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THE CANADIAN MANUFACTURER AND INDUSTRIAL WORLD

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Vol. 2.

TORONTO, JUNE 1, 1883.

No. 12.

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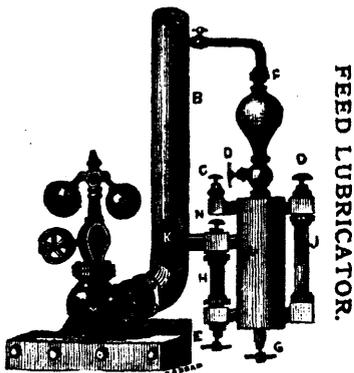
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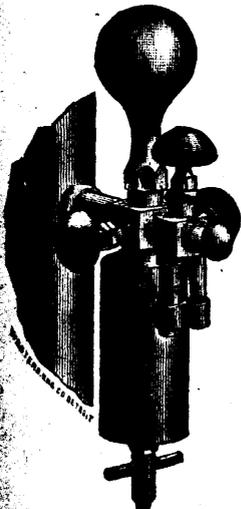


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THE RAILWAY FIGHT—AN EXAMPLE FOR CANADA.

In the United States the term "railway war" means a war of rates between two or more railways. The companies cut down figures for through freights, occasionally for local freights too; and while the war lasts shippers get the benefit of cheap transportation. In Canada we have keen competition between the Grand Trunk and Pacific Railway systems, but only over a limited extent of territory as yet, waiting the completion by the latter of its Montreal and Toronto link, and the efforts of the former to gain an entrance into Manitoba and the Northwest. But, as Toronto people have particular reason to know, we have between the city and the Grand Trunk a condition of things which, if it cannot be called war, is still not exactly what can be called peace. The local difficulty here is mostly on regard to the Esplanade and its numerous railway tracks, with which trains too frequently block the way to the water-front. But besides this there are other railway difficulties pending, in the matter of freight accommodation and the rates paid for it, between the Grand Trunk on one hand, and business men belonging to many and various localities on the other. These difficulties have been growing of late years, and it is almost superfluous to remark that the amalgamation of the Great Western and the Midland systems with the Grand Trunk has not tended to mitigate them. To remove them, and to compel the giving of fair play to Canadian interests all round, was the object of Mr. McCarthy's Railway Commission Bill, which by pressure of railway influence was thrown out in Committee during the recent session. Now, we do not propose on this occasion to take up the whole broad question of railway rights and duties in relation to the public; but merely to invite the attention of business men generally to what has quite recently been tried in St. Louis, and so far apparently with very good results. The information conveyed we find in *Bradstreet's*, in a letter from its St. Louis correspondent, giving an account of the St. Louis Freight Bureau.

The St. Louis Freight Bureau, says this correspondent, is a novel and interesting business institution, which was started as an experiment, but almost at once commanded recognition as a permanent necessity. It was organized something over four months ago, and had no close counterpart among the accessories of commerce in this country. Lately, however, the business men of Louisville have established a freight bureau modelled after this one, and the leaders of trade in Chicago are in the process of replicating it in their brisk city. Cincinnati merchants are

also making diligent inquiry into the workings of this freight bureau, with a view of effecting a similar organization.

This institution was established for the general purpose of concentrating the local commercial influences and intelligences upon transportation questions in such a way as to increase St. Louis trade. The city had been denied its proper advantages at points nearer to it than to any other market. As steps toward the general end it was desired to make St. Louis supersede East St. Louis as the actual railway terminus of eastern business. An obstacle to this was the bridge toll as an arbitrary tax, costing the city's trade half a million dollars per year. It was desired to secure the merging of the bridge toll into rail rates. Another reform in view was "the change of basis of freight rates from the seaboard from the arbitrary rate of 119 per cent. to the actual distance of 116 per cent." Again, as to business in the southwest, there was in force an arbitrary tariff system which could not be defended upon any fair principle of transportation, and a revision of the whole system of freight rates and classification to and from the west and southwest was sought to be secured, basing it upon the actual mileage to the various points by the most direct routes.

The merchants and manufacturers of this western city found that, pulling singly, each firm for itself, they were powerless; and it was resolved, therefore, to try the truth of the old saying, that "union is strength." It was hoped that, by combination under one live, wide-awake controlling agency, some, at all events, of the troubles experienced might be got over. And so about two hundred business firms and corporations of St. Louis organized to accomplish the above and collateral purposes, as far as possible, through a freight bureau, for the support of which during two years of proposed experiment they subscribed what funds were deemed to be sufficient. But it is no longer regarded in the light of an experiment. A manager was secured who had long been at the head of the freight department of a leading railway of the south-west. He selected an assistant thoroughly acquainted with the commercial circles of the city. This modest force constitutes, so far as public attention is concerned, the active element of the St. Louis Freight Bureau, though it is supplemented, of course, by the gratuitous yet valuable services of officers and committees selected from the subscribing members of the organization.

The correspondent gives this necessary caution against misunderstanding of what the Bureau is, and what it proposes to do:—

"If the idea is entertained at all by the reader, let it be dis-

missed, that the mission of this Bureau is to fight railways in the new-fangled, anti-monopoly sense. On the contrary, its mission is to subdue clashing and establish harmony between railway and shipping interests, which are so inseparably dependent upon each other. Several great railway corporations and at least three river transportation companies are subscribing members of the organization and in hearty working sympathy with it. There is difficulty in defining the precise functions of the bureau. It adjusts differences without strictly arbitrating them. By no means can it be said to dictate rates, yet it effects substantial and desirable changes in rates. It is an attorney in presenting claims and pleadings for shippers, yet stands as an *amicus curiæ* in relation to the railways. It effects its ends through the arguments and influences which strictly pertain to cold-blooded and unsentimental business, and in its operations there is no balderdash of pretence that the shipper and the railway are not equally selfish regarding their respective interests. In so far as the bureau manages to render this mutual selfishness reasonably consistent and symmetrical, that far it is regarded a success—for it really aims at no more."

Next, as to what has been accomplished :—

"What has been accomplished in its four months of work? Well, for instance, the rates in effect January 1 on the St. Louis & San Francisco road had a marked tendency to divert the trade of south-west Missouri and south-east Kansas from St. Louis to other markets. The arguments and business considerations advanced by the freight bureau to the freight department of that road resulted in the establishment of unusually just and equitable rates. Dakota, and the great states of Iowa and Minnesota had been comparatively unoccupied by St. Louis trade. By the warm co-operation of the Chicago, Burlington and Quincy people with this bureau in reforming rates, that grand commercial territory has been opened up to us on an equality with competing markets. St. Louis merchants obtain Chicago rates from East St. Louis to all points on the Chicago, Burlington and Quincy railroad. Owing to the same agency, every change in rates made by the Missouri Pacific system since January 1 has been to the advantage of St. Louis trade. Rates reaching the trade of south-west Missouri, part of Kansas and portions of western Tennessee have been greatly improved by the alterations made by the Gould roads, and entered upon in a spirit of fairness.

"The Wabash and the Missouri Pacific system have been influenced to place on sale 1,000-mile tickets, available to country merchants coming to St. Louis and returning.

"The abolition of the bridge arbitrary rate is desired by the bureau. Enough has been accomplished so that it may be relied upon that the trunk line pool will not include all the east and west lines until this abolition has been consummated.

"By reason of the arguments and inducements brought forward by this bureau, the Harrison steam-ship line, direct from Liverpool to New Orleans, has been established. Regular arrivals and departures began about April 1. The success of the trial trips indicates that it will have business enough for permanence.

"By suggestion of the bureau, the management of the Missouri Pacific system have directed and instructed their agents at El Paso and Laredo as to serving as forwarding agents for our merchants in their trade with Mexico, and in attending to the passage of goods through the customs houses, etc.

"The bureau has collected and arranged a vast amount of general railway and business information, and placed it at the command of our merchants."

The brief paragraph next following conveys a lesson which reformers of railway abuses would do well to bear in mind, and also hints at a good example for railway officials :—

"During the four months under review 320 formal complaints have been filed with the bureau manager. In some

cases the complainants were at fault through lack of familiarity with the methods of railway business. In other instances the railway officials cheerfully corrected mistakes or injustices.

"Much has been accomplished in various matters not here alluded to, which, however, are not in a condition of sufficient forwardness to be estimated as completed results."

It is evident from the above that the institution confers an enormous benefit on the mercantile community in its capacity simply of a Bureau where accurate and complete information is received, classified, and kept on hand for ready reference. The knowledge merely that all this mass of reliable information is at hand and available should of itself suffice to prevent many mistakes, and attempts at imposition, too. Now, let us imagine what might be done on this the border, to begin with, were the merchants and manufacturers of Toronto to establish a "Freight Bureau" somewhat on the St. Louis model. We see no reason, either, why business men outside the city, large manufacturers especially, should not join in and share the benefit. The individual shipper, himself perhaps not sufficiently informed on all points, and counting as one only, would have his case pressed home by a competent and well-informed Bureau, representing a strong and influential body. The Bureau, being well posted on all points, would "hardly ever" fail to gain a case it had taken up, because it would take up none but cases that were good, and clear, and strong. Very difficult cases, of course, would still have to be dealt with by courts of law, if tried at all. But how many disputes of a simpler and easier character, which nevertheless give individuals no end of worry and trouble, might be pressed to an amicable settlement by a business men's Freight Bureau? The St. Louis example seems practical and feasible enough to entitle it to prompt and fair consideration by our merchants and manufacturers, to whom this presentation of the same is submitted.

DECAY OF THE COTTON MANUFACTURE IN SCOTLAND.

Both Scotch and English papers have of late been drawing attention to one of the most remarkable changes of the time—the decay of the cotton manufacture in Scotland; and we avail ourselves of one of the fullest statements yet made on the subject, which we find in the London *Economist*. It appears that during the last ten years there has been a gradual but never ceasing process of extinction, so to speak, in operation. The number of working mills has steadily dwindled, old properties have fallen into decay, places destroyed by fire have not as a rule been rebuilt, and new factories are unknown. From more than one district the trade has wholly disappeared, and within the last few months several of the largest works in the west of Scotland have closed their doors, throwing many operatives out of employment. Had all this come to pass as the result of a lengthened period of business stagnation, while there might have been cause for regret, there could have been none for surprise; but the strange and striking fact is, that these events have transpired at a time when the trade is fairly prosperous, and when signs are not wanting that a brighter era than has been known for years may be in store. It is stated that in 1787 there were just 19 cotton mills in all Scotland; in 1802, 52; and in 1834, 134; the greater number of them

in two counties on the Clyde, Lanarkshire having 74, and Renfrewshire 41. In 1845 Lanark, Renfrew and Ayr had 149 cotton factories within their bounds, 94 of which were in Lanark, 51, in Renfrew, and 4 in Ayr. The aggregate for these three counties was as under, in the years named :—

	Number of			
	Mills.	Spindles.	Power-Looms.	Operatives.
1845,	149	1,410,054	21,575	31,710
1861,	143	1,577,584	28,085	36,903
1875,	84	1,526,980	27,489	33,276

The above table, it will be seen, takes in both spinning and weaving in the three counties. It is the spinning branch which has exhibited most pronounced weakness since the falling-away commenced, but for recent years there are no official statistics available. The following table, however, which takes in the spinning trade only, is believed to be pretty near the truth. It is for all Scotland :—

	Number of		
	Spinning-mills.	Spindles.	Operatives.
1850,	68	1,163,575	14,057
1861,	60	1,153,784	10,175
1883,	22	729,000	3,645

These are the figures given by the *Economist*, but there is evidently a mistake in the number of spindles for 1861, which is placed at 1,577,584 for three counties, and at 1,153,784 for all Scotland. But the fact of an enormous falling away in the Scotch cotton trade, the spinning branch of it especially, is plain enough.

Seeking for the causes of this remarkable decline, the *Economist* finds a principal one in the tyranny exercised by the trades unions. The men did not wish the employing class to gain an intimate knowledge of the operations of the work room, and it was therefore enacted by the unions that no son of a master could be initiated into the mechanical mysteries unless by consent of a majority of the union, which consent was ascertained by a secret vote of the body. And, even when permission was obtained, instruction was not allowed to proceed during ordinary hours; while other difficulties and obstacles were created by the men of so discouraging a nature that few employers felt disposed to face them. These customs of the trade were established by the unions thirty or forty years ago when cotton spinning was in the hey-day of its prosperity, and when the unions were able to dictate terms to the employers. Things are different now, in Scotland, at all events. Employers' sons do not any more want to learn the mysteries of cotton spinning, having no desire to follow the business. And the men themselves find that whereas the Scotch cotton spinning trade in 1850 employed 14,057 hands, and in 1861 10,175 hands, the reduced number of 3,645 hands suffices to run it in 1883. They have been killing the goose that laid the golden eggs.

Another thing which has worked against employers in Scotland is an extraordinary rise in rates of insurance on cotton mills. The extent of destruction of cotton mills by fire has been phenomenal of late years, and now insurance rates have been doubled, while some companies refuse to take these risks on any terms. The *Economist* thus concludes :—“It has been alleged in some quarters that the Scotch mills have fallen behind in the race because of the want of enterprise on the

part of the owners. Such is not the case. The equipment of the majority of the mills is equal to that of the Lancashire factories. Scotch spinners still compete successfully with their southern brethren in the English markets, and, all things being equal, the hope is entertained that a great revival may not be difficult of accomplishment—but with the rate of insurance 100 per cent. higher than in England it is felt that keen competition cannot be effectively maintained.”

The contrast is indeed a startling one between the enormous development of iron ship-building on the Clyde, and the decline of the cotton manufacture in the same district. Glasgow appears to have been dropping cotton and taking more to iron. The iron trades generally have greatly expanded there during the last thirty years, and recently, when the Singer Sewing Machine Company had looked the island over for a good location for a factory, Glasgow was chosen as the best; and an immense establishment is now in operation there. The *Economist*, good authority as it is on matters commercial, does not to our view sufficiently account for the phenomenon.

THE CANADA ROLLING STOCK COMPANY.

This company appears to be making its start under very favorable circumstances, and the press generally speaks in very high terms of the enterprise. We are still importing engines and cars from the United States, all the locomotive and car works we have as yet being unable to supply the demand. There are now in the Dominion in operation and under contract some eleven thousand miles of railway, representing a capital of over four hundred million dollars. Every additional hundred miles of the Pacific Railway completed, every thousand added to the population of the Northwest, creates more railway traffic and a demand for more cars. This demand is one that is not likely to slacken or to be over-supplied for a good while to come. The existing duties on rolling stock afford a fair protection to the home manufacturer, and scarcely will any Canadian Parliament venture to do away with what has been established, in our time. And, as we have before said, the advantages of St. John as a manufacturing point in this line are great, in the shape of facilities for obtaining cheap supplies of coal, scrap iron and other iron, also Southern pitch-pine and oak, as well as for getting together large numbers of skilled workmen. This is an Eastern enterprise, but let us point out wherein it has an interest for people in Ontario. The more that the Maritime Provinces become interested in manufactures, the better material guarantee we have that the influence of these Provinces will in the future be cast in favor of perpetuating the National Policy, which was at first carried by the weight of Ontario votes mainly. We say that to strengthen and to expand manufactures in Nova Scotia and New Brunswick, is really to add strength to the foundation upon which manufactures in Ontario and Quebec rest. It makes the guarantee against change of policy all the stronger, and should be a potent element in promoting that feeling of confidence in the future without which large and permanent investments will not be made.

For these reasons, as well as for others that might be

named, we hope to see this enterprise down by the sea a great success, and that at an early day. Although there located, for certain obvious material advantages thus secured, it is really a Dominion enterprise, which business men in the West as well as in the East might find it profitable to have a share in.

THE CHICAGO RAILWAY EXPOSITION.

The great Railway Exposition at Chicago was opened on Thursday, May 24th, making the remarkable coincidence of two American events of the year—this, and the opening of the New York and Brooklyn Bridge,—celebrated on Queen Victoria's birthday. Can it be that American bridge and railway men agreed to do this on purpose? The Chicago people know how to make a "big thing" of whatever they take in hand, and we are not surprised to hear that it is a success magnificent beyond all anticipation, and that, as the *Railway Review* claims, "this continent has never seen its equal, with the sole exception of the Centennial. Hon. E. B. Washburne, in the course of his address at the opening, said:—"The extent of this Exposition is simply bewildering. More than 1,000 firms, companies and individuals are represented in these vast inclosures, covering an area of 11 acres. We may turn and turn like the sunflower and are confronted on all sides by every possible combination of mechanical genius as connected with railroading in all its departments, forms and ramifications, from its earliest history to the present time. In the department called the 'Old Curiosity-Shop' the whole history of railway appliances and railroad progress is traced and illustrated." The Exposition will continue for four weeks. The *Railway Review* says:—"No railway man ambitious to thoroughly understand all branches of his chosen avocation can afford to forego a thorough, thoughtful and critical examination of the multifarious appliances and supplies on exhibit here in Chicago. As an educator in all the mechanical departments of railroading nothing like it has ever been afforded the student heretofore, and its like may never be seen again."

WAGES IN THE ENGLISH COTTON TRADE.

