

Technical and Bibliographic Notes / Notes techniques et bibliographiques

The Institute has attempted to obtain the best original copy available for filming. Features of this copy which may be bibliographically unique, which may alter any of the images in the reproduction, or which may significantly change the usual method of filming, are checked below.

L'Institut a microfilmé le meilleur exemplaire qu'il lui a été possible de se procurer. Les détails de cet exemplaire qui sont peut-être uniques du point de vue bibliographique, qui peuvent modifier une image reproduite, ou qui peuvent exiger une modification dans la méthode normale de filmage sont indiqués ci-dessous.

Coloured covers/
Couverture de couleur

Covers damaged/
Couverture endommagée

Covers restored and/or laminated/
Couverture restaurée et/ou pelliculée

Cover title missing/
Le titre de couverture manque

Coloured maps/
Cartes géographiques en couleur

Coloured ink (i.e. other than blue or black)/
Encre de couleur (i.e. autre que bleue ou noire)

Coloured plates and/or illustrations/
Planches et/ou illustrations en couleur

Bound with other material/
Relié avec d'autres documents

Tight binding may cause shadows or distortion along interior margin/
La reliure serrée peut causer de l'ombre ou de la distorsion le long de la marge intérieure

Blank leaves added during restoration may appear within the text. Whenever possible, these have been omitted from filming/
Il se peut que certaines pages blanches ajoutées lors d'une restauration apparaissent dans le texte, mais, lorsque cela était possible, ces pages n'ont pas été filmées.

Additional comments:/
Commentaires supplémentaires:

Coloured pages/
Pages de couleur

Pages damaged/
Pages endommagées

Pages restored and/or laminated/
Pages restaurées et/ou pelliculées

Pages discoloured, stained or foxed/
Pages décolorées, tachetées ou piquées

Pages detached/
Pages détachées

Showthrough/
Transparence

Quality of print varies/
Qualité inégale de l'impression

Continuous pagination/
Pagination continue

Includes index(es)/
Comprend un (des) index

Title on header taken from: /
Le titre de l'en-tête provient:

Title page of issue/
Page de titre de la livraison

Caption of issue/
Titre de départ de la livraison

Masthead/
Générique (périodiques) de la livraison

This item is filmed at the reduction ratio checked below /
Ce document est filmé au taux de réduction indiqué ci-dessous.

10X	14X	18X	22X	26X	30X
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
12X	16X	20X	24X	28X	32X

THE CANADIAN MANUFACTURER

And Industrial World.

Vol. I.

TORONTO, ONT., MARCH 3, 1882.

No. 5.

OFFICE DESKS AND REVOLVING BOOKCASES.

Every man of business knows the value of a convenient and handy desk, but as such are not always easily procured—few firms outside the larger cities making a specialty of their manufacture—we illustrate one of the most improved designs that is in the market.

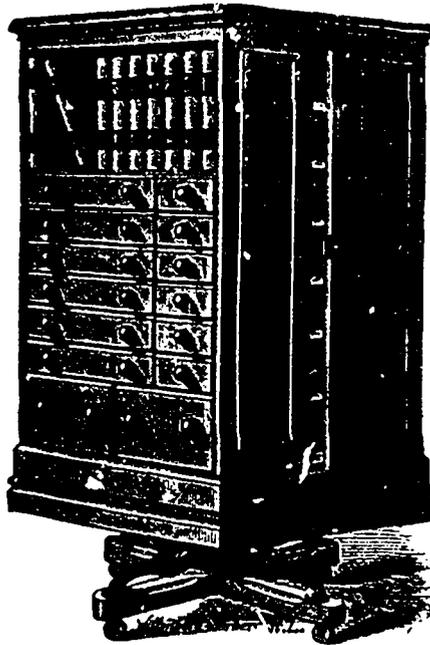
In these days of much correspondence, it is a necessity to file away letters, orders, and other commercial papers not calling for immediate attention, so that they can be readily found and close at hand when required. The subjoined cut of the "Dominion" Desk will illustrate that these requirements are met in every particular, as it is fitted with numerous pigeon-holes, small and large drawers, partitions for note and letter paper, bill-heads, envelopes, &c., so that the fortunate possessor has all his business papers, stationery, and other office sundries, within his reach, and should he be called away hurriedly, has but to pull down the cylinder front, turn the key, and, Presto! all is secured, there being no necessity to arrange private papers, as they are safely enclosed by the cylinder. Another important feature is the combination Yale lock, one key securing all drawers, &c., simultaneously.

The design of the "Dominion," as will be seen by the engraving, is very handsome, and such a piece of furniture would be, and in fact already is, an ornament to many offices.

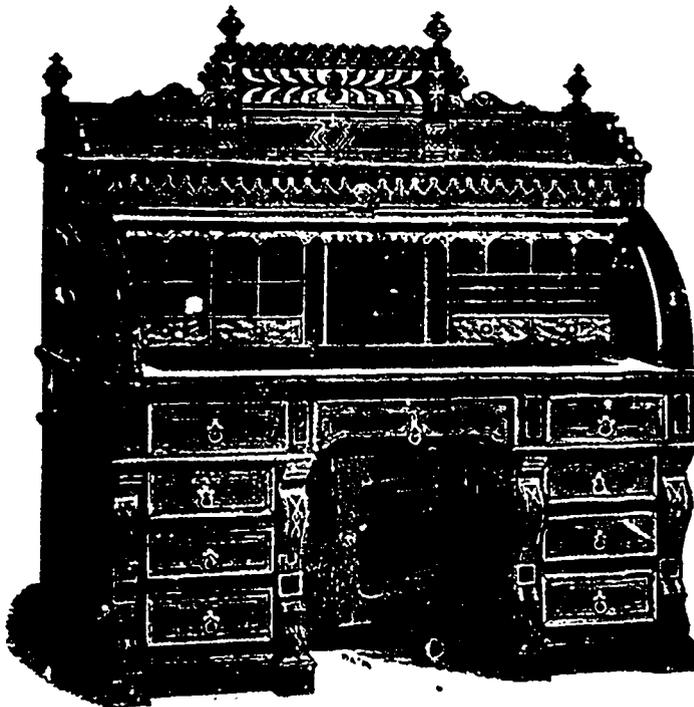
Another invention that is of great usefulness, not only to the man of business, but to all that have books to preserve and to refer to—is the now justly celebrated "Revolving Book Case," which occupies no more room than

an ordinary chair, and will hold more books than any case ever made occupying the same space. The books are accessible to any one sitting at a desk or table, without rising—a slight pressure of the hand bringing either side to view. There is nothing to get out of order, they are well made, nicely finished, graceful and durable. The accompanying engraving illustrates the "Legal Case," which is all made of black walnut, finished in oil. It stands 47 inches high from floor to top of case, and is 24 inches square. On the left hand side, as shown in the cut, are 6 drawers, 8 inches high, 9 by 15 inches square; also 6 drawers, 2 inches high, 9 by 6 inches square. Two bottom drawers are 5 inches high, and 9 by 10½ inches square. All these drawers are locked in one operation and with one lock. Above the 14 drawers described is one shelf for books 23 inches long, 9 inches wide, and 11 inches high. On the back or opposite side of the case there are three adjustable shelves. On either of the other two sides of the case are 7 pigeon-holes, making in all 14. These are 9 inches deep, 4½ inches wide, and 4 inches high. Secured by doors and locks.

Any size or style of case can be made to order, but the manufacturers keep on hand a large variety, numbering two dozen styles, some of the more popular being designated as follows: Table, Standard (in four sizes), Lorne, Cabinet, Cottage, and Office Cases. We cannot recommend these cases too highly, and until the books they contain are actually counted, all users of them are deceived as to their capacity. Their popularity is attested by the fact that over 10,000 are now in use. The manufacturers of the specialties described are Messrs. Ties



LEGAL CASE.



DOMINION.

& Co., of Bonaventure-street, Montreal, who publish a handsomely illustrated catalogue, which they will be pleased to forward intending purchasers, on application. Messrs. Tees & Co. manufacture upwards of *one hundred* styles of desks, and have recently sold a nice assortment to a Winnipeg dealer. They use only the best grades of seasoned lumber, and pay great attention to turning out only goods of first-class workmanship. Their factory has been running full time all winter, and they have not long since added a line of the newest and most approved machinery. Messrs. Tees & Co. also manufacture a variety of lines of school furniture. Principals and head masters will find the "Eureka" and "Excelsior" desks admirably adapted to their needs, while the "Peerless," "Windsor," and "Victoria" are suitable for teachers. Scholars' desks are made in several styles, and are light and attractive.

"DEAD STROKE" POWER HAMMER.

The accompanying cut shows a power hammer which is not new to the manufacturing world, its merits having gained for it a place in a large number of the manufacturing institutions of this country and of Europe. Its compactness, serviceability, adaptability and great power have combined to give it a great popularity for small or ordinary work. The absence of cylinders, valves, pistons, etc., renders it less liable to get out of order than steam hammers. The ram, or striking part of the hammer, being suspended on a flexible belt attached to the ends of a semi-circular elliptic spring, gives not only great elasticity to the stroke, but an immensely accumulated stroke, while the elasticity does away with the otherwise unavoidable and disastrous jars which tell so quickly on all machinery. The force

of the blow is regulated entirely by the operator, whose foot rests upon the lever, which communicates at the top with the friction pulley by means of which the power is communicated. The stroke is very quick and rapid, and may be varied instantaneously at the will of the operator. It is made in seven sizes, from 15 to 500 lb. Ram, to accommodate the work to be performed. As a rapid dead stroke hammer it has no successful rival.

There are about 600 of these machines now in use all over the United States and Europe, and hundreds of parties have testified to their merits. The scope of work on which they can be profitably used for die work or general forging ranges from cutlery and files up to axles. File-makers have long used them extensively, and even gold-beaters are beginning to adopt them. For general machine shops, car builders, bridge works, &c., they can not be equalled.

The advantages of these machines, as ascertained by experience, are as follows:

They can be run at high speed without breaking to pieces.

Having neither cylinders nor valves, repairs are very trifling.

They strike *harder* and truer blows than Steam or Trip Hammers of same weight of Ram.

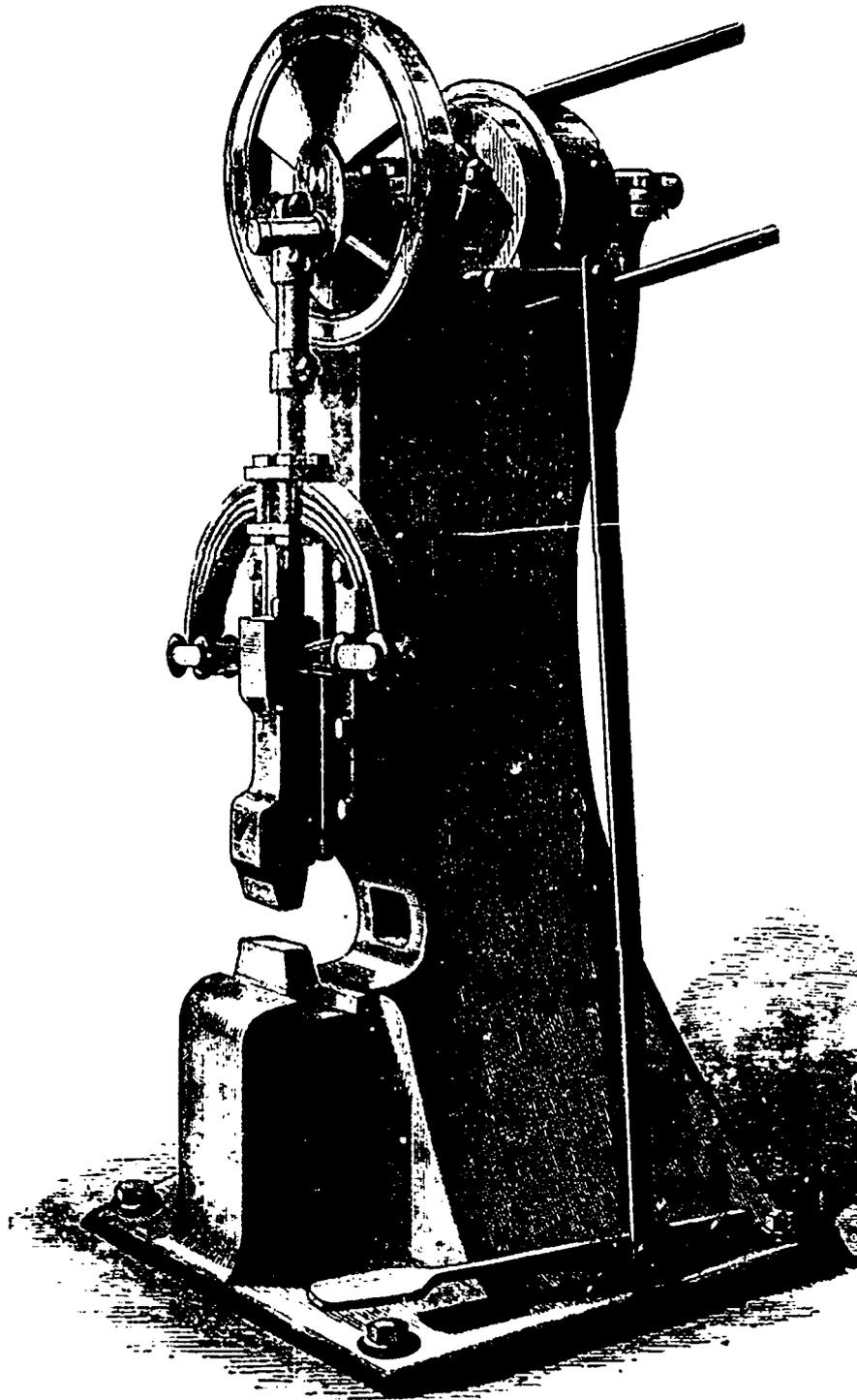
The dies are readily changed, and they have no equal on "Die" work.

They can be operated by any ordinary mechanic.

They occupy but little room, and consume a small amount of power.

These machines are manufactured by the Patentees, Philip S. Justice & Co., 14 North 5th St., Philadelphia, Penn., who will send circulars to all enquirers.

An International Exhibition of Furniture is to be held in Paris this year, from the 1st of August to the 15th of November.



"DEAD STROKE" POWER HAMMER.

THE BUDGET SPEECH AND TARIFF CHANGES.

