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CANADIAN Journal of Fabrics

THE JOURNAL OF THE
Textile Trades of Canada.

Vol. XII.

TORONTO, JANUARY, 1895

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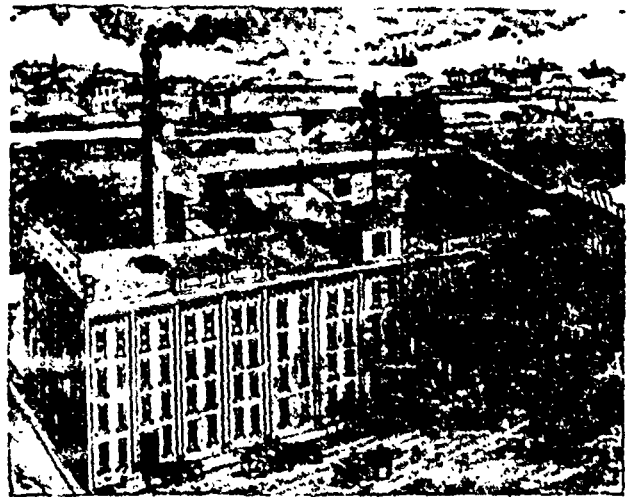
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Vol. XII.

TORONTO, JANUARY, 1895

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ELECTRICITY IN MILLS.

B. A. Dobson a short time ago read a paper before the Bolton, Eng., Technical School on "Humidity in Cotton Spinning." Speaking of the interference of electricity with the working of cotton spinning mills, he said that if the conditions gave perfect liberty to the electricity every process employed would suffer in the result. He had seen recently constructed mills, especially fireproof ones, where every shaft, column and beam was charged with electricity to such an extent that the cotton fibres stood out from the iron work to the distance of at least three inches—radially to the centre of electric attraction. An infallible and ready proof of the existence of the electricity was in carefully observing the iron work of the machines. Of course,

in all mills there was a certain amount of loose fibre called "fly" floating in the air. If it was found on any of the iron work standing straight up from the surface like the bristles of a brush, there was no necessity for further argument—the presence of electricity was declared. Very often this came from the slipping friction of the driving straps, and was conveyed, say, from the driving-shaft pulley to the pulley of the machine, charging the body of metal with latent electricity, which in its turn affected every fibre in its passage. Mr. Dobson had tried on one or two occasions to extract the electricity from the machine, with considerable success. Thus, with a copper wire attached to any part of iron work, forming what is termed "earth," by placing the other end of the wire near the inside of the leading strap, the electricity was taken from the strap and prevented from going into the machine itself. On a revolving flat carding engine, which was so charged by electricity that the fly on the flats stood straight up from the wires, he had been able by the movement of the wire to make this fibre rise and fall at will. In combing machines, where it was desired to comb as much width of lap as may be practicable for the length of the roller, this action of electricity was very marked and became of great importance.

A very large and eminent spinning firm in America had a number of combers made to comb the same width of lap as they had seen successfully combed in a mill in this country; but after a year's trial they found so much difficulty and so much waste made that they went to the extreme course of sending their manager to England to see again the machines which had served as a sample for the giving of the order, to ascertain if they did work as satisfactorily as the firm had supposed. They found that the machines did so, and the firm were forced to the conclusion that they would have to comb a lap one inch narrower than was usual in Lancashire, on account of the effect of the latent electricity upon the loose fibres of cotton. The action was to separate the fibres. Fibres under this influence could not be brought together; consequently, more room was required for the operation.

What was true of the card, comber, and draw-frame, was also true of the fly-frames and spinning machines. But in the spinning machines the presence of electricity was shown by the accumulation of fly on the working parts—the rough, furry character of the

thread made, and its brittleness and liability to snap. As showing the extraordinary effects that could be produced by this, he had known a mill which, when starting its new machinery, had several breakdowns of the openers and scutchers, but more particularly scutchers, after stopping the machine and re-starting. A little observation showed that in each case a huge parcel of cotton of considerable density had been carried to the metallic cages, and by over-pressure, owing to the great thickness, had caused breakages of the wheels. A little examination showed that, after running some time, the whole of the interior of the beaters, from the centre shaft to the blade of the beater, contained a dense block of cotton, which filled in the space as symmetrically as if it had been made purposely in wood. After a certain time, when the machine had been stopped long enough to allow the electricity to be disengaged, these pieces fell as the machine restarted and were thrown by centrifugal force into the cages. These extraordinary blocks of cotton were examined, and it was found that the fibres were ranged parallel end to end in line from the centre of the beater shaft to the inside surface of the beater blade. In this case the objectionable phenomena disappeared as soon as the room had been heated, and the straps driving the machine had been thoroughly well moistened with composition. The fact was, the machines were at first thoroughly insulated from the floor: the driving strap slipping on the line-shaft pulley was acting as a sort of electric machine, and charging, by means of the strap, the opening or scutching machine driven. In America this had been considered of such importance that in many mills there were special arrangements for preventing conduction of electricity from the driving straps to the machines. Mr. Buchanan said, in the *Phil. Mag.*, U.S., Vol. I., page 581, that "in a factory at Glasgow the accumulation of electricity in one room in particular, in which was a large cast-iron lathe, shears and other machinery driven with great velocity by belts, was so great that it was necessary, in order to protect the workmen from unpleasant shocks, to connect the machinery with copper wire with the iron columns of the buildings, and that when a break in the wire was made at a quarter of an inch the succession of sparks was very rapid. The electricity was positive." Thus, in the case of the scutchers I have named, the phenomena ceased when the slipping of the strap was prevented by the composition, which at the same time acted as a non-conductor, preventing the surface of the leather from touching the surface of the iron drum.