At the quarterly meeting of the Manchester Chamber of Commerce, recently, the chairman, Mr. G. Lord, gave some interesting statistics as to the difference in the rates of wages paid now and in 1850. In order to arrive at the facts, Mr. Lord has obtained returns from a number of the leading firms in the different branches of the trade, and the results of his investigation were thus reported, "He found," he stated, "that in cotton spinning and weaving, medium qualities, the rise of wages between the years 1850 and 1883 had been $74\frac{3}{4}$ per cent. This advance appeared so startling that he questioned his informant very closely to see if he could shake his testimony, but was unable to do so. It was explained that in some measure the increase was attributable to improvement of machinery and the quality of material. In the spinning of fine counts the advance had been only $16\frac{1}{4}$ per cent.; in machine calico printing, 50 per cent.; in block printing

there had been some advance, but it was not easy to ascertain the exact amount; in bleaching the advance had been 50 per cent.; in mechanical engineering the rise had been $10\frac{1}{2}$ per cent.; and in wages earned by hookers, makers-up, and packers in warehouses, 34 per cent." This, says the *Economist*, is a rise very much in excess of what most people would have considered probable, and if the figures quoted are at all near the mark, they show that a good share of the increase in the wealth of the country has been secured by the working classes.

THE EDISON ELECTRIC LIGHT.

Last evening (Thursday) a deputation arrived in this city from the town of Galt, to inspect the Edison light, in operation in the *Mail* building. It may here be said that Galt, though enterprising and wealthy, has no system of gas lighting, inasmuch as to lay the pipes would be a most costly operation, the town being built on solid rock.

Recently Mr. Swinyard, the Canadian representative of the Edison Electric Light Company, invited a number of the leading citizens to pay the *Mail* building a visit, so that they could form an idea of the feasibility of lighting their streets by the Edison system after seeing it in practical operation.

Some sixteen in all were present, amongst whom were the prominent manufacturers, Messrs. Cowan, Wardlaw, Godfrey, Warnock, Gourlay and also Ex-mayor Spiers. They appeared well pleased with what they saw, several being much in favor of its introduction. Being on the eve of going to press, we are not able in this issue to give further particulars.

PRISON LABOR.

THE SECRETARY OF THE NEW YORK STATE STATISTICAL BUREAU IN CANADA.

Hon. David Healey, member of the New York State Legislature for the city of Rochester, arrived in the city on Tuesday night from Kingston. Mr. Healey is also the secretary of the Bureau of Statistics and Labor for that State. Mr. Healey, who is in Canada gleaning information regarding convict labour, has just visited the Kingston penitentiary with the view of becoming familiar with the system here. The labour of the convicts in the prisons in New York is let out entirely by contract. The contractors have been in the habit of mixing up prison labor with free labor, and they pay from 30 to 60 cents per day for skilled labor done by prisoners. This has caused a grievance among the labouring classes of the State. To a *Globe* reporter yesterday Mr. Healey said he had been very favorably impressed with the prison discipline and management of the Kingston penitentiary under Warden Creighton. He thought Mr. Creighton had a good idea of the real purpose of imprisonment, combining the reformation of the convict with trying to make his labor assist in his support. If a system could be devised or some modification of the contract system in New York could be made which would do away with so much unfair competition against free labor, and at the same time keep the prisoners self-sustaining or nearly so, he thought it would be of very great advantage. Mr. Healey visited the Central Prison yesterday. He is a native of Peterborough county, in this Province, having gone to Pennsylvania about fourteen years ago.—*Toronto Globe*, May 31.

Mechanics and Engineering.

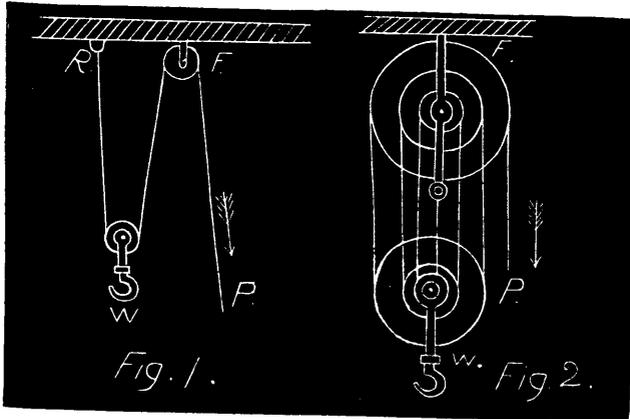
ELEMENTARY PAPERS FOR YOUNG MECHANICS.

VIII.—PULLEY TACKLE.

A pulley, turning on a centre and having a groove cut in its circumference in which a cord or rope works, forms one of the elementary mechanical powers. A single pulley suspended from a beam and a cord passing over it are often used for raising weights. There is no mechanical gain in one pulley thus used, but merely a convenience in changing the direction in which the power must be applied in order to raise the weight.

For example, by means of a "wheel and axle," or windlass, in which toothed wheel gearing is used, the quick turning of a crank handle may be reduced to the slow turning of a barrel upon which the rope is coiled, by this means power is gained; and if the rope be made to pass over a pulley a weight may be lifted, or the power applied in any required direction.

In order to obtain any gain of power it is necessary to have at least two pulleys, one of which must be movable, the rope is then made to pass over the two pulleys in such a way that on the power being applied to one end of the rope the movable pulley approaches the fixed one. Fig. 1. represents one of the simplest forms of this contrivance.



The one end of the rope is made fast at R, then passes over the movable pulley at W and again over the fixed pulley at F. The power is applied at P, to raise the weight suspended from the hook at W which is attached to the movable pulley.

Of the weight at W, one half is directly supported by the fixed end of the rope at R, and only one half of the weight has to be overcome at P. But the power applied at P must move twice the distance that W rises.

The pulleys are in practice sometimes so arranged that the end of the rope R is attached to the fixed pulley F, and W hangs directly below F.

Frequently a number of parallel pulleys are used, so that instead of the gain of power being 2 to 1 as in fig. 1, it is 6 to 1 or even more. There is no limit indeed to the gain of power by combinations of pulleys, excepting the loss from friction.

Each pulley is called a *sheave*, the frame carrying the sheaves is called a *block*, and the whole combination of sheaves, blocks and ropes is called a *tackle* or *purchase*.

The gain in power by any "tackle," friction being left out of consideration, is the same as the loss in velocity, and is

determined by the number of plies of rope by which the movable block is connected with the fixed block. A "tackle" is called a *two-fold purchase*, a *three-fold purchase*, and so on, according to the number of plies of rope connecting the movable block to the fixed block.

Where a number of sheaves are connected in each block, the fixed end of the rope may be attached either to the movable block or to the fixed one.

Figure 2 represents a *six-fold purchase*, there being three sheaves in each block and six plies of rope connecting the movable pulley to the fixed one. The fixed end of the rope is attached to the fixed pulley.

With the fixed end of the rope attached to the movable block and three sheaves in the movable block and four in the fixed block, a *seven-fold purchase* would be obtained.

In figure 2 100 pounds applied at P will raise 600 pounds at W, less the amount of the friction. The blocks shown in figure 2 are known as "White's Pulleys" so called after the inventor. In this block the sheaves are of different diameters and are *fixed* on one common axis, the diameters being proportioned to the required velocity of each ply of rope. They are not much used, as the stretching of the rope prevents the sheaves from working with the accuracy required.

In ordinary blocks the sheaves are of same diameter, but are *loose* on the common axis, so that each sheave may turn independently with whatever velocity may be necessary.

Blocks and tackle are used for lifting weights but are much more extensively used in rigging ships than for other purposes. Machinery for making blocks was invented by Sir Marc Isambard Brunel, and made for the British Government in 1806, and erected in Portsmouth Dockyard. It has never been superseded, and similar machinery has been made for several other Governments. The first cost is so great that it has not been made for any private firm, and blocks used in merchant vessels are hand-made, and great skill and care are required in order to make them work properly and remain in proper order.

Rule 1.—To find the power required to be applied by means of a system of pulley "tackle" to balance any given weight or resistance.

Divide the weight by the number of plies of rope by which the weight is carried, that is by the number of ropes which proceed from the movable block.

Note.—When the fixed end of the rope is attached to the fixed block, the number of ropes proceeding from the movable block is twice the number of sheaves in that block.

When the fixed end is attached to the movable block, the number of ropes is twice the number of sheaves in the movable block and one more.

In the first case, with the rope attached to the fixed block, and taking N as the number of sheaves, P as the power required, and W as the weight, the formula becomes—

$$(A) \quad P = \frac{W}{2N}$$

In the second case, with fixed end of rope attached to movable block, the formula becomes—

$$(B) \quad P = \frac{W}{2N + 1}$$

Rule 2.—The power being given, to find the weight which may be balanced by a system of pulley "tackle."

Formula A becomes

$$W = 2NP$$

and Formula B becomes

$$W = (2N + 1) \times P$$

SOME HINTS ON THE USE OF DRAWING INSTRUMENTS.

JAMES MACDONALD, M. E., IN BUILDER AND WOODWORKER.

The boxwood scale, with triangular section, has served its purpose well, but it too, has its weak points. The requirements of a good scale are that the graduations and figures shall be plain and indelible, that it be perfectly straight and the edges sharp, so that the division lines may be brought close to the paper. The boxwood scale does not possess the first of these features, as the lines will be often dimmed or partially obliterated with two or three years' use.

Some draughtsmen have a habit of taking off dimensions by placing one leg of the dividers on any particular division and extending the other to the distance required. When this is done with a boxwood scale its usefulness is limited to a very short time. The grain of the wood must be straight or it will be apt to warp or bow. A very good scale, one that meets all of these requirements, is made by Messrs Darling, Brown & Sharp, of Providence, R. I. For some reason it has not been thoroughly introduced, and can at present only be had by special order. It is made of steel, triangular in section, and has all of the scales commonly used by engineers and architects very finely engraved upon it, and if ordered nickel-plated will last a lifetime without rusting. At first draughtsmen are prejudiced against it on account of its extra weight, but as soon as this is overcome it is considered invaluable. The corners are sharp and lie close to the paper; dimensions may be easily transferred by placing the fine point of the pencil in any of the grooves forming the graduations, and sliding it down to the paper.

Every metallic instrument that the draughtsman uses should be nickel-plated. There is nothing that he can do that contributes so much to their preservation, no amount of careful polishing and wiping will so effectively prevent rusting or discoloring, and nothing improves their appearance so much or makes them so agreeable to handle. The cost of plating is insignificant compared with the benefit derived; the average cost of plating a set of instruments would not exceed ten cents for each tool or instrument.

In selecting triangles it is essential to have them of a material that will not change shape. For several reasons hard rubber is the best that has yet been offered to the trade. It is unchangeable under ordinary conditions, and may be made into angles from 1-16" to 3-32" thick—which is about right, and still be of sufficient strength. There are very few woods that are adapted to this purpose, on account of their liability to warp, and generally they have to be made too thick for convenient use. The same rule holds good in purchasing a T square; the blade should be as stiff as possible and the edges not more than 1-8" thick. When the edges are thicker it is difficult to draw long parallel lines, particularly with the pen, as the point of contact between the pen and the blade of the square is on the upper corner, while the position of the point, when the pen is held vertically, must be some distance from the lower corner of the edge of the blade, on account of the angle formed between the side of the pen and the edge of the blade. On the other hand, it is not advisable to have the edges less than 1-16" thick, as this would bring the point of contact too close to the point of the pen and render it liable to smear the ink. A T square, recently patented, has a thin piece of brass plate, with a knife edge, inserted in the working side of the square. This does very well when the pencil only is used but a pen cannot be worked successfully against such a thin edge. A blade made of two different kinds of woods, such as mahogany centre and ebony edges, is liable to warp or "buckle," owing to a difference in the shrinkage of the woods. Squares with swivel butts are very convenient for certain kinds of work but for general use the swivel is in the way. It is more convenient to have the blade secured on the butt instead of being

dovetailed or mortised in. By this means the upper surface of the butt is kept on the same level as the surface of the drawing-board, and does not interfere with the angles and scale when working near it.

Perhaps the most ineffectual appendage to a draughtsman's tools may be found in the many forms of porcelain ink saucers and "piles." For holding and mixing soft colors the pile of saucers does very well, but who has not had aching arms and lost time, in an effort—often in vain, in trying to produce good black ink by rubbing the stick in water, on the smooth bottom of one of these dishes? Several preparations of liquid ink may be had, but they lack that solid black body in fine lines that is so necessary for drawings or tracings that have to be copied by the blue printing process. Prepared liquid ink requires a longer time to dry and is more apt to smear than that made fresh from the stick. A leading firm in New York city have lately introduced an ink saucer that seems to meet all requirements. It is simply a slab of slate about 4" square and 5-16" thick, having a cup, or saucer shaped cavity for holding the ink, turned in its centre and covered with a piece of plate glass. A good black ink may be mixed in this saucer in a few minutes by the grinding action of the slate on the stick when being rubbed.

A COMMON FALLACY.

In supplying an engine at considerable distance from the boiler with steam it is sometimes urged that, because a large pipe presents less surface in proportion to its capacity than a small one, it is better to use a steam pipe considerably larger than is necessary to keep the supply at, approximately, boiler pressure. Common sense shows the fallacy of such reasoning, which leaves out entirely the influence of the time the steam is exposed, and which if carried to its logical conclusion would insist on a steam pipe not less in diameter than the boiler. One of the requirements of common sense steam engineering is that the steam shall be supplied to the engine without material loss of pressure, but it is no less essential that it be used as quickly as circumstances will permit after leaving the boiler, which can be accomplished by using a pipe no longer than is required. That steam can be conveyed long distances in larger pipes with less proportionate loss than in small ones is only true in the sense that large quantities of steam can be conveyed with less proportionate loss than small quantities, and has no bearing on the question of how large a steam pipe should be for economically passing a definite amount of steam. When a steam pipe is large enough to prevent any material fall in pressure it may without further consideration be assumed to be large enough for the purpose. Where the distance is great a loss of pressure of from 2 to 5 per cent.—sometimes considerably more than this—does not generally represent a loss in the fuel required to generate the steam used.—*American Machinist.*

According to the census, boot and shoe making is the greatest industry in Montreal, there being 171 establishments, employing 5,439 hands, paying in yearly wages \$1,428,233. The next in point of importance is car and locomotive works, 1 establishment, 1,210 hands, yearly wages, \$553,588. Tailors and clothiers employ 5,254 hands, but the yearly wages is only \$378,059. Printing offices are 33 in number and employ 875 hand, paying in wages \$333,640. Two sugar refineries employed 493 hands, paid \$240,000 in wages and produced goods valued at \$6,800,000. The value of goods produced than in any other industry noted, while the rate of wages per head of employes is also greater than any other.

The *Brant Review* says that the pearl button manufacture, as well as that of ivory buttons, will be continued by Mr. Halter at Paris, arrangements having been made for both.

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AND
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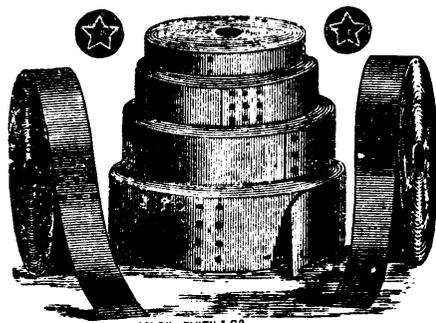
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FREDERIC NICHOLLS,
Managing Editor

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Editorial Notes.

The office of the CANADIAN MANUFACTURER has been removed to Room No. 5, Mechanics' Institute, corner of Church and Adelaide streets. One stair up, turn to the right.

The various lumbering companies in Manitoba have cut an aggregate of 78,500,007 feet during last winter. Lumber is now selling for \$25 per thousand feet, the same quality being sold last year for \$32 per thousand.

All who use steam power, and most manufacturers do, may be interested to know what is claimed for the "Monolith," a device for lubricating the steam subjected portions of the steam engine; an advertisement of which appears in another column.

A meeting of freight agents will be held in Peterboro' next week, probably on Thursday, to readjust the distributing rates

for freights in Western Ontario. The rates now in force between points on the different roads have for some time needed revision, and a satisfactory basis will doubtless be arrived at when the meeting takes place.

Hon. Sir Hector Langevin, Minister of Public Works, has been presented by personal and political friends with a cheque for \$17,000. So much for personal and political friendship, it may be said: but it has to be added that even political opponents admit Sir Hector to be one of the ablest and most thorough-going administrators that Canada ever had, in any Department.

Mr. Wilson, American consul at Brussels, argues that salt is a complete preventative of injury from trichinæ in pork, and claims that this conclusion is based on scientific grounds. All American pork sent to Europe is salted, therefore to exclude it on the plea of danger from the trichinæ is absurd. It looks as if there might be some reason in this latest defence of the American hog's position in Europe.

Iron, published at Philadelphia, issues a handsome "Souvenir" number for the spring of 1883. This is the forerunner of a regular monthly edition, in addition to the weekly, which will be commenced in July. This journal is Protectionist out and out, and an able representative of American iron interests. It may be as well to add, by the way, that there is another paper of the same name published in London, England.

It is said that contractors at Montreal are still complaining of the scarcity of mechanics. The plastering of new buildings is almost at a standstill for want of hands. An extensive contractor states that in former seasons at this time his door would be besieged with idle men every morning applying for engagements, whilst now he has the utmost difficulty in getting all the hands he requires. The bricklayers' strike at Hamilton is over, the men having carried their point of \$3 per day.

The Marquis of Lorne, on behalf of himself and the Princess, said farewell to the Parliament of Canada on occasion of the prorogation last week. It is understood that he will stay in Canada until the end of October, and that his successor will arrive before the end of November. On the arrival of the former in England, it is said, he will be raised to the peerage. It is expected that the Princess will leave about the end of July, and proceed to the European Continent, where she will take advantage of the mineral waters which were so beneficial to her health in 1881.