An event of last week was the delivery of the Budget Speech by the Finance Minister, and the announcement of some tariff changes. On the purely financial part of the speech, touching revenue and expenditure, we cannot take space to say much more than that while a surplus of nearly four and a half millions is estimated for the current fiscal year, 1881-82; one of three millions is anticipated for the next year, 1882-83. It appears to be sound policy to keep up more or less of a surplus in prosperous years, so that when the turn of the wheel comes, there may be something to fall back upon. The most interesting part of the speech is doubtless that relating to tariff changes, regarding which there is always some anxiety in the public mind. It is satisfactory to note that on the main question, that of the permanence of the National Policy, this is a reassuring and not a disturbing speech. The policy is to be strongly maintained, and the changes proposed in details are really a more decided carrying out of the general principle. It will more clearly show the changes made, if we place them in tabular form as under, retaining the order adopted by the Finance Minister:—

	Old Duty.	New Duty.
Anatomical Preparations.....	20 per cent...	Free.
Bees.....	20 per cent...	Free.
Brass in sheets.....	10 per cent...	Free.
Britannia metal, in pigs and bars.....	10 per cent...	Free.
Celluloid, in sheets.....	20 per cent...	Free.
China Clay, natural or ground.....	20 per cent...	Free.
Chloralum.....	20 per cent...	Free.
Coffee, green, except by Act 42 Vict., chap. 15.....	2 c. per lb. ...	Free.
Fowls, for improving stock.....	20 per cent...	Free.
Iron sand or globules, and dry putty for polishing granite.....	Uncertain ...	Free.
Quinine.....	20 per cent...	Free.
Quicksilver.....	10 per cent...	Free.
Spelter or Zinc, in pigs or blocks.....	10 per cent...	Free.
Tea, except as in Act 42 Vict., chap. 15.....	Black, 2c. per lb. and 10 per cent. Green and Japan, 3 c. and 10 per cent.....	Free.
Tin, in blocks, sheets, or pigs.....	10 per cent...	Free.
Woods—African teak, black-heart, ebony, lignum vitæ, red cedar, and satin wood.....	20 per cent...	Free.

The above are the articles formerly paying duty but now to be on the free list. On the articles following the duties are changed:—

	Old Duty.	New Duty.
Bookbinders' Tools.....	15 per cent...	10 per cent.
Glass, common and colourless window glass.....	20 per cent...	30 per cent.
Iron, scrap.....	\$2 per ton ...	\$1 per ton.
Lead Manufactures.....	25 per cent...	30 per cent.
Sand Paper.....	20 per cent...	25 per cent.
Ships' Hulls.....	10 per cent...	10 per cent.
If containing machinery, the machinery to pay.....	10 per cent...	25 per cent.
Spirits and strong waters, mixed.....	\$1.90 per gall..	\$1.90 per gall. and 20 p.c. ad val.
Bags containing fine salt.....	Free.	25 per cent.
Clock Springs.....	35 per cent...	10 per cent.
Cotton seed.....	20 per cent...	10c. per bushl.
Fireworks.....	20 per cent...	25 per cent.

	Old Duty.	New Duty.
Wrought Iron Tubing, 1¼ inch and upwards.....	25 per cent...	15 per cent.
[Before, wrought-iron tubing over two inches diameter paid 15 per cent.; two inches and under, 25 per cent. The lower duty now takes in all down to 1¼ inches inclusive, instead of stopping at over two inches, as before.]		
Mustard Cake.....	uncertain	20 per cent.
Paraffine wax or stearine.....	20 per cent...	3 cents per lb.
Rice, not hulled, or paddy.....	1 c. per lb....	17½ per cent.
Trees: Apple.....	20 per cent...	2½cts. each.
Pear.....	20 per cent...	4 cents each.
Plum.....	20 per cent...	5 cents each.
Quince.....	20 per cent...	2½cts. each.
Grape Vines.....	20 per cent...	4 cents each.
Harness Leather Dressing.....	20 per cent...	25 per cent.
Silk plush or netting for gloves.....	30 per cent...	15 per cent.
Belts and trusses.....	20 per cent...	25 per cent.
Kentucky Jeans.....	20 per cent...	Same as on cottons specified.
Knitted Cotton Cloth.....	20 per cent...	30 per cent.
Black and bleached cotton thread, in hanks, all except 3 and 6 cord.....	2½ per cent...	20 per cent.
Corsets.....	20 per cent...	30 per cent.
Tarpaulin, coated with oil paint or tar.....	20 per cent...	30 per cent.
Cotton bags made up by use of the needle.....	20 per cent...	30 per cent.
Furs, instead of "dressed," the term "wholly or partially dressed" to be used.....	15 per cent...	15 per cent.
Bolsters and Pillows.....	20 per cent...	35 per cent.
Glass (pressed or moulded) tableware.....	30 per cent...	20 per cent.
Paint, orange mineral.....	20 per cent...	5 per cent.
Varnishes—to be added to the list, lacquers, Japan, and collodion ..	20 per cent. }	20c per gall. & 20 per cent.

The changes in excise duties or internal revenue taxes are briefly stated:—Tobacco grown in Canada is for the next two years to pay eight cents per pound instead of fourteen as heretofore, ten cents to be paid during the two years following. The stamp duties on notes and bills of exchange are wholly abolished, a boon for which mercantile men will be thankful. This change, however, does not take effect until the existing stamp act is formally abolished by another. In lieu of the interest on the fishery award, a bounty of \$150,000 per annum is to be given to the fishermen on the maritime coasts.

The reference to a former Act, touching the tea and coffee duties, means simply that these articles pay 10 per cent. if imported from the States; if imported from any other country, free. This is to balance a corresponding restriction in the American tariff. Customs' duties are reduced to the extent of a million dollars, and the reduction in tobacco excise and the disappearance of the stamp duties will make \$300,000 more. Add to this \$150,000 bounty to the fishermen, and the treasury will be depleted by about a million and a half, bringing the surplus down from four and a half million dollars to the estimated figure of three millions. All the changes are favourable to manufactures, either by reducing duties on raw material or raising them on the finished article. The tariff is, in brief, to be more protective now than it has ever been before in Canada; and the determination to maintain the National Policy is made stronger and clearer than at any former period.

LEGISLATION REGARDING STEAM BOILERS.

The Bill now before the Ontario Legislature for the inspection of steam boilers seems to be a very comprehensive measure.

The provisions of the Act are to apply to all steam boilers used for the purpose of supplying power for mechanical or manufacturing purposes, but do not apply to railway locomotives or steamboat boilers, nor to boilers used merely for heating buildings. Portable and traction engine boilers and pulp boilers are included under the Act. A number of skilled persons, being practical engineers, are to be appointed inspectors, whose duty it shall be to inspect and test all boilers, and certify as to the steam pressure at which they may be safely worked.

The Act prescribes certain restrictions as to the manufacture of steam boilers, and provides for efficient safety-valves, steam-pressure gauges, low-water detectors, &c., being connected to every boiler. Every boiler is also to have attached to it, in a conspicuous place, a removable metallic plate, bearing the maker's name, date of manufacture, and safe steam pressure.

Every new boiler, before leaving the maker's premises, must be tested by water pressure in the presence of an official, who shall examine the boiler and certify to the safe steam-pressure.

This latter clause is likely to be objected to by the makers of portable engines, on the ground that it would unduly impede them in their business to have to wait the convenience of a government official every time a boiler was completed, and surely in such cases, where a great number of boilers are being made of precisely the same design and of the same materials, some arrangement might be made which would meet all reasonable requirements for the public safety, and at same time not hamper the maker in pushing on his work.

If the makers were to submit plans and specifications of the boilers for approval of the chief inspector, and agree to subject every boiler as made to the required hydrostatic test, and keep a register of the same; and also have their establishments open for visits of the inspectors at all times, the necessary amount of supervision could be obtained, and full liberty left for as much "push" as any manufacturer could desire.

The Act further provides for inspection of the boilers while in use, and for a hydrostatic test, at intervals of five years.

Any inspector finding a boiler in dangerous or unsatisfactory condition, has power to stop its use, or limit the pressure, until the needed repairs have been made—but provision is made for appeal against any such decision to the chief inspector. In case of an explosion resulting in the death of any person, the owner has to notify the chief inspector, whose duty it is to examine the remains of the boiler, and if possible determine the cause of the accident. It would be better if this inquiry were made into the cause of every explosion, and not limited to cases where death occurred.

The Act also provides, that all persons performing the duties of an engineer in charge of stationary or portable steam engines, must be holders of a license from the Government Inspectors. This license may be cancelled at any time for negligence, un-

skilfulness or drunkenness, and must be renewed at intervals of five years.

The Act also provides that boilers, under the regular inspection of any duly authorized boiler inspection and insurance company, are exempt from inspection of the Government officials, but must otherwise conform to the requirements of the law. This plan has been tried in Germany for a number of years, and has been found to work exceedingly well, and to diminish the cost to the country of maintaining efficient and regular inspection.

As a whole, this Act ought to meet with the hearty support of all manufacturers. Portable engine builders should endeavour to get some such arrangement made as we have suggested. In event of an explosion of any boiler made by them, their competitors could not then denounce the boiler as being unskilful in design, and of poor material and worse workmanship.

THE FACTORY COMMISSION REPORT.

From the Report of the Factory Commission, last week placed before Parliament, it appears that the investigation came none too soon. In some factories, children in great numbers are employed, and the demand for them is all the time becoming greater. The consequence is that very many children are growing up wholly uneducated, not a state of things for us to feel proud of. The long hours of work are trying to healthy men, much more so to women and children. Female labour is extensively employed, far more than people generally have any idea of. The inclination is a prevailing one with young girls to seek work in shops and factories rather than domestic service; and this tendency is all the time increasing, too. In 465 factories visited, the Commissioners found that the following were employed:—

	Males.	Females.
Children under 10 years.....	101.....	69.
Children from 10 to 14.....	1,265.....	823.
Adults.....	26,308.....	12,735.
Married....	321.
Unclassified, 1,885.		
Total.....	43,511.	

Of the married women, only 52 actually work in the shops, the rest take the work to their own houses.

There are 377 factories working over 57 hours per week; 11 working day and night; 167 working 60 hours; and 37 over 60 hours. The horse-power of all the factories visited aggregates 23,506, of which 15,807 is from steam and 7,699 from water.

The Commissioners recommend the adoption of factory laws something like those of England and the State of Massachusetts, and say that, according to their information, these laws are working well on both sides of the Atlantic. They find many of the large mills in Canada where the leading points in the factory acts have already been voluntarily adopted by the proprietors, though no law as yet compels them to do so. And they notice that in such mills the operatives are always of a superior class, a fact which the public generally will be glad to hear of. These large factories, too, have all suitable arrangements and conveniences for the workers—another

thing of which it is pleasant to read ; and it is certain that in such attention to what is needful the proprietors will find their profit in the long run. In the matters of ventilation, and of means of safety from accidents, there is still much wanting, however, in many establishments. Hoists and elevators are considered special sources of danger ; and the practice of leaving steam-engines and boilers in charge of untrained men and mere boys is found to be far too common. This latter bad practice we have several times before referred to, and it certainly demands particular attention. In the matter of proper means of exit and escape in case of fire some factories were found very fairly provided, but there is on the whole a great deal of room for improvement. In general very little regard has been paid to ventilation ; but at this the Commissioners do not wonder, seeing how much it is still neglected in public schools, and halls, and churches. From the summaries published in the daily papers the Report appears to be a valuable one, and it will no doubt attract general attention, along with practical consideration by the Government besides. As we have before warned the manufacturers, factory legislation is sure to come in Canada before very long, and it will be wisdom on their part to prepare for it. We are not saying that this Report is right all through, or that all its suggestions are practicable and therefore likely to become law. What we point out in a general way is simply this—that there is a sound of factory legislation for Canada in the air, and that they would do well to watch the indications.

TRANSMISSION OF POWER BY BELTING.

I.

Belting is used for the transmission of power from one shaft to another. Those shafts may or may not be parallel to each other, and may be made to revolve in the same or in opposite directions. The amount of power which can be transmitted by any belt is a multiple of its velocity into the amount of adhesion which exists between the belt and the surface of the pulley. Hence, within certain limits, the faster a belt moves the more power can be taken out of it.

The horse-power is the unit of measure generally employed in calculations regarding belting. One horse-power is equal to 33,000 pounds moving with a velocity of one foot per minute, or 10 pounds moving with a velocity of 3,300 feet per minute ; so that a belt moving over pulleys at the rate of 3,300 feet per minute, will yield one horse-power for each ten pounds of adhesion between it and the pulleys.

How this adhesion is to be obtained, and how its amount is to be determined, are questions of vital importance in the successful use of belting.

The *adhesion* between the belt and the pulley depends upon the condition and nature of the surfaces in contact, and upon the amount of *pressure* ; the pressure again depending upon the tension or tightness of the belt, and the diameter of the pulley. Hence belting should be run with as large pulleys as circumstances will admit, in order that the belt may be run as slack as possible. When a belt connecting a pair of pulleys is at rest, its two sides will ordinarily have an equal amount of tension. When the pulleys are set in motion so that the one drives the other, then the advancing side of the belt gradually

tightens as the load comes upon it, till the speed of the driven pulley bears the proper relation to that of the driver. Meanwhile the returning side of the belt has gradually slackened, and if the belt is sufficiently strong for the work, the sum of the tensions of the two sides will be the same as when the pulleys were at rest. In all ordinary arrangements of belt driving, the belt is strained much more than the amount due to the power passing through it, as there must be a considerable strain on the belt while the pulleys are at rest, else there will be no adhesion between the belt and the pulley surface ; and this should be kept clearly in view in all calculations regarding the power to be transmitted by any belt. Suppose a pulley on a shaft to have a belt hung over it with a 20lb. weight on the one side, and let a 30lb. weight be attached to the upper part on the other side, then as the 30lb. weight descends, the lighter one rises, and the power expended in turning the pulley is the difference between the two weights, that is 10lbs., but the strain on the belt is 30lbs. on the one side and 20lbs. on the other. In order to have any belt run satisfactorily, it must be strong enough to withstand the heaviest strain brought to bear upon it without injury, and it is not sufficient to estimate this strain from the average amount of power and the average tension on the belt. Where the motive-power is derived from a steam-engine working expansively, the power is not given off with perfect uniformity, but there is always more or less liability to extra strains. Also, while a machine is being started, and during the time its motion is being accelerated, the strain on the belt is usually much greater than that required to keep the machine in motion afterwards. Belting not sufficient to withstand these extra strains will be sure to give trouble.