DRY BRUSHING FOR FINISHING.

The necessary smoothness and elegant appearance of fine woolen cloths must, first of all, be imparted to nap goods by the teasing and laying in nap. The more thoroughly a cloth is teased or has its felt loosened down to the body, and the oftener and more thoroughly it is teased wet in this condition, the smoother and more lustrous, at the same time softer,

will be its face. Worn teasel sets were formerly used, but they are at present frequently replaced by brushes to effect the same purpose. Besides this wet treatment for the purpose of laying the nap well, fine woolen goods require a special treatment in a dry condition, and for this the brush and the steaming apparatus, or table, are used. This steaming table and brush have recently been combined into one machine in such a manner that the cloth is first steamed and then brushed, which is the most appropriate method under all circumstances.

While medium and ordinary woolen goods, even if submitted to a steam lustering, are generally shorn without delay after drying, and at once finished, fine cloth is brushed both with and without steam between the stages of finishing, especially between pressing and steam lustering, and again during the several stages of shearing. This is done for several reasons, one of which is that in consequence of the prolonged wet teasing and the pressing and steam lustering, the nap is, as it were, pasted down, and must be raised again slightly, so that on the one hand the shearing cylinder is better able to seize it more readily and uniformly, and on the other to better conceal the more or less pronounced weave by the flexibility of the nap.

It is well known that wool, when dry, retains the position imparted to it in a wet state. When teased and napped cloth, therefore, appears more or less wavy when dried, the surface, no matter how much nap it has, permits the form of the weave to appear, especially when the extra long nap has been reduced by the shearing. The curly appearance of plain cloth, or the appearance of the twill, was formerly well liked, but is no longer desired, and to correct this feature recourse must be had to dry brushing. Steam and brush must be employed to aid in covering the weave by partially raising and stretching the nap. Occasionally it is required before the first shearing to pass the dry cloth over the steam brush. It must be stated, however, that when the cloth was uneven from the commencement, say in breadth, or when it possessed traces of cockles, which were subsequently got out by tenting and drying, it is better to avoid the use of steam and only employ the brush until the pieces are first fixed in their corrected condition by the steam lustering. Generally speaking, the steaming employed in brushing must be so feeble that the nap is only raised a little and becomes supple and elastic in order to make the work of the brush effective. The steam must act but slightly on the body of the cloth, and this part of the finisher's work, therefore, requires great care and expertness.

Upon the correct handling of steam brush the success of the finishing operation and the appearance of the finished cloth depends in a great degree. The finisher must decide beforehand how the face of the cloth shall look in its finished state, and he must shape his processes accordingly before the pressing. It is still more imperative that this should be done before the steam lustering. This rule must be observed especially when the pieces, after having been pressed, are to be

steam lustered. If they show too much of the form of the weave or twill, if the nap lies down too tightly, or if the feel is too hard, the cloth must be treated in the steam brush before steam lustering. It is steamed feebly, as above described, and then brushed. Under certain circumstances, it may be advisable to repeat this operation, and for this practical experience is, of course, very necessary, for it may be generally observed that it is better to steam feebly twice than to steam and brush strongly once, to prevent the cloth from shrinking materially, and assuming a puckered appearance.

When the pieces are chorn for the first steam lustering, that is, when the nap is about half short, they are brushed once or twice before pressing, generally without steam. Cloth teased on the back must also be brushed on the back at least once, which makes it smoother and at the same time softer in feel. Whether and how much it must be steamed and brushed after pressing, and before steam lustering, depends upon different circumstances. The quality and thickness of the cloth, the kind of wool, the desired finishing effect (whether lustrous or dull), etc., are all determining factors. This point must be settled for each separate case. Prior to the second steam lustering, and before pressing, the cloth must be brushed, and, if necessary, brushed on the back. Between pressing and steam lustering, it is steamed and brushed again.

The steam brushing between the shearing is very essential. In this operation, by the repeated brushing in shearing, the nap is partially brought out of its intended position, and it must be restored and smoothed in order to remove the adhering short flocks and to raise the long nap lying at the bottom, so that it may be more readily clipped by the cutting gear. This operation also equalizes the nap and covers the twill, which, with the gradual shortening of the nap, becomes plainer again. By this dry brushing between the shearing, a very short and round nap may be obtained, such as is demanded for fine cloth; and in this way a nicely covered, soft, and, at the same time, lustrous face is produced.

Formerly fine cloth was brushed with steam after almost every cut when shearing upon the breadth shearing machine. Although this tedious method has to a great extent been abandoned at the present day, it is necessary, at least for the finer quality of woollen cloth, to brush a few times with steam during the process of shearing. As explained, such a treatment is an essential requirement for the successful finishing of fine cloth.

As regards the brushes used for this purpose, fine cloth mills usually have sets of different degrees of sharpness. After the drying, or before the first steam lustering, it is well to treat the steam with a sharper brush, while the brushing before the steam lustering or between the shearings must be performed with a softer one. The finisher may also vary the process of brushing by employing different degrees of pressure or tension, thus varying the force of the attack of the brushes, as arrangements for such changes are on nearly all brushing machines.

THE WASHING OF WOOL.