At a meeting of general freight agents of the various railways interested, held in Toronto on Tuesday, it was decided to adopt a uniform classification for North-west freight, both by the all rail and the rail and water routes. This action will abolish the present inconvenient system of having one standard for freight east of Chicago, a second standard west of that city as far as St. Paul, and a third standard from St. Paul to Winnipeg. The schedule adopted is that known as joint northern classification, and is the one which had previously been adopted by the Canadian Pacific railway.

The *Montreal Gazette* says that from the opening of navigation to Saturday, May 26, the arrivals of ocean vessels at that port were 57, consisting of 40 steam and 17 sail, against 30 steam and 13 sail for the corresponding period last year, showing an increase of 10 steamers and 4 sailing vessels. The departures from port were 45 vessels, comprising 35 steam and 10 sail, against 17 steam and 11 sail last year, being an increase of 18 steam and a decrease of 1 sail. The arrivals of river craft from the opening of navigation to date numbered 528, against 726 for the same period last year, showing a decrease of 198 craft.

A friend writes us to the effect that the Toronto coal men are behind the age in the prices asked for slack soft coal and hard coal screenings. He has obtained quotations from ten Buffalo coal firms, who are desirous of selling direct to Ontario manufacturers. For the net ton, delivered at the International Bridge, their prices range for bituminous slack from \$1.25 to \$2.40; and for anthracite screenings from \$1.00 to \$1.50. Freights from the International Bridge are—to Hamilton, \$1.00; Toronto, \$1.20; London, \$1.50. To which let us add what was stated recently by the *Hamilton Spectator*, that an Oswego coal dealer in giving his quotations advertises 50 cents per ton off to Canadian buyers, meaning thereby that he pays the duty. We quite agree with our correspondent that the Toronto dealers had better stir themselves, and try to get out of the old ruts.

One of the railway events of the year is the opening of the West Shore road, so called because it runs from New York up the west side of the Hudson river, being a parallel and competing line with Vanderbilt's Hudson River road. It is now in operation as far up as Albany, and very shortly it will be open to Syracuse. It will be extended to Buffalo, making competition with the Vanderbilt roads in the Empire State, and will doubtless secure good western connections. This new line, which is a steel rail, double-track road, is probably the most notable instance of rapid railroad building in the United States. The *Troy Daily Times* says:—"This enterprise, pushed with a celerity such as has rarely if ever been equalled in our railroad annals, has made no noise or stir in the world until it was nearly finished, and the people awoke with a sense of surprise at the transformation suddenly effected. The managers of the new road announce many important connections and traffic contracts, and express confidence in the profitable operation of the road from the start. The West Shore route will have a most important effect upon the thickly-settled region which it provides with new and direct outlets to the great metropolis, the East, West, and North."

The position of the American Government with reference to Canadian competition on the lakes is pretty clearly stated in the following despatch from Washington, dated May 25th: "The Treasury Department has been informed that a Canadian firm propose to run a line of Canadian steamers between Chicago and Montreal, calling at Cleveland and Detroit. The department was asked if it would be permissible for the vessels of this line to carry passengers from Cleveland to Detroit and Chicago, or from the last named to the first named points.

Until last year it was held that the transportation of passengers by foreign vessels between port and port in this country made such vessels virtually liable to a tax of \$1.30 per ton. The Attorney-General has since, however, given an opinion that there is no bar to such transportation. The Canadian firm above referred to has been notified of these facts, and has also been informed that the Treasury Department looks with no favor upon the transportation of passengers between our own ports in Canadian bottoms, especially as it is known that the laws of Canada do not extend a similar privilege to vessels of the United States. The firm has been further informed that although the Treasury Department must concede that there is no legal force in the statute upon which it has hitherto relied to prevent such transportation of passengers in foreign bottoms, it would not hesitate to apply, in prevention of it, any provision of the statutes that might be found legally sufficient for that purpose."

A great strike of iron-workers is impending in the rolling-mills of Western Pennsylvania, Ohio, and elsewhere in the West. Employers say that wages must come down, because of the great drop in iron, but the men, under the lead of the Amalgamated Association of Iron and Steel Workers, say they will strike sooner than accept any reduction from present rates. The existing agreement expires June 1st, but as the custom is to shut down fourteen days for repairs, the crisis may possibly be postponed to the middle of the month. The *New York Herald's* Pittsburgh correspondent says:—"With a disheartening drop in pig iron, a dull, unpromising outlook for the general market, and a new tariff, which is in most points antagonistic to the trade, all plainly before it and forewarning it, the Amalgamated Association of Iron and Steel Workers is about to enter upon another great strike. It has a treasury almost empty; it has not yet paid its obligations to some of its members for relief dues in last year's lock-out; it has internal dissensions of a serious character; and, in spite of this, it insists upon the signing of the old scale of wages. It is not pleasant to contemplate this anticipated strike. The manufacturers themselves do not want it, although they are certain to win. Some few of them who are very radical would like to see the Amalgamated Association wrecked and the men left to shift for themselves as best they might; but the more sensible mill-owners, and they are in the majority, would regret any such happening. This coming strike is not of the seeking of the Amalgamated leaders. They do not think it wise, and did not hesitate to say so, especially John Jarrett, the president. The votes of the rank and file were more potent than the counsels of the leaders, and the old scale was brought forward and insisted upon."

SPECIAL NOTICE.

The special attention of manufacturers of Fur and Wool Hats or of Felting is called to the advertisement which appears in this issue, of the sale by auction of the entire machinery of one of the largest works in the U. S., and which we are assured is of the latest and most approved description, having cost over \$100,000 but a few years ago. As stated in the advertisement, this sale is peremptory and without reserve; it would therefore seem to be an exceptional opportunity for those wishing to engage in the manufacture of wool or fur hats or of felt goods, as well as for manufacturers who desire to add to their machinery, to attend this sale.

Financial and Commercial.

TORONTO, Thursday, May 31, 1883.

Dulness has been the prevailing feature in the stock market during the past fortnight. It looks as if operators were holding off until after the opening event of the season—the annual meeting of the Bank of Montreal, next week—when something authoritative with regard to the business situation is looked for. It is said that the Montreal stock market during the first three days of last week, when business was adjourned until Monday, was the slowest in the history of the local exchange. The volume of transactions was the poorest ever recorded, and the members of the board were only too glad of the opportunity that occurred of suspending their attendance for the last three days of the week.

The *Mail* has opened war against the governing body of the Toronto Stock Exchange with reference to withholding from the press the figures for “puts and calls.” On May 23 our contemporary said, in its report of business the day preceding:—

“The market was again dull and void of interest to-day, with prices generally tending to a lower range. The market is resolving itself into a purely brokers’ market, and it is said that not one in ten of the transactions recorded represent the execution of *bona fide* orders. However, the brokers manage to earn expenses by the process of scalping the market and each other, although the fact that they do not care to have some of their transactions reported officially seems to cast a suspicion on their morality. A few months ago ‘puts and calls’ were reported like all other transactions, but a new by-law or rule prevents this now being done. If the system is wrong they should not practise it, and if it is right there is no reason why it should not be reported. This is one reason why the board should conduct its business with open doors as in Montreal and other cities. Surely there is nothing done that would not bear the closest scrutiny, but the exclusion of outsiders allows, and in fact encourages, the public to believe that all kinds of sharp practices are being carried on at their expense. To-day it leaked out that 1 per cent. had been paid to put 600 shares of Commerce at 136 in sixty days, and 1 per cent. to call 500 Commerce at 127 ex-div. in ninety days, and also 1 per cent. to call 50 Bank of Montreal at 190 in fifty days.”

And on Monday last it returned to the charge with the following further remarks:—

“Some offence was taken by one or two members of the Stock Exchange at the remarks which appeared in the *Mail* of Wednesday, in reference to the rule for suppressing the publication of some transactions. A majority of the board, however, seem to be in favor of reporting officially every transaction that the board in any way sanctions, and it is only a question of time until they carry the day. The mystery that surrounds present dealings only tends to shake the confidence of nervous outsiders, and no doubt lessens the amount of business done. When, in addition to this, it leaks out that some transactions are of such a nature that the Governing Committee are afraid to make them public, this feeling only becomes intensified, and an ordinary person looks on the Stock Exchange as something like the graveyard, in which ‘those who were in couldn’t get out, and those who were out shouldn’t want to get in.’ No transactions should be allowed, or in any way countenanced, that will not bear the closest scrutiny. Those who favor the selling of ‘puts’ and ‘calls’ claim that they indicate the future course of the market, and of course are in favor of publishing them; while others, who are quite willing to indulge in the game, seem to think they savour too much of gambling for their respectability. There is only one way to look at it. The system is either right or wrong

and should be either practised openly and above-board or discountenanced and forbidden altogether. Another cause of complaint is the exclusion of all but members from the board-room. At present, a reporter has to receive his news second-hand from brokers, who cannot be so immaculate as not to wish to color their statements to suit themselves. As a rule, all information seems to be given with the greatest impartiality, but a broker would be more than human if, when thousands of dollars are at stake, he could resist the temptation to give a favorable turn to the information he imparts. This could be avoided were the public admitted to watch—even from a distance—the business of the board. The plea that the present hall is too small should not for a moment be allowed to stand in the way. As it is, the present ‘upper room’ can scarcely be called creditable to a corporation of the wealth and influence of the Toronto Stock Board. Occupying the position they do in the Queen City of the West, with memberships selling at \$4,000 each, it seems only reasonable to ask that the customers from whom they earn their wealth should be permitted to witness the manner in which the business they entrust to brokers is conducted. The day of Star Chambers is past, and Toronto should not be the last city in America to throw open the doors of its Stock-Exchange. New York, Chicago, and even Montreal, have submitted to the inevitable, and Toronto should follow suit with good grace.”

The following are the closing quotations on the Toronto Stock Exchange for Wednesday, May 30, compared with those of the same day two weeks before:—

BANKS.	May 16.		May 30.	
	Asked.	Bid.	Asked.	Bid.
Montreal.....	202	201	197	196½
Ontario.....	115	114½	111½	110½
Molsons.....	112½	112	.....	.....
Toronto.....	193½	192½	186½	186
Merchants'.....	121	.....	121½	120½
Commerce.....	134½	134½	134	133½
do xd.....	.....	.....	130½	130
Imperial.....	146½	146	146	145½
Federal.....	159½	158½	156½	156½
do xd.....	155½	155½	.....	.....
Dominion.....	198½	197½	196½	196½
Standard.....	116	115½	116	115½
Hamilton.....	116	114	.....	.....
MISCELLANEOUS.				
British America.....	116½	115	117	115½
Western Assurance.....	145½	.....	136	135½
Canada Life.....	.....	.....	.....	.....
Confederation Life Association..	.....	200	.....	.....
Consumers' Gas.....	147½	146½	147	146
Dominion Telegraph.....	89	.....	.....	.....
Montreal Telegraph.....	.....	.....	.....	.....
Lybster Cotton.....	.....	.....	.....	.....
Globe Printing Coy.....	.....	.....	.....	.....
N. W. L. Co.....	75s.6d.	75s.	74s.3d	73s.
Ontario and Qu'Appelle.....	183	.....	170	.....

The following are the closing quotations of the Montreal Stock Exchange for Wednesday, May 30, compared with those of the same day two weeks before:—

BANKS.	May 16.		May 30.	
	Asked.	Bid.	Asked.	Bid.
Montreal.....	202½	202½	.....	.....
do xd.....	197½	197½	197½	197
Ontario xd.....	112½	112	112½	111
People's.....	80½	79½	79	78
Molsons.....	125½	124	125½	123½
Toronto.....	193½	192½	187½	186
do xd.....	187½	187	187	186½
Jacques Cartier.....	.....	.....	.....	.....
Merchants' xd.....	122½	121½	121½	121½
Quebec.....	.....	.....	.....	.....
Union.....	90	85	90	85
Commerce.....	135	134½	133½	133½
do xd.....	.....	.....	130	129½
Exchange.....	.....	.....	.....	.....
Federal.....	159½	159	157	156½
do xd.....	157	155	.....	.....

MISCELLANEOUS.	May 16.		May 30.	
	Asked.	Bid.	Asked	Bid.
Montreal Telegraph.....	125½	124	125	124
Dominion Telegraph.....	80	79½	79½	78½
Richelieu and Ontario Nav.....	80	79½	79½	78½
City Passenger Railway.....	148	147	139	138
Montreal Gas.....	174½	174	174	173½
Canada Cotton.....	100	100	114	114
Dundas Cotton.....	84½	80	82	80
Ontario Investment.....	130	127	119½	118
St. Paul M. & M.....	72½	72	61½	61
Canadian Pacific.....	76s.	74s.	75s. 3d.	73s.

The wholesale trade generally has been fair of late ; with, however, a marked exception in dry goods. In that branch the spring business has been very poor, in consequence of the backward season, so everybody says. Fashionable goods for spring and summer have not gone off as was expected, and wholesalers and retailers will between them have more than usual of such goods on their hands unsold. Travellers are saying that they cannot get orders from storekeepers who have still on their shelves goods which they expected to have cleared off weeks ago. In groceries a favorable feeling prevails ; and the summer season's sales of hardware are expected to be large.

With regard to crop prospects there has been a decided improvement within the past eight days. The splendid "Queen's weather" of May 24, following an extensive three days' rain storm, marked the first real summer day of the season, and the change was a welcome one. Since then wet weather has prevailed, rather cool for the season, but still good growing weather ; and probably the fields require all the rain that has fallen. In the United States it is considered that the recent rains have bettered crop prospects generally to a wonderful extent, and that fears of a drought, in the West especially, may be dismissed. The *Mark Lane Express* of Monday last says that in England the crops have benefited greatly by Saturday's rain, and that the harvest prospect is much improved.

A great rush of settlers into the North-west is going on this year, and is likely to reach a vast aggregate before the season closes. Every week several steamers leave old country ports, each with its hundreds of passengers for the Dominion. The Pacific Railway is being pushed westward as fast as a working army of some nine or ten thousand men can do it. The Thunder Bay section is open, the best lake steamers available are now on the long water stretch from points on Lake Huron and the Georgian Bay to Port Arthur, and by another season fast-going steel vessels of first-class construction will be on the route. In consequence of the opening of the Canadian summer route, freights have gone down materially ; and the prospects for profitable business with the North-west are greatly improved. The large immigration from the mother country ; the opening of a through Canadian line, doing away during the summer season with the necessity of going the long and expensive roundabout by Chicago and St. Paul ; and the favorable turn of the past week or ten days in the weather and crop prospects—are all factors in making up the cheerful side of the business outlook. Almost the only unfavorable feature is—the over-importation of dry goods ; a matter of some consequence to the country, it must be allowed,

IMPORTANT TRADE DECISION.

PURCHASERS LIABLE FOR AGENTS' PRICES ONLY.

The Court of Queen's Bench, sitting in Montreal, May 29, in appeal, present Chief Justice Sir A. A. Dorion, Justices Monk, Ramsay, Tessier, Cross and Baby, rendered the following judgment in a case of considerable importance and interest to commercial men.

Carsley [defendant below] appellant, and Boas [plaintiff below] respondent. The judgment complained of compelled the appellant to pay \$1,227 as the price of goods sold and delivered by the respondent to appellant. The answer to the action was that the appellant did not buy from the respondent, but from one Sondermann, in Germany. The respondent was now seeking to charge more for the goods than Sondermann's prices. The question in the case was one of fact—viz., whether Boas received the goods merely as Sondermann's agent, to be delivered to the appellant, or whether he was entitled to regard the transaction as a sale from him. It appeared that Boas had been appointed by Sondermann as his agent. Shortly before, one Thouret who was acting as Sondermann's agent in Canada had taken an order from the appellant for a quantity of Jersey and Cardigan jackets of German manufacture. Sondermann informed his new agent, the respondent, of this order, and the goods were sent out to respondent with other consignments. The appellant accepted the goods, but he found that the prices in the invoice were higher than the prices mentioned at the time the order was given to Thouret. The question was whether Boas had a right to charge these prices, or whether the sale should not be regarded as a sale from Sondermann to Carsley on the terms originally stipulated. The Court below condemned the appellant to pay the prices charged by Boas.

Dorion, C. J., was of opinion that the evidence was sufficient to show that the goods were sent out on Carsley's order. They were destined for him, and Carsley was justified in his pretension that he had a right to get them at Sondermann's prices, the purchase having been made from him. The judgment of the Court below was not in accordance with the evidence, and it must be reversed.

Monk, J., concurred. There was an agreement to purchase between Carsley and Sondermann. The goods were shipped for Carsley, but in the meantime there was a change of agency here, and Boas, the new agent, took possession of the goods, and then attempted to charge higher prices to Carsley. The evidence did not support the respondent's pretension. Judgment reversed.—*Toronto Globe*.

UNFAIR REFERENCES IN BANKRUPTCY.

