressure of fifty pounds to the square inch is considered sufficient at the Standard Colliery. The water not only purifies the air, but robs it of the inflammable coal-dust which is so dangerous a factor in great explosions. While upon this subject we may refer to a recent suggestion as to the cause of fires in flour mills. It is known that the fine meal floating in the air of the mill, like the coal dust in a mine, tends to enhance the explosion; but M. Boher, the inspector of lighting in Dresden, finds that the belts of machinery sometimes give off electric sparks sufficiently strong to illuminate Geissler tubes, and he thinks that they may also account for the explosions in some mills.

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THIS SPACE

BELONGS TO

**THE DODGE WOOD SPLIT PULLEY
COMPANY.**

Business Notes.

W. S. MEADOWCROFT, a London tailor, has assigned owing \$2,200.

CREDITORS are advertising the assets of the defunct Toronto Mucilage Manufacturing Co. for sale by tender.

WM. KNOWLES, a general store keeper in Montreal, is reported to have absconded. Charles Wilson, dealer in paints and oils, has assigned in trust.

J. G. WOODLANDS & Co., printers, Winnipeg, have assigned in trust. The senior member of the firm has had several experiences in the same direction.

M. C. WELCH, general dealer, Coe Hill, is offering creditors 60c. on the dollar in three or six months with interest and security. The liabilities are \$4,600 and assets nominally \$4,172.

FRANCIS A. CHOWN, a dry goods dealer in St. John's, Newfoundland, has compromised with creditors. Thomas McCannan, stationer, doing business in the same city, has been declared insolvent.

MARSHALLSAY & KNOWLES, general dealers, Whitewood, assigned in trust in March, 1886, to James H. Ashdown, of Winnipeg. They obtained possession of the business, but have been unable to work through. Creditors have appointed a receiver.

LAWRENCE MOONEY, who was at one time of firm Mooney Bros., of Montreal, and who failed, is again in difficulties. The last year he has been carrying on a tailoring business, at Cornwall, in the name of his wife, but has not been a success. An assignment has been made.

ALTHOUGH a chattel mortgage for a large amount has been registered against the dry goods stock of David Millar, of this city, it does not appear to have prevented some firms from crediting. He has just obtained a compromise from unsecured creditors at 50c. on the dollar.

THROUGH giving credit too freely, David Ballantyne, of Bruce Mines, is unable to meet his paper and is asking an extension from creditors in monthly payments from present date until June, 1887. His liabilities are \$4,000 and his assets nominally \$11,000. Most of the creditors have consented.

CREDITORS refused to accept 25c. on the dollar from John Davey, of Millbrook, and an assignment has been made to E. R. C. Clarkson, of Toronto. The liabilities amount to \$2,500, and the assets \$1,400. The stock is chattel mortgaged for \$500, which is being contested. Davey claims that he lost his and his creditor's money speculating.

THE liabilities of Charles Stern, fancy goods jobber, of this city, amount to fully \$65,000, of which \$6,000 is preferred or secured. The notes and accounts are \$10,000, and the stock \$40,000. Some European houses figure as creditors for from \$2,000 to \$5,000. The estate will pay about 40c. on the dollar.

THE disappearance of Adam Darling, of Montreal, has caused more than usual surprise. The delinquent was engaged in the wholesale crockery business for many years and was supposed to be comfortably off. A Montreal creditor has made an affidavit that Darling has left the country and a liquidator has been appointed. There has been a long standing law suit between the late Wm. Darling and his brother Adam. This suit was recently compromised by Adam receiving about \$43,000, half of which was paid cash, the balance on time. It is said that he has negotiated this matter and has taken the proceeds. The largest creditors are Meehan Bros., Staffordshire, Eng., their claim being \$18,000; Mr. Benning, of Benning & Barlow, is a creditor for \$5,000. The assets will not pay more than 25c. on the dollar.

THE failure of Hervich & Bush, carrying on a wholesale jewellery business under style Rothschilds & Co., is one of the worst that has occurred in this city for many years. Their liabilities will reach \$100,000 and assets almost nil. Several Montreal houses are

interested heavily, but the bulk of the indebtedness is in Europe. Within sixty days of the failure the firm converted \$50,000 or \$60,000 worth of stock into cash, and good authorities state that they have taken fully \$50,000 away with them in money. The firm at present is in a position to dictate their own terms of settlement.

CHARLESWORTH & Co., manufacturers boots and shoes, of this city, have called a meeting of creditors for the 10th inst. The direct liabilities will amount to \$80,000 and the indirect about \$75,000. The nominal assets are stated to be slightly in excess of the liabilities. The affairs of this firm have been the subject of comment for several months. The Merchants' Bank refused to continue discounting in May last, but on James Watson, manager People's Loan Co., coming forward and securing the account, the firm was enabled to continue. Their credit, however, was so seriously impaired as to render suspension necessary, and it is likely that an effort will be made to secure a compromise at 50c. on the dollar.

TRADE IN MONTREAL.

(From the Mail, November 1.)

MONTREAL, Oct. 30. The hum of active business usual at this season of the year generally continues without abatement in any respect, and there is every prospect that until the buoys on the St. Lawrence river are ordered by the Harbor Commission to be withdrawn for the winter, which seldom happens before the middle of November, there will be no lessening in the volume of trade arriving or departing. Remittances from both town and country to meet engagements with wholesale merchants are most satisfactory.

DRY GOODS.

The unseasonable weather this month, which still continues bright and genial like an Indian summer, interferes somewhat with parties who order on that account smaller consignments than they otherwise would do if the cold atmosphere had set in. However this drawback will be compensated for by renewed orders hereafter coming with a rush. A phase in this line of business during the week just closed that gives pleasure, or what is still better, profit, to the trade is a further advance of seven and a half per cent. in certain cotton fabrics which has been long expected, but has occurred at last. Woollen goods of all kinds, suitable for winter, from blankets to men's wear as well as women's dresses, are fully sustaining the higher prices which were demanded. The cotton and woollen factories are running on full time on orders exclusively, and this is likely to extend into next spring. Manufacturers are having the upper hand of the public now after the long depression that overtook them and brought down prices to a minimum, leaving no or very little profit.

IRON AND HARDWARE.

The development in both these lines is extremely healthy and satisfactory. Pig iron shows firmness beyond what was expected since the late advance took place. Quotations: Coltness, \$17.50 to \$18; Langloan, Gartsherrie, Calder and Summerlee, \$16.50; Glengarnock and Dalmeilington, \$15.50 to \$15.75; Shotts, \$16; Eglinton and broken shott \$15. There is no change in bar iron.

BOOTS AND SHOES.

Manufacturers all say they have never done so large a trade as this year, and had better luck in getting paid by their customers than they have experienced in former years.

WOOL.

The market has been fairly active during the week, the only change being in Cape, which is quoted at 18 to 20c.

COTTON FACTORY STOCKS.

There was a decided boom in cotton stocks during the latter part of the week. Hochelaga Company advanced 10 per cent., Montreal Cotton Company 9, Canada Company 6 and Dundas Company 6.

Iron and Machinery.

WHAT IS A TON IN IRON MILLS?

(American Manufacturer.)

In the discussion of the store order point of the Pennsylvania Supreme Court's decision in the case of Godcharles v. Wigeman a portion of the decision of equal importance has been lost sight of, that which involved the question of the number of pounds to a ton. Wigeman, who was employed at Godcharles' mill and paid by the ton, claimed that the ton should be reckoned at 2,000 pounds under a law of the state which made this the legal ton, while Godcharles & Co. contended that under a custom 2,240 pounds was a ton. The offer of the company was to prove a custom among iron mills of the character of that owned by them, making a ton 2,240 pounds; but the court held that the custom, if proved, was not good because opposed to the statute which fixes the legal ton at 2,000 pounds, and that the former could not be imposed on the plaintiff except by proof of a special contract or of such knowledge by him of the rules of the establishment as would raise the presumption that he was working under them. Hence the proposed evidence was rejected and the court held that payment of wages must be made at the rate of 2,000 pounds to the ton.

While this is a most important decision its importance consists in its indicating the necessity of iron manufacturers having a distinct understanding with their employees who work by the ton as to what constitutes a ton. In the West this is settled by the wages scale agreement. In boiling, rolling, heating and most of the other tonnage ratio of the wages scale, 2,240 pounds is specified as the ton. In shingling charcoal iron, knobbling, etc., 2,464 pounds is named as a ton. So that in work that is governed by the scale there can be no question as to what is a ton, though even then a little more definition in some cases would not be amiss. But there is a large amount of work about an iron mill paid by the ton, concerning which, to avoid just such cases as this, and the trouble and vexation of lawsuits, there should be a more thorough understanding. There are several mills at Pittsburgh that in their agreements do not use the word ton at all, but agree to pay a specified sum for 2,240 pounds.

The decision of the Supreme Court on this subject is worthy the careful attention of all rolling mill proprietors and all others who pay labor by the ton.

MAKING CHEAP STEEL.