One of the chief requisites for the manufacturer in wool-making is to have a soap which will clean wool perfectly without injuring the fibre, and which at the same time is cheap and unadulterated. There is nothing which is more easy to adulterate than soap, and nothing in which detection is more difficult. The injury done to woollen goods by impure soap is great, especially when they have to be dyed a delicate color. For instance, a yellow, singed appearance is given by using soap with much resin, or much alkali; the fibre of the wool can also be burnt if the soap is too strong—especially if the water be very hot. But apart from injury to the wool, the loss in money is great if a soap is made up with silicate of soda, and of potash, resin, potato-starch and water. Common salt, too, is often mixed with soda-ash used in soap, and even earthy matter is put into it to give weight. A receipt for testing soap is to dissolve one ounce of soap in a given quantity of water; put it into a long test glass and add a quarter of an ounce of diluted sulphuric acid, or less. The acid neutralizes the alkali; the grease and resin, if any, float on the top, and the earthy matter falls to the bottom.

It is a mistake to suppose that soft soap necessarily contains more water than hard soap. The reverse may easily be the case. Soda soaps are hard, potash soaps are soft, because it is the nature of these materials to make soaps, of which they are leading constituents, hard and soft respectively. But as a soda soap will take up four times as much water as a potash soap, and still remain firm, the temptation to adulterate in this way is great. Some soda is often put into professedly potash soaps just because it will hold so much water.

If washing or dyeing is to be well done, the water must be soft. The two chief causes of hardness in water are carbonate of lime and sulphate of lime. The former can be precipitated by boiling the water, but as this is too costly where water is used in great quantities, it is never done. When hard water is used for dyeing or cleaning purposes, without being previously softened, the lime it contains, in many cases, destroys and precipitates the dye stuff, and in all cases immediately attacks and decomposes the soap used. The alkali in the soap, that is to say, the soda or potash with which the soap is made, leaves the oil and tallow with which it has been combined (forming the soap), and unites itself with the carbonic and sulphuric acids contained in the carbonates and sulphates of lime. The lime thus thrown out of combination with the sulphuric and carbonic acids immediately unites with the oil and tallow, forming what is called an insoluble lime soap—a pasty, greasy substance, which has no washing properties whatever. This is deposited on the fibre of the wool or textile fabric undergoing the scouring operation, and renders dirt or grease upon them far more difficult to remove. This insoluble lime soap has often a most disastrous effect on goods which subsequently have to be dyed,

causing spots and uneven dyeing, owing to the insoluble lime soap sticking to the fibre of the fabric, and in many cases being only partially removed by subsequent scouring.

It is clear that the soap can have no effect on the wool till the lime in the water has finished its work, and is entirely united with the alkali soap. Then the washing begins, but now the soap has to wash out not only the original dirt from the wool, but also the insoluble lime soap which has settled on it; thus making for itself, as it were, work to do.

The lime, therefore, should previously be removed by some other means. Soda crystals, or soda-ash, are often used, but as they are carbonates of soda, that is, are already in combination with carbonic acid, they cannot do the work so quickly or so well as soda in a free state; they also require the water to be heated. Caustic soda is the best material to use, but only when it is pure and unadulterated with common salt, which makes water hard. Powdered caustic soda, which can be obtained pure and cheap, is everything that is needed. A quarter of an ounce per gallon is enough for the hardest water, while a quarter of that—one-sixteenth of an ounce—is enough for average water, or four lbs. per 1,000 gallons. It acts equally well when the water is cold, and, rendering the lime insoluble, precipitates it along with any iron or magnesia salts that the water may contain. It should, of course, be put in before the soap, or the benefit is lost. The requisite quantity of caustic soda for any given water can easily be found by taking one gallon of water and adding the soda till all the lime is precipitated. The water should be boiled at each test to aid precipitation, and when it becomes quite clear after cooling, it will be found that all the lime has been precipitated.

An indefinite number of receipts could be given for soap equally simple with these, but they are not necessary. The chief point to be observed is that for finishing and sizing goods or yarn a neutral soap should be used; that is, one in which the alkali and oil balance each other; but for wool washing there should be a slight excess of alkali, depending on the grease and dirt in the wool, but, above all things, there should not be too much, or the wool will be burnt. Nor should the water be too hot: any heat which the hand cannot bear is too great, but dirty wool naturally requires more heat than clean, and therefore no exact degree can be given.

It is a usual and desirable thing, when the wool goes through three or four washing bowls, to put a much stronger soap in the first than in the other, in order to extract at once the dirt and grease. In the last bowl, on the other hand, a soap is used in which the oil is in excess of the alkali, so that the wool is fed and softened before it is dried. When it is remembered that the little cells which compose the fibres of wool are swollen and raised by the heat of the water, and the wool itself actually softened, it is easy to see that a good oily soap will be able to penetrate the fibre, and, by depositing some of the oil upon it, will make it softer to work in the future processes. Some persons

also finish by putting the wool through a bowl of clean water, but though this may improve the color, it prevents any oil from being left in the fibre, and this is not always desirable. It is a fact, not generally appreciated by wool-washers, that wool can be dissolved altogether till nothing is left visible. Hot water alone will not do this. wool may be boiled without being dissolved; but put a little caustic potash, or anything of a similar nature, into the water, even if it be very far from boiling, and the wool will rapidly disappear; the hotter the water the quicker it will melt. This shows the danger of having too strong a soap, and also too hot water, for even if every fibre merely lose the smallest fraction of its surface, the total loss is great; and besides, it will be the serrated points which will go first, and thus the spinning properties will be spoilt.