The *Mail* publishes the following letter from Mr. E. K. Greene, of Montreal:—I wish to call the attention of your readers, and also to enlist the aid of the *Mail* towards remedying an existing evil in the administration of the commercial laws of Ontario, which bears very unfairly upon the whole trading community of the province. A recital of the circumstances connected with a recent failure in Toronto will best illustrate the evil complained of. A firm carrying on business in Toronto for some years past recently failed, and being unable to meet their liabilities, allowed a Montreal firm to whom they were indebted to obtain judgment against them for several thousand dollars, and afterwards assigned to a nominee of the Montreal firm. A number of the Montreal and Toronto creditors joined in a petition to have the judgment set aside, or direct that the proceeds should be paid into court for distribution among all the creditors. When the case came up for hearing before the Toronto courts it was decided that the judgment must stand. The judge himself, seeing the injustice of the case, remarked "He very much regretted that the law did not allow him to do

otherwise." The result will be that the creditor whom the insolvent allowed to obtain judgment will get paid in full, to the prejudice of all the other creditors, who will get little or nothing. The manifest unfairness of a law which thus enables an insolvent to transfer the bulk of his estate by confession of judgment or otherwise to a single creditor to the detriment of the others, must be apparent to anyone, and its effect must be demoralizing upon the general trade of the country.

CHEESE AND BUTTER.

From the London (England) *Canadian Gazette* of the 10th inst. we learn that a special effort is being made to secure a good display of Canadian cheese and butter at Liverpool this summer. The annual show of the Royal Manchester, Liverpool, and North Lancashire Agricultural Society will be held this year in the city, and exceptional inducements are held out in the hope of obtaining an extensive exhibit of dairy produce from the American continent. As regards Canada, however, one feature deserves special notice. Hitherto cheese and butter from the Dominion have more often than not been described as American. But, on the suggestion, we believe, of the Dominion Government agent at Liverpool, it has been decided to stipulate at the forthcoming show, that while the cheese and butter exhibited may be the property of the importer or dealer, the name of the private maker or public, or creamery must be stated. This is an important and welcome innovation which should produce good results, and which we trust will be generally followed. The Canadians, adds our contemporary, have now an excellent opportunity of proving the superiority of their dairy produce. This, no doubt, they will gladly avail themselves of.—*Belleville Intelligencer*.

Says the *Stationer and Printer* :—The tendency of the times is to concentrate every class and description of business under one roof. The popular store, and the money making store, is the one that runs dry goods, notions, hardware, carpets, boots and shoes, books and stationery and a little of everything under the sun. It looks as if almost every kind of business was going to be swallowed up by these mammoth bazaars, where an immense quantity of goods are sold at a very close profit. In the larger cities, New York, Chicago, Philadelphia, there is to-day a hard struggle for existence among many business men engaged in what is known as a class business. Books alone no longer pay; stationery alone no longer pays; paper alone no longer pays, unless an "almighty" lot of it is sold. So we might go through other classes of business and point out the fact that as a separate and special business, they can no longer compete with a concern which gathers dry goods and groceries, hardware and notions, drugs and chemicals, all under one roof. The fact that stares the business man in the face to-day is that if this thing keeps on he has got to go out of his business, or fall into line and lay in a stock of everything. The lines are being drawn closer every month and year. It is no use to find fault. It is the tendency of the times, be it right or wrong. The only thing to do is to be prepared. And how? Not by trying to compete in prices; this is speedy death. Get your business in such shape that these hydra-headed demons can't swallow it up. Get a specialty of your own. Do less business, if necessary, but a safer one.

The *Oshawa Vindicator* says :—Mr. E. B. Morgan, our enterprising townsman, paid over \$100,000 last week to the farmers of Canada, for cattle to be shipped to Europe. This is a big week's work.

Mr. Ward Pitfield, salesman for T. R. Jones & Co., sold a package of goods for shipment to British Columbia to the value of

\$4000. It looks as if the merchants of St. John were beginning to feel that as commercial ground, the unbounded continent is theirs—as it should be, at least that portion of it north of the United States.—*Moncton (N.B.) Times*.

The bridge of the Canada Southern Railway over the Niagara river is to be completed about December 1st, at an estimated cost of \$590,000. About 300 men are at work. Mr. Vanderbilt is understood to provide the funds, but the Canada Southern company will acquire ownership by issuing about \$1,000,000 of 5 per cent. bonds. The company pays the International Bridge Company \$75,000 a year for the use of its bridge, and notice of an advance in the rental to \$150,000 a year has been given. The mortgage on the new bridge has not yet been executed.

St. John, N.B., May 25—The *Sackville Post* says that year ago a party travelling in the interests of the Empire Agricultural Works of Montreal, induced some five or six persons to give the promissory notes for various amounts, aggregating in the whole, over \$3,000, to C. P. Meahan & Co., it being agreed that agricultural implements should be shipped from the makers, and that the notes should be paid out of the proceeds of the sales. The implements never came back endorsed for collection. Writs have been issued against the makers, and they all propose to fight it out.

The Montreal correspondent of the *Coaticook Observer* writes : The Dominion is full of life and activity if affairs in Montreal are any test of its condition; and the chief part of the hum is in connection with the North-west Territory and Manitoba. Special trains are despatched for Winnipeg every week, and sometimes oftener, both by the Canadian Pacific and G. T. R.; also the regular trains are able to make the distance in half the time formerly taken. This improved state is due to the effect of a little healthy competition, and naturally excites astonishment in the heads of steady paced Montrealers, who have been accustomed to regard these places being about as easily reached as the North Pole. However the trade is not developing faster than the country itself, for the number of immigrants who have already passed through this *en route* for Manitoba, have exceeded all calculations, and we learn from the shipping officers that the steerage accommodations of the spring fleet will be inadequate for the passage of those awaiting the opening of navigation.

The *St. Thomas Journal* says :—The Master in Chancery, Mr. Shanly, has been taking the accounts of the several partners of the late firm of McPherson, Glasgow & Co., and Glasgow, McPherson & Co. The main difficulty has been in adjusting the interest on the balances drawn out by each partner. Mr. McDonald, who, up till the appointment of Mr. Baird as receiver, had been acting as trustee under power of attorney, had made out the account, compounding the interest at 8 per cent. and going back over a period of twelve years to average up the individual accounts. This right was disputed by Mr. McPherson, who had been lately the largest drawer and he contended that while it was an illegal manner of proceeding, and contrary to the principles adopted by the firm, would in its results militate against him and cause him to pay some \$2,700 more than the manner of computing by the firm's books. The matter came to a close yesterday (May 21), the Master holding that he could not allow interest in the way made up, and that he must be governed by the mode adopted by the firm, which was in accordance with the articles of co-partnership, which had been the guide of this firm for the past 37 years. It was also sought to charge Mr. McPherson with several accounts for goods sold by his sons. These were also struck out, the evidence fully establishing that the charges were made in the usual way and should not have been preferred by the other side against Mr. McPherson. Mr. Macdougall and Mr. Coyne appeared for the Glasgow estate, and Mr. Hovey and John Farley for D. McPherson.

Notice of application for a charter by the "Peterborough Pulp Company" is given in the *Ontario Gazette*. The incorporators named are Alexander Henry, of the town of Napanee, in the county of Lennox, paper manufacturer; John Russell Scott, of the same place, paper manufacturer; William Fletcher Hall, of the same place, paper manufacturer; George Albertus Cox, of the town of Peterborough, in the county of Peterborough, Esquire; Thomas George Hazlitt, of the same place, lumber merchant, and Richard Hall, of the same place. Capital, \$50,000.

A NEW ENTERPRISE.

OPENING OF THE TORONTO PAPER COMPANY'S MILLS AT CORNWALL.

What may be regarded as the inception of a new era in the history of Canadian manufactures was marked on Friday (May 18) by the formal opening at Cornwall of the mills of the Toronto Paper Company. Hitherto Canadian paper manufacturers confined themselves to manilla and coarser descriptions of paper, and the large quantity of this commodity consumed in making books, envelopes, and for other commercial purposes was bought in the American and English markets. Convinced that it would be possible to manufacture the grades referred to in Canada, in view of the protection afforded by the heavy tax paid by importers, a number of capitalists, among whom were Messrs. Gage, Robinson, Trout, Brown and Copp of Toronto, and Barber of Georgetown, resolved to form a paper company, and the present enterprise is the result.

A number of the stockholders and invited guests were shown through the extensive manufactory in the afternoon by Mr. J. R. Barber, President of the Company, and expressed themselves highly pleased with all they saw. Among those present were Messrs. W. J. Gage, E. Trout, R. Brown, G. Warwick and J. Notman, of Toronto; J. Tasker, G. B. Burland, R. Miller, and J. McFarlane, of Montreal; D. B. McLennan, G. McDonald, and G. C. Smith, of Cornwall, and others.

The mills are situated to the west of Cornwall, and a short distance from the town limits, on the banks of the Cornwall Canal. The site selected affords ample water power, pure water and excellent freight accommodation. The plans and specifications of the entire work, including the waterways, the building itself, shafting and machinery, were made under the advice of Messrs. D. H. and A. H. Towers, of Holyoke, Mass. The mills comprise a stock house of 5 floors, 67 by 72 ft.; a bleach house of 5 floors, 37 ft. by 59 ft.; a dyeing room of 2 floors, 26 ft. by 30 ft.; two boiling rooms 187 feet by 41 feet; the machinery building 145x33 feet, the finishing department 107 feet by 47 feet, and a boiler-house 43 feet by 41 feet. The whole of the buildings are constructed in the highest style of modern commercial architecture, and combine at once elegance and utility. In the construction of the walls 1,300 cords of stone, 1,600,000 bricks, and 3,000 barrels of cement were used. The total cost of the complete building was in the neighborhood of \$200,000, of which the machinery alone cost \$70,000.

Beginning at the rag room, the visitors examined each department in turn, and were enabled to follow every step in the conversion of the dirty, worthless-looking rags into spotless, finished paper. The only kinds of paper to be manufactured by the company are heavy super calendar and envelope papers, and for this purpose only linen and cotton rags can be employed. These are first cut up by hand, a large staff of female operatives having charge of this department. They are then taken to the dusters, where all the dirt and dust is beaten out of them. They are then transferred to the washers, bleachers and steamers, and the mass of filthy-looking rags is speedily transformed into a fine white pulp. This is pumped from the strainers to the paper machine, a magnificent specimen of mechanism, and after passing between rollers and over driers is wound off at the other end manufactured paper, according to the degree of finish required. It is then put through the super calendar machine one, two, and sometimes three times, after which it is cut into different sizes and packed for shipment. The quality of paper turned out is pronounced by judges to be equally as good as that bought in the English market, and a large number of Canadian dealers who were sent samples have cancelled their orders to the Old Country and resolved to purchase from the new company. All the machinery is of the newest and most costly description; in fact, no pains or expense have been spared to make the mills equal to any of the mills in England and Canada. After the mills had been

thoroughly viewed the annual meeting of the shareholders was held, and the following Board of directors was elected: C. B. Robinson, J. R. Barber, W. W. Copp, C. Riordon, R. Brown, E. Trout and W. J. Gage. At a subsequent meeting of the board Mr. J. R. Barber was appointed President and Manager, and E. Trout Secretary and Treasurer.—*Montreal Witness.*

ADULTERATED TEAS.

From the following circular issued by the Treasury Department at Washington to collectors of customs, it will be seen that the United States Government is determined to prohibit the importation of adulterated teas. "The Department has been informed that attempts may be made to violate the act 'to prevent the importation of adulterated and spurious teas,' approved March 2, 1883, by means of importations from Canada. The attention of the customs officers upon the frontiers is therefore especially invited to the matter, and in case of doubt they are instructed not to deliver teas imported into their districts until proper samples shall have been sent to the nearest United States officer appointed under the provisions of the said Act, and his report thereon shall have been received. Or, in case the circumstances justify such action, such officer may be invited to come to the port of entry and aid the revenue officer in such examinations."

Messrs. F. W. Hore & Son, Hamilton Wheel Works, are putting up a large addition to their extensive factory. It will increase their output 50 per cent.

The new shoe factory in St. Andrews, N. B., which is being fitted up at considerable expense, is expected to be in full operation by the last of the present month.

The Norwood (Ont.) *Register* says that Messrs. John Finlay & Son shipped over 3,000 set of hubs this week. This is the largest shipment ever yet made from the factory, and proves conclusively that business is "booming" with the firm.

The Canada Paper Company have decided to remove their mill machinery and business from this city to Windsor Mills. This leaves available a good site for a cotton factory, or some other manufactory.—*Sherbrooke Gazette.*

Messrs. J. Y. Shantz & Sons are always at it. The amount of building they have done around the Dominion Button Works is simply wonderful. Again they are at it, putting up a large extension in the rear of the main building. Very few manufacturing establishments in this country can show a better record of success and prosperity than that of the Dominion Button Works during the last eight or ten years.—*Berlin News.*

Perhaps few of those using the electric light are aware that for the production of a perfect light *uniform boiler pressure* is a necessity. If the pressure be variable, now up, then down, the light will not be at its best by a considerable margin. The Edison Electric Light Co., of New York, secure uniformity of boiler pressure by the use of the Curtis Pressure Regulator, having a 5 inch one on their large engines.

In order to reduce the extra heavy stock of manufactured goods the Oshawa Cabinet Co. has diminished materially the force of workmen employed in these extensive works. A considerable number of cabinetmakers, chairmakers, finishers and packers will be retained to complete goods in process. The spring trade has not, so far, been equal to expectations. Though the Company's manufactures are always in good demand an unusually large stock has been made up for this season, and it is deemed advisable to cease for a short time the output from factory machinery and reduce the stock of finished furniture. The works will resume in full operation at an early date as usual. Meanwhile a number of necessary repairs to the buildings and machinery will be effected.—*Oshawa Vindicator.*

Textiles.

INDUSTRIAL ENGLAND.

BY ROBERT P. PORTER, MEMBER OF THE LATE AMERICAN
TARIFF COMMISSION.

HISTORY OF THE BRADFORD WORSTED MANUFACTURE.

(From the *New York Tribune*.)

BRADFORD, England, January 13.

Bradford is situated in the part of Yorkshire that fell at the time of the Conquest to the De Laceys, who were "Normans of gentle birth" and "attendants on the King." Indeed, as I remarked in my last letter, the De Laceys and the Warrens seem to have come in for most of the West Riding of Yorkshire. One would suppose that a hundred or so manors, and a score or two towns each, would have made these fiery barons indifferent to an odd pasture, but unhappily such was not the case, as we read of one of the young De Laceys, Henry, I think, going into training, before he was of age, to fight the Earl of Warren, who, not contented with allowing his cows to browse in the De Lacey meadows, had actually appropriated one of that Earl's pastures. Bradford, after undergoing for several centuries the vicissitudes of the De Laceys' fortunes, seems to have come through marriage to "Old John of Gaunt, time-honored Lancaster," and on his death Richard II. did the town the honor of capturing it, and with Bradford the remainder of John's immense estate, but the same year he was dethroned, and Henry Bolingbroke succeeded both to the throne and the estate, and Bradford seems to have become the property of the Crown. In early times Bradfordians had a queer way of combining business and piety, and so they made Sunday market day. It is said they did a little piety in church and a good deal of business at the market standings. Though not so exact in their observances of Sunday as the Glasgovians, Bradford people would never encourage laziness nor tolerate drunkenness, and as early as the seventeenth century they suppressed the greater part of the ale houses and set the loafers to work. With these fundamental ideas of industry it is hardly surprising that the Bradford people were too busy to brook delay in settling the differences between the people and the Stuarts. The town had become embroiled in the war, and the people furiously repulsed the Royalists and drove them back to Leeds. Writing from Bradford to his father, Sir Thomas Fairfax said: "These parts grow very impatient of our delay to beat them (the Royalists) out of Leeds and Wakefield, for by them all trade and provisions are stopped, so that the people in these clothing towns are not able to subsist." Their impatience arose from the breaking up of their trade and the closing of their markets.

The assault of the Royalists, however, left a lasting mark on Bradford and finished it for some time for trade and manufacture, and it was not until nearly a century later that the town began to recover itself. At the close of the eighteenth century prosperity seems to have come to Bradford all at once, and from a place of a little over 13,000 in 1801, it now has a population of about 185,000. In 1773 Piece Hall was erected, and before the nineteenth century had began the first worsted mill was built and the foundation of its present trade laid. At this time the district was crowded with hand-loom weavers and spinners, and the worsted manufacture began to assume considerable importance. Calimancoes, shalloons, and a few taminies were then the chief products of the Bradford looms. Dr. Doran very properly dates the later importance of Bradford from 1831, when the Reform bill helped to raise it to the dignity of a Parliamentary borough with the privilege of returning two members. The local newspapers of that time show most amusingly their sense not only of increased dignity but of increased responsibilities. "There is an undisguised conscios-

ness," says Dr. Doran, "that the eyes of Europe (not to say of the world generally) are fixed upon the new borough, a municipal borough, with a worshipful Mayor and corporation." Who, I might add, for so Mr. Grinnell, the United States Consul, has to-day informed me, have since administered local government with the success that has certainly not been attained in any city of the size in our own country, if it has been in England.

The local papers of the days of municipal reform in England give an incident worth recalling, as showing what constituted a Radical in the early days of Bradford's municipal existence. Hardy and Lister were the Radical candidates. Hardy made the declaration at the nomination. He was for vote by ballot. That was all. He was against triennial Parliaments and household suffrage. Banks, the Conservative, announced as his platform "the limitation of the hours of labor for women and children." The Radicals were elected. They sent their sons to be chaired in place of themselves, and the roughs tossed the lads out of the cars and smashed the chariots of triumph. Commenting on this incident the authority already quoted remarks: "The Bradford 'man-folk' were always vigorous in arms as well as speech—sometimes cruel." In the old days of riot they burned mills and broke up machines with a fury of delight. It was their method of argument—a "discussion wid sticks" as our Hibernian friends at home would call it. The ignorantly blind Marchioness of Hertford prevented a railway being built between Bradford and Leeds because it would encroach upon some land of hers which lay between. Rails, mills and machinery all now exist in spite of these ignorant individuals. Bradford generally got the worst of her strikes. That of the wool-combers and stuff-weavers in 1825 lasted nearly six months, and was finally wound up by the departure of the treasurer with the funds.