MR. FREDERICK SLOSS, of Birmingham, has lately been in Pittsburg and, according to the *Pittsburg Dispatch*, "purchased from Mr. Jacob Rees, the inventor, the right to use the basic process in Alabama." As the Pratt Coal and Iron Company control the right to this process for Jefferson county, Alabama, it is possible that Mr. Sloss has secured the right for the balance of the State. In an interview with the reporter of the *Dispatch*, Mr. Sloss said:

"We can make steel at the usual cost of pig iron. This may sound strange, but I'll explain it. The English government recently employed Dr. Monroe, professor of chemistry of the College of Agriculture, of Downton, Salisbury, England, to determine the relative value of guano and other phosphates as compared with the law slag from a basic steel converter. Dr. Monroe's experiments proved that basic slag is as good a fertilizer as guano, and is much better than coprolites and the Charleston phosphate, because it contains more phosphoric acid. One ton of slag contains twenty per cent. of phosphoric acid, which is worth from six to ten cents per pound. For every ton of steel made there are 700 pounds of slag, which contains 140 pounds of phosphoric acid. Hence, the slag from each ton of

steel is worth \$8.40, placing the phosphoric acid at six cents a pound, which is the lowest market price in the United States. Now, as the actual cost of converting a ton of pig iron into a ton of steel is about \$8, you see that the slag when sold for fertilizer brings as much as the cost of converting by the basic process; or, as I said at first, we buy the pig iron and it costs us nothing to convert it into steel. The slag from furnaces other than the basic contains no phosphorous, and hence is worthless."

IRON BUSINESS IN GERMANY.

A RELIABLE trade review in Germany gives the following statement of the condition of the iron business in that country.

It is still impossible to report better things of the iron industry, which continues as depressed as ever. Indeed, the situation is becoming worse, for prices are being forced down to an almost incredible level. Both Westphalia and Upper Silesia have the same story to tell. At one time it appeared as though the Westphalian trade were going to revive, but the expectations proved delusive, and there is little if anything to choose between the two great iron districts of the country. The rail trade suffers severely and our manufacturers are now paying the penalty which we predicted would have to be reckoned with as a consequence of the dissolution of the Rail Convention, prices already being less all round. And yet there is no prospect of the downward tendency being checked. The fact is that England is determined to make her competition felt as keenly as possible. In order to do this contracts are taken at any price, and as German works have to tender still lower if they would retain the home trade, it is easy to see how the downward movement makes progress.

NEW SOURCE OF PROFIT TO ENGLISH FURNACE OWNERS.

FURNACE owners in the north of England are watching with much interest the progress of experiments by several Tyneside firms to utilize under a German patent the chemical properties of the best slag in cement production. On the Tyne the invention has only been tried about three months, and so far the results are very encouraging. The adoption of the patent is, however, a somewhat expensive affair, as a new machine plant by the cement manufacturers is necessary. It is estimated that the ironmasters will be able to realize from 2s. to 3s. per ton upon every ton of metal produced when it yields slag of a superior kind.

A SCOTCH IRON WORK.

MESSRS. WM. BAIRD & SONS, the well-known iron masters, have erected machinery at their Lugar Iron Works, in South Ayrshire, for the manufacture of coal briquettes, a very handy fuel made from coal dust and a small proportion of pitch. This is the first time the manufacture has been taken up in Scotland, although a similar industry patent fuel is somewhat extensively carried on at Cardiff and Sutherland. The firm will be able to produce about 200 tons of the briquettes per day.

THERE is this to be said in favor of large water space in a boiler beyond the question of safety. The more water there is the more heat will be stored up for use, so the steam pressure will not vary so much when the demand is not constant or the firing not regular. In this respect the heat in the water acts similar to the balance wheel of a steam engine; it is, so to speak, a balance-wheel between the heat imparted from the furnace and that withdrawn in the steam, and fluctuations in either will be modified in their effect a proportion to the body of water. — *Mechanics*.

Textiles.

COMPARATIVE PRICES OF MATERIALS FOR TEXTILE MANUFACTURERS.

(From Wool and Textile Fabrics, English Paper.)

DATE	COTTON.		WOOL.		SILK.	FLAX.	HEMP.	JOSEPH.
	Raw Middling Upland	Yarn - 40 Mule Twist	South Down Hogs	Sydney On washed	Cosimo buzze	Petersburg 12 head	Manila	Good Mark.
	per lb.	per lb.	per lb.	per lb.	per lb.	per ton.	per ton.	per ton.
1881.								
Jan. 1	6 1/2	10 1/2	1 3/4	11	15 0	29 0	33 10	18 0
July 2	6 1/2	10 1/2	1 0 1/2	10 1/2	15 6	30 0	45 10	17 0
1882.								
Jan. 7	6 1/2	10 1/2	1 1 1/2	10 1/2	15 9	30 0	47 5	18 0
July 1	6 1/2	10 1/2	1 0	11	15 9	28 0	45 15	16 0
1883.								
Jan. 6	5 1/2	9 1/2	1 0	11	15 0	27 10	49 0	14 10
July 6	5 1/2	9 1/2	0 11 1/2	10	12 6	29 0	45 15	15 0
1884.								
Jan. 1	5 1/2	9 1/2	1 0 1/2	9 1/2	13 6	27 0	42 0	17 5
March 1	5 1/2	9 1/2	1 0	9 1/2	13 6	26 10	39 0	18 0
June 6	6 1/2	9 1/2	0 11	9	13 6	27 0	35 10	16 10
Sept. 5	6 1/2	9 1/2	1 0	9	12 0	27 0	42 10	14 10
Dec. 4	5 1/2	9 1/2	0 11 1/2	9 1/2	10 3	30 5	39 15	15 15
1885.								
Jan. 2	6 1/2	9 1/2	0 11 1/2	9 1/2	10 3	30 0	38 0	13 0
Feb. 5	6 1/2	9 1/2	0 11 1/2	9 1/2	9 9	31 0	38 0	14 5
March 5	6 1/2	9 1/2	0 10 1/2	9 1/2	9 9	32 10	37 0	14 5
April 4	6	9 1/2	0 10 1/2	9 1/2	9 9	32 10	36 15	13 0
May 7	5 1/2	9 1/2	0 10 1/2	9 1/2	10 0	32 5	37 5	15 5
June 4	5 1/2	9 1/2	0 10 1/2	9 1/2	10 0	32 10	37 15	14 15
July 3	5 1/2	9	0 10	9 1/2	10 0	32 10	36 15	14 15
Aug. 7	5 1/2	8 1/2	0 10 1/2	9 1/2	9 9	32 10	36 10	14 0
Sept. 4	5 1/2	8 1/2	0 10 1/2	9 1/2	9 9	32 10	36 5	14 0
Oct. 2	5 1/2	8 1/2	0 10 1/2	9 1/2	9 9	32 10	34 15	14 0
Nov. 5	5 1/2	8 1/2	0 10 1/2	9 1/2	9 9	29 10	33 10	14 0
Dec. 3	5 1/2	9	0 10 1/2	9 1/2	10 9	29 10	31 0	14 0
1886.								
Jan. 2	5	9	0 10 1/2	9 1/2	10 0	29 10	31 10	14 0
Feb. 4	4 1/2	8 1/2	0 10 1/2	9 1/2	12 3	30 10	31 0	14 5
March 4	4 1/2	8 1/2	0 10 1/2	9 1/2	12 0	31 0	29 5	14 5
April 2	4 1/2	8 1/2	0 10 1/2	9 1/2	12 0	31 0	27 0	14 5
May 6	5 1/2	8 1/2	0 10	9 1/2	12 0	31 0	24 0	14 0
June 3	5 1/2	8 1/2	0 10	9 1/2	12 0	31 10	30 10	14 0
July 1	5 1/2	8 1/2	0 10	11 1/2	12 0	31 10	28 15	14 0
Aug. 6	5 1/2	8	0 11	12	12 3	31 10	31 10	14 0
Sept. 3	5 1/2	7	0 11 1/2	11 1/2	12 9	32 0	30 15	14 0
Oct. 2	7 1/2	8 1/2	1 0	12 1/2	14 9	32 0	30 10	14 0

FLAX IN CANADA.

(From the Canadian Gazette, London, England, Oct. 14th, 1886.)

AN interesting paper on the "Flax Growing and Linen Manufacturing Capabilities of Canada," was read in the Conference Hall, on Friday last, by Mr. E. B. Biggar, the chair being occupied by General Lowry. In speaking of the adaptability of the climate and soil of Canada, Mr. Biggar pointed out that flax of excellent quality had been grown in every Province of the Dominion, and had been utilized to a considerable extent in domestic manufacture ever since the first settlements. In 1881 there were reported 2,056,353 lbs. of dressed flax, and 1,293,892 yards of home-made linen produced in Canada, of which over 1,000,000 yards were made in Quebec, 38,038 yards in Nova Scotia, 51,456 yards in New Brunswick, and 30,088 yards in Prince Edward Island. This, however, showed a decline of half a million yards since 1871, even though at that time the Dominion only consisted of four provinces. In the Canadian North-West three species of indigenous flax grew luxuriantly over a vast area of country, and might, no doubt, be utilized one day to good advantage in the manufacture of twine, &c., when machinery was introduced to work up the

flax. Mr. Biggar went on to express the opinion that flax could be grown not only in very large quantities in Canada, but also at a good profit, finding a great market in Great Britain and in the United States as well as at home. Eight acres of land would, he said, produce a ton of dressed flax, of which the average value would be £41. This would give, he estimated, a total result much better than wheat at its present price in Manitoba and the North-West. The cultivation of flax, moreover, if carried out properly, would not deteriorate the quality of the land.

COMPLAINTS of bad trade are rife in Belgium and France. In the textile industries of the north of France twelve hours is the duration of the day. Work commences at 5.30, the engine having perhaps been in motion some ten minutes before that time, and the only stoppage is the hour at midday, after which the engine turns continuously until seven at night, or a few minutes after. In some of the mills, too, many of the girls have to walk home six or eight miles. Their whole life is absorbed in a mere existence. We would not call this existence in this country. *American Paper.*

J. L. GOODRUE & Co., manufacturers of leather and leather belt ing, Danville, P.Q., took the gold medal for belting at the Provincial Exhibition held recently at Sherbrooke.