Very hot water alone, even without any soap, spoils the wool, by taking out its natural curl, and thus destroying its spinning power; and many a bad spin is due to nothing more than the excessive heat of the suds in which the wool has been washed. No one can estimate the loss caused by these two evils—too strong soap and too hot water—and they should be carefully watched by the person in charge.

For washing mohair some persons use only cold water, thinking it better not even to wash the fibres thoroughly. They cannot stand as much washing as wool certainly, nor can alpaca, but the experience of the trade generally does not favor cold water washing, but rather a moderately good washing in a warm suds, with neutral soap, and not too much of it.

BRITISH TEXTILE TRADE WITH CANADA.

The following are the values in pounds sterling of the exports of wool and textile fabrics from Great Britain to Canada for Nov. and for the eleven months ending with Nov., as compared with the same periods of last year:—

	Month of Nov.,		Eleven mos. ended Nov.,	
	1893.	1894.	1893.	1894.
Wool	£ 1,318	£ 2,214	£ 21,097	£ 13,306
Cotton piece-goods	16,915	15,173	470,649	368,417
Jute piece-goods	10,246	9,007	129,177	90,124
Linen piece-goods	5,721	5,472	128,750	102,549
Silk, lace	626	397	33,073	28,284
" articles partly of ...	2,132	1,661	67,757	36,823
Woolen fabrics.....	6,642	5,981	333,564	241,578
Worsted fabrics	17,675	17,660	611,299	428,517
Carpets ..	6,645	4,209	214,922	152,125
Apparel and slops	11,927	15,278	325,104	278,753
Haberdashery	9,241	3,299	243,441	138,934

The State chemist of Connecticut and a German chemist have together invented a new process for washing wool, which they expect will increase the price obtained by sheep rearers by from three to ten cents per pound. By the new process, the oil, which constitutes about 20 per cent. of the uncleaned article, and which is at present lost, is all saved, and can be sold for 60 cents per pound, it being useful in the preparation of ointments, soaps, etc.

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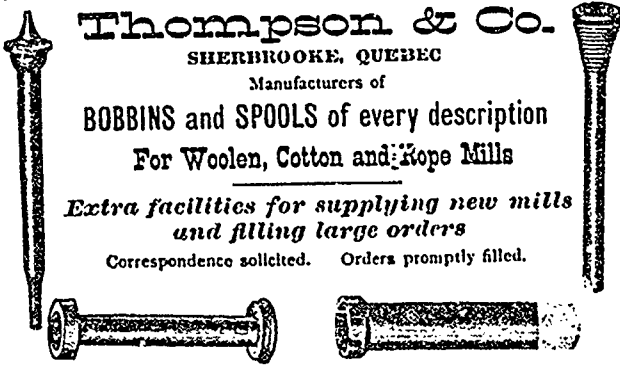
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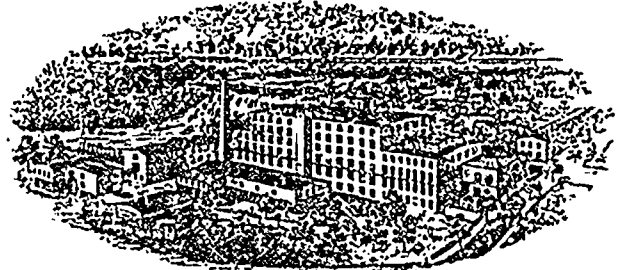
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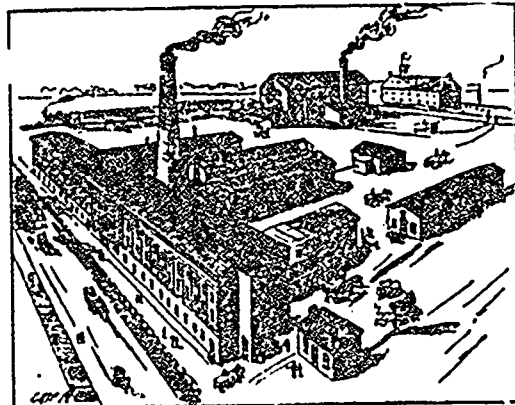
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SIZING WOOLEN AND WORSTED WARPS.

It is often necessary to size woollen, worsted and cotton yarns before weaving them, no matter whether they are coarse or fine in quality. Woollen yarn, especially, has a number of ends bristling out all around, as may be plainly seen by using a microscope. The composition of woollen thread is such that these irregularities in the surface of woollen yarn are much more frequent than is the case either in worsted or cotton yarn. They are, indeed, the characteristic of woollen yarn, and are the most important promoters of the felting process peculiar to that kind of yarn. As compared with cotton and worsted yarns, the number of the loose, projecting fibres is not in proportion to the quality of the thread, no matter how well spun. The lower-grade yarns are invariably rougher and more irregular than the finer grades.

It will thus be readily seen that the roughness alluded to must cause some difficulty in weaving, by the constant friction of the ends of the fibres in the harness and reed—a friction which is still further increased by the shedding and passage of the shuttle. Three objections may be urged against the weaving of woollen, worsted or cotton yarn in an unsized condition. First, the ends break constantly, and the frequent knotting required to remedy this causes a great loss of time, and, besides, results in a number of knots in the fabric. Secondly, in consequence of this friction gritty yarn is produced, and these fibre bunches must necessarily be removed before the yarn can be woven. Occasionally these knots become so numerous, and the warp becomes so entangled, that it is better, after all, to take it out of the loom and have it sized. Thirdly, yarn exposed to this mutual rubbing will never make a good cloth, for its surface assumes an unsightly appearance, and this defect can only be partly corrected in the finishing.