(To be continued.)

THEORY OF BOILER EXPLOSIONS.

A writer in the *Manufacturers' Gazette* (Boston), undertakes to propound a theory in explanation of the cause of steam boiler explosions. As the explanation given by this writer may produce rather an uneasy feeling in the minds of boiler owners and of persons employed around them, it will be of interest to consider this theory and see what it amounts to. The writer is not very clear in his statements, but some idea of his theory may be gathered from the following abstract.

He supposes a boiler capable of safely withstanding 500 lb. steam pressure to be in use, supplying steam of 200 lb. pressure to an engine. The engine takes the steam away as fast as it is produced, and the pressure remains constant at 200 lb., but the engine is stopped, and what is the result ? The writer's own words had better be quoted for the answer :—

“ The steam keeps on forming and the globules accumulate until the pressure they exert is equal to the pressure of the fire. The forces being equal, action ceases. The boiler, however, will bear a pressure of 500 lb., and the steam gauge does not register anywhere near that amount. Therefore it may be said that no danger is to be apprehended. But there is a subtle force at work all this while. It is true that steam is not being formed *actively* ; but the heat is entering the water and is absorbed by it.”

This heat, it is alleged, remains in the water until the engine is again started, when it suddenly rises out of the water, in-

creases the steam pressure, and bursts the boiler, and all this occurs "through no defect in the boiler, which might have been amply able to withstand 500 lbs. pressure for years."

There is a grain of truth in this, which has been magnified into a theory which, it is asserted, will explain many of our boiler explosions. The grain of truth is, that it is possible under certain conditions to raise the temperature of water above that at which it ought to boil, without its doing so or giving off any steam. Professor Cotterill, of the Royal Naval College, in a treatise on the Theory of the Steam Engine, alludes to this theory of boiler explosions, and says that perfectly quiescent water, perfectly free from air or other foreign substance, may be raised to a temperature far above 212° in a clean glass vessel, without occasioning ebullition: and when ebullition does take place, it is effected in fits and starts, producing what is called "bumping." If such an effect could be produced in an ordinary steam boiler, he thinks it would be a source of danger, but concludes that so far as experiment has shown, the circumstances necessary for this superheating of water are not likely to occur in the actual practical use of steam boilers. Professor Clerk Maxwell says the highest temperature to which water may be raised under the atmospheric pressure without ebullition cannot be said to be accurately known, and describes how drops of water, in a mixture of linseed oil and oil of cloves, have been heated to 356° Faht. without changing them into steam. The pressure of aqueous vapour, at 356° temperature, is about 147 lbs. per square inch.

The conditions under which water may thus be superheated it will be seen are not such as are at all likely to occur in an ordinary steam boiler. If such precautions, as having the water perfectly free from air and other substances, and keeping it perfectly quiescent, are necessary in a scientific experiment in a laboratory in order to succeed, in causing the water to absorb the extra heat and still remain in the liquid state without becoming steam, how extremely unlikely is it that in an ordinary boiler, with ordinary water, these conditions are ever fulfilled. It is almost impossible in ordinary boilers to heat water at all, and have it perfectly *quiescent*; as heat is absorbed by the portions of water nearest to the heated boiler plates, they become more buoyant than portions of the water more distant, and hence currents of ascending hot water and descending cooler water are formed long before any steam is produced at all—and so long as heat continues to enter the water, so long will all the water, above the points where the heat enters, be affected by these currents, and perfect quiescence cannot be attained. What a boon it would be to the ordinary engineer to be supplied regularly with water for the boiler perfectly free from all foreign substances. No more mud, no more hard scale, no more dirty jobs washing boilers out! Probably boilers would not last so long, and one of the conditions necessary for making "latent steam" would then exist in ordinary boilers, but most engineers, if saved from the cleaning-out troubles, would willingly take their chances on the other dangers. There is no doubt that the heat of the water has a great deal to do with the tremendously destructive force let loose by a boiler explosion, but this does not come into action until the explosion has actually taken place; that is, the boiler must be ruptured, and the steam pressure relieved, before the heat contained in the water can come into play. The heat in the water does not

burst the boiler, but after rupture has begun this heat will maintain the supply of steam, and so drive the portions of the boiler further asunder, and generally extend the mischief. Hence, a large boiler exploding under a low pressure usually does more mischief than a small one exploding under a high pressure.

PRISON LABOUR.

Across the border a strong agitation against the competition of prison labour with that of honest men has sprung up, and bids fair to effect something important before long. This is a matter with which the Federal Government and Congress have nothing to do, each State having control of its own prisons. The movement against the existing system is most active in the State of New York, where a thorough investigation by the legislature at Albany is in progress. From the State Inspector's report the following facts are taken:—At Sing-Sing one firm employs 906 men making stoves, paying the state 56 cents per man per day. Another firm employs 307 men at 50 cents; and a laundry firm employs 136 men at 60 cents. At Auburn, a company employs 65 men making horse collars, at 65 cents; the making of hollow ware employs 181 men at 50 cents; harness and plate manufacture, 118 men at 50 cents; and the manufacture of axles takes 225 men at 50 cents, and 59 men at 60 cents. At Clinton, a hat manufacturing firm employs 390 men at 50 cents. It is contended that it is unfair to honest mechanics to put them in competition with such wages, and unfair also to manufacturers who do not employ this cheap prison labour. Last week's report of alleged atrocities in Sing-Sing prison may or may not be confirmed, but the circumstance is sure to fasten public attention on the subject, and will make the agitation stronger. In some prisons stout healthy men are furnished the contractors for 40 or 42 cents per day. In New Jersey the hat manufacture was carried on in the State prison to such large extent that workmen outside were reduced to want. An agitation sprang up; the legislature felt compelled to take action; the hat manufacture in that prison was stopped, and good times along with healthy competition in the trade soon followed.

We have as yet nothing in Canada to compare with the evils of the prison labour system in the State of New York. But still the same evils exist here too, though in a lesser degree, and we had better see to it that they do not grow upon us. We have made quite a beginning already, and the unfair competition of prison labour is making itself felt. Magistrates in various parts of Ontario appear to think it a fine thing to get rid of their local criminals by sending them to the Central Prison, in cases for which the county jail would answer better. They use their powers in this respect very frequently and freely. Before long the whole system of prison labour will have to be taken up and dealt with anew, by both Dominion and Provincial authorities.

TREATMENT OF INDIA INK DRAWINGS.—India ink drawings that are to be coloured or washed over with tints should have a little bichromate of potash added to the ink. After the drawing has been exposed to light for an hour or so, the lines can be gone over without washing them up.

CANADIAN LEATHER BELTING.

ENCOURAGE HOME INDUSTRY.

A FALSE IMPRESSION IS ABROAD in relation to the comparative merits of *Canadian* and *American Belting* and there are certain American Makers who send in Belting to Canada *vastly inferior to OUR Standard Belting*, as *THEIR Belting is made Long Lap, whilst OURS IS SHORT LAP*, and

THEIR LEATHER IS, TO A LARGE EXTENT, CHEMICALLY TANNED,
WHILST OURS IS PURE BARK TANNED

There are two or three Belt Makers in the United States who make First-Class Belting, but OUR Standard Belting is Warranted equal to the Best American Belting, and superior to any other Canadian Belting in the Market.

*We fear not Competition from any quarter, as to quality,
and we guarantee every foot of Standard Belting
that we sell.*

ORDERS SOLICITED.

ROBIN & SADDLER

MANUFACTURERS,

594, 596 & 598 St. Joseph St., MONTREAL.

AMERICAN
LEATHER & RUBBER BELTING

WE do not attempt to compete in price with some makers, who, in order to effect sales, offer such large and extra discounts that the quality has to be reduced, but we furnish Belting at a fair price that will run straight and even, and such a quality that cannot fail to do good service. We keep on hand a larger stock than any other makers or dealers in Canada. We fully warrant every belt we sell.

ORDERS SOLICITED.

H. L. FAIRBROTHER & CO.,
Manufacturers.

Canadian Warehouse, 65 Yonge St.,
TORONTO.
Geo. F. Haworth, Manager.

THE
Canadian Manufacturer
 AND INDUSTRIAL WORLD.

Published fortnightly by the CANADIAN MANUFACTURER PUBLISHING Co., (Limited).

18 WELLINGTON ST. EAST, TORONTO.

ANNUAL SUBSCRIPTION, IN ADVANCE, \$2.00.
 CARD OF ADVERTISING RATES ON APPLICATION.

FREDERIC NICHOLLS,
Managing Editor

All communications to be addressed CANADIAN MANUFACTURER,
 Toronto, Ont.

Editorial Notes.

The article of this week on "The Transmission of Power by Pelting" is the first of a series on this particular subject, which will be found of interest to manufacturers generally. As will readily be seen, both the practical and the scientific aspects of the subject are being dealt with by a competent hand.

It seems an alarming estimate, though as likely to be within the truth as beyond it, that during ten years past fully half a million lives have been lost in Great Britain through accidents in mines and factories, and on railways. As coal-mining and manufactures grow in Canada, and as our railway system keeps extending, the importance of preventive measures will grow too with us.

The Dominion Government has been strongly pressed by numbers of enterprising and influential men to undertake the thorough and systematic revision of the iron duties, with the view of making this an iron-producing as well as an iron-using country. The subject is under consideration, and it may confidently be expected that a systematic attempt to settle the iron question will be made next year.

Belleville is in danger of losing the proposed Ontario Association Steel Works through disagreement between the Directors and the civic committee appointed to negotiate with them as to the inducements to be offered by the city. Mr. T. G. Hall, the leading man in the Association, says that they are considering the plan of finding a location and starting a town of their own, so as to secure exemption from municipal taxation, without asking the favour from any corporation.

We have received the first number of the *Millers' Review*, a monthly journal, published at Philadelphia, and devoted to the milling, millwrighting, and mill-furnishing interests. Our contemporary makes a good beginning, with capital paper and printing, and sixteen pages of original and well-selected matter. The United States is certainly the country where trade jour-

nals flourish, and we fancy that our neighbours know what they are about when they support such journals so liberally as they do.

Our Philadelphia correspondent has something to say about the rise and spread of Protectionist opinion in the Western and Southern States. This is something that has been going on for a number of years, but now it is attracting special attention. Meanwhile Free Traders keep up their talk about the hostility of the South and West to Protection; thus repeating what was true a quarter of a century ago, but which is not true now. The world has moved forward and has left them behind, but as they don't know it they are still happy.

The Manufacturers' Association of Montreal have petitioned the Government by all means to continue the Board of Dominion Appraisers at Ottawa. The Ontario Association at its annual meeting in January passed a resolution to the same effect. In fact the interest of manufacturers in keeping up this Board is very great, for without it foreign exporters would to a large extent succeed in defeating the tariff. And honest importers, too, have a direct interest in continuing the Board, as a safeguard against unfair competition by importers who are not as honest as they might be. An influential deputation from Montreal made the same representations to the Dominion Government on Monday last.

It has been feared that the rush to Manitoba and the Northwest would make Ontario farms unsaleable except at very low prices. But it appears that good farms in this Province hold their values pretty well notwithstanding. A few days ago Mr. Patrick Keenan sold his 100 acre farm, being the north half of lot 12 in the 7th con. of Brock, to Mr. J. Waddle, Jr., for the handsome sum of \$10,000. The *Oshawa Vindicator* rightly says that this looks healthy and goes far to prove that real estate in this Province is by no means depreciating, and that the township of Brock holds a foremost place as to the value of her lands. Any locality in which 100 acres will sell for \$10,000 may well be regarded as prosperous.

There will be found in our Pittsburg letter an important statement—that for the first time since the depression period, American steel mills are able to turn out all the steel rails the country wants, and that lower prices are looked for in consequence. Of course American capacity of production was during the depression very far below what it is now, but then the demand was still below that again. The present point is that, in times of brisk demand and largely increased consumption, home production has so much expanded as to be able to meet it all. Protection has caused more steel works to be built or enlarged, and so home production is immensely increased. In other words, abundance and not scarcity is the result of a resolute adherence to the protective system.

The most remarkable feature in the American coal trade is the agreement among the coal companies to limit production so that prices shall be maintained. The understanding be-

tweer: them all seems to be nearly perfect, and it is well observed, especially by the hard coal companies. This is a vital point in the coal question, and we shall go all wrong in our views as to coal prices if we fail to bear it in mind. In the soft coal trade there is more competition, and supplies from more different sources are available. There appears good reason for saying that the effect of the increased production of soft coal in Nova Scotia, owing in great part to the N. P., is only beginning to appear. Another season or two will see this coal making for itself a large and steady market up to the head of Lake Ontario.

The writer of the article on steam boiler explosions in the *Boston Manufacturers' Gazette* says that "Watts knew nothing of the expansive power of steam," and that his idea of a steam engine consisted of "filling his cylinder with steam until the accumulation of globules forced out the piston-rod, and the return motion was effected by injecting cold water, breaking the film of water and creating a vacuum in the cylinder." If by "Watts," he means James Watt, he is as much mistaken in his historical reference as he is in his explosion theory. James Watt did know something of the expansive force of steam as early as the year 1769, and in 1782 he patented its application to the steam-engine. One of the great improvements in the steam-engine made by Watt was the application of a separate condenser, and his condenser and air-pump arrangement for producing a vacuum in the cylinder, is used to this day, and no more modern arrangement has been as successful as his.

The fact that our imports of raw cotton have increased from seven million dollars odd in 1878 to sixteen millions odd in 1881, speaks volumes. By extensions of old mills and the building of new ones, the number of cotton spindles in the Dominion, counting some mills nearly finished, or soon to be, has increased in the same interval from 106,500 to 355,000. This is an enormous expansion, and the capacity of the home market for home goods is such as to warrant much more of it within the next few years. Five million dollars are paid out annually for wages in the cotton mills. In 1874, with raw cotton at 15 or 16 cents, cotton cloth sold here at about 36 cents per pound, a difference of say twenty cents. To-day, with raw cotton at from 12½ to 14 cents, the cloth is sold for 27 cents, a difference of say only fourteen cents for the manufacturing. And cotton cloths, of the kinds made in Canada, are cheaper, and not dearer, to the consumer as the result of this large expansion in the home manufactures.