To cut glass jars: fill the glass jar with lard oil to where you want to cut the jar, then heat an iron rod or bar to red heat: immerse it in the oil. The unequal expansion will check the jar all around at the surface of the oil, and you can lift off the top part.

A GLASS as hard as any cast metal, and not more expensive than cast iron, has been produced by Mr. F. Siemens of Dresden. Experiments are being made to determine whether it can be used for rails on railways. Specimens of this hard glass have been found suitable for millstones and railway sleepers. An important advantage of the glass is its transparency, as flaws can be detected before it is put to practical use.

SANDPAPER is at present made with powdered glass instead of sand. Glass is readily pulverized by heating it red hot and throwing it into water, and finishing the powdering in an iron mortar. By the use of sieves of different sizes of mesh the powder can be separated into various grades, from the finest dust to very coarse, and these should be kept separate. A strong paper is tacked down and covered with a strong size of glue, and the surface covered with powdered glass of the desired fineness, when the glue is dry the surplus glass is shaken or brushed off. Muslin is better than paper and lasts much longer in use.

THE Hydrographic Office at Washington, D.C., received during the last month about a dozen letters from the officers of steam and sailing vessels, narrating their experience in the use of oil in the time of storms at sea for the purpose of smoothing the water. There is a singular unanimity in the conclusions of the writers that almost at the instant the oil touched the water it spread far over the surface, and reduced the billows to long and heavy but harmless swells. The writers describe a variety of plans for applying the oil. Several of them attribute the rescue of their ships and crews from destruction to the application. Of the hundreds of similar letters received in the past, no instance of failure has been narrated when the oil was vegetable or fish oil. Kerosene and the lighter oils have sometimes failed to produce the effect desired.

If a piece of wood which floats on the water be forced down to a very great depth in the sea, the pressure of the surrounding liquid will be found to be so severe that a quantity of water will be so forced into the pores of the wood and so increase its weight that it will be no longer capable of floating or rising to the surface; hence the timbers of ships which have foundered in a deep part of the ocean never rise again to the surface like those which are sunk near the shore. A diver, too, may with impunity go to a certain depth in the sea, but there is a limit beyond which he is subject to danger. For the same reason it is probable that there is a depth below which fishes cannot live, though as to this there appears to be a difference of opinion. They have, according to Joshlin, been caught in a depth at which they must have sustained a pressure of not less than eighty tons to each square foot of their body.

Lumber.

LUMBER NOTES.

(From the Canadian Lumberman and other Exchanges.)

DURING the coming winter the cut of saw logs in the Parry Sound district will be the largest ever taken out. Already many camps have been established and active preparations for a big season's work are being made.

LUMBERMEN got twenty cents a log at Wausaw, Wis., for raising "dead" or water-soaked logs from the bottom of the Wisconsin river. They have already raised about 600,000 feet, and logs that have been dead for twenty years are said to be as sound as the day on which they were cut.

It is understood, says the Port Hope Times, that the C.P.R. Co. and the lumber firms in the valley of Nipissing are likely to agree on the subject of rates for transporting manufactured and unmanufactured lumber, and that upon the consummation of this most desirable arrangement, two superior saw mills will be erected in McLeod's Bay, near Sturgeon Falls.

It is expected that the cut of logs in the Upper Ottawa country next season will be unusually large, says the Perth Expositor. Messrs. Lord & Hurdman have twelve shanties in the bush, and other firms are proportionately well represented. The wages paid lumbermen are good. There are 20,000 logs in the Des Joachim boom which, when passed through this week, will finish operations there for this season.

THE sawdust nuisance in the Ottawa river is again complained of, and it is suggested that the Government could easily do something to relieve it at this season of the year. Not only is the deposit beginning to affect the lower locks of the Rideau canal, but the frequent explosions of gas generated by the pine dust after a period of submergation are stated to be exceedingly dangerous to those taking pleasure in small boats.

MR. J. B. BOOTH, the well known lumberer and millowner, of Ottawa, has purchased a timber limit on the Temiscamingue some 75 miles in extent, from La Banque Nationale, for which he paid \$77,500. Mr. Booth has made a number of purchases of limits recently. Every limit of any value that has been offered for sale of late has been readily disposed of, the mill-owners evidently realizing that a day is coming when those who do not own limits will find it difficult to obtain logs to keep their mills running.

OTTAWA millowners were not so busy last fall, nor are they this, as they were in previous years, this they attribute to the increase of railway facilities. In old days people had to obtain the whole of their winter stock before the end of the fall, but now with the increased powers of transit they can receive lumber by rail at any time. This means increased employment at the lumber yards during the winter. The trade is steady at unchanged prices. But little lumber is obtained in Ottawa, the output having been principally disposed of for the American market. The local demand is moderate.

UNITED STATES Commercial Agent Hotchkiss, in the course of an exhaustive report to Secretary of State Bayard upon the lumber industry of Canada, says that while the increased export duty upon saw logs is published as being from \$1 to \$2

per 1000 feet, board measure, it is evidently intended that when the exports become developed the duty shall be further increased to \$3, under the discretionary power vested in the Governor General, which rate, it is supposed, will be prohibitory. "It is an indisputable fact," he says, "that this tariff will also be further increased if it shall become necessary to find the prohibitory point: for while the Government interposes no objections to Americans owning the timber, it is fixed in its determination that the Dominion shall have the resultant benefits arising from the manufacture."

SHRINKAGE OF WOOD.

*** THE well-known English writer, John Philipson, vice-president of the Institute of British Carriage Manufacturers, in speaking of the shrinkage of wood, says: "As every workman knows, timber shrinks very much more transversely than in the direction of its length. But the contraction of a board or plank is not always in the same direction: it is regulated by the part of the tree from which it is taken. In conversion a tree always shrinks or contracts in the direction of its circumference, i.e., the wood shrinks more at the outside than at the heart. Thus, if we cut from the middle of a tree a plank having the heart in the centre, and leave it to dry, there will be but little decrease in thickness at the middle of such a plank, but towards the edge the reduction in thickness will be considerable. It will also be noticed that this plank does not bend or warp to any great extent. The planks or boards taken from that part of the tree next adjoining the heart will also retain their thickness to a great extent in the middle, and will also evince the same tendency to shrink at the edges, but it will be observed that they are inclined to bend or curve outward from the heart. The planks from the outside will lose little of their thickness, but will show signs of bending still more from the heart, consequently they decrease considerably in width while seasoning."

A NEW alloy, melting at the low temperature of moderately hot water, and considerably below that at which the magic spoons of long ago were fused in a cup of tea, consists of forty-eight parts of bismuth, thirteen of cadmium, nineteen of lead and twenty of tin. It resists considerable pressure, and is especially adapted to many important uses.

ENGINEERS are frequently troubled by the oil sticking to the inside of the glass in light feed oil cups. A simple remedy is said to be found in coating the inside of such cups with glycerine, taking care that every part is covered. The surest way is to fill the glass to the brim with the glycerine and then carefully drain it.

ONE pound of coal, according to recent Franklin Institute tests, will yield an amount of light averaging 150 candles with the electric arc light (about sixty per cent. of this if glass shades are used), twenty candles with incandescent lamps and fourteen to seventeen candles with gas. In this estimate it is assumed that steam coal is burned under a good boiler for the electric lights, and that the gas is obtained from a bituminous coal.

FADED ink on old documents, papers, parchments, etc., may be so restored as to render the writing perfectly legible. The process consists in moistening the paper with water, and then passing over the lines a brush which has been wet in a solution of sulphide of ammonia. The writing will immediately appear quite dark in color and this color, in the case of parchment, will be preserved. On paper, however, the color gradually fades again.

LATE Pittsburg despatches say the demand for all kinds of iron and steel is daily assuming larger proportions, and inquiries for midwinter deliveries are even more numerous. Manufacturers of all kinds of material are therefore exhibiting more unwillingness to commit themselves for remote deliveries, because of the chances of better prices. Plate, tank, skelp, pipe and railway material are all in active request, and the output is at its highest recorded limit.

❖ Permanent ❖

Exhibition of Manufactures.

Toronto.

NICHOLLS & HOWLAND, PROPRIETORS.



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

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

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

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

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

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

Further information will be promptly furnished.