Bradford lies at the bottom of an irregular basin of hills, every outlet of the town, except the narrow valley which follows the course of the beck and runs out into Airedale, being more or less of an ascent. The streams that descend into it and converge in the Bradford beck, and the extensive beds of coal in the immediate vicinity, are exceptional advantages for the manufacturer. Mills and workshops are here crowded together and extend for miles around, and the whole community is busy and active. There are some uncommonly fine buildings in the town, and I think the City Hall is far handsomer than that of Leeds. There are at the present time over 200 worsted mills in the town, but I shall reserve for my next letter a detailed account of my visit to these mills, together with a description of the condition of the operatives. I can now only deal in a general way, with Bradford, its history, the peculiarity of its people and the present condition of its trade.

The Bradford dialect is very peculiar, and Mr. Cunningham, who has given Yorkshire dialects considerable careful study, claims "indigenous to the town itself." When Dr. Doran visited Bradford with the British Association, he remarked in his customary happy way: "The vowels at Bradford are altogether of a very loose way of life." For example, *a* is short in "shape," which becomes *shap*; it takes a mincing sound of *e* in "wash"; and in "dance" it becomes a very round *o* indeed. While *a* becomes *e* in "wash," *e* becomes *a* in "very," and it doubles itself, becomes *ee* in "wet," and not only doubles itself, but claps an *a* on to the doubling in "fret," which is pronounced *free-at*. *I* is short and long, where in other places it is long and short; "pink" is *peenk*, and "blind" rhymes to "pinn'd." The remainder of the vowel family is equally perverse, and utterly never to be depended upon. The diphthongs imitate them in audacious lawlessness, and popular Bradford conversation startles the ear with such phrases as "Shoo coom dahu stairs i' hur bare fit a wick ago, an's bin poorly ivver sin'." Some words I never heard used elsewhere: for example, "frame"—a Bradfordian "frames" to his business, "frames" to his amusements, and "frames" to his everything. The Bradford girls can "hug" anything, but not anybody—for "hug" means to "carry." The word "anent" is here still used for opposite,

and to come "through" New York means that I came from there. After struggling with it the visitor is apt to say (if he can) with Mr. Cunningham, "I fear its noan so easy to leearn." One glance at a native book and I have done, In "Poems and Songs," by a Yorkshire "Lik'nass Talker," the minstrel thus sings of the Apollo Belvidere :

All reynt and strayt i' mak and shap,
A mould for t' raace o' men ;
A dahareyt, upreyht, bang oop chap,
Not mitch unlike my sen !

There has been a great deal written about the recent decline of trade in Bradford, but judging from what I have heard from representative men during my stay in the city, the information that has from time to time reached the United States about "Poor Bradford" has not attributed the decline to the right cause. It is an alarming fact for any nation to be met with the startling figures that in one branch of industry, that of worsted yarns and stuffs, the exportations from the country have declined from \$135,000,000 in 1872 to \$81,000,000 for the year just closed. Not only has Bradford lost a great part of the foreign, but it has failed to retain its hold of the home trade. Innumerable causes have been given for this decline. Short hours, hostile foreign tariffs, want of taste and skill on the manufacturers' part, lack of enterprise on the merchants' part, an insufficient distributive system, lack of character in the dyeing ; and lastly, Parliament has become alarmed at the general condition of manufactures throughout the Empire, and a commission has been appointed to look into the question of Technical Education, and that is brought forward by some as a sure panacea for the evil.

To understand the trade of Bradford it is necessary to have a general idea of the divisions of what generically speaking may be called the woollen trade. Leeds, it should be remembered, manufactures every variety of woollen cloth produced in England, and, while Bradford makes some cloth, its speciality has always been what is called the worsted trade, including worsted yarns, worsted stuffs for ladies' dresses, such as Orleans and Coburgs, also alpaca or mohair goods and all sorts of mixed stuffs. The Huddersfield trade is similar to that of Leeds, while Halifax is given over more to carpets, window curtains, damasks, and in short to what may be termed a subdivision of the Bradford trade. It will be seen at once that the all-wool trade, embracing mostly men's cloth goods, would be subject to less fluctuation through fashion than that of dress goods for women's wear, and hence that the Leeds and Huddersfield trade would be more staple than that of Bradford and Halifax. Dewsbury and Batley are largely given over to the shoddy and mungo trade, and, though an important part of the woollen region, may be dismissed in the consideration of the Bradford branch of this industry. It is a fact worth recording that while the exportation of worsted goods from the Kingdom has declined \$54,000,000 in the last decade, in articles for men's wear (or woollen manufactures) the manufacturers have not only held their own at home, but have increased the foreign trade of Great Britain in woollen cloths from \$35,000,000 in 1872 to \$48,000,000 in 1881—an increase of \$13,000,000. Mr. Thomas Illingworth, of Bradford, thinks that this fact does not show a lack of skill or taste, and thinks that the decline in the worsted trade may be traced to the fact that Bradford founded its prestige on the successful combination of cotton warps with yarns spun from English and other long-stapled wools. At that time, wools of the merino kind were scarce, and the supply came chiefly from Spain and Germany. The Australian colonies had not then startled the world by their wonderful development of the sheep industry, which practically changed the woollen trade, and the sheep industry in our own country was but in its infancy, and had not grown to its present magnitude. It was at this time, when all-wool goods made from the soft merino wools were very dear, that Bradford, instead of slowly drifting with the trade in all-wool goods, and changing from English to

foreign wools, chose rather to cast its fortune with an entirely new industry, and for a time, it must be confessed, the manufacturers reaped a rich harvest. Bradford changed from worsted to cotton warps. The dearth and scarcity of all-wool fabrics gave a great stimulus to the Bradford trade. Giant mills were built and millions of capital were invested. Under this stimulus Sir Titus Salt erected what may be well termed a palace of industry, and founded a town, not less remarkable than Pullman, now called Saltaire. The immense factory was opened amid the merry peals of the Shipley church bells, and the discharge of ordinance in front of the works welcomed the guests to a grand banquet. Earls and Lords made speeches, and the new era of alpacas and mohairs was ushered in with such songs as :

From Peru he has brought the Alpaca,
From Asia's plains the Mohair ;
With skill has wrought both into beauty,
Prized much by the wealthy and fair.
He has Velvets, and Camlets, and Lustres ;
With them there is none can compare ;
Then off, off, with your hats and your bonnets.
And hurrah for the Lord of Saltaire.

Even Charles Dickens celebrated Sir Titus by making him the subject of a sketch in *Household Words*. But after a generation of great success, the Bradford people no longer hurrah for the "Lord of Saltaire," but will tell you the trade he started was but a temporary one, the prosperity visionary, at least for the second generation, and that to no one was the trade of Bradford more indebted for its estrangement from all wool fabrics than to Sir Titus Salt. Up to 1836 the Bradford worsted trade had a run of success, and to this time its fabrics were made wholly of wool. In 1838 cotton warps became a feature in the Bradford trade. The "Orleans cloth" seems to have been the first standard product. From this time the manufacture of all-wool goods declined, and by 1845 the town had entirely ceased to cultivate the trade. As I have shown, the use of cotton warps received a great impetus when the late Sir T. Salt fully overcame the difficulties of preparing and spinning alpaca wool and combining it with cotton warp. As we have seen, he took advantage of the transition of the Bradford trade from worsted to cotton warps. At one time Sir Titus Salt was the only spinner of alpaca weft in Bradford. With the introduction of alpacas, the trade in cotton warps was fully established. Spinners left off spinning worsted warps, and the trade almost entirely changed from "all-wool" to "mixed" goods of cotton and worsted.

Meanwhile the French manufacturers never entered into competition with the Bradford people on mixed goods, but kept on steadily improving and cheapening the production of all-wool materials. They had faith in the soft goods. The jurors in their report on worsted stuffs in the Exposition of 1851 admitted the softness and brilliancy of the alpaca and mohair manufactures carried on at Bradford and Bingley, and the superiority of all their combinations of wool and cotton ; but while leaving Bradford the enjoyment of this new industry, the Continent remained loyal to all-wool fabrics, maintaining their superiority in these. Everything went along swimmingly in Bradford while the Bradfordians were making one material and the French another.

At first Bradford aimed to make high-class imitations of silk. By reason of novelty these goods at first commanded a large sale. But as these goods lost their hold on the popular taste, Mr. Illingworth says the great aim seems to have been to make an imitation of an imitation ; in other words to run down prices. One firm produced an article, say, for 7d. a yard ; he was at once eclipsed by another producing an imitation at 5d ; while he in turn would find an ingenious imitator at 3½d. The trade naturally deteriorated, and the tremendous increase in production of the finer wools in South America and Australia, combined with the great improvements in machinery and the cheapness of Continental labor, had a constant tendency to cheapen the genuine article, until to-day all wool

fabrics, which fifty years ago could only be made of harsh English wool for the lowest and medium prices, and which were coarse and unsightly, can now be made of fine, soft-textured wools at vastly lower prices. Says Mr. Illingworth: "There is nothing new in the so-called change of taste; the taste of today is the confirmation of the taste of the first thirty-five years of the century." The real truth about the decline of trade in Bradford is that Bradford is not making the kind of goods the public wants; it has not been long-sighted enough in watching the great change in the world's supply of wool; it changed from worsted to cotton warps and burned the bridge that had carried it to prosperity in the early part of the present century. On the other hand its successful Continental competitors owe their success and prosperity to their steadfast allegiance to all wool fabrications. There is but one course open to Bradford, and that, in my opinion, is a return to the trade of 1835. It is no use, Micawber-like, to wait for something to turn up—to hope for a change in fashion. Fashion is too fickle a dame to intrust with a great industry. The staple article of Bradford should be an "all wool" fabric. That will last as long as the world lasts. Change of fashion can be provided for, as I have clearly shown in my history of the Paisley trade, but a decided departure from fundamental principles like that which Bradford made half a century ago, is sure to end disastrously. It may be that Bradford will never regain the "all-wool" trade. With proper protection to make up for the difference in the price of labor, these goods will undoubtedly be made in the United States, and now that the ingenuity, industry and thrift of New-England are turned in this direction, there may be no opportunity for Bradford to extend its foreign trade, though with prompt and decided steps, and with Yorkshire economy and enterprise, it may be able to hold its home trade against the cheaper labor of the Continent.

ROBERT P. PORTER.

THE MONCTON COTTON MANUFACTURING COMPANY.

(From the *Moncton Times*.)

A *Times* reporter yesterday paid a visit to the works of the Moncton Cotton Manufacturing Company in order to ascertain the present position of that enterprise. Mr. Harris, the President of the company, has been absent in England the past few weeks, and owing to various causes the work of getting the machinery together has been proceeding slowly, though steadily. The machinery is being supplied by two English firms, Hetherington & Sons, the famous makers of Manchester, England, and Howard & Bullough of Accrington, England. That to be furnished by the first-named firm has all arrived and is now nearly all in place. The other firm's machinery has not yet arrived. Messrs. Joseph Turner and Charles McQueen, employees of Messrs. Hetherington & Sons, sent here especially to put up this machinery, gave our reporter some information in regard to the present state of the work. In the main building will be situated the looms, carding engines, spinning jacks, mule and ring spinners, etc. On the first flat are the looms, about 200 in number, and adapted for making cloth from 36 to 90 inches wide. A number of looms have yet to arrive, but nearly all those received are in place. On the second flat of the main building are the carding engines, which are very complete and substantial pieces of machinery. Twenty-four of these carders have been erected and are all ready for work except the "clothing"—a process of wrapping the rollers with different kinds of wire, work which will be done by a mechanic who has not yet arrived. In the L adjoining this flat over the engine house, is a room containing the opener, the machinery in which the cotton is first received for purification before being taken to the carders, and two double scotchers. These are in running order, and an attachment to the opener will be finished this week, when the work will be complete. On the third flat

will be the spinning mules and ring spinners. Mr. McQueen is now at work setting up the "mules," which are eight in number, and will contain 5248 spindles. The ring spinners, 18 in number, which are to be furnished by the other firm, have not yet arrived. The spinning jacks, which will be placed on the second flat of the main building, in the rear of the carding engines, have not yet arrived. They are also to be furnished by Howard & Bullough. The engine, from the Thompson and Williams Manufacturing Company, of Stratford, Ontario, is now at the mills. The big fly wheel, which came in nearly a dozen different sections, will be 24 feet in diameter, or 72 feet in circumference. It is by far the biggest fly wheel in use in this section of the Province. The mill is expected to be in operation in July. It is mentioned that Hetherington & Sons employ about 1,600 men in making and setting up machinery.

GLASGOW HIDE AND WOOL MARKET.

Messrs. Robert Ramsey & Co., Hide and Wool Brokers, Glasgow, in their report dated 15th May, write:—

Wool.—There has been a fair amount of business doing in the Scotch wool market this week, but it has been mostly confined to White Highland wools, other kinds have not been dealt in to any extent; users continue to buy only for present requirements, and there is no general movement in the trade. Values are on the whole well maintained, although the tendency is slightly in buyers' favour.

Hides.—The numbers were about the same, and a fair average for the season, quality, however, was not quite so good. The competition was fairly active, but only up to former rates.

Sheepskins.—An average supply with a large proportion of good sorts. Prices are well upheld with an increase for quality.

Tallow.—A steady trade doing at firm prices.

The Hudon Cotton Company bleachery turned out the first brand of the new cotton last week, and the Montreal Cotton Company is receiving machinery at present for printing purposes.

The *Kingston News* says:—"Mr. Joseph Turley, of the Belleville Knitting Mill, reports that the mill is doing well, and has good prospects before it. Already it has succeeded as well as anticipated. He sells hosiery to both wholesale and retail houses, and finds no difficulty in receiving orders. In Kingston he was fortunate, as far as orders were concerned. The mill now employs twenty-five hands. Next season that number may be doubled."

The Montreal Cotton Company, it is said, are considering the question of starting up their mill at Valleyfield on cotton prints. Their mill is already prepared for making these goods and only one or two printing machines are required, which can be obtained in a couple of months. This will enable them to take advantage of the increased tariff, and to have their goods in the market before the first of January. They are now in full operation on dyed goods.

The proposed cotton mill at Marysville, N.B., will be erected on a grand scale. From the most reliable sources it is learned that the building will be seventeen feet longer than at Milltown, four stories in height (one less than Milltown), will employ 600 men, and cost \$1,000,000 in round figures. Mr. Gibson sent a party to Milltown recently to obtain details of the mill there, and operations have already been commenced at Marysville, by the laying off of the ground.

The corporation of Brandon has pledged itself to a bonus of \$5,000 in aid of the paper mill proposed to be erected there by Messrs. Cameron & Larkin. Preparations will be made at once to go on with the buildings. They are estimated to cost \$40,000.

Iron and Machinery.

THE MERIDEN BRITANNIA COMPANY'S WORKS, HAMILTON.

The following description of these works is from the *Hamilton Evening Tribune* :—

One of the cheeriest places in Hamilton is the factory of the Meriden Britannia Company. The building is a commodious brick structure, well lighted and ventilated, and it occupies a block on Wellington-street. Here electro, gold and silver plating are done, also etching, marking, chasing and mounting. Each department is efficiently manned and every man is thoroughly conversant with the *technique* of his branch of the work. On the third floor are kept a stock of unfinished Britannia metal ware, comprising parts of castors, tea-pots, salvers, cruets, and the like. These articles are imported from the United States. Down on the ground floor in the rear of the shop, pigs of Britannia metal are received. These are melted in kettles and run through moulds into requisite shapes. In the same room are heaps of silver bricks just as they come from the mint. They are melted in crucibles and rolled into thin sheets. Pieces of the ware that are to be plated, whether formed from the pigs or taken from the stock room, are brought to the general manufacturing, soldering and turning floor. Certain forms are given articles by the use of the chuck, a contrivance fixed to the mandrel of a turning lathe for holding the material to be operated upon. Chuck spinning is done by holding a plate of metal over a form of wood and exposing it to the action of the machine. Pieces of ware placed within reach of brushes of steel-wire set revolving are given a beautiful satin finish. Preparatory to plating comes the sand buffing. The article is held against a cloth-covered wheel over which sand is sprinkled. This process takes off all the scratches and gives a lustre.

THE PLATING ROOM

is large and white walled, and is filled with vats and wires. The pieces for plating are thoroughly cleaned by potashing them in hot water, then they are scoured with cold water and pumice stone. The plating-tubs are filled with the plating solution and are connected by a series of copper wires with each other and with the electro-motor. The pieces of plate are hung on wires in the solution and the sheets of silver are also hung in the same fluid. Chemical decomposition takes place upon the silver as the effect of the action of electricity. The electro force deposits the silver on the article or negative pole of the magnet. It is the position of the poles on the electro machine that governs the deposits of silver. When the plated pieces are taken out of the plating solution they look as if made of petrified milk. The white film is taken off them with vigorous scratch-brushing. Every article that is to be gold-plated must first be silver-plated. Take, for instance, a mug that is to be gold-lined. It is silver-plated, filled with the plating solution, set upon the negative pole of a wire, whilst a plate of gold is suspended into the cup from the positive pole. In less than five minutes the cup will have a delicate gold lining inside. The shades of gold used in decoration are green, red, and yellow, the latter being the purest quality of gold. For decorations combining gold and silver, the silver design is sketched on and then covered with black paint. The exposed part is plated with gold, the black paint washed off, and the design is complete.