There are many kinds of yarns which can be woven in an unsized state without danger, but they are principally the lower grades, and are drawn in fairly open. The ground weave is often of a simple character, with a certain ease in the shedding, and for this reason there is less rubbing of the warp. These two points—the opening in the shed and the character of the weave—are actually the most important factors in deciding the question whether the use of glue will become necessary or not. For instance, a yarn which can be used very well without size in a three-harness twill would require a strong size when used for a linen binding, even if the number of ends per reed and per inch in the filling had remained the same. Exact details can only be given after practical experiments have been made, but if the sizing is not too expensive, it is always better to make use of it, if there is the least doubt that the yarn will not work satisfactorily. The glue imparts strength, firmness, and greater resisting power to the yarn, and makes the projecting fibres stick to the surface of the yarn, thereby increasing its capacity to resist friction and a greater tension. Another virtue of the size is that the ends saturated with it can be drawn in closer

than ends not so prepared; and the consequence is that the sized yarn is not interfered with so much in its free motions by the adjoining ends.

If sized yarn is examined through the microscope, it will be found to be smooth, compact, and straight, while the same thread unsized is rough and full of projecting fibres. It makes no difference what material is used for the sizing, but it must comply with the following conditions: The agent must be capable of imparting to the thread the necessary firmness; it must not attack the colors, and in the final cleansing of the cloth it must be easy of removal; it must not have a disagreeable smell which cannot afterwards be removed readily. The agent most universally employed for the purpose is leather gelatine, obtained by boiling the remnants of hides and skins of the tanyard.

The boiling of size is a special occupation, and before the size can be used by the consumer (who receives it as a jelly) it has to be mixed with water, according to its consistency. Glue is also used, and it can be converted into a jelly by boiling it with the leather wastage of kid glove factories. A composition which complies with every requirement is prepared with 500 grms. (17½ ozs.) of the best glue, 100 grms. (3½ ozs.) concentrated glycerine, and 9 litres (9¾ quarts) water. The glue is steeped in cold water for more than 10 hours, after which the glycerine, previously dissolved in 1 litre (1 quart) boiling water, is added. The glue prepared in this manner is clean, free from lumps, and is readily washed out in rinsing and cleansing the cloth. The size must neither be used too hot nor too strong, for in sizing the yarn, if the temperature of the bath is too hot—that is, higher than has been established for practical work—the colors are apt to be injured. Again, if the size is too strong, the ends easily glue together, which in turn retards the weaving process; and if the size has a disagreeable odor, the washing process must be prolonged until the smell is removed.

Inferior qualities of size occasionally cause much trouble, for it is absolutely necessary to remove all traces of the size from the cloth, and this is very difficult to do sometimes without attacking the fabric. The warps are sized either by hand or by machines, and when the process is performed by hand the warp is dipped into a large trough containing the size, and is afterwards passed between a pair of squeezing rolls, which press into a large part of the absorbed solution. The warp is then taken away, opened and dried, and when dry it is ready for beaming. In machine sizing, the warp is dressed and beamed at the same time. The warp beam is placed at once into the sizing machine, and, after passing over two or three rollers, the warp runs through the sizing bowl, between two squeezing rollers, whereby it is partly dried, and then over a large drum which has fans to blow heated air against the warp. When completely dry, the warp passes above a rotating brush to the beam and is now ready for weaving. Sizing warps by machine is much more expeditious than by hand, and the results are much more satisfactory.

THE HISTORY OF SILK.

Silk is the pale colored or colorless fibre produced by many caterpillars in order to form a covering for themselves during their transformations. The use of silk for technical purposes was first known by the Chinese, being discovered by one of their Empresses, named Se-ling-she, the consort of a famous Emperor, Kwang-te, who reigned about the year 2640 B.C. For years and even centuries before the inhabitants of Europe knew the origin of silk, goods of this material were extensively manufactured by the inhabitants of China. Virgil was the earliest of the Roman writers to allude to the manufacture of silk in China, and he is not very definite, so that his remarks may likewise apply to cotton. He and his countrymen were, however, entirely ignorant of the origin of silk, as by some it was supposed to be the entrails of an insect with eight legs, similar to a spider, which was fed upon the leaves of a green willow until it burst with fat.

Pliny ("Hist. Nat.," lib. xi., c. 17) maintained that it was produced by a worm which built clay nests and collected wax. Aristotle made a better guess, and states that it was unwound from the chrysalis of a large-horned caterpillar.

At the beginning of the third century the silkworm and the manufacture of silk commenced to spread, reaching first Japan, and a little later India, Persia, and a number of the neighboring states.

Silk was first introduced to the notice of the Romans in the age of Pompey and Julius Cæsar, and it was at that time so expensive that it was worth its weight in gold. Before the time of Aurelian—on account of the much greater importation—the price declined very considerably. Silk culture and manufacture were first introduced into Europe by two Persian monks, who, when returning from China to Constantinople in the year 552 A.D., carried with them some silkworms' eggs concealed in a hollow cane. These eggs were hatched, and the silkworms thus obtained fed on the leaves of the wild mulberry tree, according to the instructions given by the monks. The first broods succeeded perfectly, and the introduction of silk in Europe became an established fact.