NICHOLLS & HOWLAND,

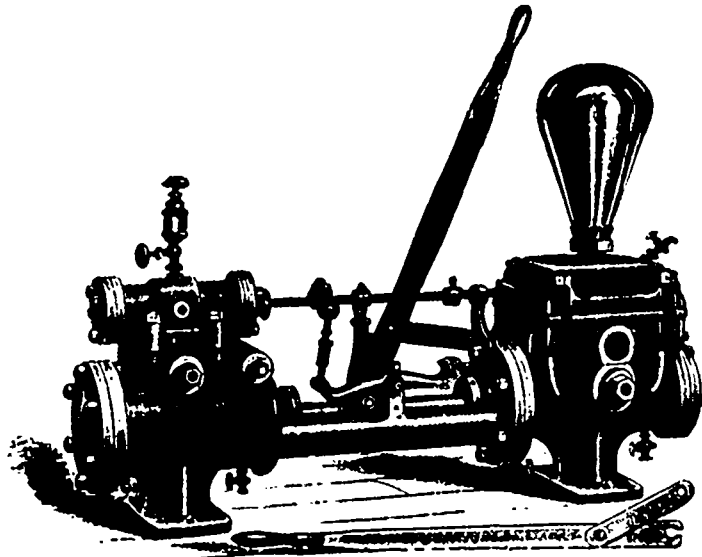
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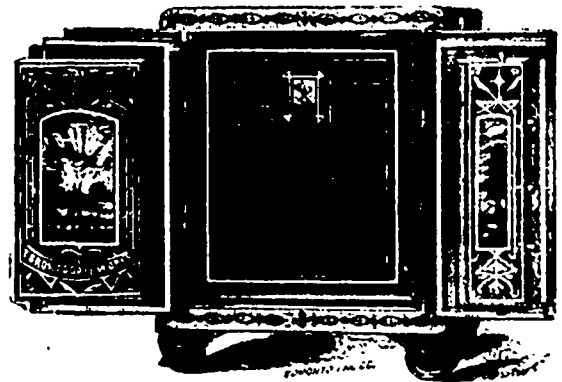
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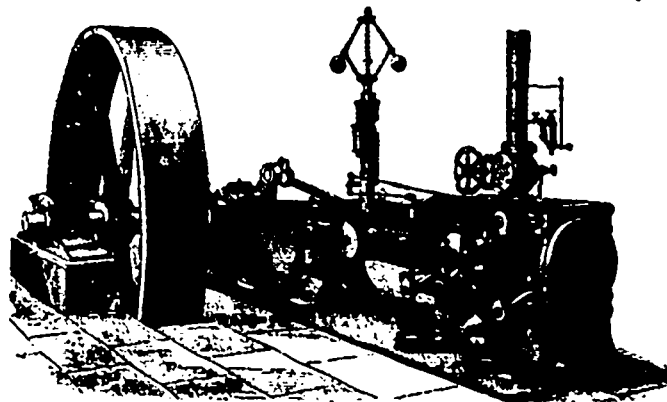
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Mining.

MINING IN CANADA.

(From the Canadian Gazette, London, England, Oct. 14th, 1886.)

ANOTHER visitor to the Canadian Section during the past week, the member of a large colliery owning firm in the north, expresses his opinion of the display in the following terms, which are the more interesting, in that they express, in a measure, the general impression produced upon the minds of visitors:

"It is much more satisfactory to see the actual productions than merely to read of them, at least to the ordinary mind of the Thomas type; and there is something about the human voice which seems to penetrate the intellect more fully than mere print can. From the time I was at school I have always taken a great interest in Canada. Perhaps it was because it was at the top of the map, and therefore more conspicuous, but the names of the lakes and rivers of Canada, so far as then known, were always favorite subjects of contemplation. Possibly Fenimore Cooper had also something to do with it. But seriously, Canada, from its dimensions, capabilities, and nearness to the Mother Country, ought to have the first place in the consideration of the inhabitants of the British Isles. And when one contemplates the enormous undeveloped capabilities of the continents of Canada and Australia, and looks at the manner we are cooped up here like so many rats in a barrel, struggling for life, who to be uppermost it appears to be almost like to a disgrace to the boasted intelligence of the nineteenth century that some well organized, intelligent, self-acting, and self-paying scheme of colonization is not set on foot long ere this, to remedy in some degree the anomalies referred to. Let us hope that some beneficial efforts in this direction may be among the results of the Indian and Colonial Exhibition."

We referred some time since in this column to the appointment by the Iron and Steel Institute of the committee, consisting of Mr. P. C. Gilchrist and Mr. Riley, to report upon the iron-making resources of the British Colonies as illustrated at the Exhibition. The report of this committee was submitted to the Institute on Wednesday of last week, and out of 137 pages octavo, no less than 69, or one-half of the whole, are devoted to Canada, including the reprint of some valuable portions of the descriptive catalogue of the economic minerals of Canada, prepared by the Geological Survey. The report points out that Canada "is extremely rich in both coals and iron ores. The ores that are perhaps of chief importance, being found near the coal fields, are those of Nova Scotia, British Columbia, and West and Lower Winnipeg. Quebec and Ontario are both very rich in magnetites; but as there is no coal near, the ores when raised are exported to the States. The iron and coal resources of each Province are then treated in succession, while analysis are given of as many as ten Canadian ores, five being those used by the Londonderry Iron Works in Nova Scotia, three from British Columbia, and two from Lower Winnipeg. The general conclusions of the committee must be most gratifying to the Colonies. "It requires," the report says, "no great degree of prophetic instinct to see that before long Canada, India, New South Wales, New Zealand and Queensland are destined to become in a greater or less degree friendly rivals with us in competing for their own and neighbouring markets." On the afternoon of Wednesday of last week, at the invitation of Mr. Gilchrist, a large party, consisting of members of the Institute, inspected the Canadian Mineral Court, being placed in charge of Mr. Frank Adams, of the Geological Survey Corps. The character, position, and commercial advantages of the various mineral deposits represented in the Court, were duly explained to the visitors, while the various manufactured iron articles also shown at the Exhibition were examined with much interest.

Miscellaneous.

LABOR IN AUSTRALIA.

(From the Mail.)

A RECENT issue of the London *Times* contains a letter from Mr. John Norton, New South Wales delegate to the Labor Congress, on the subject of the Australian labor market. Mr. Norton depicts a deplorable state of affairs in the Australasian colonies, and he speaks with the authority of one who has made the subject a study.

Another correspondent of the *Times*, Mr. Buchanan, had previously stated that when he left Sydney in May last he saw "2,000 unemployed workmen assembled at the office of the Minister for Works soliciting employment. This statement Mr. Norton not only corroborates, but he says that he has seen the same sight regularly during the last three years, and even so recently as last June. Larger numbers even have gathered together day after day and week after week at the base of the Queen's statue, Sydney, at different periods during the last winter and summer to urge upon the Government the necessity of organizing some system of relief works. The sight is not an extraordinary one, Mr. Norton says, for it has recurred regularly during the past four or five years. He quotes as follows from one of three petitions which were to be presented to the House of Commons on behalf of the Trades and Labor Council, the Federated Seamen's Union and the Democratic Alliance of New South Wales:

"That whereas there has been a dearth of employment for skilled artisans and general laborers during the past few years, the Government has nevertheless continued to pour into the country shiploads of immigrants for whom no work could be found. Thousands of skilled artisans enticed out to this country under fallacious promises of constant employment at high wages have been compelled to accept work on the relief works started by the Government of New South Wales for the relief of the distress caused by the surplus labor created by the system of State-assisted emigration. During the last three or four years the numbers of the unemployed have increased every year, until this year they may be numbered in thousands. Last year hundreds of skilled artisans were walking the streets of Sydney without employment or food or shelter. They were found by hundreds sleeping in the public streets and gardens, until, in deference to a strong public agitation which took place, the Government was compelled to provide them with temporary shelter, together with one blanket each, with bread and cheese twice a day to keep them from starving. Relief works had then to be started in order to grapple with the difficulty. The same state of things has occurred again this year. Large meetings of the unemployed have been held in Sydney, the Government have been compelled to start relief works anew, and to establish a special Government Labor Bureau for dispersing the unemployed workmen throughout the colony by means of free railroad passes, which have been issued in thousands to unemployed workmen. These men thus supplied with free railway passes, instead of finding employment at their own trades, have been compelled to tramp up and down the country in search of work, suffering greatly from exposure and hunger, and finally forced to accept employment at pauper wages at road making, bush clearing, stone breaking, etc., on Government relief works."

This same distress, we are told, exists in South Australia and New Zealand. In New South Wales the labor crisis has existed on or off for fifteen years; during the last five years it has become chronic.

One cause given by Mr. Norton for this deplorable state of affairs in New South Wales is the long-continued droughts which periodically afflict Australia, and which ruin the pastoral industry for the time being. Another cause is the lack of

manufacturing industries, and consequently of employment for skilled labor. This is due to the free trade system of New South Wales. Mr Norton points to Protectionist Victoria on the other hand, which, he says, is not subject to such frequent and long-continued periods of depression. New South Wales is twice as old as Victoria, has four times her area, the monopoly of the coal supply, and other mineral and maritime advantages which Victoria has not; and yet the latter is a long way ahead of her in the march of progress. Mr Norton gives statistics in proof of this assertion, and he says:

"Now these figures are most significant, and the remarkable disparity between them is only to be accounted for by the fact that Victoria has not put all her eggs into one basket. She has not relied upon minerals and wool alone, as New South Wales has done, but has fostered manufactures and native industries by protecting herself from the over-production and cheap labor of Europe and America. The consequence is that to-day, although the depressed state of the other colonies reacts upon her, and although during the last three years thousands of the unemployed and newly-arrived emigrants have gone from New South Wales into Victoria, still she is comparatively prosperous. * * * A great deal, and by far the greater portion, of the misery among the artisan-classes of the colony is due to a vicious and one-sided free trade policy, which submits a young and undeveloped country to a competition with the vast resources and means of production of older and more populous countries. This was clearly brought out during the deliberations of the third Intercolonial Trades Union Congress of Australasia, held at Sydney in October of last year. At that congress were represented the whole of the working classes of Australasia, male and female, including every trade and industry. Upwards of 100 delegates from New South Wales, Victoria, South Australia, Queensland, New Zealand and Tasmania, after two days' careful deliberation, passed, with only five dissentients, the following resolution: 'The time has now arrived when a judicious and discriminating protective tariff should be applied in New South Wales and the other Australian colonies not already under a protective policy, for the purpose of promoting agriculture and encouraging native industries.'"