A fatal accident, and a particularly horrible one too, is reported from Montreal. A man named Cooney attempted to force off the man-hole plate of a boiler before the steam was exhausted, and in an instant or two he was literally parboiled by the escaping steam and water. His injuries were beyond all hope of cure, and he died shortly after. A man who rushed to his assistance was severely scalded. Had there been a competent engineer in charge, no such foolish and fatal attempt would have been allowed. When will people learn that steam boilers are not things for unskillful hands to

meddle with? Employers who allow firemen or other unskilled assistants to "run" an engine or to manage a boiler incur a grave responsibility. The trouble lies in the prevailing easy fashion of letting firemen slide into the performance of duties belonging to engineers only. The fireman, if at all a "handy" man about the works, soon begins to think that he knows all about boilers, and his employers are too apt to think that at all events he knows enough for them. A new and stringent law on this matter is wanted.

The advancing condition of manufactures in Canada is indicated by the large augmentation of capital required for carrying them on. Quite a number of private firms, all doing a good business as they were, have, through the increase of new business coming upon them, been induced to expand themselves as incorporated companies, in order to meet demand. Among these may be mentioned now the firms of Harris & Sons, Brantford; Stevens, Turner & Burns, London; Plummer & Co., London; and Haggert Bros., of Brampton. The firm of Haggert & Cochrane, St. Thomas, is now to become the Cochrane Manufacturing Company, this designation being chosen the better to distinguish it from the Brampton concern. The large new openings now being made for the employment of more capital in manufacturing is really an important sign of the times in Canada, and worthy of being noted. It is certainly for the country's good that more capital should go into productive employment, instead of finding room chiefly in mere buying and selling. The general character of the returns for capital employed in Canada cannot fail to be greatly improved by the change now going on; a consideration which will not escape the notice of bankers, we may be sure.

Limitation of production is becoming a feature in other trades as well as in the American coal trade. The Manchester cotton-masters, in council assembled, have decided that short time and a limitation of the turn-out must be resorted to as the only means of keeping prices from going down to losing figures. A meeting of Scotch iron-masters, at Glasgow, has asked the English iron-masters to prolong for six months more the agreement of last year for decreased production. These are signs which, along with many others, attest the fact that foreign markets for British cottons and iron are falling off, in great part through foreign protection and the spread of manufactures abroad. It is not a sufficient answer to point to trade returns showing large figures of British exports, in spite of foreign protected competition. The goods are sent abroad, no doubt, but are they sold at a profit? This is the important point in the question as to foreign markets for British goods, but it is too often lost sight of. People read official statements showing that certain large amounts of goods have been actually exported, and they jump to the conclusion that trade must be good when there is so much of it done. But the truth is that British goods in enormous quantities are sent off, not to meet a healthy demand, but are actually forced on foreign markets, bringing very small profits or even a loss to the shippers. Until we realize this fact we are all the time liable to make serious mistakes in our estimates of the actual condition of the British export trade.

Manufacturing Notes.

The CANADIAN MANUFACTURER will be pleased to receive items of industrial news from its readers in all parts of the country, for publication in these columns.

Notes of new machinery, improvements, increase in capacity, &c., will be of special interest. All communications must be accompanied by the writer's name as a guarantee of good faith.

Two more rooms are to be added to Toomey's woollen mills at Napanee, increasing the production to sixty pairs of blankets daily.

The car wheel foundry, at the corner of Cherry and Front streets, Toronto, after being shut up for several years, is again in full operation.

Messrs. McDougall & Co., Drummondville, Que., have commenced heating their new hot blast furnace, and expect to commence smelting by Wednesday.

Plans for a new cotton mill at Hamilton, larger than the two now there, are being prepared by Mr. Balfour, the architect of the two at present in operation.

The Ontario Metallic Spinning Co., of Woodstock, have just shipped a large lot of their barbed wire to Brazil, per the Brazilian line of steamers from Halifax.

Mr. J. H. Killey, of Hamilton, wants locomotive works established in that city. Good idea, and Dundas can furnish the tools with which to make the locomotives.—*Dundas Standard*.

The Merchants' Cotton Manufacturing Company, which has just completed its new factory, resolved at its annual meeting to raise half a million of additional capital to extend the works.

Mr. W. Buck, of Brantford, manufacturer of stoves, says he had no trade whatever with the North-West previous to the N.P., but that now he cannot supply his orders for goods for that country.

The Montreal Cotton Company resolved at its meeting last week to issue \$100,000 of new stock at par to the shareholders for the purpose of manufacturing a new line of goods never attempted here before.

Tilsonburg rejoices in a new industry recently started there—the manufacture of vitrified stoneware, an article heretofore manufactured in England alone. The clay used is brought from Devonshire, England, and is known as English ball clay.

Messrs. McKechnie & Bertram, of the Canada Tool Works, have just received an order for the complete outfit of machinery for the new car works at Kingston. This makes the third order the firm now have on hand for new car works in Canada.

The Globe Agricultural Works Company, of London, intend building an addition to their new premises, which will give over 3,000 feet of extra floor room. The new building is to be completed in four weeks. It will be three storeys high with a mansard roof.

A gentleman is in Kingston endeavouring to have a stock company formed to operate a paper factory at Kingston mills, one of the finest sites for such an enterprise to be found in Canada. The water and railway facilities are unsurpassed, and access to the necessary woods can be easily secured.

Burrell's axe factory and Lazier's woollen mill at Belleville are shut down on account of the height of the water in the river. Attempts were being made recently to blast the ice near the upper bridge in order to form a channel and lower the water by giving the ice an opportunity to escape.

The new building of the Thorold Knitting Factory is completely finished, the plastering done, and the millwrights are now busily preparing the interior for the reception of the machinery, which is to arrive shortly. When fitted out, this will be one of the best equipped factories of its kind in Canada.

A new brick carriage factory is about to be built at Woodstock, Ont. The main building will be 120 x 60 ft., and three storeys high, and the blacksmith shop 60 x 40 ft., and two storeys high. The factory is to be completed by the 1st May next, and will give employment to about sixty persons.

A joint stock company is in course of organization in Quebec for the dressing and manufacture of lumber into wooden goods, and for trading in lumber of all descriptions. The capital is \$80,000, and Messrs. A. Thompson, P. P. Hall, J. Price, G. B. Hall and J. H. Hamilton, jr., are the first directors.

Not long since seven carloads, containing 180 Maxwell reapers, mowers and hay rakes, were shipped from Paris, consigned to Odessa, Russia. This is the largest shipment ever made to a foreign country from Canada. It is a proof that the N. P. can do some good, and that our export trade is not ruined in that direction.

A boom in furniture has taken place in Oshawa lately. The Cabinet Factory has shipped about five car loads of superior goods to Winnipeg during the past two weeks. There are few empty houses in town at the present time, it being difficult to get a good one to rent. This is one of the symptoms of returning prosperity.

The N. P. has struck the town of Orillia heavily; one effect being a perfect boom in waggons and carriages, manufactured for the North-West trade. Mr. Wm. Ramsay has secured several large contracts in this line, one being for four hundred waggons to be delivered in Winnipeg. His establishment is a perfect hive of industry.

A Mr. Brooks, who has for some years been carrying on a woollen factory of moderate dimensions in Simcoe, Ont., proposes to add a worsted factory to his establishment. The municipal authorities think favorably of the scheme, and \$20,000 is to be subscribed by private parties, when the Town Council will loan an equal amount.

Mr. Wiley, of Widdersfield, England, was in Tilsonburg on the 16th, looking for a site to build a factory for the manufacture of all kinds of woollen goods. Mr. C. Slater, of Brantford, accompanied him, and Mr. E. D. Tilson drove them both over town and showed them the water privileges. So far we do not know the result of their investigations.

A company is now being organized in Chatham, Ont., for general manufacturing, but at present specially for the manufacture of waggons for the North-West and also for Ontario. They propose to put up such a factory as will at first turn out ten waggons per diem. The company is to have a capital of \$100,000, in shares of \$1,000 each, and subscriptions are now invited.

The Kingston charcoal works, we learn from the *Whig*, are nearly ready for the beginning of operations, but, unfortunately, time will have to be allowed for the proper seasoning of the wood. Dry wood, with the exception of 150 cords, could not be secured, and it is impossible to burn green wood at once and to advantage. The buildings are all erected and about finished.

As an illustration of what the N.P. is doing for Oshawa, the A. S. Whiting Works are turning out seventy per cent. more manufactured goods than they were in 1878 and 1879. Implements are just as cheap, and all the employees have constant work. In 1878 and '79 the warerooms were so full that there was no room for the goods. Now it is impossible to fill orders so as to get any stock ahead.

We are pleased to learn that our enterprising friend, Mr. C. P. Mills, has completed his arrangements for the erection of a neat foundry alongside of his present works. An establishment of this kind for the casting of light machinery required for mills and agricultural implements has been much needed here, and we are glad that Mr. Mills, a thoroughly practical and shrewd mechanic, has taken the initiative in such a work.—*St. Catharines Journal*.

The knitting factory of Messrs McDonald & Smith, on Ormond-street, is in a fair way of succeeding. There are machines for making Cardigan jackets, ladies' and children's fancy mitts, stockings, &c. We were shown some of the samples produced, and really they were beautiful designs and first-class workmanship. We trust that the firm will be so successful that, like its competitor on the other side of the canal, it will have to enlarge and build new premises.—*Thorold Post*.

Messrs. Killey & Co., of Hamilton, are putting into various factories no less than eight new boilers, varying in power from 15 to 90 h.p. One of 90 h.p. is for the Canada Screw Co.'s works at Dundas; one of 60 h.p. for the Hamilton Cotton Mills Co.; two of 40 h.p. for the Canada Life Ins. Co.'s building, and several others. A 70 h.p. engine is in course of construction for Brennan's Mills at Hamilton, and a 75 h.p. condensing engine for the Cotton Warp Mills at Dundas.

The Kingston Car Works will be proceeded with at once. The property selected, and upon which the buildings will be erected, is that facing the Grand Trunk R.R. and K. and P. R.R., and immediately below the cotton mill. A strip of about five acres will be required. Upon this will be erected wooden buildings of the following dimensions:—Wood-working shop, 70 x 60 ft., two storeys high; moulding—blacksmith shop, 100 x 40 ft.; machine shops, iron working, 70 x 45 ft.; construction shops, 320 x 45 ft.; storehouse, 40 x 30 ft.; engine and boiler house, 30 x 30 ft.; offices, 40 x 20 ft.

The following is from a recent issue of the *Globe*:—"Linlsey, Feb. 18th, 1882.—The Committee on Manufactures yesterday afternoon met Col. A. Stevenson and Mr. H. Shackel, of Montreal, who, with Senator Ogilvie and other Montreal capitalists, are going into a paper mill at this place. The Company will carry on the manufacture of straw-board, mill-board, and paper pulp, in a large building that has for some years remained idle and that has very fine machinery. Twenty hands are to be employed from the start, and it is expected the business will soon require fifty hands or more."

The *Moncton Times* has the following.—It is said that this year a total delivery of some 275,000 tons of coal will be required in Montreal. The representative of one extensive coal mining interest in Cape Breton has contracted with the Montreal Gas Company for the supply of some 60,000 tons of gas coal. The Kingston Locomotive Works are at present consuming at the rate of 30 tons of Nova Scotia coal per week, which is laid down in Kingston at 75c. per ton less than Cape Breton coal. When Nova Scotia coal can be sold to a advantage at such distant points as Kingston, it must be apparent without further demonstration that Maritime manufacturers have an immense advantage in the matter of their fuel supply.

The Ontario Cotton Mills at Hamilton are nearing completion. The machinery is in place, and the four hundred horse-power engine was started last week. This is one of the best laid out mills on the continent, the whole arrangements and the distribution of the machinery having been carried out under the superintendence of Mr. C. B. Snow, formerly of the Dundas Cotton Mills. Amongst many other modern improvements that are worthy of mention is a self-acting fire extinguisher apparatus and the system of water supply, the water being pumped direct from the bay by a condensing engine. The mill will be in active operation in a few days, the question now looming up, however, as to where the four or five hundred operatives that are required are to come from. The machinery in connection with the running gear was made by the Hamilton Tool Co., and the engine built by Copp Bros. & Barry.

Business seems to be good at the Smith-Elkins Manufacturing Company's works at Sherbrooke. We noticed at their shops a few days ago a very nicely finished 50 h. p. engine which was just receiving the last touches. They have built it for a party in Weedon, who will use it in his saw mill. The balance wheel is eight feet in diameter, with 20 inch face, finished work. They are also building a 75 h. p. engine, of the same style, with boiler (the first boiler made at their new boiler works). The balance wheel of this engine they cast a few days ago; it is 10 feet in diameter with 26 inch face, and it took 7,000 pounds of metal to cast it. The engines of this establishment are made with steel rods and rivets, which are vastly superior to iron, and although costing more, the company prefer to make them of steel, as their engines give so much better satisfaction that they are confident it will pay in the long run by the increased business they are sure to gain. *Sherbrooke Gazette*.

As an evidence of what the N. P. is doing for manufacturers, we may instance the Nut Factory of Messrs. Brown & Allan, Paris, Ont. Prior to the N. P., there was the only factory of this kind doing business in the country, and then one machine could turn out sufficient to supply the demand. The Americans had the market, and although this firm manufactured a superior article, at figures equally low, the markets were flooded with U. S. nuts, forced upon the market to the exclusion of the Canadian article. Now quite a different state of affairs exists. Instead of one factory we have five, all working to their utmost capacity. Messrs. Brown & Allan are running four machines to their fullest extent, turning out about 5 ton. of nuts per week, and still the demand is not exceeded. This is only one case in many that might be given, but we suppose our free-trade readers will explain to their own satisfaction that the N. P. has nothing to do with bringing about these results. The members of the firm, however, who are all Reformers, cannot so deceive themselves, but freely give the credit to the National Policy. —*Brant Review*.

A number of Montreal gentlemen, Mr. James MacLaren of Buckingham, and Mr. Geo. Dwyer of New York, have been incorporated a company for the purpose, 1st, of acquiring and working "Dwyer's Blow Pipe Process," as patented under date the 23rd of April, 1880, in Canada, or any improvements thereon, for smelting ores of gold, silver, and other metals, and for smelting ores of iron, and making iron, steel, and other commodities therefrom; 2nd, of acquiring and working other processes for the manufacture of gold, silver, iron and steel, or other metals; 3rd, of erecting rolling mills, and generally to manufacture any iron, steel, or other commodity; 4th, of acquiring any lands for the erection of furnaces thereon, and other purposes of the company, or any lands containing, or

supposed to contain, iron or other minerals or petroleum, not exceeding twenty thousand acres in all; 5th, and to have the power of selling or leasing any such patented processes as the said company may acquire—by the name of the "Canadian Iron and Steel Company (limited)," with a total capital stock of \$1,000,000, divided into ten thousand shares of \$100.