Greece soon became very successful in the rearing of silkworms; the inhabitants of Thebes, Corinth, and Argos being especially noticeable for their skill. In 1147, during the invasion by Roger, King of Sicily, a large number of the inhabitants of these cities were removed to Palermo, and thus the art of silk culture was introduced into Sicily, and from thence into Florence, Milan, Genoa, Venice, Turin, Bologna, and numerous other cities.

In 1340 the first mulberry trees were planted at Avignon; in 1480, during the reign of Louis XI., silk weaving was commenced at Tours; and in 1521 silkworms' eggs were introduced into France by Francis I., who obtained them from Milan.

In England, silk manufacture took place to a very small extent during the reign of Henry VI., but it made

no progress until the reign of Elizabeth, when a large number of Flemish weavers emigrated from the low countries on account of the invasion of their country by the Spaniards. The freedom from wars during Elizabeth's reign caused the English to turn their attention more to the arts and manufactures, and thus silk manufacture was readily taken up. In the seventeenth century another very great impulse was given to the English silk trade by the revocation of the Edict of Nantes, in 1685. About 70,000 emigrants made their way to England and Ireland. Before the revocation there were 18,000 looms employed in the silk trade in Lyons; after, there were only 4,000. Most of the French weavers settled at Spitalfields, London. In 1629 an incorporation of silk throwsters was formed there, and from that time the silk trade in England increased to such an extent that in 1666 it found employment for 40,000 persons. In order to support the trade the importation of European silks was entirely prohibited during the reign of James I., Charles I., the Commonwealth, and during a portion of Charles II.'s reign. This was not, however, sufficient. In 1697 the silk manufacturers persuaded Parliament to also prohibit the entrance of China and Indian silks into the country.

The art of throwing silk was up to this time confined to the Continent, but about 1748 a Mr. Thomas Lombe visited Italy and succeeded in learning their methods and taking sketches of their machinery. He proceeded to England, took out a patent for the process, and established a silk throwing mill at Derby. On account of the valuable trade which he had introduced into the country, Parliament granted him £14,000. It is stated that the Italians were so much annoyed concerning the robbery of their process that they sent agents to England to poison the thief, who had now become Sir Thomas Lombe. In the year 1773 a very great injury was done to the English silk trade by the passing of the Spitalfields Act. This was caused by the rioting of the workmen engaged in the silk trade, and fixed the price of labor according to the amount of work done; thus the improvement of machinery suffered a very serious check. It was very fortunate, however, that this was confined to Middlesex, as all it did was to drive the trade to Macclesfield and various other towns. As an example of the state of the trade at this time and the inferiority of the machinery, a French silkloom could produce five times as much ribbon as an English in the same time and with the same labor, and the German velvet loom 48 times as much as an English loom. In 1860 the duties on imported silks were totally abolished by Mr. Gladstone, and a slight impetus given to the trade, but not of very long duration, and since that time the English silk trade has not been in a very flourishing condition. Great efforts are at present being made to improve it; a Silk Association has been formed, exhibitions are being held in order to show the beautiful productions of the English silk mills, and to induce the people to purchase English rather than foreign silk goods.

HOW TO PREVENT SPECKS.

The best preventative of specky goods is, says the *Manufacturers' Review*, to keep the specks out of the stock. But even when they are not there originally, a good carder with poor cards, or good cards with a poor carder, may put them there. The three essentials for a clear production are, first, free, clear, clean wool; second, good machines; and, last, but not least, a good carder. Understand that the subject under discussion is white wool specks in mixture with colored stock.

It is hard to tell just what kind or grade of wool is the best for mixtures, for it is oftener the condition of the wool rather than its kind that renders it unfit for this purpose. But it is with a rather coarse, free and even stapled wool that I have had the best success. The reason for this is because there is not so much liability to diseased tops, or second growth, at the bottom, and such wool is less liable to felt and tie up in scouring than softer and finer wools.

Whatever the grade of wool, it should be carefully sorted, and only such wool put in for the purpose as is free, straight, even stapled and white. It is better to put this in here than at the finishing end of the mill, and it will be the cheapest in the long run. Designers are very prone to get their mixes better than their full colors, especially their blacks. They not only card and spin better, proportionally to the percentage of white used, but the product is nearly always stronger, smoother, and nicer every way. Would not better results be reached, if uniform strength and quality were secured, especially where the full colors and mixtures are to be incorporated in the same piece of goods? The superior strength and working qualities of the white wool would compensate for a corresponding weakening of the full colored fibres by using an inferior and consequently cheaper stock, thus very often making up the extra expense of securing immunity from specks in the white wool.

But whether it exactly suits the purpose or not, its treatment should be the same until it is made into yarn. In the sorting room, everything that can possibly contribute to making or multiplying of specks, or that will mar the clearness and brightness of the white wool, should be removed. In scouring, it should be made clean even to harshness, and yet not knotted up or rolled into strings. From the dyer to the spinning mule or jack, every machine through which it is to be run should be in the best of condition.

To dust the white wool for this purpose would, in ninety-nine cases out of a hundred, do it more harm than good, so that the burr picker is the first machine to get in its work upon it. This should be thoroughly clean, the cylinders sharp, the guards close set, and the brush and fan delivery in their very best condition. These last will be bettered by having the room and machine warm and dry, unless the speck shows electrical effects. If it does, and you have facilities for moistening the air of the room, use them sparingly, but sufficiently to produce the desired result—that is, just

enough to keep the wool from clogging in the machine. Whatever lubricant is used on any wool stock, especially that for mixtures, care should be taken to have it limpid, and to have it sprinkled on finely and evenly, because then the fibres are not so liable to mat together and become twisted, interlocked and tied together, all of which result from large splashes of a thick lubricant.