A NOVEL DESIGN.

for a card receiver is a palette mounted upon a silver easel. It is decorated with a spray of leaf and flower, an exquisite bit of landscape, and the inevitable daubs of paint are rendered by splashes of bronze, green, silver and gold. Burnishing is done by hand and by lathes. All articles that can be fitted to

machinery are burnished on a lathe, other articles that by their construction cannot be so subjected are polished by hand. The final furbishing the metals receive is called rouge-buffing, Pitchers and platters take on the last lustre from cloth-covered buffs, dusted with rouge, that revolve 4,500 revolutions a minute. From this room, with all its appliances of labor and silver saving, Mr. Barry conducted me to the show room. Ah, eager heart of anxious decorative housekeeper, what treasures are here! What shall I say of orange bowls over a foot high, made of cut glass, mounted on a curve of silver, gold inlaid, a figure of Neptune and attendant nymphs and large water lilies, leaves and buds reflected in panels of bevel-edged mirror; or of a hammered gold inlaid tea set on a large waiter, each piece of quaintest, flattest pattern out, and looking, with delicate china cups on silver saucers, dainty enough for the daintiest princess' use; of porcelain-lined ice pitchers and tilting sets of classic form and mediæval adornings; of casters in every conceivable pattern and design, low set, high swung, cut and carved. There are pickle castors for every imaginable condiment under the sun, and the loveliest berry-dishes of India-chased gold inlaid. Epergnes are built tolerably high and can accommodate, besides the cupids and fairies on their sides, fruit, flowers and caramels. Patient boys and beasts are not wanting, bearing aloft bowls and baskets in many shapes and forms. The variety in styles of napkin rings is especially notable; chased, engraved, and inlaid and mounted, besides birds, boughs and flowers, there are there that will suit every taste and purse. The vases are a foot high, some of them, and are decorated and inlaid and hammered, in high and low relief. Jardinieres also have stalks and cupids, peacocks and butterflies upon them; and plaques, mirrors, and toilet sets, jewel boxes and handkerchief boxes are subjects for these all-beautifying craftsmen. Perhaps the most eccentric novelties are shown in the line of individual salt and pepper boxes. Demure cats have holes in their heads, wide-awake owls are treated in the same manner, and Little Red Ridinghoods have the crown of their bonnets perforated. Rabbits, and acorns, and birds' nests, and inverted thimbles are all made to represent the domestic idea of seasoning.

"BARS CUT SLANT."

The iron merchants of London are horrified over the discovery that a firm in that city has been engaged in the disreputable business of selling Middlesborough rolled iron as "hammered Swedish" iron. The discovery came about through the anxiety of the vendors to impress the buying firm with the idea that it was buying genuine Swedes iron, and no mistake, the invoice bearing the unnecessary words "bars cut slant." An employé of the purchasing firm had his suspicions aroused as soon as his eyes fell upon these words, for he knew that in real Swedish hammered bars this followed as a matter of course, and, therefore, there was no necessity for distinctly mentioning "bars cut slant." He communicated his suspicions to his employers, and inquiries were begun by them which resulted in the discovery that the iron arrived in the Thames, not from Gathenburgh, but from Middlesborough. The matter is being sifted to the bottom, and it is thought when all the facts are known they will show that a good deal of this counterfeit iron has been exported, one case of a shipment of it abroad having already come to light. In the meantime London iron merchants are fairly howling over the affair, for, as the *Ironmonger* puts it, "irretrievable damage might have been done to the reputation of honorable English houses." —*St. Louis Age of Steel.*

Work on the second story of the Harte & Smith Stove Foundry, Belleville, has advanced so far that it has begun to assume its destined proportions.

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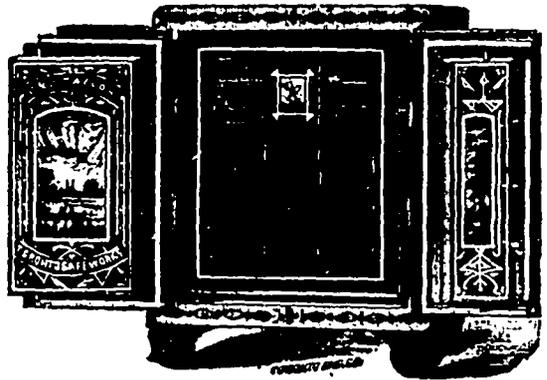
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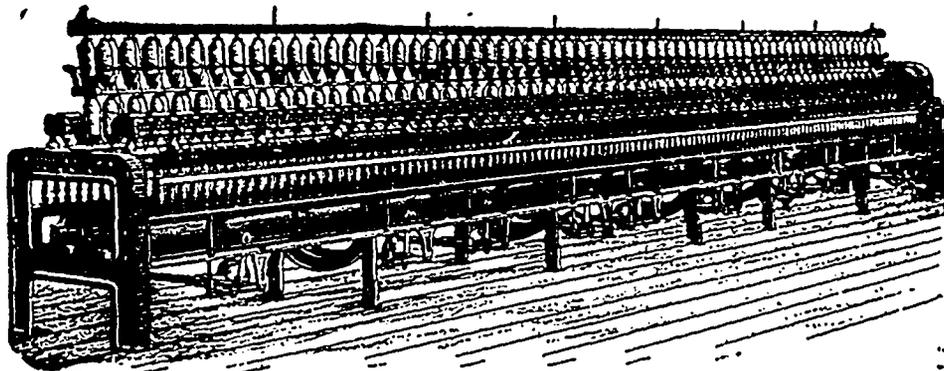
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Correspondence Solicited.

The Waterous Engine Works Company will only be able to execute half their orders for engines, etc., for the Northwest. The company have added a moulding shop, which will be in operation this week.—*Winnipeg Commercial.*

The St. Thomas *Journal* says that a large pair of rollers and shears and a punch were received there recently by the C.S.R. for the boiler shop. The tools were made by McKechnie & Bertram, of Dundas, and are the largest and most powerful made in the country.

Messrs. Cowan and Co., Galt, manufacturers of wood-working machinery, have recently shipped, as per order, one of their celebrated revolving bed planers to a firm in Cleveland, Ohio. This is carrying the war into Africa with a vengeance, as only a few years ago the American manufacturers of wood-working machinery completely controlled the Canadian market.

Whenever the fire door of a steam boiler furnace is opened, the damper should be closed to prevent the sudden reduction of temperature underneath, which is likely to injure the boiler by contraction, and thus render it likely to spring aleak around the riveted joints. Some firemen are very careless in this respect, and there is little doubt that many a disagreeable job of repairing a leaky seam might be prevented by this simple precaution.

Mr. John Doty, engine and boiler works, Esplanade street, has purchased the buildings recently occupied by the Toronto Reaper and Mower Works. He will move into his new premises about October next. Mr. Doty has been compelled to make the change owing to the vast increase in his business during the last few years. He will employ a much larger number of hands than formerly and will also have a moulding shop in addition,

Fusible plugs should be carefully examined any time the water is blown out of the boiler, as scale is likely to form over the portion projecting into the water space. It is only a question of time when this scale would form over the end of the plug and thick enough to withstand the pressure of steam, and thus fail in the accomplishment of the very object for which it was introduced. This applies especially to the fusible plugs inserted in the crown sheets of portable engine boilers.

By increasing the distance between the bottom of the boiler and the grate bars, and carrying a moderately thick and hot fire, with a rapid draft and a proper admission of heated air above the grate bars and a thorough mixture of the gases evolved with the hot air admitted, it is said that perfect combustion can be attained. It is better to have too great a boiler capacity than too little. There are but few mills and factories using steam power that do not grow in their demand for power beyond the initial expectations. Most first-class engines are so proportioned that, providing the necessary amount of steam is obtainable, they can be run with very fair economy and safety to a power considerably higher than that for which they were originally designed.—*Wood and Iron.*

The purest and whitest Hungarian flour comes from the very centre of the grain, namely, from the perfectly bran-free middlings. It is, however, a well known fact that, in consequence of a process which occurs during the ripening of the wheat, most gluten is drawn toward the circumference of the berry, below the embryous membrane, but not in the latter. Therefore the lower the grade of the flour, the more will it be produced from those middlings which lie nearer the circumference.

Says the *Indiana Farmer*, in regard to oatmeal: "Since this wholesome and palatable form of food is coming into more general use among us, the inquiry is often made—Why cannot we make oatmeal in this country? We answer, our summers are too warm and frequently too dry. In Sweden and in Scotland oats often weigh fifty pounds to the measured bushel; in Oregon and in Washington Territory it sometimes exceeds that weight. The method of preparing and grinding oatmeal is but little understood in this country." Our Hoosier contemporary is "way off" in this last statement. While there are but comparatively few oatmeal mills in the United States, these few will take rank with any in the world in the quality of their product. We not only make our own oatmeal very largely, but, strange as it may seem, have actually exported it to Ireland and Scotland.—*American Miller.*

Miscellaneous.

PROTECTION AND LABOR.

(Selections in the *New York Tribune.*)

SENATOR LAMAR'S ARGUMENTS REFUTED.

From *The Philadelphia Inquirer.*

Senator Lamar, of Mississippi, in his remarkable anti-protection speech of the 7th instant, declared that the effect of the present protective tariff laws was to create and maintain bloated manufacturers and bondholders. It must be said of that proposition that it is not supported either by the facts or by public sentiment, and both facts and public sentiment are valuable factors in determining it. Mr. R. P. Porter, Sec. of the Tariff Revision Committee, in a recent letter from England to the *New York Tribune*, says, in connection with the great woollen region of Yorkshire, that while it is characterized by intense activity, the employers are rich and the employed poor. How poor may be inferred from the statements Mr. Porter makes of their wages. The workmen nearly starve. High priced overseers and foremen receive seven dollars per week. Poothouses abound. Fifty thousand persons receive help each year. Naturally, for if the high-priced overseer or foreman is compelled to feed, house, warm, clothe and educate his family upon a dollar a day, upon what lesser amount is the ordinary operative to support his family? Why, upon less per week than the ordinary operative here receives in a third of a week. The wages paid to the English free trade workmen are pauper wages and nothing else, and readily account for the fifty thousand operatives in a single district of England receiving alms annually. It is not protection, therefore, that creates bloated manufacturers and bondholders here, but free trade in England. The prosperity there is for the few; here it is for the many, for everybody; and the capitalist becomes richer here only because of the enormous buying inclination and power of the many.

FACTS BETTER THAN THEORIES.

From *the Boston Traveller.*

Mr. Robert P. Porter is writing from England to the *New York Tribune* a series of most instructive letters on the industrial condition of that country. Facts such as he is furnishing are worth volumes of arguments based on theories and hypotheses. His latest letter is written from Dewsbury, in the centre of the great woollen manufacturing district of Yorkshire. Mr. Porter calls attention to the fact that this immense industrial community has only nine representatives in a Parliament of 658 members. This makes it abundantly clear that, in the matter of political representation, a voice in making the laws and a share in carrying on the Government, the American workingman has an immeasurable advantage over his English brethren. We are told sometimes by the enemies of the American protective system that the well-worn phrase, "the pauper labor of Europe," is nothing but a piece of empty and meaningless clap-trap. Mr. Porter tells us, however, that it has a very real meaning, and expresses an absolutely pitiable state of affairs. In this district alone 50,000 working people alone last year received relief under the Poor Law.

NOT FAVORABLE TO A CHANGE IN COMMERCIAL POLICY.

From *the Springfield (Ill.) Journal.*

The *New York Tribune* publishes a letter from its special correspondent in Scotland, Mr. Robert P. Porter, late Secretary of the Tariff Commission, relating to the iron and steel industry in Coatbridge, the centre of the Scottish iron trade. The letter is full of interest, since it details many facts concerning the condition of workmen in a free trade country, and

enables us to compare it with that of the workmen under a protective policy in the United States. Mr. Porter says the houses in which these miners and millmen live look more like stables than human dwellings; that they are one-story, have one room, one door and one window, and are generally inhabited by a man and his wife and family. These dwellings are cheerless, dirty and forbidding. The women appear to have lost all ambition for cleanliness and neatness, and fowls and pigs, in many cases, dwell in the same apartments with the family. In the best mills the average weekly wages are from 18 to 20 shillings—\$4.50 to \$5. Board for a single man can be had for 10 shillings a week. The average weekly earnings of an engineer do not exceed \$7, while boys and young men only earn from \$2 to \$2.50 per week. In the light of such facts, American iron workers will not be in very hot haste to see a free trade policy adopted in this country.

TRUTHS THAT FREE-TRADERS IGNORE.

From the Worcester Gazette.

We published the other day a letter from a correspondent of the *New York Tribune*, Mr. Robert P. Porter, who is in search of labor statistics; it described the central iron district of Scotland. The reader must have noted the wages paid, five, six and seven dollars a week. Mr. Porter has now reached Dewsbury, in Yorkshire, the centre of the woollen district of England, which includes Leeds, Sheffield, Bradford, and large towns having in the aggregate over a million inhabitants. Here he found the hands ground down to the lowest penny of wages. A recent strike had brought out the fact that the average earnings of all hands, including the high-priced overseers and foremen, were only 16 shillings, or \$4 a week, at Dewsbury and Batley. The rent of one or two rooms at Dewsbury, in the poorest locality, is £7, or \$35 a year. It is undoubtedly true that clothing is cheaper in England, but that is only a single item of expense. In this district 50,000 persons received relief from the poorhouse authorities last year. These are the kind of figures which the Free-Traders in this country ignore when they spin their fine generalizations about an iniquitous tariff system. It is the tariff which protects the working people of this country from direct competition with such cheap labor as this of Dewsbury, out of which goods are sent all over the Continent of Europe. Mr. Porter found the people there growling because "that iniquitous pound clause" in the United States tariff had "throttled their trade with the United States."

GOOD FOR REFERENCE.

From the Louisville Post.

The report made by Robert P. Porter, the statistician who visited England to look into the condition of the working classes, contains this reference to what he saw in Dundee, Scotland: "Some of them (dwellings) which I entered fairly reek with filth, and I actually found in some whole families living like animals on the bare ground, with a couple of boards in the corner upon which, covered with the vilest rags, the mother of the family lay dying, the man told me, literally of starvation. And yet this was within two rods of the police station. The room in which I witnessed the scene faced a public thoroughfare. It was lower than the street, and as the life of the poor starving creature on the floor was ebbing, the slime from the drains oozed through the walls of the cellar, and dropped in a thick pool in the corner. And yet in this same room were children, poor, pinched, half-naked, half-starved little creatures, who looked upon me in a terrified manner. I visited at least a dozen houses in this part of Dundee, and found the inmates in almost a similar state of misery and want." He investigated the mills, and found the wages paid were hardly sufficient to keep the operatives from starving. This should open the eyes of the working people of this

country to the danger which threatens them from the leadership of the "tariff for revenue only" clique. No words can add force to these figures. Workingmen should cut the table out and paste it in their hats. They have a tariff for revenue only in England.

FREE TRADE NOT GAINING.

From the Boston Advertiser (Rep.)

Two things may be said of the tariff discussion without waiting for the end. One is that the time has been by no means wasted. The debate has been a noteworthy one. Mixed with much ignorance and selfishness, there has been much intelligence and a high-minded consideration of the effect of the proposed changes on the country at large. An enormous amount of information in regard to various industries and interests has been collected and published, and the work need not be done over again. It will be available when the tariff is next under discussion. The other point is that, viewing the matter as dispassionately as we can, we must admit that the principle of protection is stronger in the country than it ever was before. It is that which has forced the Senate to reverse its action when it has made some most judicious and other more questionable reductions. We do not think that the principle has shown itself stronger in New England and the East generally than formerly; but it has developed new strength in the West and South. To be sure, the manifestation of it has been guarded. It has taken the form of an adherence to the idea of protecting one or two special interests, but it is only a step from that position to one of reciprocity and of protection generally. On the whole, the free-trade idea is not gaining in the United States, and the democratic Congress will find itself unable to fulfil the promises which members of the Senate and of the present House have made in its name.

ALLEGED COLLAPSE OF THE STORAGE BATTERY BUBBLE.