The Mount Royal Milling and Manufacturing Company having obtained an act of incorporation, is about commencing the milling of rice on an extensive scale, and also the manufacture of various products therefrom. This new enterprise is expected to be in full swing by May next, the raw product having already been purchased in India, and is now being shipped, which is the first direct steamer cargo from the East to the port of Montreal. This industry, which is entirely new to the country, there having been nothing of the kind attempted before in Canada, our supplies having hitherto been exclusively of manufactured rice, will enable us to produce a much finer article than we have been accustomed to import, as only the lower grades have been taken in England for shipment to this country. The possibilities of this new industry are great, when it is considered we are opening a direct trade with a country whose people number some 250,000,000 inhabitants—that being the population of India and Burmah—and as the chances of reciprocal commerce are many, we heartily wish the promoters of this enterprise every success. The company has purchased very extensive milling property on the Lachine Canal, to which they are erecting additional buildings. —*Gazette*.

We were yesterday shown some mammoth leather belting which is being manufactured by Messrs. Robin & Sadler, 594, 595 and 598 St. Joseph-street, for the Stormont Cotton Company, the Quebec Lumber Company, and Messrs. A. W. Ogilvie & Co., of Winnipeg, Manitoba. The order from the Stormont Cotton Company amounts to about \$7,000, and includes a 30-inch double driving belt, 143 ft. in length, and weighing about 1,000 lbs., and two 24-inch driving belts, 151 ft. in length, which are intended to run side by side on a 50-inch pulley, besides, 18, 15 and 12-inch and a large number of smaller belts. The order from Messrs. A. W. Ogilvie & Co., is for their new mill in Winnipeg, Man., and is for nearly \$5,000 worth of belting. The order includes a 36-inch double driving belt, 112 ft. in length, a 24-inch double driving belt over 100 ft. long, and a large number of smaller ones, both single and double. The belts that are being manufactured for the Quebec Lumber Company, Echemin, Que., include a very fine 28-inch double driving belt for the main driving wheel of the Company's saw-mill. Six of the largest of these belts were weighed, when it was found that they were nearly two tons in weight. The general appearance of the workmanship of these belts reflect the greatest credit on the firm, who are doing a large and thriving business in leather belting. —*Montreal Herald*.

PLATED SILKS AND WOOLLENS.

German chemists have invented a process whereby silk, woollen, cotton and linen threads may be "plated" with silk. The method employed somewhat resembles electrotyping, but electricity is not used in this case. Silk waste, ravelings, etc., are placed in a clear solution of caustic soda or potash, and rapidly dissolve; this is then diluted by the addition of distilled water—more or less, as the plating is to be heavy or light. The cotton or linen threads are then placed in this bath, and in a short time are coated with the silk contained in the solution; they are then taken out and dried. This process is repeated a number of times, the bath being diluted each time. Finally the goods are left for two hours in a strong bath of sulphuric acid, being agitated meanwhile, then thoroughly rinsed with water, pressed hot, beaten and stretched, as is customary with silks, to bring out the lustre and gloss.

By this process, dull, lustreless, low-priced silks can be treated with a solution of better and more lustrous silk, and a more valuable grade produced. The precipitated silk adheres firmly to the cotton and linen fabrics, and the effect is similar to real silk, although to the touch of an expert the deceit is at once apparent.

A similar process has been applied to wool and also feather-down, both of which have been deposited by this method upon other fibres. Some striking and curious effects may be produced by treating fabrics first with the silk solution, then the wool solution, then the feather solution, and so on. If this process comes into general use, there will be a wide field opened up for woollen shoddy, which may be used for "plating" cheap cotton fabrics. It remains to be seen, however, whether this process will be practically useful. —*Phila. Trade Journal*.

The Iron Trade.

PITTSBURG.

DECISION OF IRON MASTERS TO MAKE NO ADVANCE IN PRICES—A REMARKABLE FACT, AMERICAN STEEL RAIL MILLS ABLE NOW TO SUPPLY THE WHOLE RAILWAY DEMAND OF THE COUNTRY—LOWER PRICES LOOKED FOR IN CONSEQUENCE—THE WESTINGHOUSE HIGH-SPEED ENGINE—A QUIET MARKET AND PRICES UNCHANGED.

(From Our Own Correspondent.)

PITTSBURG, Feb. 27, 1882.

At the close of last year, and for the first few weeks of the present year, a fear existed that there would be another "boom" in the iron trade of the United States, and this fear had not wholly disappeared up to the date of the meeting of the Western Iron Association on the 15th inst. But the decision of the Association at that meeting to let prices remain as they then were, and that, too, by a unanimous vote, has had a wonderfully quieting effect; this effect being intensified by the decision not to meet again until the date of the regular quarterly meeting, the first Wednesday in April.

For the first time since the depression, which began in the autumn of 1873 and ended in the early summer of 1879, the American steel rail works are now prepared to make all the steel rails that will likely be required in this country, and, as a natural result, prices are declining. A new Bessemer plant at Pueblo, Colorado, will be completed in the spring, another is in process of erection at Sorrento, in this State, and some of the existing works are still increasing their capacity, so that a still further decline in prices may be anticipated. Under these circumstances, it will not be long until foreign rail-makers will entirely lose one of their best markets. I presume that many of the readers of the CANADIAN MANUFACTURER are already aware that more steel rails were made in the United States last year than in any other country in the world, Great Britain not excepted. This, a result of protection to home industry, should not be without encouragement to the friends of the National Policy in the Dominion.

Among the new inventions hereabouts may be mentioned the Westinghouse high speed engine. It consists of two vertical inverted cylinders, containing pistons which are directly attached by means of connecting-rods to cranks placed diametrically opposite. By admitting steam to one cylinder its piston is forced down, thus transmitting power to its crank, and by the same operation returning the piston of the other cylinder to the highest point of its stroke. Steam is then admitted to the other cylinder and exhausted from the first. It will therefore be observed that the effect of gravity and steam pressure is constantly to keep the bearing surfaces of the connecting-rods and cranks in contact. The same forces are exerted to keep the main shaft upon its bearings throughout its complete revolution. This arrangement makes adjustment for lost motion unnecessary, the reciprocating parts being always compressed. The working parts are all enclosed, and, revolving in oil, they are perfectly lubricated and free from dust and its cutting effects. The Westinghouse Machine Company, organized last year, manufacture these engines, their works being located on the corner of Liberty and Twenty-fifth Streets. They have orders on hand for twenty-five engines. Among those recently completed is one for Hussey, Howe & Co., steel manufacturers, of this city. It is of 100 h. p., will run at 300 revolutions per minute, and is intended to drive a roll train, with which it will be directly connected. Another, of 50 h. p., and 300 revolutions, will drive an electric light apparatus at the Edgar Thomson Steel Works. A third is of 10 h. p., will run 900 revolutions per minute, is coupled directly to an electric generator, and the whole mounted in a wagon made for the purpose, it being the design of the Company, for whom it was made, to furnish light for shows, pic-nics, &c. The engine that drives the Westinghouse Machine Company's Works runs regularly at 500 revolutions per minute, is of 15 h. p., and occupies a floor space of only 24 x 30 in. Another small engine may be seen in the works, which is designed to run head-light electric machines for locomotives. It is of 2 h. p., and is capable of making 1100 revolutions per minute. The Company are making a large addition to their works

The pig iron market is still quiet, but there has been more inquiry within the last few days. Prices without change.—Manufactured iron is still in excellent demand at unchanged prices.—Nails in fair demand.—Gas and steam-pipe and boiler-tubes are lower.—The discount on the former is now 60c. to 60c. and 5 per cent., and on the latter 40c.—Steel unchanged and in good demand.—Steel rails lower: \$57 to \$80, as to time of delivery.—Railway track supplies without change. With the exceptions noted above, all prices are substantially the same as quoted in my former letter.

PHILADELPHIA.

THE IRON MARKET NOW—A WEAKENING TENDENCY OBSERVABLE—THE BESSEMER MILLS—TARIFF MATTERS—THREATENED STRIKES.

(From Our Own Correspondent.)

PHILADELPHIA, Feb. 28.

Eastern markets continue in favour of buyers of iron, but they are less disposed to take advantage of it than at date of last letter. The main reason is, that a further weakness is expected. It is hardly correct to say any weakness has occurred thus far, but in pig iron, at least, large sales could not be made except at concessions from ruling market quotations. Opinions differ as to whether prices will remain where they are, or advance or decline. Each one has facts to support his own opinion.

Those who look for an advance base their opinion on the fact of scarcity, absence of stocks, and enormous consumption. Those who look for a decline, look for imports of foreign iron to bring it about. Those who expect prices to remain stationary, think no more than enough can or will be imported to accomplish that purpose. Within two weeks past purchasers have been cutting down in their purchases, and hence stocks in consumers' hands are lower. Imports have been increasing this year as compared with the early months of last year. The restriction abroad is to be kept up six months more. If foreign consumption does not drop off nothing very serious can happen. At most a hundred or two thousand tons could be unloaded here, but even that now would be a dangerous experiment, in view of the rapidly increasing American productive capacity. The bankers who expected to realize 100 per cent. on their investments 18-24 months ago, and who lost heavily, are not going to dip in again in a hurry. American capacity is a remarkably elastic article and it is not safe to assert that heavy imports of pig are probable. Still there is much more hope of English and Scotch iron getting in now than for almost a year, because of the gradual increase of foreign surplus, and the decline of stocks here in the face of increasing demand.

Boston markets are telegraphed us to-day dull and unchanged in pig, active in bar and plate, and quiet in steel. New England requirements are about as large as last year, but have come forward slowly. New York iron market is quiet, and consumers are buying sparingly in view of the unsettled condition abroad; no one wants to be caught with large stocks of iron on hand. Three months ago there was anxiety to get all the iron that could be had. No. 1 foundry is to be had at \$26 @ \$26.50, Gray forge at \$22 @ \$23 at furnace, Bessemer has advanced to \$27 @ \$28, but no business of consequence is to be reported. Muck bar has declined to \$45.50 @ \$46.50, and demand is active enough to keep all capacity sold two to three weeks ahead.

The condition of the merchant iron mills is essentially unchanged. Pittsburg holds the key of the situation, and Pittsburg decrees no advance. The decision is respected and is a wise one. There are not a few evidences that finished iron is being ordered more freely for urgent needs. When manufacturers are unwilling to guarantee supplies 60 to 90 days ahead at fixed prices, it is a warning to consumers to look elsewhere; and since the opening of the year inquiries abroad have been increasing with results shown in doubled imports. It is by no means sure these importations can be maintained. Iron is being turned out much faster than a year ago, or even six months ago.

The Bessemer Mills are selling but little iron. No large sales have been in hand, but inquiries were submitted for fall and winter requirements. Several hundred miles of new roads have been recently projected. Quite a number of connecting and branch lines are to be built in the States east of the Mississippi. Some of them are air lines connect-

ing St. Louis, Chicago and Cincinnati. Similar lines are also projected in the South. Railroad prices in all external appearances increasing. New projected roads will endeavour to obtain supplies from abroad, but for the present it is impossible. Later on a decline is promised. Ocean freights also will be lower. There has been already a decline of from five to eight shillings per ton.

Old rails have been fluctuating between \$20—31, and are now \$30.50. There is a steady demand for all kinds of iron work and steel, such as hardware, wire and wire work, machine shop and foundry work, material, large and small, elevators, planers, tools, etc. Nothing is heard of the old cry of dullness. Much additional capacity is going in. The textile industries are expanding, and the production this year will be much larger than last. Shipments of machinery south are being made.

Manufacturers are concentrating their efforts on the passage of the McKinley Bill, while Free Traders are opposing it. Nothing can retard the growth of protectionist sentiment westward and southward, and if hostile tariff legislation is not passed at this session it will have a slim chance in the next. Petitions have flowed in expressing the condition of public sentiment. The manufacturing interests are ably represented, and not a point is being neglected to secure the right sort of legislation. Congress finds the mercantile and manufacturing community aroused.

After all the fuss made to carry the Reading road to pay tax on its labour scrip, it turns out that the mortgages come first, and the Government cannot collect the tax. Some future Congress will remit it.

The blast furnaces have had the price of coal advanced on them 10c per ton. The suspension policy will be maintained. The supply is kept within bounds of remunerative demand.

Strikes are threatened in several quarters. No other method seems available to determine the value or cost of labour. The Phoenixville works, one of the largest in the State, have a strike on hand against working six "heats." The men will work only five. The Company demands the withdrawal of the employes from the union. Both sides are firm. The wage-workers in other trades have asked higher wages on and after certain dates. Generally their wishes have been accorded. Building operations are contemplated on a large scale, and operations will not be obstructed by demands for higher wages so long as they are in reason.

MONTREAL.

FEATURES OF THE PIG IRON MARKET—LARGE EXPORTS OF IRON FROM GREAT BRITAIN—HOW BUYERS PAID LAST YEAR—FOR EXCESS OF CAUTION—REMITTANCES BETTER—FIFTEEN CENTS ADVANCE ON CUT NAILS—QUOTATIONS.

(From Our Own Correspondent.)

MONTREAL, FEB. 28TH, 1882.

The weaker feeling which has developed in the Glasgow pig iron market since our last report, owing to the accumulation of surplus stocks there, and easier freights, has produced a quieter feeling here, and buyers appear to be less anxious to operate. We hear of the sale of 1,000 tons of Gartsherrie on p.t., but known to be at a lower figure than has yet been quoted for that brand. The sale is also reported of a round lot of No. 1 Summerlee for future delivery on p.t., but the price is said to be in the neighbourhood of \$24.25 here. Eglinton has changed hands at \$28.00 @ \$23.50 in small lots. The British Board of Trade returns show the exports of iron from Great Britain for the month of January to have been 31,469 tons, or nearly double the exports for the corresponding period in 1881. The same returns also show a significant increase in the shipments of bars, rods, railroad iron, sheets, hoops and old material, so that, although stocks have somewhat accumulated of late in the British markets, it is expected that the enormous increase in consumption during the coming year will absorb them before the summer be over. We hear that freight contracts for early shipment from Glasgow have been made at 15s. to Montreal. We quote prices of pig iron as follows:—Coltness \$25.00 @ \$25.50; Siemens \$24.50 @ \$25.50; Summerlee \$24.50 @ \$25.00; Langloan \$24.50 @ \$25.00; Eglinton \$23.00 @ \$23.50; Calder \$24.00 @ \$24.50; Carnbroe \$23.50 @ \$24.00; Hematite \$27.50 @ \$28.00.