Other causes which, Mr Norton says, tend to deepen the distress among the working classes in Australasia are excessive immigration and the wholesale importation of Chinese and Coolie labor.

Surely, when we read such evidence as to the condition of other colonies, we have reason to feel that Canada has little cause to grumble, and that the wails of Reform politicians are supremely ridiculous. Our debt is much less than one-half that of Australasia, and we are fairly prosperous, considering the general depression. Moreover, our wisdom in adopting the system of protection is strengthened by the fact that the only prosperous Australasian colony owes her prosperity to the same system. Canadian working men should study the words of one of their fellows who hails from the Antipodes.

INSURANCE.

In his address before the Underwriters Association of the Northwest, in session at Chicago in the early part of the current month, President Fox thus discussed the subject of fire waste:

"The relation of fire waste to the country's prosperity, and the burden it imposes upon property owners, as insureds and as taxpayers, is not sufficiently considered by the people; nor is proper attention paid to the numerous hazards which are factors in the loss record.

"The tendency is to erect mammoth, showy buildings, without regard to non-combustibility, which structures may be termed "venered lumber piles," in which fire can spread from basement to roof with such rapidity as to defy the most skillful and best equipped fire departments, and involve total property destruction.

"So long as such tinder-box edifices are allowed, and pass for first-class buildings, and so long as the streets of our cities are lined with such structures piled with immense values, the fire waste of the country will continue to be enormous, and underwriters need not look for any abatement in the volume of property destroyed, nor in the ratio of loss to premium income, which latter will increase rather than decrease, for the reason that, as the so-called better classes of buildings are erected, the lines of insurance carried by the assured on and in them will be reduced, rates will decline, and losses will be more nearly total as regards insurance.

"Compare the plain, two or three-storey brick buildings of a few years ago, having from twenty-five to fifty feet of frontage, with a depth of from sixty to eighty feet, and an altitude of say forty feet, and having an area from 45,000 to 160,000 cubic feet, and a value of from \$3000 to \$10,000, with some of our modern structures, facetiously called "sky-scrapers," running from five to ten stories in height, and having an area of from 600,000 to 1,250,000 cubic feet, and costing all the way from \$50,000 to \$250,000, and filled proportionately with valuable contents, and is it any wonder that losses are so great, and that a single fire now frequently involves an insurance loss equal almost to the value of a whole village, and greater than the entire assets of many of our insurance companies?

"In view of the area and construction of modern business buildings, the rates obtained on and in them are wholly disproportionate to the rates on less pretentious structures, as are also the lines which insurance companies write upon and in them. The smaller buildings rate at, say, three-fourths per cent., with average policy lines of insurance thereon or thereof, say, \$2,500. The larger buildings may possibly rate at 1 1/2 per cent., with average policy lines of insurance thereon or therein of, say, \$10,000. The average per centage of insurance losses in the first class is about 50 per cent.; the average per centage of insurance losses in the second class is about 100 per cent. Evidently the rates on these widely different risks should be revised, and the lines written thereon and therein should be brought nearer together, and rates better adjusted; for the more nearly lines approach the general average, and the more proportionate rates are, the safer the business.

"In any country but the United States the annual destruction of property by fire would alarm the people, and cause to be enacted stringent fire laws to prevent such ruinous waste. But in this 'land of the free,' the destruction of property by fire grows with the growth of the country, and has the most unrestricted freedom, save in the sickly methods of some of our cities, where, by so-called 'building ordinances,' which are remarkable only for their worthlessness, a feeble attempt is made to secure an improvement in buildings.

"A waste of over \$100,000,000 in property value by fire each year is simply appalling, and would bankrupt any nation but this, which is so vast, and its recuperative resources so great, that, with occasional exceptions, this fire loss falls so lightly upon communities as not to be appreciated in its aggregate proportions. This waste of material substance, the direct product of labor, represents just so much wealth obliterated, and is criminal because it is largely preventable. To secure a reduction of this waste of property, insurance companies and the general public are called upon to exert every effort."

HELP FROM A NEW SOURCE.

(Chicago Industrial World.)

THE Chicago Tribune has not for many years been classed as an advocate of the policy of protective tariffs for this country. On the contrary, it has antagonized such policy, some times sharply. On Friday last, however, it contained an editorial article in criticism of a resolution in the platform of the Knights of Labor which is so admirable in tone and logic.

and so encouraging to protectionists, that we copy it herewith. This is the resolution which constitutes the text.

"That the money needed to support the Government must be raised by a tax on luxuries. The necessities of life, as measured by the standard of living of the producing masses, to be free from taxation."

And this is the answer.

"The 'producing masses' embrace certainly 55 of the 60 millions of American people, and the 'necessaries of life' consumed by the producing masses amount to more than 80 per cent, of all the dutiable imports of the United States, and when our markets are opened to them free of duty they will come in competition with at least two billions of domestic manufactures annually produced, the value of which and the cost of producing which must drop down to the level of the foreign goods.

"Has it occurred to these Socialistic free traders to consider what the fight means, or with what kind of weapons they must meet these foreign manufacturers. Has it occurred to them that their free-trade plank will end in reversing the very foundation policy of the Knights of Labor? To make this fight they must conduct it on the same basis of hours and wages that is employed in Europe. To cope with the cheap labor of European countries they must work the same hours and for practically the same wages, which are 50 to 75 per cent. less than they are now receiving under the high protective tariff of the country. Had they thought of that when adopting their platform and pledging their candidates to it?

"If they are going to compete with the cheap labor millions of Europe without any tariff protection, instead of adopting their present policy of a reduction of hours and an increase of wages, they must adopt the European plan of a reduction of wages and an increase of hours. Instead of twelve hours' pay for eight hours' work, the free-trade Knights and Socialists will have to be content with eight hours' pay for twelve hours' work and even much less. Instead of having plenty of meat three times a day they must return to meat three times a week, and with black bread, as they lived before they came to this country, with whose institutions and industrial system they find so much fault. In other words, they will turn an industrial somerset and land where they were in Germany, Poland, Bohemia, and Ireland, before they came over here to get meat and white bread three times a day.

"How many laborers and artisans in Chicago are nery enough to accept the platform made by the Schillings, Secets, and Morgans? Morrison has been called a free-trader, though he never went farther than to urge a horizontal cut or reduction of one-fifth of the duties on manufactures, and a Democratic House would not even consent to consider his bill; but these cheerful Socialists and Knights of Labor step briskly up and offer to take off four-fifths of the whole tax. They will have no tax except on the few luxuries consumed by the rich, which constitute less than one-fifth of the taxed imports of manufactured goods. This is nery, but how long will the Socialistic 'Knights' nerve stand the tension of a 50 cent. cut in wages and a twelve-hour day's work on the European plan? How long would they hold out on meat three times a week? How do the republican protection 'Knights' like their free-trade and deadly-competition platform? The wisest thing they can do is to let the Socialistic ticket severely alone."

STORE ORDERS

Chicago Industrial World.

In 1881 the Legislature of Pennsylvania passed an Act prohibiting the payment of wages in that State in store orders. The measure was ostensibly in the interest of employees of large mining and manufacturing companies. A decision was rendered a few days since by the Supreme Court of Pennsylvania declaring the Act unconstitutional and void. The suit in which this decision was rendered was that of C. A. God-

Charles & Co. vs. Frank Wigeman. It was brought on appeal from the Common Pleas Court of Northumberland county. It appears that there had been a dispute over the payment of wages for mining coal by the ton. Wigeman claimed payment for each ton of 2000 pounds, while the company insisted that 2,240 pounds should constitute a ton. The latter also claimed a set-off because of store-orders delivered to Wigeman. The opinion was read by Justice Gordon. In the course of it he said:

"The first five assignments for error cannot be sustained. The offer was to prove a custom among iron mills, of the character of that owned by the defendant, making the ton 2,240 pounds, but the court held that the custom, if proved was not good, because opposed to the statute which fixes the legal ton at 2,000 pounds, and that the former could not be imposed on the plaintiff, except by proof of a special contract, or of such knowledge by him of the rules of the establishment as would raise the presumption that he was working under them: hence, the proposed evidence was rejected. It requires no argument to establish the correctness of this ruling, hence we attempt none.

"The seventh assignment must be sustained. The orders given by the defendant and received by the plaintiff constituted a proper set-off. The first, second, third and fourth sections of the act of June 29, 1884, are utterly unconstitutional and void, inasmuch as by them an attempt has been made by the Legislature to do what, in this country, cannot be done: that is, prevent persons who are *sui juris* from making their own contracts. The act is an infringement alike of the rights of the employer and the employee: more than this, it is an insulting attempt to put the laborer under a legislative tutelage which is not only degrading to his manhood but subversive of his rights as a citizen of the United States. He may sell his labor for what he thinks best, whether money or goods, just as his employer may sell his iron or coal, and any and every law that proposes to prevent him from so doing is an infringement upon his constitutional privileges, and consequently vicious and void. The judgment of the Court below is now reversed and a new trial ordered."

Important to Iron Manufacturers.