The *American Engineer* copies the following from the *New York* correspondence of the *Boston Journal*; thereby to all appearance giving the sanction of its authority to the views there advanced with reference to the alleged storage battery bubble:—

Almost simultaneously with the report, which I mentioned a day or two ago, that the Brush Electric Light Company were really getting ready to put in their storage batteries and illuminate New York with Swan incandescent lamps, come equally well-authenticated reports to the effect that the value of the storage battery has been greatly exaggerated, and that it is yet nothing more than a laboratory toy of no practical value whatever. I met yesterday a lawyer and a patent expert who was sent to Europe this winter on behalf of a number of gentlemen who thought of investing in the stock of the New York company which holds the Faure patents, supposed to be the only valid ones upon storage batteries, Brush to the contrary notwithstanding. This gentleman went to London to find out what had been done over there with it in a practical way, and has just returned. He saw Siemens, the foremost English authority upon the subject; Lockyer, who is among the best English electricians; Preece who is at the head of British telegraph lines, and besides these scientific men of acknowledged position he advertised for information regarding storage batteries and questioned all practical men who had anything to do with the matter. The result was to convince him that it would be unwise to risk money in the storage battery business. At his request Lockyer went to Scotland to find out what Sir William Thomson's experience had been, for Sir William was among the first to give refutation to the storage battery. The story

which the great investigator tells is not encouraging to investors in new scientific schemes. He has given more than a year to the study of the storage battery and confesses that in its present condition it is useless as an economical apparatus. The trouble is that the batteries cannot be re-charged more than four or five times; the lead plates disintegrate and fall to pieces after that and have to be renewed. The first result of experiments with storage batteries is to fill the experimenters with enthusiasm; then they find that there is a radical fault in the machine, but so fascinating is the affair that they say little about the snag they have struck and work away hoping to find the remedy. For instance, out of the hundreds of batteries which Sir William Thomson has constructed within the last year and a half, three seem to stand any amount of re-charging and discharging; the lead plates in these three remain intact, while all others have gone to pieces long ago. Why these particular batteries should stand and others should go to pieces, Thomson has been unable to find out, although he has scarcely worked at anything else for the last year. He says that he will find out sooner or later what the peculiarity is, and when he does the storage battery will enter the field of practical usefulness. Until then electricians must go on with their experiments. Siemens talks in about the same vein, and acknowledges that the scientific world jumped at conclusions too hurriedly. Preece and Lockyer agree with these opinions, and the New York expert came back and presented a report which has stopped all negotiations for stock in the New York Faure Company. These views received corroboration to-day. I met Professor Barker, of the University of Pennsylvania, one of the best electricians in the country, and asked him if the storage battery was the great discovery which Brush and the Faure people had announced. Barker shrugged his shoulders and laughed. "The world went off at half-cock on this battery business," he said. "The 'There is the germ of a grand discovery in it, but no one has got to it yet. The plates give out, and too much electricity has to be put into the battery in proportion to what you can get out of it to make it economical. For some purposes, when cost is of no importance, it may be used, but as to it being an apparatus for every day use we are yet a long way off. I do not believe that Brush has anything of practical value. I was requested to examine his battery by some one who thought of putting money in the stock. I went up to the offices of the Brush Company and asked to see the battery about which so much had been said. I was politely refused, there being a secret about the preparation of the plates they said. I asked whether, if I hired one of their batteries for my own use I could examine it. No, I was told, it would be locked with a heavy padlock, and I must sign an agreement not to meddle with it. That ended my investigation. I do not believe that any Brush batteries will be put upon the market unless to influence the price of stock." Stephen D. Field, a practical electrician of excellent repute, who has done some good work for the Western Union Company, and a nephew of Cyrus and Dudley Field, is rather more outspoken than Professor Barker. "The whole thing," he said to me to-day, "is an attempt to make more money. The Brush lighting companies throughout the country are not making any profits; the parent company says to them: 'Here is the storage battery, which completes your arrangements, and will make your whole plant pay enormously; put in some more money and it is yours.' I have been at work at the battery for months, and have given it up. There is something there, but it has not been reduced to a practical shape." Professor Morton, of the Stevens Institute, in Hoboken, has been lecturing within the last week upon the beauties of the battery, but his enthusiasm is probably due to inexperience, for he has been experimenting with the Sellon-Volkmar battery, the same form which Siemens gave up. At any rate, compared with Professor Barker and the Englishman, his opinion is of little value.

The fine new sawmill which Messrs. W. C. Edwards & Co. are constructing at Rockwood is fast approaching completion.

The firm already employ close on 500 hands, and the new establishment will necessitate a considerable addition to the force.—*Ottawa Citizen*.

A notice appears in the *Ontario Gazette* that Edmund Grover Burk, Isabella Burk and D. Burke Simpson, of Bowmanville, Blanche Elizabeth Keeler, of Seymour, and Charles Alexander Weller, of Peterborough, will apply for incorporation under the name of the "Northumberland Paper Company," the object being to manufacture all kinds of paper at the Campbellford paper mills. The capital stock of the company is to be \$25,000, and the amount of each share is to be \$100.

The *Sanitary Engineer* says: An anecdote that falls in with what we said a week ago about the air supply to furnaces was related by a well-known sanitarian at a dinner recently. He had once examined a building in the near vicinity of New York, when he found that the janitor had carefully closed the valve to the cold air pipe to the furnace and turned the pipe into a chicken coop. As the speaker pointed out, ignorance of the simplest details of house construction, like this display of it, on the part of those in command of them, is responsible for a good deal of the evil air.

Letters patent have been issued incorporating Wm. Chisholm, of Cleveland, O., Sam'l J. Ritchie, of Akron, O., G. W. McMullen, of Picton, Ont., William Coe, of Madoc, J. B. McMullen, of Picton, Henry B. Payne, of Cleveland, and A. W. Coe, of Madoc, for the purpose of mining and assaying minerals at Coe Hill, in North Hastings, by name of "The Coe Hill Mining Company," with a capital stock of \$750,000, to be divided into 750 shares of \$1,000 each. The chief place of business of the Company will be at Trenton.

Experience has demonstrated that the most effective apparatus for extinguishing fire in manufactories is a conveniently arranged and well cared for number of pails of water. Their importance is shown by the fact that it is a matter of record that of the losses in mills paid by the insurance companies, twice as many fires are put out by pails as by any other means. These pails must be kept full, and used for no other purpose whatever. The best fire pails are made of strong galvanized iron without covers, and they will last much longer if painted with hot coal tar, asphaltum, or some of the roofing compounds. This also helps to reserve the pails, as their black color makes them easily distinguished from other pails used for washing or drinking water. It should be the duty of some individual to keep the pails full, examining them at least once each week, and replenishing the whole of the water before it becomes foul. A further reserve is furnished by casks of water kept in porches or corners of rooms.—*Wood and Iron*.

SPECULATION IN WHEAT

There are periods when speculation in wheat attains most fabulous proportions, a remarkable instance of such wild and excited trading having just occurred in New York, where the total amount of sales on Friday and Saturday last aggregated the enormous total of 24,136,000 bushels, which is equal to selling the stocks in store in that city ten times over, or equal to 4,000,000 bushels more wheat than is now in sight in the United States and Canada. But vast as is this speculative development, it only refers to one city in the States, the heavy trading in Chicago and other cities swelling it to a still greater total. The present excitement has been worked up largely by the reports of damage to the growing crops, which have been reiterated so often and depicted with such positive affirmations, that they have obtained general credence, and thus the prospects of a deficient harvest for 1883 have induced large numbers of outside speculators to buy, especially as present prices are considered reasonable, even in the event of an average yield. We are not yet satisfied, however, that the destruction to the wheat plant has been of such a general character as many of the reports would seem to portend. But be that as it may, it has been sufficient to create considerable agitation and cause enough paper trading to disturb values.—*Montreal Gazette*.

Factory Fires and Accidents.

At a few minutes after six o'clock last Thursday evening (May 17), a fire broke out in E. F. Eggleston's foundry and machine shop at Ancaster. When first noticed the fire had not made much headway, and the alarm being given the people turned out with such promptitude that the buildings might have been saved had there been any proper appliances. But there was almost a total absence of these, and all that could be done was to save some of the contents of the buildings. This was only accomplished to a very limited extent, as the roofs of the buildings and a large portion of the contents were of a very combustible nature, and the flames spread rapidly. All the buildings were consumed except a small wooden one, in which were several hundred dollars' worth of plows. The main building was of stone and was erected by Messrs. Harris and Alonzo Eggleston, in 1848, since which time it has been in constant use as a manufactory. Mr. Eggleston's loss will be between six and eight thousand dollars, which will be partly covered by insurance.—*Dundas Standard.*

A fire broke out about two o'clock this afternoon in the building occupied by the Cheseborough Manufacturing Company, 42 Fortification lane. The Company manufacture various classes of articles, important ingredients in some of which are oil, benzine, and other inflammable substances. It appears that the fire was caused by the spilling of some benzine near a lamp when the whole room, containing a large number of barrels of lubricating oil, was instantly in a blaze. A workman named Broadman, who was alone in the room, received a portion of the benzine on his clothes and was at once on fire. He ran frantically upstairs, where the other hands were at work, and with much difficulty the flames in which he was enveloped were extinguished. Meantime the fire in the oil room was extending and the explosion of some combustible matter for a while gave fears of a serious fire. The timely arrival, however, of the reels from the Central Station kept the flames within limits. The stock is insured, as is also the building. The young man Broadman is badly but not dangerously burned.—*Montreal Witness, May 23.*

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THE LIABILITY OF COMMON CARRIERS.

The judge of the Maryland Court of Appeals recently gave an important decision regarding the liability of public carriers in failing to carry and deliver goods. It appears that a Baltimore merchant sued the Baltimore and Ohio R. R. Co. for damages for failing to carry and deliver freight to him which was necessary to his business; and claimed that he should be allowed, in addition to the actual loss on the goods, the damage he suffered in his business for the want of his goods. The court holds that "the measure of damages in these cases is the actual loss, valuing the goods at their destination. But there is no liability on the part of the carrier for the injury to plaintiff's business, for the contract to carry did not contemplate any responsibility for such damages."



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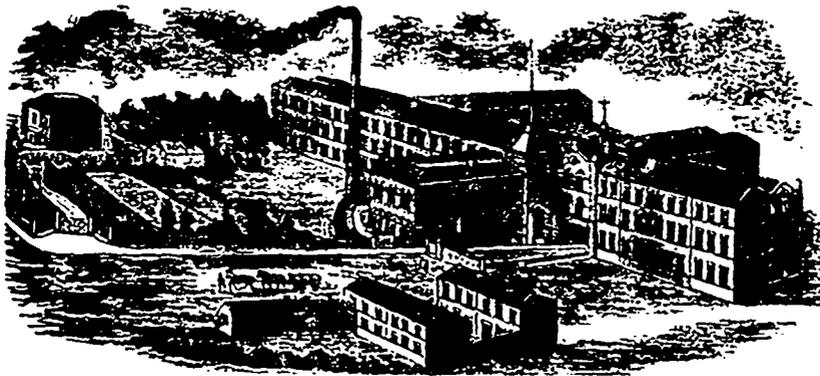
A New York man bought two pairs of very fine lace curtains in Paris. Remodeling his parlor soon afterwards, he needed a third pair, and so requested a buyer going to Paris to find the pattern for him. Fortunately, the identical lace curtain was in the upholstery-man's stock in New York and, upon comparison, it was found the American had paid abroad much more than the goods were selling for on "this side of the water."



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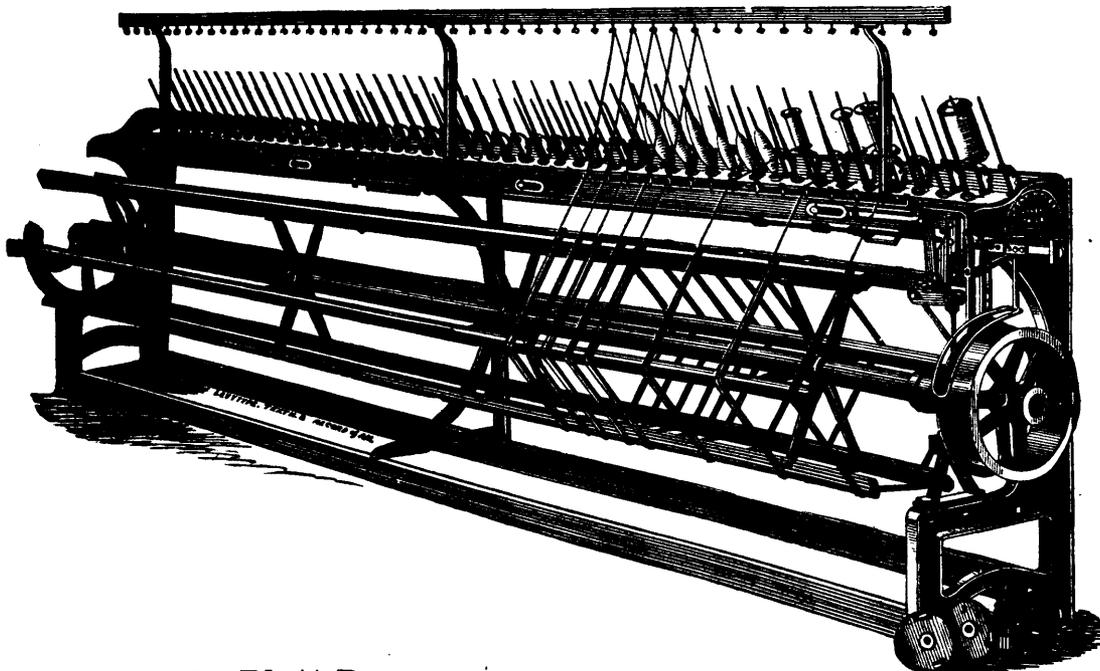
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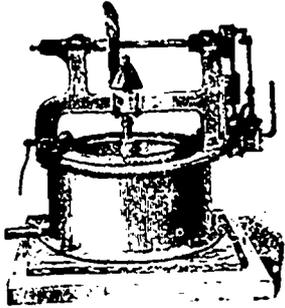
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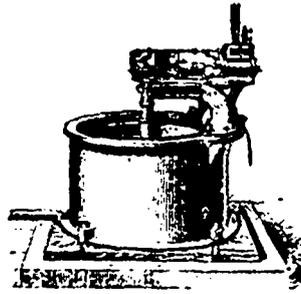
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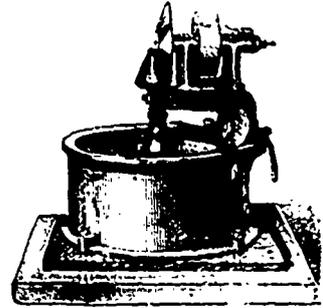
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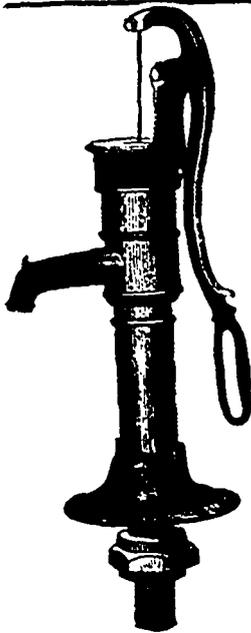
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Diploma awarded at New Brunswick Exhibition of 1880 for assortment of HEAVY FORGINGS, consisting of Locomotive Frames, Locomotive Engine Axles, Shafting, Ships' Iron Knees, &c., with Special Commendation for Excellence of Workmanship. Also Special Diploma for Hammered Ships' Knees.

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Sewing Machines

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New Home.

Rapidly taking the place of all other Machines wherever introduced.

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Has more points of excellence than all other Machines combined.

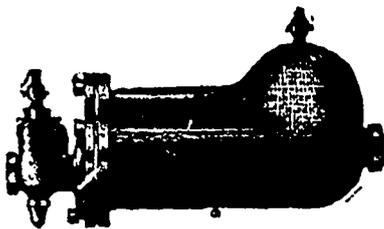
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Sewing Machine Company

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THE CURTIS STEAM TRAP



Has air valve inside and main valve outside.

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MANUFACTURED BY

CURTIS REGULATOR CO.,

157 Beverly Street,
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GENERAL AGENCIES:

109 Liberty St., New York. 925 Market St., Philadelphia. 80 Market-st., Chicago, Ill. Joshua Register & Sons, Baltimore, Md.

PROSPECTUS.

Canada Rolling Stock Comp'y.

Head Office:—Western Union Telegraph Building, corner Market Square and King Street, Saint John, New Brunswick, Canada.

The CANADA ROLLING STOCK COMPANY, capital \$80,000, in shares of one hundred dollars each, with power from time to time to increase to any amount not exceeding six hundred thousand dollars. The works of the Company to be located in Sydney Ward, in the City of Saint John, adjoining the deep water terminus of the Intercolonial Railway.

The object of the CANADA ROLLING STOCK COMPANY is to carry on the manufacture of all kinds of passenger and freight cars, locomotives, manufactured articles of wood, iron and brass, and such other general business as may be incident to such a manufacturing company.

The field for the operations of such a company is a very wide one. There are now nearly ten thousand miles of Railways in Canada, and the mileage is increasing at the rate of more than one thousand miles a year. The works now established in Canada for the manufacture of Rolling Stock have never been able to supply the demands of the railways, and the result has been that both the Government roads and private companies have been obliged to import rolling stock. It is for the purpose of endeavouring to supply this large and increasing demand for rolling stock that the present Company has been organized.

There is no city in Canada better situated for such a manufacturing company than Saint John, and there is no locality in Saint John with greater advantages than the site which has been secured for the *Works* of the CANADA ROLLING STOCK COMPANY. The site has a frontage of 440 feet, on Sydney and Charlotte Streets and a depth of 380 feet adjoining the Intercolonial Railway, and 400 feet adjoining the property of the Estate of the late John Fisher, Esq. The grounds have an area of about four acres.

It adjoins the deep water terminus of the Intercolonial Railway and is connected with the wharf and railway by a convenient siding. In addition to this it possesses independent wharfage facilities, vessels being able to load and unload along the whole of the Charlotte street front of say 440 feet, in front of the *Works* and only the width of the street from the Company's Warehouse. Thus, the most admirable facilities are afforded for the reception and discharge of heavy goods, such as the Company requires to handle.

No item is of more importance in such an establishment than cheap fuel, and this the Company will have. Coal can be brought from the Spring Hill and Joggins Mines, either by rail or water at a very cheap rate. Slack coal, such as the Company will use, can be purchased at the Spring Hill Mines for from 60 cents to 75 cents a ton of 2000 lbs., and brought by rail for about \$1.03 a ton, making the total cost landed at the Works from \$1.63 to \$1.78 per ton.