Dealers report a fair demand for bar iron for early shipment at current rates, but those buyers who are not pushed for supplies are delaying their orders, believing they will do better later on, although the same policy last year cost them a pretty penny. Sales on spot during the week aggregated some 400 tons of Staffordshire bars at \$2.25 and sales of about 100 tons of Siemens bars in small lots are reported at \$2.35, round lots being quoted at \$2.25. Advices from England state that many of the mills are booked considerably ahead, and will remain busy for several months. In Canada plates there is very little doing, and we do not hear of a single transaction during last week. Prices, however, are nominally quoted at \$3.25 @ \$3.50 as to size of lot, for Penn or equal brands. Tin plates are also dull owing to the recent decline in England of £3 10s. per ton, being now quoted at £111 in London. I.C. charcoal is quoted at \$6.25 @ \$6.50, and coke at \$5.25 @ \$5.50. Tinned sheets are only in moderate request, Lion and Crown best cokes being offered at 10c. @ 10½c., but we hear that these figures have been shaded for round quantities; best charcoal is quiet but steady at 11c. @ 11½c. as to quantity. L. N. Crowther's galvanized iron No. 28 has been sold at 7½c. per lb. In general hardware a fair business for the season transpires at steady prices. A good number of orders for shelf goods have been received from travellers who are now generally on the road. Remittances are reported better since the last heavy fall of snow, which made splendid roads in the interior, and helped business materially. We understand that an advance in the price of cut nails of 15c. per keg has been decided upon, to come into force to-morrow, March 1st. Present prices are:—Cut nails, 3 inches to 6 inches, \$2.60 per keg; Hot Cut, American or Canadian pattern, 2½ to 2¾ in. \$2.85; 2 to 2½ in. \$3.10; 1½ to 1¾ in., \$3.35; 1¼ in., \$4.10; Cold Cut Canadian 1½ to 1¾ in., \$3.10; and do 1¼ in. \$3.60. We quote prices as follows:—Bar, per 100lbs.—Siemens, \$2.25 to \$2.35; Scotch and Staffordshire, \$2.25; Best Staffordshire, \$2.50; Swedes, \$4.00 to \$4.50; Norway, \$5.00; Lowmoor and Bowling, \$6.25 to \$6.50. Iron Pipe, discount 60 per cent. Canada Plates, per box—Glamorgan & Budd, \$3.25 to \$3.50; Penn, \$3.25 to \$3.50; Nentgwynt, \$3.25 to \$3.50; Hatton, \$3.25; Thistle & Clifton, \$3.50. Tin Plates, per box—Charcoal, I. C., \$6.25 to \$6.50; Charcoal, I. X., \$7.75 to \$8.00; Charcoal, D.C., \$5.75; Charcoal, D.X. \$7.50; Coke, I.C., \$5.25 to \$5.50; Tinned Sheets, No. 26, Charcoal, 10½c. to 11c. Cookly K. or Bradley, 10½c. to 11c.; do, Coke, 10c. to 10½c.; Galvanized Sheets, 28 best, 7 to 7½c.; Hoops and Bands, per 100lbs., \$2.75 to \$3.00; Sheets best brands, \$3.00; Boiler Plate, per 100 lbs., Staffordshire, \$3.00 to \$3.25; Bradley, \$4.50 to \$4.62½; do, Lowmoor and Bowling, \$7.00 to \$12.00; Russia Sheet Iron, per lb., 12½c. to 13c. Lead—Pig, per 100 lbs., \$4.50 to \$4.75; Sheet, do. \$5.50; Bar, \$5.00 to \$5.50; Shot, do., \$6.00 to \$6.50. Steel—Cast, per lb., 11½c. to 12c.; Spring, per 100 lbs., \$3.75 to \$4.00, Tire, do., \$3.50 to \$3.75, Sleigh Sheet, \$3.00 to \$3.25; Ingot, Tin, 30c. Bar Tin 30c. to 32c.; Ingot Copper, 20½c. to 21c.; Zinc sheet, per 100 lbs., \$6.00 to \$6.50; Spelter, \$5.50 to \$6.00; Horse Shoes, per 100 lbs., \$4.25 to \$4.50; Proved Coil Chain, ¾ in., \$5.50; Anchors, \$5.00 to \$5.50; Iron Wire, No. 6, per bdl., \$1.75 to \$1.80.

Wool.

PHILADELPHIA.

SLACK DEMAND, WITH THE MARKET INCLINING DOWNWARD—BUYERS AND SELLERS WAITING REPORTS OF LONDON WOOL SALES THE PRESENT WEEK.

(From Our Own Correspondent.)

PHILADELPHIA, FEB. 27, 1882.

The wool trade lacks buoyancy or activity, but a steady legitimate business is quietly in progress in all markets. Purchasers keep pace with consumptive requirements, but rarely go beyond. The conservative temper of buyers in the face of the oversold condition of the mills, and the generally discouraging outlook in the goods trade, occasions a good deal of disappointment to holders of the staple. Some of them have grown restive, and have latterly evinced more anxiety to sell. The general market is not quotably lower, and the majority of holders have not

relaxed faith in the staple—but here and there shrewd buyers have been able to negotiate quietly on more favourable terms, and the whole market is weaker to sell. Fine Ohio and West Virginia clothing fleeces that sold recently at 45c. have changed hands within the past 10 days at 44c. @ 44½c. and fair X wools have sold at 43c. @ 43½c. against 44c. in the early part of the month. All grades have been shaded in proportion except the better class of delaine and combing fleeces, which are in very small supply. At the same time general asking rates are unchanged, and most dealers are loath to admit the drooping tendency of the market. Canada combing wools are very dull at 40c. @ 42c., and competing grades of domestic are hard to move. Trashy wools of all sorts are neglected. The London sales of Colonial wools have been postponed from time to time, owing to delayed arrivals, but are announced to open to-morrow. A decline at this auction would favour the present inclination of prices on this side of the ocean, and buyers and sellers are alike awaiting developments with more than usual interest.

MONTREAL.

SALES OF CAPE AND AUSTRALIAN—BELIEVED THAT MANUFACTURERS HAVE BUT SMALL SUPPLIES ON HAND, WITH LARGE ORDERS BOOKED FOR GOODS—DOMESTIC WOOLS QUIET—LARGE INCREASE OF WOOL SALES IN BOSTON.

(From Our Own Correspondent.)

MONTREAL, Feb. 28, 1882.

During the past week quite a number of sample lots of 5 to 10 bales of foreign wool, chiefly Greasy Cape and Australian, have been taken by manufacturers, the former at 19½c. to 21c., and the latter at from 22c. to 24½c. It is thought by dealers that manufacturers have less stocks on hand than usual at this season of the year, while their orders for woollen goods are said to be large. In domestic wools we have a very quiet market to report, although values remain very steady, the supply of Canada pulled being limited. We quote A super 33c. to 35c., B super 31c. to 32c., and unsorted pulled 28c. to 29c. The stock of fleece is small, and prices are purely nominal. Foreign wools are quoted as follows:—Australian greasy, 28c. to 30c. for fine combing, and 22c. to 25c. for common; Greasy Cape, 19½c. to 20½c.; extra fine qualities, 2½c.

The Boston market has exhibited a fair amount of animation during the past week, the total amount of sales being 1,700,004lbs., against 1,890,681lbs. for the week previous, or a decrease of 181,877lbs. The amount of sales on the same market since January 1st aggregate 17,727,635lbs., against 12,795,950lbs. for the corresponding period in 1881, showing the large and important increase of 4,931,685lbs. A Boston dealer was in this city during the week, but we could not learn of any business resulting.

Cotton.

EFFECT OF THE ENGLISH SHORT-TIME MOVEMENT—THE BEARS IN COMMAND OF THE MARKET—A REACTION COMES LAST WEEK—BETTER INQUIRY SINCE—QUOTATIONS.

(From Our Own Correspondent.)

PHILADELPHIA, Feb. 27, 1882.

During the week ending February 18th there was continued demoralization in the American and Liverpool cotton markets, and a further sharp decline in prices, both for spot and future deliveries. The latter were at times panicky, but toward the close a better feeling prevailed. Last week opened firm, but on Tuesday there was a renewal of the bear raid on prices in New York, influenced by reports of a proposed stoppage of production among the North Lancashire mills for two weeks during March. This threatened a curtailment of consumption to the extent of about 120,000 bales, and was an effective weapon for a time in the hands of the bears; but on Friday the market reacted, and has since ruled steadier all around. The general outlook is more encouraging. There is a better inquiry for consumption, and indications of an improv-

ing demand for export. Receipts continue to run small, and this fact is beginning to neutralize the effect of the cotton in sight. The total receipts at the ports to date are about 516,000 bales less than for the corresponding period of last year, and all advices from interior towns point to a continued light movement for the balance of the crop year.

The following were the closing prices of spot cotton on the dates named:—

	February 11th.		February 25th.	
	Middlings.	Low Middlings.	Middlings.	Low Middlings.
New York	11½	11 7-16	11-16	11 5-16
New Orleans	11½	11½	11½	11
Mobile	11½	11½	11½	11
Charleston	11½	11½	11½ @ 11½	11½ @ 11½
Savannah	11½	10½	11½	10½
Galveston	11½	11	11½	10½
Wilmington	11½	10 13-16	11½	10 15-16
Norfolk	11½	—	11½	—
Augusta	10½ @ 11	10½	11	10½
Memphis	11½	11	11½	10½
St. Louis	11½	11	11½	10½
Cincinnati	11½	10½	11½	10½
Baltimore	11½	11½	11½	11½
Philadelphia	12	11½	11½	11½
Boston	11½	11½	11½	11½

Dry Goods.

NEW YORK.

TRADE NOT SO LARGE IN VOLUME AS EXPECTED—FAILURES AMONG SMALL DEALERS—DEMAND FAIR BUT CAUTIOUS—INCREASED IMPORTATIONS OF FOREIGN DRY GOODS.

(From Our Own Correspondent.)

NEW YORK, Feb. 28, 1882.

The state of our dry goods market has not materially altered in the past two weeks. There has been, since then, no general activity, and the average volume of trade proved disappointing. To a very large extent this state of affairs is owing to the over-trading of the preceding year, the effects of which are plainly visible in the numerous failures in the smaller branches of the dry goods trade all over the country. Everywhere there is a feeling of marked caution displayed, especially on the part of buyers; and this, as would be expected, is reflected among the commission houses and agents, who, in turn, entertain a certain degree of distrust. From this statement, however, it must not be inferred that there is any serious inactivity in this market. Business has simply received what will prove a healthful check: it has fallen below expectations and continues less active than desired. Generally speaking, the market is in a satisfactory condition, and, as others are at present, it is in a transitory state. There are few accumulations of goods on hand, and, while the demand for certain classes of fabrics is slack and prices show a corresponding ease, yet in most cases prices are steady, with a moderate trade, and plenty in the trade looking for more improvement with the approach of Spring. At present the raw materials are having little effect, the law of supply and demand being the principal influence; though woollen manufactures are not losing their claims for an advance so strongly on wool, as the latter article has lately shown some weakness.

Cotton goods have been in strictly moderate demand. The leading makes of brown cottons, demins and ducks, are well sold up, and fair deliveries of the same have been made. Fine grades of bleached cottons are in fair request, but inferior qualities are dull and weak. Print cloths moved quietly through the past fortnight; but stocks, of which speculators hold about a third, are being steadily reduced; the present quotations for 64 x 64's is 8½c. Prints are being distributed in very limited quantities, the demand being unsatisfactory. Buyers are discriminating, and, notwithstanding prices are low, sales are mostly in small lots. Of gingham, agents have shipped large quantities in the execution of back orders, and are experiencing a fine re-assorting demand, while the jobbing trade in these is quite active. Dress goods received fair attention, and hosiery and underwear were fairly active, circumstances considered. The market for heavy woollen goods has continued firm and quite ac-

tive in the most important respects. The leading makers have booked a fair number of orders, and a few have their entire production under contract. Altogether there is some improvement to report since last advices, though business does not show the activity of this time last year. Clothiers, who utilize about 80 per cent. of our domestic woollens, are hopeful for a good season in spring clothing, having well cleaned up their winter stock, and, however, some occasional concessions in prices. Heavy weight fancy cashmeres, worsted coatings, and chevots, are receiving the preference from buyers, and form the bulk of present business, while it is worthy of note there is a better inquiry than usual for finer fabrics. In light weight there is little doing beyond deliveries in the execution of back orders. Overcoatings are doing well. Kentucky jeans remain very sluggish, the position being unsatisfactory to holders; but while a decline is probable, prices are yet unchanged.

For foreign dry-goods there has only been a moderate demand. The imports are still excessive, and must, in the absence of any decided improvement before long, bring renewed activity to the auction rooms. The following figures show the imports of dry goods at this port since January 1st, up to the present time, including 8 weeks:—

	1882.	1881	1880.
Entered at Port.....	\$26,368,215	\$19,280,852	\$22,203,079
Thrown on market.....	25,621,696	20,772,973	21,720,641

Silks have been in strong request for small parcels, with more attention devoted to extra fine fabrics. For dress goods the demand was irregular except for a few staple British and French goods. Linens, white goods, laces and embroideries, remain in moderate demand. Wide ribbons were more active, and hosiery and gloves moved in fair quantities.

Leather.

GOOD DEMAND FOR SOLE—BLACK LEATHER IN OVER-SUPPLY LARGELY SELLING ON PRIVATE TERMS—SPLITS SHIPPED TO GREAT BRITAIN—QUOTATIONS.

(From Our Own Correspondent.)

MONTREAL, Feb. 28, 1882.