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

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

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

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

Oliver Bros. & Phillips, Pittsburgh, Pa., on chain links, 1 in. to 2 1/2 in diameter
Billinger & Small, York, Pa., largest car works in the United States.
Wilkesbarre Iron Screen and Fence Co., Wilkesbarre, Pa., largest in Pennsylvania.
J. I. Case Threshing Machine Co., Racine, Wis., largest in the United States.
Mitchell & Lewis Co., Wagon Manufacturers, Racine, Wis., largest in the Northwest.
LaBelle Wagon Works, Fond du Lac, Wis.
Cooper Wagon Works, Dubuque, Ia., largest in the State.
Union Wagon Works, Winona, Minn., largest in the State.
Spangler Manufacturing Co., Agricultural Implements, York, Pa.
Janesville Machine Works, Janesville, Wis., Reapers and Mowers.
Ashcraft Manufacturing Co., Bridgeport Conn., Heavy Pipe Wrenches.
Wilcox Manufacturing Co., Aurora, Ill., Hardware Specialties.
Jensen Manufacturing Co., Racine, Wis., Wagon Hardware.

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

Correspondence from responsible parties solicited. Address.

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Steam Pumps
AND
Hydraulic
Machinery
OF
All Descriptions.

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HYDRAULIC ENGINEERS.

SPECIALTY:
Northey's
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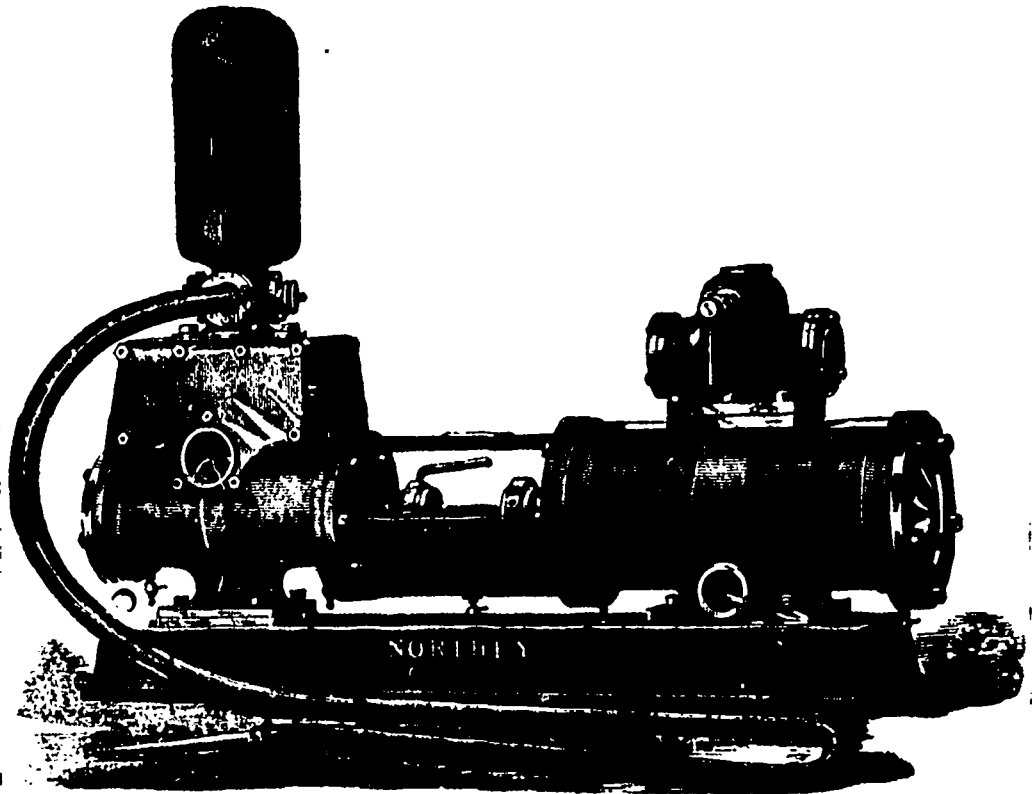
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Ordinary Pattern Boiler Feed or Fire Pump. For Pumping Water against Heavy Pressure. Simple—Compact—Powerful.

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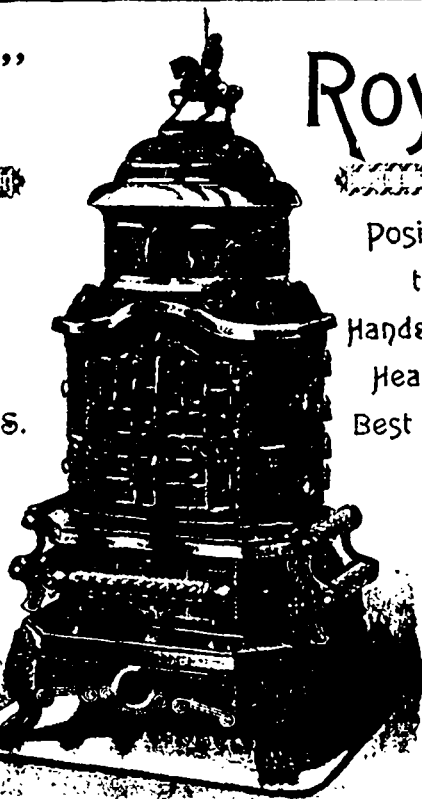
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THIS GEAR meets the demand of the Driving Public for low-riding Buggies, and combines with this, lightness, durability, and great ease of motion. By the use of improved machinery and manufacturing in large quantities, we are enabled to make prices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

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

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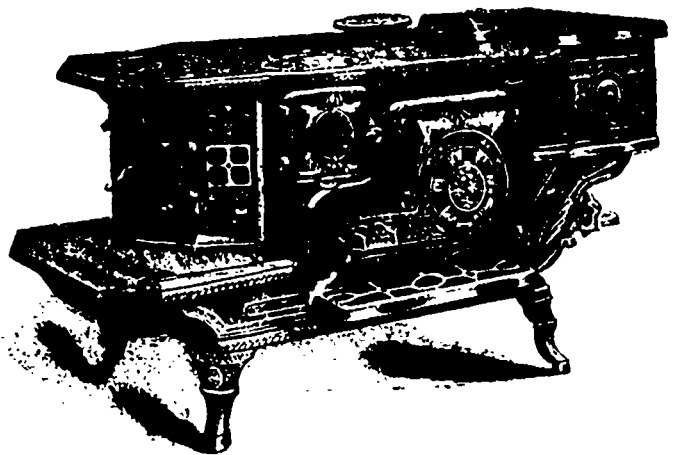
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Positively
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NEW COMBINATION
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WINNIPEG, MAN., MARCH 9th, 1886.

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

Yours truly,

J. H. BROCK (OF CARRUTHERS & BROCK)

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No. 10. No. 50.

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

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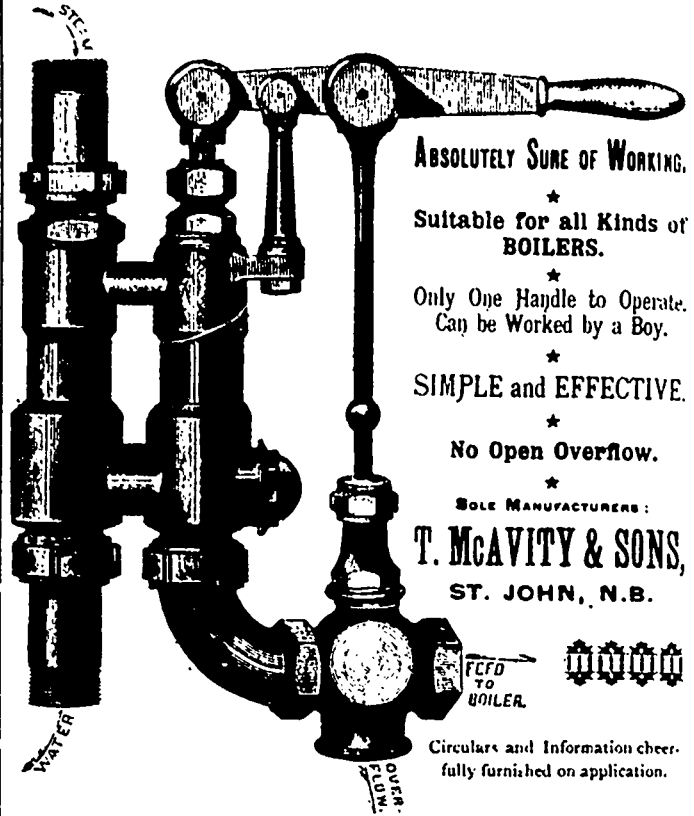
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Only One Handle to Operate. Can be Worked by a Boy.