Mixtures of any kind should never be put through a mixing picker that has not a full set of teeth with good points. Neither should it be crowded through either of the pickers, but should be carefully and thoroughly handled in order to produce a perfect mixture of the colors and fibres.

The next thing is to card the mixture. There is really very little that one should do to get a good clear mixture, different from what is required for any good work. The condition of the cards at all times and for all kinds of work should be first-class.

I must go back to the wool again and show why some of the causes which produce specks are so difficult to overcome. Anything that prevents the wool fibres from being easily separated has a tendency to cause specks in the roving, and wool that, with proper previous treatment, is not clear from specks when it comes from the first breaker, is unsafe to use. Of course the specks will be reduced in number and size if the other cards are doing good work. It is a good plan to test small sample lots of all wool that is at all doubtful in this respect. Some of the attributes of wool that render it valuable for other purposes make it unfit for white in mixtures. Soft, kinky, clinging wool has very good carding, spinning, and finishing qualities, but the fibres will not separate from each other as readily as the more hairy and generally less valuable kinds. But the trouble oftener comes from some defect in the wool that is in a measure foreign to it. Among the worst defects are pieces of hide and a sort of scarf skin, that come from the hide with pulled wool. The first of these is not met with so frequently as the latter, but I have seen many lots of wool, otherwise well suited for this purpose, completely ruined by numerous clumps of raw hide. The scarf skin—or scruf, as some term it—is more frequently met with, and is, I believe, the cause of more specks than is generally believed, for the reason that in the finished production the cause is seldom apparent, the foreign substance having been thrown off in some of the processes through which the wool has passed. In fact, it is often removed in the cards and yet leaves a speck, because it holds the fibres together so long that there is afterwards not sufficient manipulation to separate them.

Much more frequently specks come from what is called by some a second clip, by others second growth; the first believing it the result of faulty shearing, the latter that it is a fresh growth which gets a start before the old is removed. Is it not always present in some species of sheep, either from some effect of the climate or other cause? Whatever the cause be it is very often observed in wool of a certain class. A little bunch of the very shortest of fibres, almost too short to take

hold of at either end, and with a tendency to hug and felt together more and more in each successive process through which it passes, causes the difficulty.

A third cause may be mentioned. The defect comes from the outer ends or "tops" of the fleece, which are sometimes so matted together with paint or tar, or by the effect of exposure or neglect, or perhaps by the natural tendency of the wool, as it ages on the sheep's back, that it is impossible to sufficiently separate the fibres in order to produce a perfect mixture.

Where any of the above conditions are found in wool that must be used as white for a mixture, all one can do, so far as the cards are concerned, is to put on the best possible point, set up close and go slow. Get your burr cylinders and feed rolls on your first breakers right down to their work; get your drawings as hard as possible, so that they will be long in combing out from the next set of feed rolls; be sure that everything clears freely, and when you have done all this, you may still be prepared to be blamed because the goods are specky.

HOW YARN IS NUMBERED.

The system of numbering yarn is very simple, when it is understood, but the great trouble is that most people do not understand how it is numbered and what is the difference between those numbers, says the *Textile World*. The numbering of cotton yarn is based on the number of hanks in a pound; each hank contains 840 yards, and the number of these in a pound is the count of the yarn. Thus 20 yarn consists of 20 hanks of 840 yards each in a pound, which equals 16,800 yards. To find the number of yards of any count, multiply the 840 yards in each hank by the count of the yarn, and the result is the number of yards in a pound. If the number of yards in a pound is given, and it is desired to know the count, the number of yards should be divided by 840, which equals the count. Thus, if the yarn contains 33,709 yards to a pound, this divided by 840 gives 40, or the count of the yarn.

This method of counting is used in the United States and in England, but in France the hank contains 1,094 yards, and number 20 yarn, according to the French method, is equal to about number 26. If it is desired to change yarn from the French method of counting to the English method, the number of yards in a hank (1,094) should be multiplied by the count, and this result divided by 840, the number of yards in an English hank, will give the counts. The counts of worsted yarns are based on the number of hanks in one pound, each hank containing 560 yards. Thus number 30 worsted yarn consists of 30 hanks of 560 yards each, or 16,800 yards in one pound. The German method of numbering worsted yarn is in hanks of 840 yards, and consequently their corresponding numbers are much finer than ours; thus number 20, German count, equals 16,800 yards, which, divided by 560 English hanks, equals number 30.

The French method, for worsted yarn, is the number of hanks containing 7.7 yards in one pound. And consequently their corresponding number, while not as fine as the German, is still a great deal finer than the same number in our count. Number 20, French count, equals 15,740 yards, which is equal to about number 28 in our count.

Linen yarns are based on the hank, or lea, of 300 yards, and the number of these in one pound is the count of the yarn. Thus number 30, linen yarn, consists of 30 hanks or leas, of 300 yards each, or 9,000 yards to the pound. This, strange to say, is the only yarn where a really universal method of numbering is employed, the French and German hanks each containing 300 yards.

The method of numbering woolen yarn is entirely different in almost every country, and in the United States there are two methods in use, but the general system is one where the hank is based on 1,600 yards, which is called a "run." Thus a yarn containing 8,000 yards to the pound, is called a "five run" yarn; and in this method of counting, the fractional parts of a "run," down to one-quarter, are used; thus a yarn with 5,200 yards to the pound is equal to $3\frac{1}{4}$ run. In the vicinity of Philadelphia, the woolen yarn is based on the "cut," each "cut" consisting of 300 yards, and the count is the number of cuts in one pound; 30 "cut" yarn contains 9,000 yards to the pound, and is equal to about $5\frac{1}{2}$ "run."