A very good enquiry exists for No. 1 Bd. [plump Spanish sole, which is scarce and firm at 25c. to 26c. per lb as to quantity, the sale being reported of 150 sides, choice No. 1 Bd at 25½c and a smaller lot at 27½c. No. 2 Bd. is in large supply, and prices of same are easy at 22c to 23c., a lot of 350 sides having been placed at the inside figure to-day for shipment West. Slaughter sole is also in good demand, and figures hold steady at 27½c. to 28½c. sales having been effected at both figures. In black leather we have a largely over stocked market, and prices all round lean towards buyers' interests. Waxed upper is very dull, and from actual transactions that have come to light within the past few days we reduce our quotations, light upper being quoted at 31c. to 38c., medium and heavy upper 31c. to 31c. Several large sales of splits have been made during the past few days, some 50 tons having changed hands, but prices were not allowed to transpire for publication. The shipments of splits for Great Britain of late have relieved this market of considerable surplus stocks, but still the supply largely exceeds requirements. Manufacturers, in view of the easy state of the leather market generally, confine their purchases strictly to immediate wants. We quote:—

We quote prices as follows.—Spanish Sole, No. 1, B. A., \$0.24 to \$0.26; Spanish Sole, No. 2, B. A., \$0.22 to \$0.23; China, No. 1., \$0.21½ to \$0.22½; China, No. 2, 20½ to \$0.21; English Sole, \$0.44 to \$0.50; American Oak Sole, \$0.45 to \$0.50; Buffalo, No. 1, \$0.22; Buffalo, No. 2, \$0.20½ to \$0.21; Slaughter, No. 1; \$0.27 to \$0.28½; Rough (Light) \$0.27 to \$0.29½; Harness, \$0.29 to \$0.33; Waxed Upper (Light) \$0.31 to \$0.38; Waxed Upper, medium and heavy, \$0.31 to \$0.34; Grained Upper (long), \$0.36 to \$0.38; Scotch Grained Upper, \$0.38 to \$0.40; Buff, \$0.14 to \$0.16; Pebbled Cow, \$0.12 to \$0.15; Splits, calf, per lb., \$0.30 to \$0.35; Splits, medium, Crimping, \$0.27 to \$0.30; Splits, Juniors, \$0.18 to \$0.25; Calfskin, (light), \$0.60 to \$0.75; Calfskin (heavy) \$0.75 to \$0.85; French Calfskin, \$1.05 to \$1.35; French Kid, \$15.75 to \$16.50; English Kid, \$0.60 to \$0.70; Busses Kid, \$15.50 to \$16.50;

Patent Cow, \$0.15 to \$0.16; Enamelled Cow, \$0.16 to \$0.18; Green Hides, inspected, \$9.50; Calfskins, per lb., \$0.13 to \$0.13½; Sheepskins, (old) \$0.99 to \$1.25½; Lambskins, \$0.80 to \$0.95; Sheepskins, dressed, No. 1, \$5 to \$6.75; Sheepskins, dressed, A, \$6 to \$6.75; Sheepskins, dressed, AA, \$7 to \$7.75; Sheepskins, dressed, XXX, \$8 to \$8.75; Sheepskins, dressed, XXXX, \$9 to \$9.75; Sheepskins, dressed, XXXXX, \$10 to \$10.50.

Selections.

PREJUDICE OF EMPLOYEES AGAINST INNOVATIONS IN MACHINERY.

A short time since a manufacturer was experimenting with an invention pertaining to the operation of his steam boiler, one of the advantages of this invention being the requiring of a less skilful foreman than by the usual method. Somewhat to the surprise of the manufacturer, he found that his fireman, who was somewhat skilled, persisted in offering all manner of objections to the introduction of the new device. This aroused the suspicions of the manufacturer, who determined to test the disinterestedness of the fireman's advice. He therefore stated in the latter's hearing that the fireman's position would not be interfered with, even though he did adopt the device. This wrought a marvellous change in the mind of the fireman. He, at once, became an enthusiastic admirer of the invention, and the employer had thereafter no trouble in getting him to test its efficiency.

The experience of the manufacturer in question has many parallels, and it may safely be said that many exceedingly valuable improvements have been kept out of manufactories from the same cause that led the fireman above alluded to to oppose the introduction of the invention in question. Manufacturers often are thrown off their guard by the advice of their employees, and are thus prevented from availing themselves of improvements which would greatly facilitate their business. Inventors find the opposition of workmen often the greatest obstacle in the way of their introducing improved machinery. The jealous fear that the new device will, in some manner, interfere with their salary or employment, induces them to speak contemptuously of the proposed innovation, and to underestimate its advantages. It will be evident that the manufacturer who solely relies upon the advice or approval of his workmen for the introduction of new appliances into his shop or factory may be grossly deceived. Occasionally it occurs that a manufacturer finds himself distanced by his competitor, who adopts new machinery and new methods, while he may owe his misfortune to the selfish action of his employee, who, for fear of losing some personal advantage, had discouraged the introduction of much needed improvements. The manufacturer who is possessed of a sufficient knowledge of machinery to be his own judge in relation to any proposed improvement is indeed fortunate.

We do not contend that all employees are selfish in their advice; but it is only natural for the workman to look out for what he deems his best interest; and, although he may be mistaken as to that interest, he is quite likely to be governed by his belief in that direction, however erroneous it may be. It would be well for the manufacturer, if he is desirous of improving his methods or machinery, when he finds that he is met by the objection of his workmen, to investigate the matter outside of his own works. The manufacturer whom we mentioned at the commencement of this article, readily detected the trouble with his fireman, and obviated it by giving him to understand that his position was secure, whether the invention was adopted or not. But this course cannot always be pursued, and it is fair to presume that the fireman in question would have persisted in his objections until this day, had he not been relieved from the fear of the loss of his position.

The best informed mechanics are now beginning to understand that the adoption of new mechanical appliances does not necessarily mean less wages to them, but rather better opportunities for an increase of wages, and it would be a most desirable change if all workmen were to arrive at a like conclusion. Manufacturers cannot afford to allow themselves to be deceived in regard to the value of improvements in their business. This is an age of improvement, and those who would keep to the front must be alive to the advantages which science and invention are constantly bringing forth. The workmen intrusted with the charge of the business of their employers ought, in duty to themselves and their employers, to favour any change that will improve the methods of production, or the product itself. If the manufacturer could drive ignorance, prejudice and selfishness from the shop, he would have little trouble in availing himself of the best improvements which the times afford. As it is, he sometimes is obliged to combat all these elements before being able to introduce the latest and best machinery and appliances into his works.—*Industrial World (Chicago)*.

DYEING RECEIPTS.

The following receipts we have translated from foreign sources. We reproduce them under the impression that many of our readers may be interested in knowing what is being done on the Continent, and of course we wish it to be understood that we give no opinion as to their practical value:

Indigo Blue on Wool, 50 lbs.—Dip in a bath containing some glauber salt, and dye in another bath containing: Blue-stone, 1 lb.; chloride of tin, 1 lb.; sulphuric acid, 1 lb.; Indigo blue, 2^o B., 2 lbs. Boil one-half hour, then wash. This blue can be covered with any other aniline blue.

Violet Blue, for Wool, 100 lbs.—Boil for two hours, with alum, 7 lbs.; tin crystals, 2 lbs.; tartar, 4 lbs. Dye with logwood, 30 lbs.; sulphate of copper, 1 lb.; orchil, 2 lbs. This process is used in Verviers.

Wool Dyeing, Black, 100 lbs. Yarn.—Boil three-quarters of an hour with bichromate of potash, 3 lbs. 3 oz.; copperas, 9 oz.; tartar, 2 lbs.; sulphuric acid, 12 oz. Wash a little, then boil three-quarters of an hour with 6 lbs. of logwood.

Violet.—Dye with bluish or reddish methyl violet, to which add 8 oz. bi-sulphate of soda for every 10 lbs. of wool.

Brown 100 lbs.—Boil three-quarters of an hour with bichromate of potash, 2 lbs. 12 oz. Wash and dye with lima wood, 40 lbs.; fustic, 12 lbs. Very light shades are dyed by adding to the bath 6 oz. of sulphate of alumina. Very dark shades are obtained by grounding with logwood.

Mode Reddish, 100 lbs.—Boil 1 hour with logwood, 1 lb.; orchil, 3 lbs.; alum, 2 lbs.; santal, 4½ lbs.; madder, 4½ lbs.

Cinnamon Brown, 100 lbs.—Boil 1 hour in alum, 6 lbs.; sulphuric acid, 2 lbs. Take out, and add to the bath carmeloine, 3 lbs.; garanceline, 3 lbs.; yellow-wood, 7 lbs. Boil for 1 hour, then wash.

Bluish Green, 100 lbs.—Boil 1 hour with red prussiate of potash, 4 lbs.; alum, 7 lbs.; tin crystals, 1 lb.; sulphuric acid, 1 lb. Take out, and add to the bath alum, 2 lbs.; yellow-wood, 5 lbs.; Indigo carmine, 6 lbs. 2¾ oz. Boil 1 hour, then wash.

Bismarck Brown, 100 lbs.—Boil with tartar, 2 lb.; alum, 4 oz.; orchil, about 2½ oz.; fustic, 5 lbs.; and a little Indigo carmine. Brighten with aniline brown, or with fuchsine.

Dark Blue, 15 lbs.—Boil with bichromate of potash, 6 oz.; sulphate of copper (bluestone), one-half ounce; tartar 8 oz.; sulphuric acid, 1½ oz. Leave to cool in the bath, then wash and dye with a decoction of yellow-wood, 1 lb.; lima-wood, 8 oz. Boil one-half hour. If a darker shade is required, add some logwood.

Red Grenat, 15 lbs.—Mordant as above, and dye with yellow wood, 14 oz.; lima wood, 3 lb. 8 oz. Darken with a decoction of 4 oz. of logwood.—*Hat, Cap, and Fur Trade Review.*

WEALTH FROM WASTE.

The utilization of what were once considered waste products or materials of little value, is now carried on to such an extent that it is not unreasonable to look forward to the time when everything involved in manufacture, however insignificant and neglected at present, shall find its use and fill its proper sphere in the economy of trade. When we glance backward at the history of manufactures, and see how, a very few years ago, people would have scouted the idea of devoting certain waste material to useful purposes, and then, when we comprehend the value which such have since acquired in their adaptability to the manufacture of important articles of commerce, the chasm, though a wide one, seems to have been bridged in a twinkling.

How many years since the seed of cotton acquired its commercial value? Yet, note the number of factories in the South, engaged in working up this product into oil, and see how this commodity is not only taking the place of an imported article in our own markets, but is being largely exported across the water. But the utilization does not stop here. The waste of the waste has a value, and the hulls, meal, &c., may be profitably devoted to numerous uses. Petroleum is another product susceptible of a wide range of uses; for after the higher ingredients of the oil have been extracted, the residuum may be utilized in a diversity, and constantly increasing number, of ways.

There is nothing which illustrates more significantly this conversion of a thing of waste into a thing of value, than the introduction of anilines and their substitution for natural dyes. There are beautiful colours evolved from the not beautiful substance known as coal-tar. The revolution wrought has been wonderful. In matters the entire aspect of the trade has been changed by the invention of artificial alizarine, and madder, from an article of prime importance among dyes, has fallen to a place of secondary value. Of course we recognize the multifarious ways in which old junk and like stuff is made use of. The skins used by gold-beaters are made from the offal of dead animals; prussiate of potash is produced from the hoofs of horses and cattle; the cheap trunk-maker finds material for the protection for the edges of his boxes in old tin-ware. The slag of our iron works plays an important part in the manufacture of bricks, glass, &c., and so on, almost *ad infinitum*.

TO JOIN THE ENDS OF A BAND SAW.

File the ends of the saw on opposite sides to form two wedge-shaped ends, having a lap, of, say, from ¾ to 1½ in., according to the width and thickness of plate; a thin narrow plate for light work, like ordinary scroll sawing, ¾ in.; a wide saw, say 4 or 5 in. in width, by No. 16, 17 or 18 gauge, 1½ in. lap. When the two bevelled sides are laid together, they must form a joint of the same thickness as the blade. Now make two pair of tongs with heavy jaws, long enough to cover the width of the blade; have the jaws straight and shut closely; cut a notch in a piece of about 6 by 6 joist for wide saws and smaller for narrow saws; have the notch large enough and covered or plated inside, so that it will not be burned by the hot tongs; now clamp the saw on the joists, so that the laps will come over the notch; the joists should be, say, 4 ft. in length, and mounted on legs like a carpenter's saw horse; now cover the lap with the muriate of zinc or borax water, placing a piece of very thin silver solder or fine spelter solder in the joint. If spelter be used it may be mixed with borax water and spread between the joints. (Silver solder, however, is preferable to spelter.) Now heat one pair of tongs to a bright cherry red, scrape off all the scale, etc., between the jaws; now clamp the joint to be brazed, using the cold tongs to clamp the points of the hot tongs;

hold them a sufficient length of time to melt the solder, have the other pair of tongs warmed to about the heat of a sad iron; now carefully draw the hot tongs off toward the back of the saw, having the back rest firmly against supports so that the saw cannot move edgewise; have another person follow up the hot tongs with those merely warmed; hold the grip with the warm tongs until the joints are fairly set, when nothing remains to be done more than file off the surplus solder. The above process will be found much better than cooling off the joints with water, as it is liable to harden and crack the blade. The soldering and cooling tongs should be made heavy and strong. The cooling tongs should not be used entirely cold, as the sudden chilling will harden the plate. If the process be properly performed the saw will be of the same temper at the splices as other parts.—*Industrial World.*

FLOORS FOR FACTORIES.—So long as wood must be used for floors and roofs there can be no such thing as fire-proof buildings. It is therefore proposed by one of the leading fire

insurance companies that all new structures, and particularly factories and shops where wood is to be used, shall be made fire-resisting or slow burning. The plan suggested is worthy of attention, because it often happens that if the fire can only be confined to the interior of the building for even a few moments, much property, and perhaps many lives, can be saved. For the floors it is proposed to use heavy timbers 30.5 centimetres by 30 centimetres (12 by 14 inches), and on these to lay matched planks 7.6 centimetres (three inches) thick. Over these planks is to be a layer of roofing-felt, or mortar, and in this mortar is to be bedded flooring boards of the usual thickness. Such a floor would burn, but so slowly that the fire would be a long time eating its way through. The aim is to gain time, for time is the one element of safety at all fires. For the roof the supporting beams are to be of the same size, and the top is to be of matched planks 7.6 centimetres thick, and covered on the outside with any form of roofing that may be desired. The ends of the beams are to pass through the outer walls, and to be finished as brackets to support the planking that is carried to the ends of the beams.—*American Manufacturer.*

DOMINION
Iron & Metal Company,
DEALERS IN
SCRAP IRON
AND
OLD METALS.

YARD AND OFFICE:
COR.
WELLINGTON & YORK STS.
Toronto, Ont.

A. L. JOSEPH, Superintendent.

Liberal advances made on Consignments.

HODGE & WILLIAMS,
— MANUFACTURERS —
Wholesale and Retail dealers in
ROOFING MATERIAL,
— AGENTS FOR —

Warren's Asphalt Roofing,

THE BEST ROOFING KNOWN.
Also put on
PITCH AND GRAVEL ROOFING.