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

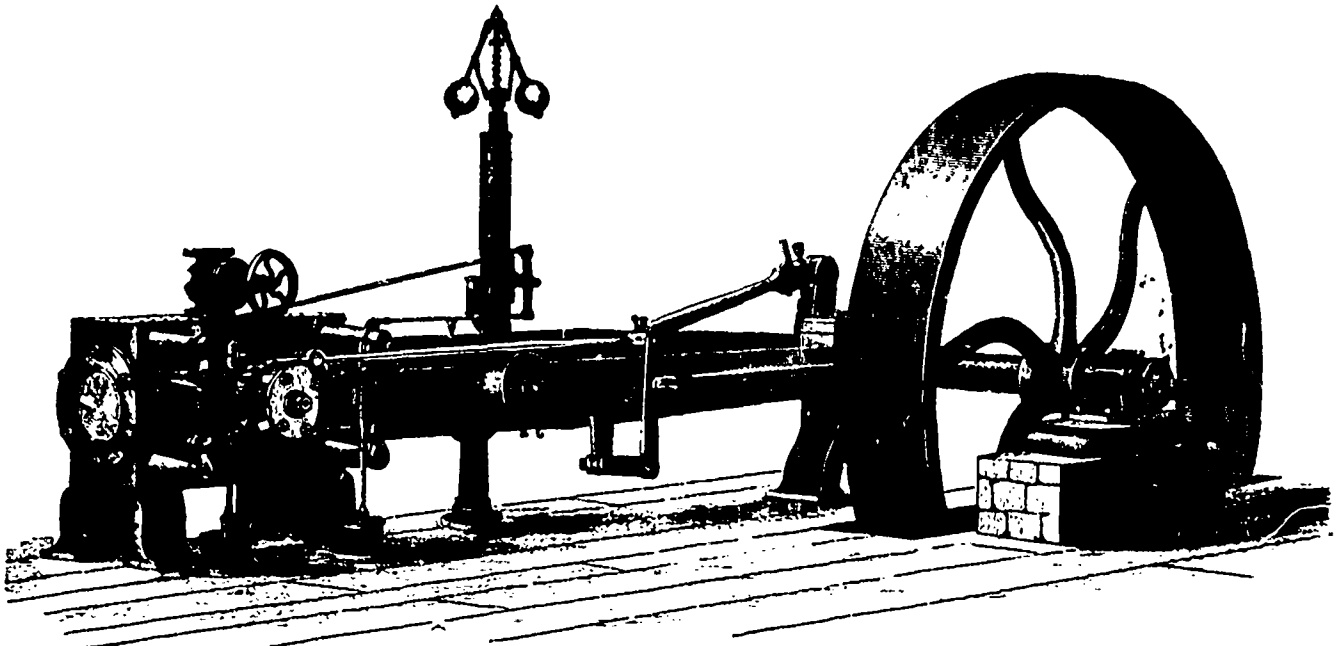
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While many Engines of the same class have been invented, built, tried and abandoned, the Harris-Corliss has steadily gained in public favor, and is now

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8th—The increased amount of power it develops.

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1 SET 30" CUSTOM ROLL CARDS, in good condition
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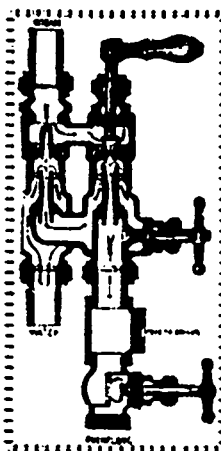
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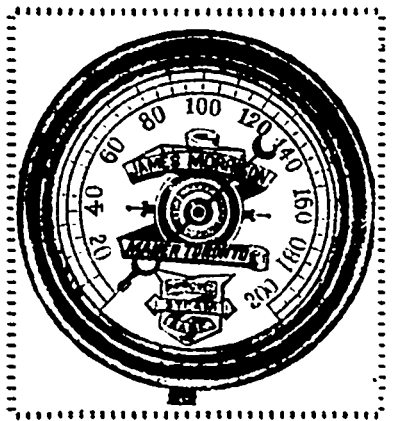
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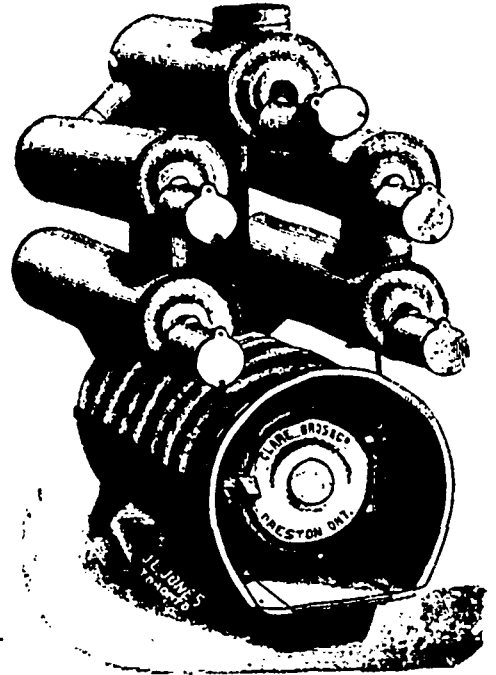
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This Furnace, made in six sizes, is unequalled for efficiency, economy, ease of management, durability. Is corrugated and made very heavy. The drums are of heavy sheet steel (with cast iron ends and collar connections), well riveted together, so as to prevent the leakage of gas and smoke from unequal expansion and contraction. It has been largely in use for several years, and has never failed to give the most perfect satisfaction to purchasers, thus differing and entirely superseding all other wood-burning Furnaces heretofore made. Farmers who have a surplus of wood unfit for the market will find them a great relief from the vexatious and annoyances of pulling down and setting up ordinary heating stoves and pipes, wood boxes, etc. We furnish the four larger sizes with either round doors, as shown on cut, or with extra large square doors.

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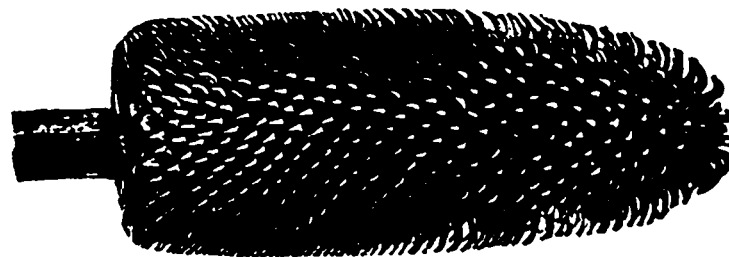
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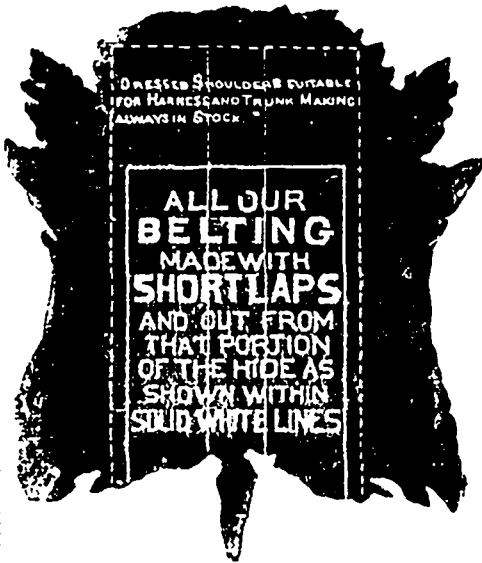


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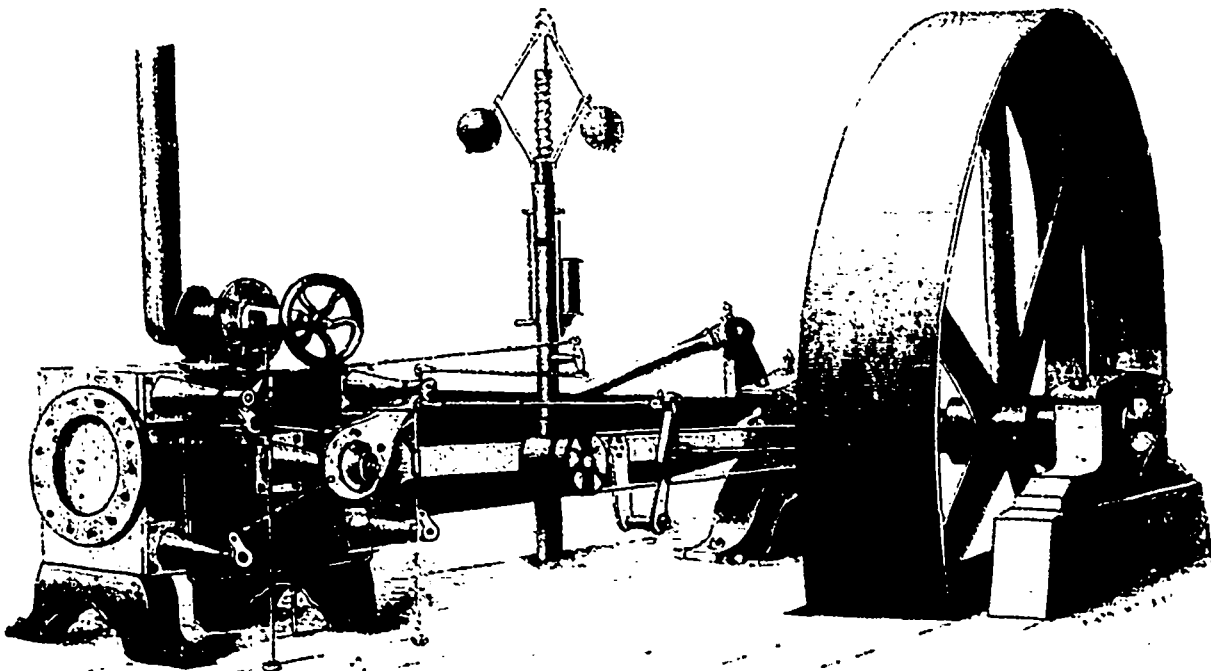
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We guarantee their orders well and promptly filled, for we keep on hand all sizes from 2 to 16 inch, **SINGLE AND DOUBLE**; also: Lace Leather, Belt Hooks, Belt Punches, etc., etc.