Slack coal can be obtained at the Joggins Mines at 80 cents a ton, and the freight by water to Saint John is from 75 cents to 85 cents, making the total cost from \$1.55 to \$1.65 for a ton of 2000 lbs. at the Company's Works. It is unnecessary to enlarge on the advantages which these rates will give the Company over all other works of the kind in Canada.

The same statement is true with regard to the freight, either by water or by railway on all kinds of material, wood, iron and brass entering into the construction of Rolling Stock. Pitch Pine and Southern Oak can be landed, in specification sizes, at as low a price as Canada Oak, and all the advantages of the economical use of these superior materials obtained.

The machinery will be of the most modern character so as to facilitate and cheapen the work of construction, and the location, now under consideration, of the several buildings, viz: Foundry, Machine Shop, Planing Mill, Building, Shops and Offices will be so arranged as to aid the operations and reduce the expenses to a minimum; these advantages together with the abundant supply of skilled labor ever to be had in the City of Saint John, for reasonably moderate remuneration, warrant the assurance that the profits realized are certain to be large.

The organization expenses are fixed at eight and one half per cent. Stock will be sold in blocks of not less than ten shares.

The Company will be managed by a board of either five or seven Directors, viz:—President, Vice-President, Managing Director and Treasurer, and either two or four other Directors, as shall be decided by the Stockholders. Three of these Directors shall form a quorum.

There will be a General Superintendent and Manager of Works appointed by the Directors, who shall not be a member of the Board. E. T. C. Knowles, Esq., Barrister-at-Law, Solicitor, and G. Earnest Fairweather, Esq., Architect, both of the City of Saint John.

The first call of twenty-five per cent. is made payable on or before the first day of June, A.D. 1883, and subsequent calls of twenty-five per cent. will be made at periods of not less than three months each. Subscribers outside of the city may deposit to the credit of the CANADA ROLLING STOCK COMPANY in an incorporated Bank of the Dominion, which will be sufficient evidence of payment, and upon advice of such deposits, respectively, stock certificates will be in due course recorded, issued and delivered; provided always that stockholders, respectively making payment on account for subscribed stock, either in whole or in part, in anticipation of the time of call, shall be allowed interest at the rate of six per cent. per annum for such anticipated time.

In order to secure the location of the "Works" in the City of Saint John, a lease to the CANADA ROLLING STOCK COMPANY has been secured for 21 years from the 1st May, 1883, with the usual conditions, at the moderate rental of \$100 a year for the first three years and \$400 a year for subsequent years.

On behalf of the Company,

ROBERT MARSHALL.

Address, ROBERT MARSHALL, St. John, N.B., Canada.

J. McLAUGHLIN'S SONS,

GROWERS,

Merchants and Exporters of Assorted and Sized

American Teasels,

SKANEATELES, N. Y.

We respectfully call the attention of woollen manufacturers to an important addition we have made to our method of preparing Teasels for use. We have succeeded in perfecting a machine which automatically performs the work of grading Teasels into *perfect exact diameters*, making, instead of the *six* sizes of the old way of assorting, *thirty six* perfect grades, beginning with the smallest, which is 61-64 of an inch in diameter, and is numbered 61, and so on in consecutive order, each number or grade increasing 1-64 of an inch in diameter, to number 96, which is 96-64 or 1 1-2 inches in thickness and is the thickest grade.

We have had our attention repeatedly called to this subject, and it has been suggested by practical manufacturers, that having teasels agreeing as to thickness, while saving labor in placing upon the "gig," will require less experience in the "gigging" to avoid *streaked cloths*, and assure more uniform work generally.

The "gig" makers have, to some extent, obviated this difficulty, by making the "gig" cylinder "vibrate," which prevents teasels of uneven thickness striking the cloth every turn of the cylinder at the same point; but this has only been a makeshift, as zig-zag streaks are often traced upon the surface of faced goods finished upon a vibrating cylinder gig.

As teasels were assorted, viz: 1 to 1 1-2 inches, 1 1-4 to 1 3-4 inches, 1 1-2 to 2 inches, 1 3-4 to 2 1-4 inches, 2 to 2 1-2 inches, 2 1-2 to 3 inches, sized as to *length only*, streaks in goods more or less could not be prevented.

In the above classification teasels will be found of the *same diameter* in each of the six sizes, although differing in length. Such assorting is very faulty, as the *diameter* of the teasel should regulate its grade, and this is what our invention does. In some of the best regulated mills skilled labor is employed in selecting from such a diversity of sizes, those that will answer for the work to be performed, *accuracy* being out of the question, and more or less imperfections in the finishing are sure to follow even with the best of help and with the greatest care.

The saving made by using gauged teasels, both from rejected teasels on account of some being uncommonly thick or thin, and in the labor of selecting these suitable to set, is fully equal to their first cost, and an equal gain is made in the perfection of cloths, thus saving twice the cost of the teasels, besides having the satisfaction of making perfect goods, and no claims for damages or tender cloths.

Our teasels are neatly clipped, and the quality well graded, carefully hand packed with stems only 3 inches long. We shall sell them strictly gauged an exact diameter at the very lowest price in the market for the quality with 2 1-2 cents per pound additional to pay for extra labor in gauging them, and we trust you will appreciate our efforts in your behalf.

The great demand made upon us for our teasels sorted per an exact diameter, having rendered it necessary to meet a much larger demand than we could have reasonably anticipated, we have just completed an extension of our works, and secured an abundant water power to drive our sorting machinery, which doubles our capacity for business.

Parties desiring to order from us may therefore depend on having their orders executed with the same care as heretofore, and within reasonable time.

Reference to all the leading Canadian users.

CORRESPONDENCE SOLICITED.

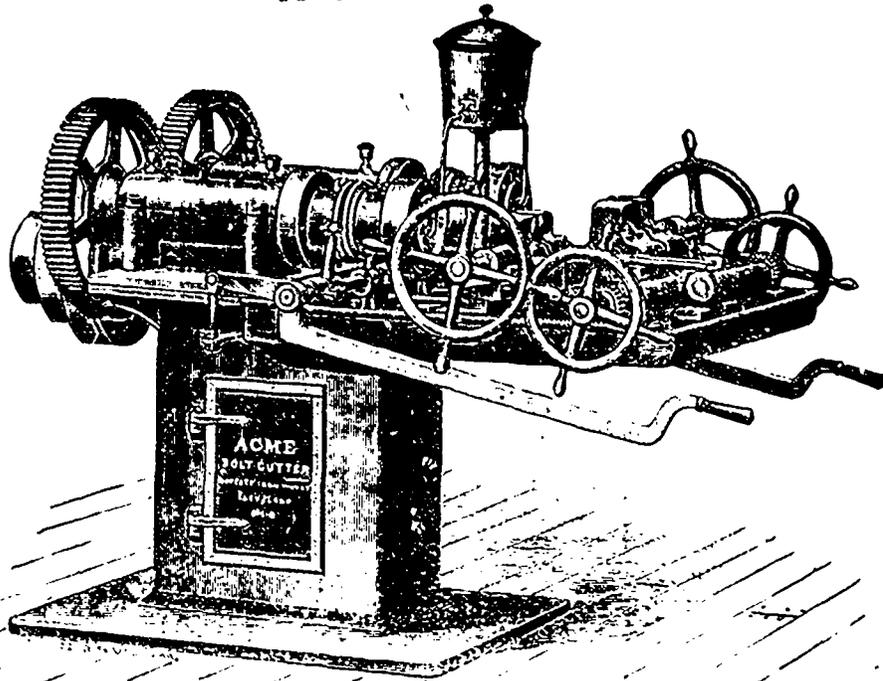
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Cotton Spinners, Bleachers and Dyers,

Have been awarded “PRIZE MEDALS” for 1882—

At the **TORONTO INDUSTRIAL EXHIBITION—**
Four Silver Medals and Three Bronze.

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Silver Medal for “Best Exhibit.”

At the **KINGSTON PROVINCIAL EXHIBITION—**
Silver Medal for Best Exhibit, and First Prize,

For their celebrated Beam Warps, Cotton Yarn, Carpet Warps,
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Checks.

The smoothness and even finish of the goods, and brilliancy of colour,
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BEAM WARPS of every variety.

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BALL KNITTING YARNS,

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CARPET WARP

First Prize, Silver Medals, for Beam Warps and Denims,
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Agents for Beam Warps,—

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We are manufacturing a reliable **GLUE**, and can supply a limited number of consumers only. We guarantee our Glues to be made from selected stock, and to be of the same uniform quality. Glues not as represented, or not proving satisfactory, returnable at our expense.

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PROPR'S WOOLLEN AND COTTON MILLS:
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Brown Cottons,
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Colored Cotton Yarns,
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Tweeds Flannels, &c., &c.
The Wholesale Trade only Supplied.

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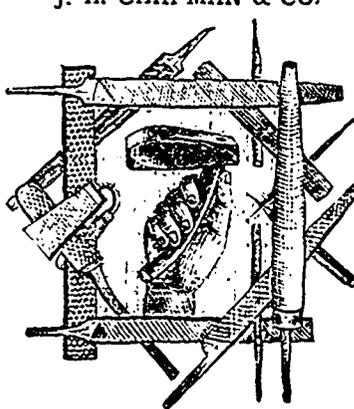
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Metal Punching done to Order.
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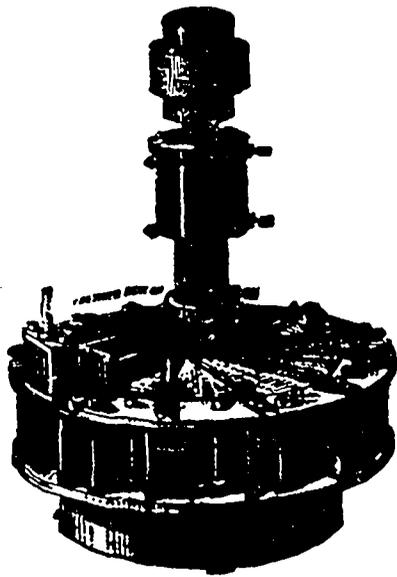
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In Stock or Made to Order.

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Sherbrooke File Works.
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ALL HAND-CUT FILES made from the Best Sheffield Cast Steel.
Warranted equal to the Best Imported Brands.
Send for Price Lists and Discounts.
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Manufacture the celebrated
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All sizes of Stationary and Portable En-
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The Stearns' Circular Saw Mills with Frac-
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Any Description of Yarns in single,
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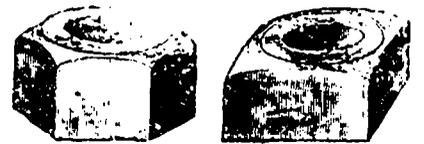
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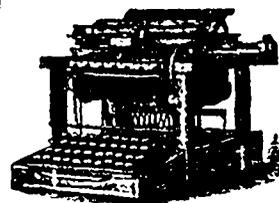
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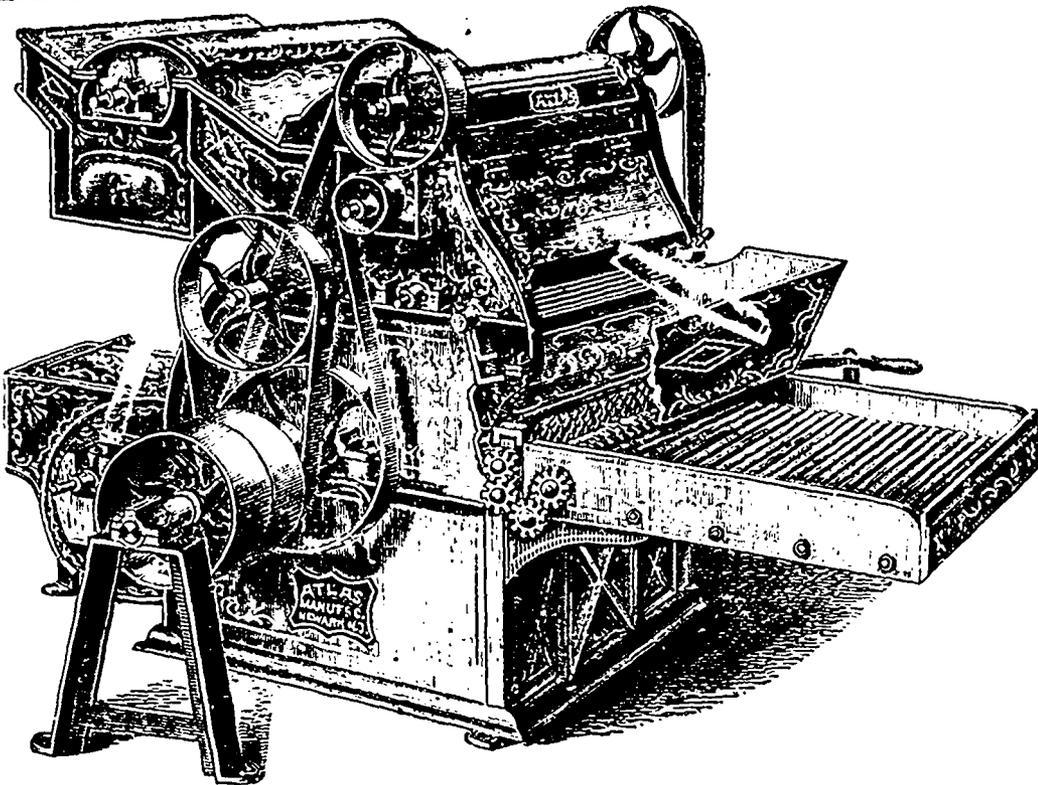
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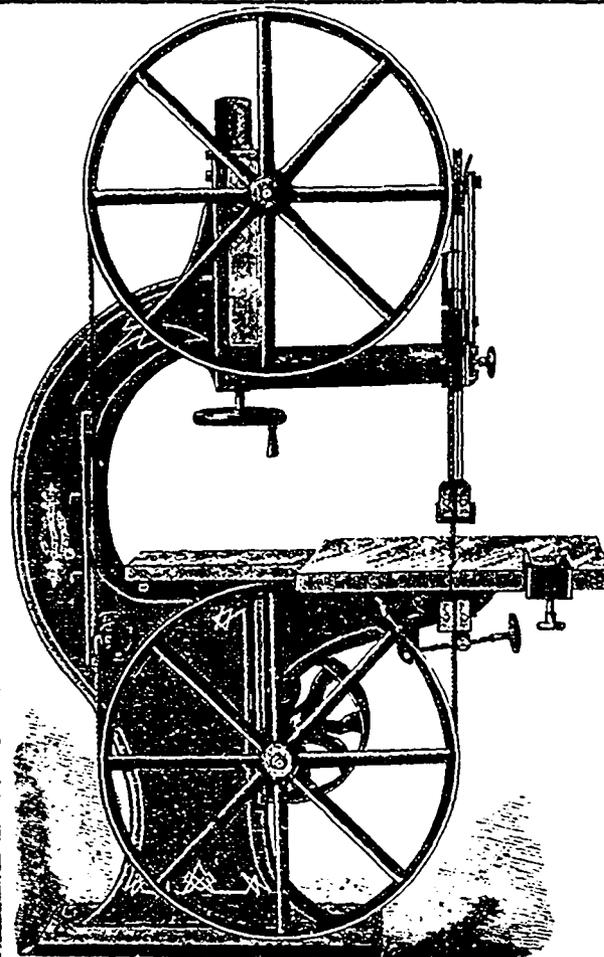
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A plan and specification of the work to be done can be seen at this office, and at the Lachine Canal Office, Montreal, on and after TUESDAY, the 22nd day of MAY next, at either of which places printed forms of tender can be obtained.

Contractors are requested to bear in mind that tenders will not be considered unless made strictly in accordance with the printed forms.

An accepted Bank cheque for the sum of \$5,000, must accompany each tender, with sum shall be forfeited, if the party tendering declines entering into contract for the works at the rates and on the terms stated in the offer submitted. The cheque thus sent in will be returned to the respective parties whose tenders are not accepted.

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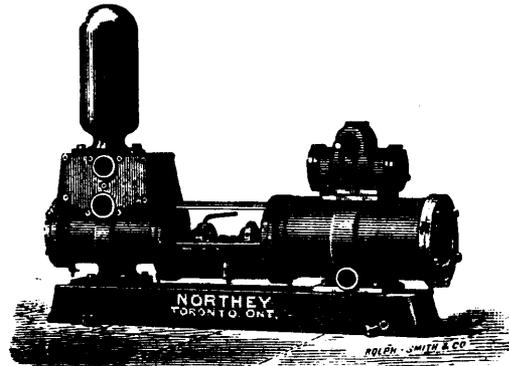
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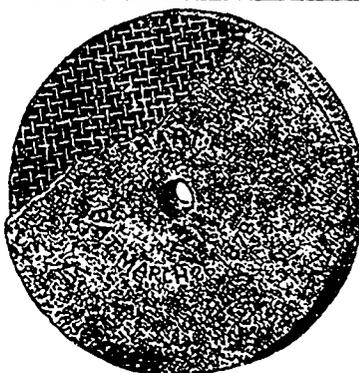
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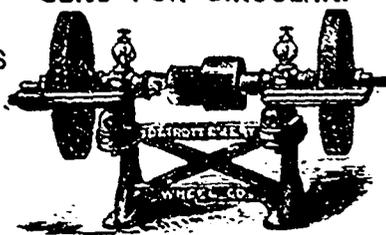
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