— And deal in —

LAMP BLACK,

SHEATHING and CARPET PAPERS.
4 Adelaide St. E., Toronto.

ECONOMY IN FUEL!

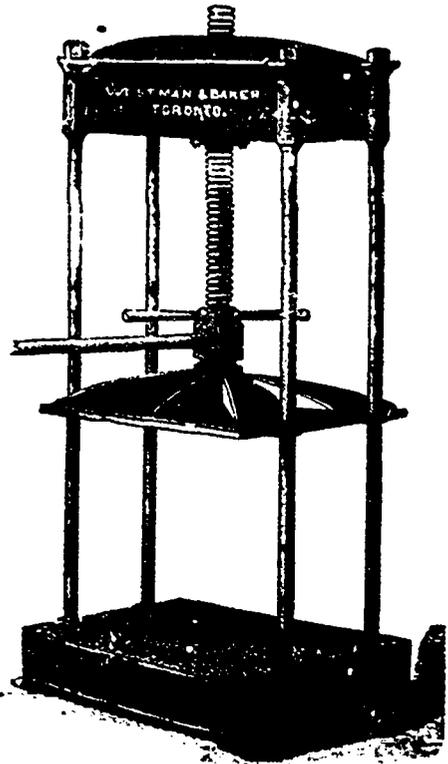
\$3.50 per day is saved in fuel and a gain of 50
horse-power by applying
"SMITH'S PATENT FURNACE"
TO YOUR BOILERS.

"THE WILSON GAS PRODUCER,"
for firing every description of Furnace and Boiler; also
for Melting Pig-Iron, Heating Steel Ingots, Puddling,
Re-heating, Annealing Iron, Steel, Copper and Brass
Wire, &c., &c.

E. C. HOPKINS,
148 St. James Street, Montreal,
SOLE AGENT FOR THE DOMINION.

WESTMAN & BAKER,
119 Bay Street, Toronto, Ont.

MANUFACTURERS OF PRINTING



AND BOOK-BINDING MACHINERY.

STANDING PRESS.
Size of Bed, 24 1/2 x 12 1/2

Industrial Directory.**Asbestos.**

FENWICK & SCLATER, Montreal.—Asbestos packing, paints, and roofing.—Send for lists. Files, &c.

Agricultural Implements.

A. S. WHITING MANUFACTURING CO., Cedar Dale, Ont.—Manufacturers of scythes, forks, hoes, etc.
WELLAND VALE MANUFACTURING CO.—Lock No. 2. St. Catharines, Ont., Canada.—Manufacturers of axes, scythes, forks, hoes, rakes and edge tools.

Bridge Builders.

TORONTO BRIDGE CO., Toronto.—Builders of Steel and Iron, Railway and Highway Bridges.

Coal and Wood.

P. BURNS, Offices cor. Front and Bathurst Sts., Yonge St. Wharf, 51 King St. East, 532 Queen St. West, Toronto.—Wholesale dealer in Coal and Wood. Telephone communication between all offices.

Cotton Brokers.

M. WRIGHT, next Exchange Bank, Hamilton, Ont.—Sole agent in Canada for Ordway & McGuire, cotton factors, Nashville, Tenn.

Cotton Mills.

HAMILTON COTTON MILLS CO., Hamilton.—Denims, tickings and yarns.

Dye Stuffs.

EMIL THOURET & CO., Montreal.—Agents for K. Oehler, Offenbach O. M., Germany.
LYMAN BROTHERS & CO., Nos. 71 and 73 Front Street East, Toronto.—Dye Stuffs of all kinds for Woollen and Cotton Manufacturers; Warps, Shuttles, Bobbins, Card Clothing, etc., etc.

Edge Tools.

R. T. WILSON, Dundas, Ont.—Manufacturer of axes, picks, mattocks, grub hoes and railway contractors' supplies.

Engines and Boilers.

G. C. MORRISON, Hamilton.—Engines, boilers, steam hammers, etc.
THOS. WILSON, Dundas, Ont.—Manufacturer of stationary and portable steam engines, boilers and machinery of every description—cotton mill calenders, hosiery steam presses and propeller wheels, all sizes.

Files.

PHENIX FILE CO.—Hand-made files and rasps. No machines in our factory.—Fenwick & Sclater, Agents, Montreal Anchor Brand.
FILE & SPRING CO., Cote St. Paul, Montreal.—All kinds of files and springs. Files recut. Sole manufacturers of Spaulding's patent concave spring.
G. OUTRAM & SON, Dominion File Works, Montreal.—Manufacturers of every description of files and rasps.

Fire Hose.

FENWICK & SCLATER, Montreal.—Canvas hose, plain and rubber lined, for fire departments and factories.—Write us before purchasing elsewhere.

Furniture.

JACOBZINGSHEIM, Hamilton, Ont.—Manufacturer of Parlour and Bedroom Sets, Centre Tables, &c.

Glove Manufacturers.

W. H. STOREY & SON, Acton, Ont.—Manufacturers of fine gloves and mitts in every variety and style.

Hubs, Spokes and Bent Goods.

F. W. HORE & SON, Hamilton, Ont.—Manufacturers of hubs, spokes, rims, shafts, poles, sleigh and cutter stuff, etc.

Iron Works.

CANADA SCREW CO., Dundas.—Manufacturers of iron and brass screws, bolts and rivets.
COWAN & CO., Galt.—Manufacturers of every description of wood working machinery.
DOMINION BOLT CO., 139 Front St. East, Toronto.—Manufacturers of every description of bolts, hot pressed nuts, railway spikes, bridge, boiler and iron rivets.
H. R. IVES & CO., Montreal.—Hardware manufacturers and founders; iron railing and ornamental iron work a specialty.
HAMILTON BRIDGE & TOOL CO., Hamilton.—Iron railway and highway bridges and iron working machinery.
McKECHNIE & BERTRAM, Dundas.—Machine tools and wood working machinery.
THE OSHAWA MALLEABLE IRON CO., Oshawa, Ont.—Manufacturers of malleable iron castings; also patent screw wrenches.

Knife Works.

THE WHITMAN & BARNES MANUFACTURING CO., St. Catharines, Ont.—Manufacturers of mowing and reaping machine knives, sections, guard plates, cutting apparatus complete, spring keys and cutters, etc.

Knitting Mills.

S. LENNARD & SONS, Dundas.—Manufacturers of plain and fancy hosiery.

Leather Belting.

DOMINION BELT AND HOSE CO., Toronto.—Oak tanned belting, lace leather, &c.

Machine Brushes.

ULLEY'S BRUSH WORKS, 74 Bleury St., Montreal.—Machine brushes for cotton factories flour mills, &c. Machine brushes of every description a specialty.

Paper Manufacturers.

JOHN FISHER & SONS, Dundas.—Manufacturers of printing and wrapping papers.
LINCOLN PAPER MILLS CO., Merriton, Ont.—Manufacturers of every variety of paper, paper bags and flour sacks.
WM. BARBER & BROS., Georgetown.—Manufacturers of book and fine papers.

Saw Manufacturers.

R. H. SMITH & CO., St. Catharines.—Manufacturers of all kinds of saws, plastering trowels, straw knives, etc. Sole manufacturers for the Dominion of Canada of the celebrated "Simond's Saw."
SHURLY & DIETRICH, Galt, Ont.—Manufacturers of circular and cross cut saws, plastering trowels, etc.

Scales.

C. WILSON & SON, 45 Esplanade Street East, Toronto.—Manufacturers of the Improved Wilson Scales. Designers to the Government. Received 29 first prizes, medal and Governor-General's grand diploma.

Stereotypers, Engravers, &c.

F. DIVER & CO., Toronto.—Electrotypers and stereotypers. Designers and engravers on wood.

Wire Works.

B. GREENING & CO., Hamilton, Ont.—Manufacturers of wire ropes, cloth and general wire workers.
MAJOR & GIBB, 646 Craig St., Montreal.—Manufacturers and importers of wire cloth and wire goods and dealers in railway and mill supplies.
TIMOTHY GREENING & SONS, Dundas, Ont.—Manufacturers of the strongest description of steel wire cloth, malt kiln floors and general wire weavers.

Wooden Goods.

C. T. BRANDON & CO., Toronto.—Have special facilities and machinery for the manufacture of all kinds of wooden articles. Correspondence solicited.
J. R. McLAREN, Jr., 63 College St., Montreal.—Manufacturer of Sharpe's patent safety oil cabinets; also, refrigerators, children's carts, waggons, sleighs and general woodenware.

Woollen Manufacturers.

J. ROUTH & CO., Cobourg.—Woollen Manufacturers.
JOHN WARDLAW, Galt, Ont.—Manufacturer of Scotch fingering, wheeling and knitting yarns.

Wools and Cotton Warps.

WINANS & CO., Toronto.—Dealers in wools and cotton warps.

COLLINGWOOD**Foundry & Machine Works.**

CAMERON & MOBERLY,
PROPRIETORS.

Manufacturers of

Engine, Mill and Agricultural

WORKS,

COLLINGWOOD, ONT.

ROBT. SIMPSON, Foreman.

OUR SPECIALTIES.

STEAM ENGINES.
STEAM PUMPS OF IMPROVED PATTERN.
SAW MILL MACHINERY.
SPECIAL ATTENTION IS CALLED TO OUR NEW DOUBLE EDGER
GRIST MILL MACHINERY.
STEAMBOAT WORK OF EVERY KIND.
PIPE AND PIPE FITTING.
FITTINGS OF ALL KINDS IN STOCK.
ALL KINDS OF AGRICULTURAL IMPLEMENTS

John Wardlaw,

Galt, Ont.

MANUFACTURER OF

SCOTCH FINGERING,

Wheeling,

AND

KNITTING YARNS.

RICE LEWIS & SON

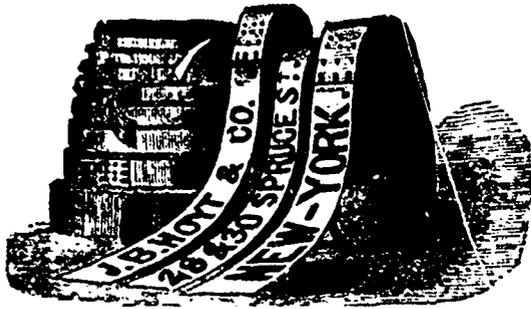
TORONTO.

Importers and Dealers in

SHELF & HEAVY HARDWARE.

AGENTS FOR

HOYT'S



BELTING

The ONLY BELTING WORTH BUYING

Lasts at least DOUBLE the time of other makes.

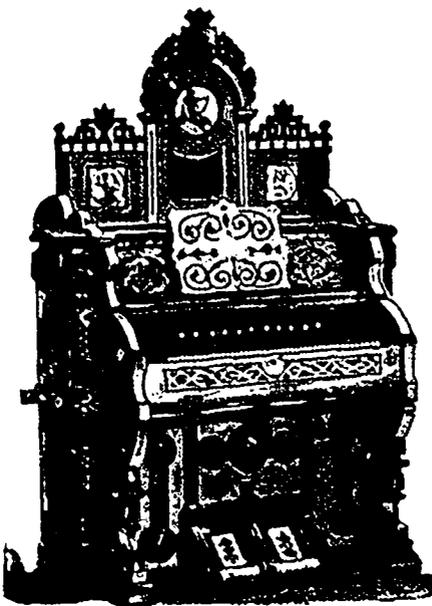
CORRESPONDENCE INVITED.

RICE LEWIS & SON, Toronto.

EXCELSIOR ORGANS

Acknowledged to be the most serviceable Organ in the market.

All Honours Taken Wherever Shown.



SEND FOR NEW
ILLUSTRATED
CATALOGUE &
PRICE LISTS.

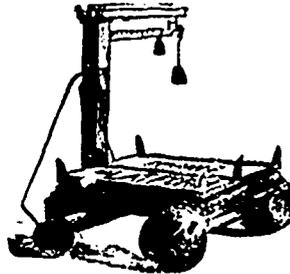
Daniel Bell,
Sons & Co.,

MANUFACTURERS TO THE
TRADE.

56 to 64 Bolton Street, Toronto.

P.S.- NO BRANCH FACTORY AT GUELPH OR ELSEWHERE.

BUY ONLY IMPROVED WILSON SCALES.



WILSON'S IRON SCALE.
VIBRATING AXLE.
Every Scale Warranted.

COAL SCALES, HAY SCALES,
WAREHOUSE SCALES,
IRON SCALES,
PLATFORM SCALES,
GROCER TEA SCALES.

29 First Prizes and Medal, 1880.

WRITE FOR NEW PRICE LIST.

C. WILSON & SON,
45 Esplanade Street E., Toronto.

Please mention this paper when writing.

ELLIOT & CO.,

Drug Merchants, &c.,

No. 3 FRONT ST., TORONTO.

MANUFACTURERS OF

Linseed Oil, White Lead, Putty, Colours in Oil, &c.

Importers and Dealers in Dye Stuffs, Oils, Chemicals,
and Woollen Manufacturers' Supplies.

Catalogues and Price Lists on application.

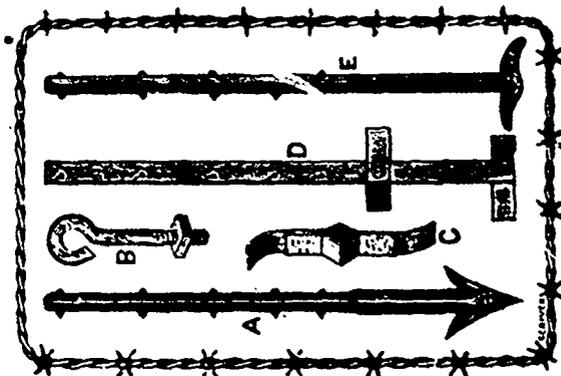
COUGHLIN'S

Patent Frost & Fire Proof

IRON FENCE POST.

(Patented in the United States and Canada.)

THE GREATEST INVENTION OF THE AGE.



FOR BARBED OR OTHER WIRE FENCES, THE

Best, Cheapest and Most Durable

FENCE POST EVER INVENTED OR USED, DOING AWAY
WITH THE DIGGING OF POST HOLES, ETC.

I will build Barbed Wire Fences with the Patent Iron Post at a
VERY LOW FIGURE. For particulars send for circular.

Parties desirous of becoming Local Agents, or obtaining county
rights, please apply at once to

P. COUGHLIN, PRESCOTT, ONT.