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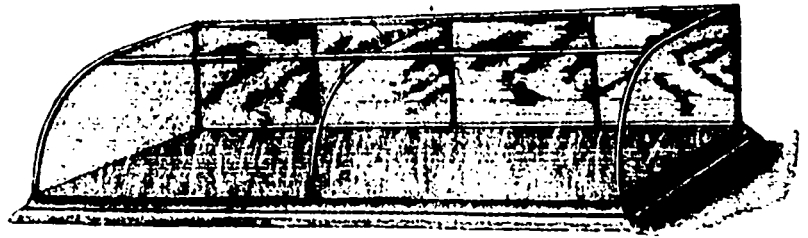
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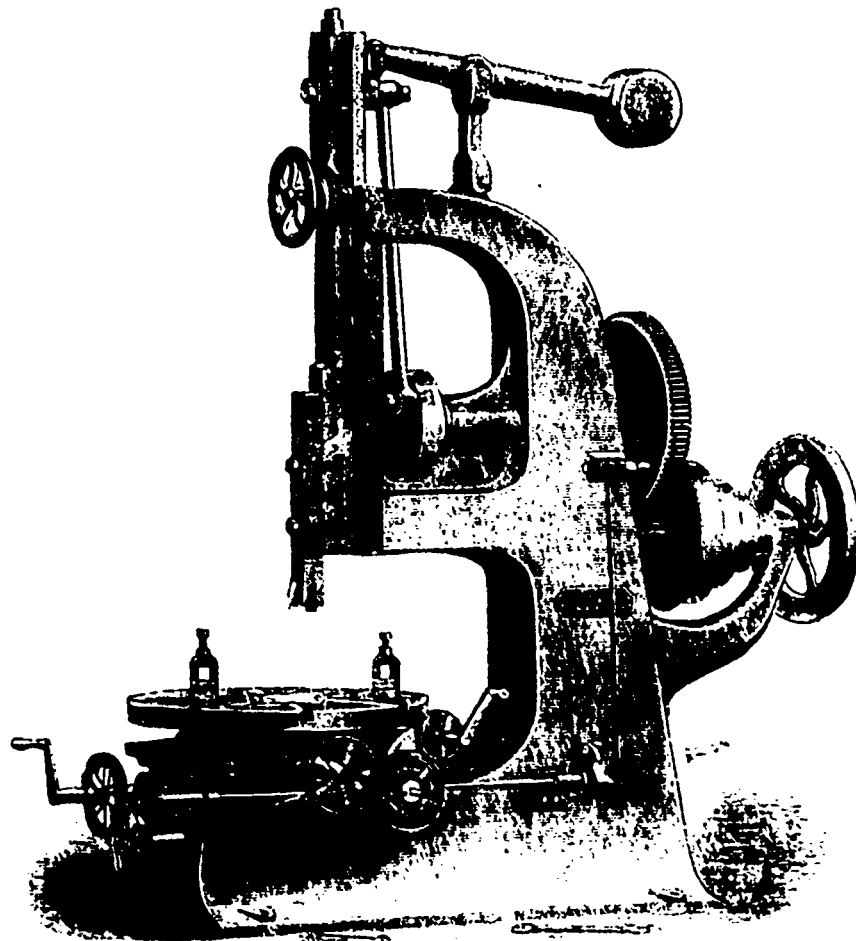
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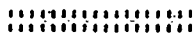
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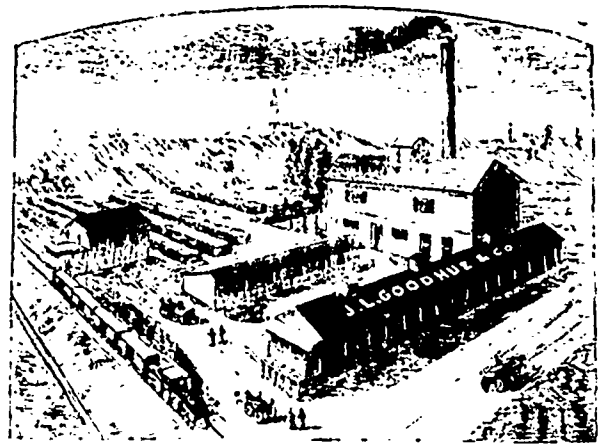
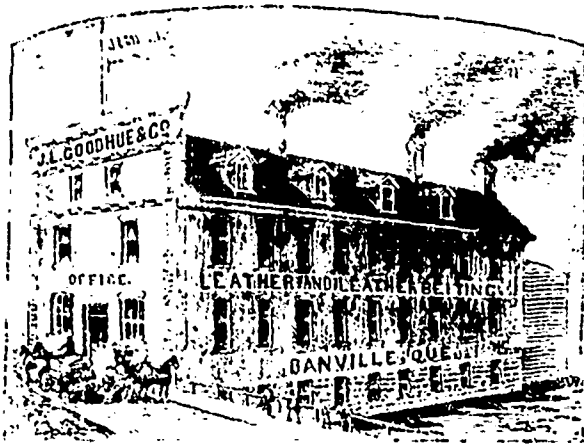
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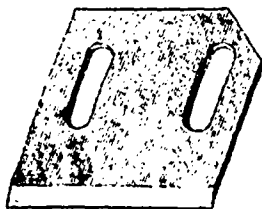
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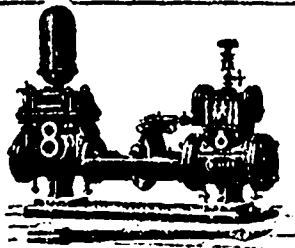
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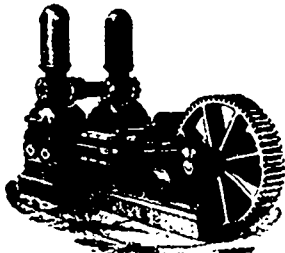
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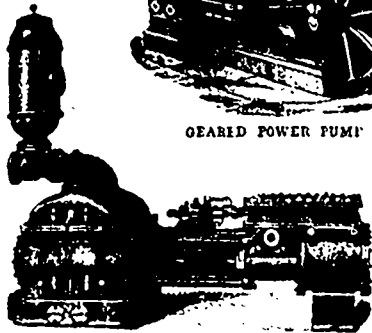
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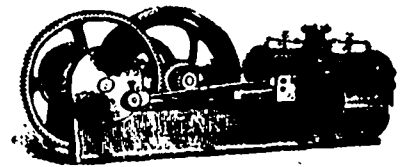
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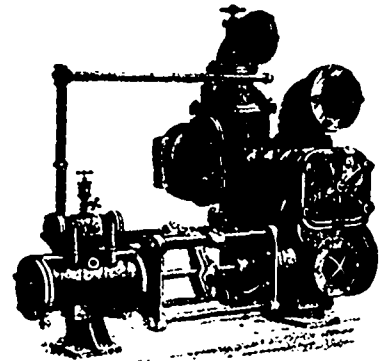
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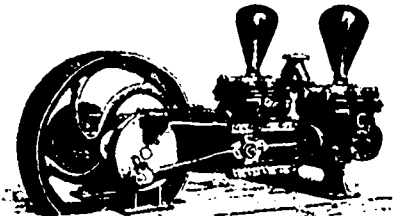
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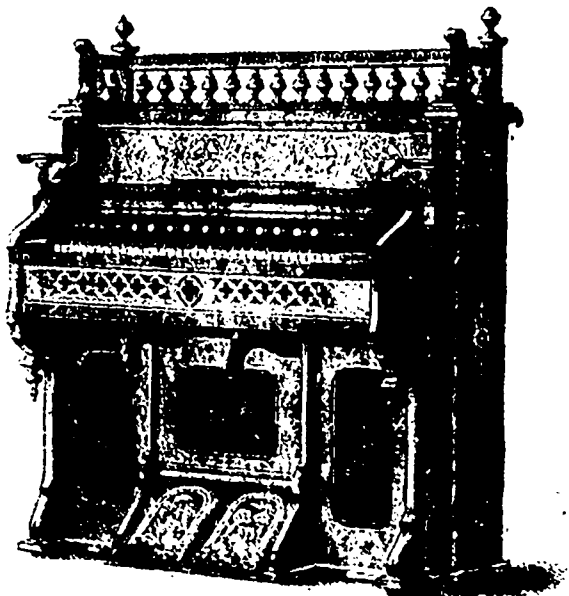
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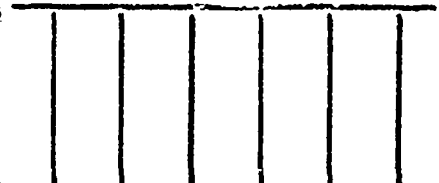
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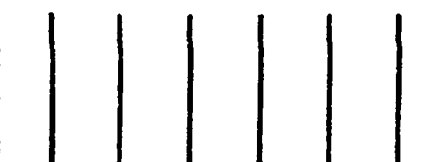


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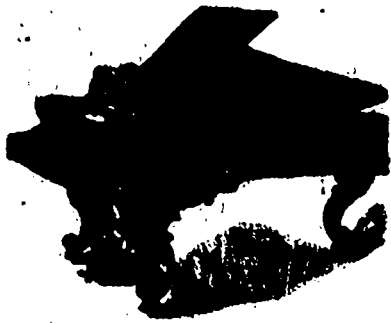
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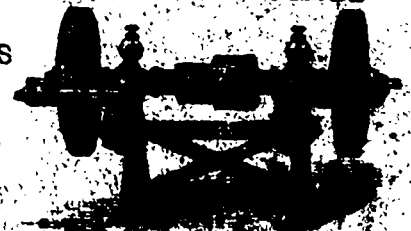


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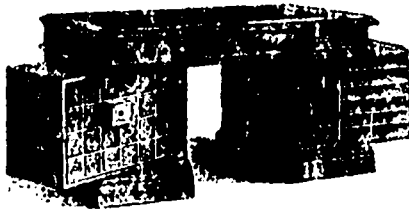
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