To reduce yarn numbered in "cuts" to "runs," multiply the yards in a "cut" by the number of the "cut," and divide the result by 1,600, which gives the number of "run."

To reduce "runs" to "cuts," multiply the number of yards in a "run" (1,600) by the number "run" the yarn is, and divide by 300, and the result will be the number of "cut."

In England, woolen yarn is numbered the same as worsted, 560 yards in a hank.

The Prussian system has 1,604 yards in a hank, and is very close to that used in the United States. The Saxon has 495 yards, the Austrian 1,500 yards, the Elbuef 3,938 yards, and the Sedan 1,633 yards.

The method of reducing to runs or cuts, yarn numbered according to any of these various systems, is to multiply the number of yards in a hank by the count of the yarn, and divide by 1,600 if it is desired to reduce it to "runs," and by 300 if to "cuts."

Spun silk is numbered on the same system as cotton, that is, 840 yards in a hank, and the number of hanks in a pound is the count of the silk.

The Swiss method is an exception to this, their hank consisting of 547 yards, and the number of these in one pound is the count of the yarn.

Thrown or net silks are numbered on an entirely different principle. The hank, or "skein," as it is called in this kind of fibre, contains 520 yards, and instead of reckoning the size by the number of hanks in a pound, it is found by weighing a skein, and the

number of deniers that the skein weighs (reckoning 533 1/3 deniers to the ounce) is the size of the yarn. If a skein weighs 30 deniers, that is the size, and, to find the number of yards in an ounce, multiply the number of deniers in an ounce (533 1/3 by the number of yards in a skein (520), and divide by the number of deniers the skein weighs: $533 \frac{1}{3} \times 520 = 277.333$ divided by 30 = 9,244 yards in one ounce

Another system is used in Manchester, where the yarn is based on a scale of 1,000 yards to the hank or "skein," and the number of drams which one hank weighs is the size or number of the yarn. When using the Manchester method, the number of yards in one ounce of a 2 dram silk can be found by multiplying 1,000 yards, the number in a hank, or "skein," by 16, the drams in an ounce, and dividing the number of drams which a hank, or "skein," weighs: $1,000 \times 16 = 16,000$ divided by 2 = 8,000 yards in one ounce.

Sewing silk is graded entirely different from anything as yet, and the following table will show the numbers and corresponding yards:

000	= 32,000 yards per lb. or	2,000 yards per oz.
00	= 25,600 " " "	1,600 " "
0	= 20,800 " " "	1,300 " "
A	= 16,000 " " "	1,000 " "
B	= 13,600 " " "	850 " "
C	= 10,400 " " "	650 " "
D	= 8,500 " " "	550 " "
E	= 6,400 " " "	400 " "
EE	= 5,280 " " "	330 " "
F	= 4,192 " " "	262 " "
FF	= 3,392 " " "	212 " "
G	= 2,000 " " "	125 " "

Mohair and alpaca yarn are numbered alike, the hank containing 560 yards, and the number of these in a pound being the size of the yarn.

Two-ply yarn in cotton, worsted, etc., is numbered according to the size of the single yarn with the number of the ply before it. If two threads of 20's are twisted together, the yarn is called 2-20s, and means that it is composed of two ends, and will weigh 10 hanks to the pound.

Sometimes in fancy yarns threads of unequal thickness are twisted together; thus a 70 and a 30 are twisted, and the count of this yarn would be 1/70th and 1/30th of a pound added together.

$$\frac{1}{70} \text{ plus } \frac{1}{30} = \frac{3\&7}{210} = \frac{10}{210} = 21$$

the count of the yarn.

If three, four, or more ends of unequal count are twisted together, the count of the yarn may be found by pursuing the same method employed in the two-ply yarn. If a thread each of 10's, 40's, and 80's are twisted together, the size of the resulting yarn will be 7 3-11:

$$\frac{1}{10} \text{ plus } \frac{1}{40} \text{ plus } \frac{1}{80} = \frac{8\&2\&1}{80} = \frac{11}{80} = 7 \text{ } 3\text{-}11$$

In all ply yarn some allowance must be made for the twisting, but as this varies according to the number of turns per inch, it can only be taken into account when the number of turns is known.

In spun silk the yarn is nearly always two or three ply, and the number of the yarn always indicates the

number of hanks in one pound. The number of ply is usually written after number of hanks in one pound. A yarn which is size 50's-2 has 50 hanks to the pound, and is made up of two threads of 100's single.

ABOUT TURKISH CARPETS.

An Italian writer, resident in Smyrna, sends the following report respecting the manufacture of Turkish carpets at Jordes, Asia Minor. Jordes is a village of 1,000 houses, and 6,000 inhabitants, in the interior of Asia Minor. It is reached by rail from Smyrna as far as Saliki, and thence by horses in 11 or 12 hours. The population is almost entirely Turkish. This village is famous as being one of the centres of the so-called "Smyrna Carpet Manufacture." This industry, in which Anatolia competes successfully with Persia, is established in four points, viz.:—First, the products of Usciak, which are the best and by far the most extensive; secondly, those of Jordes; thirdly, those of Kula; and fourthly, those of the Juruk, or nomad Turcomans of the interior. The carpet manufacture of Jordes is carried on exclusively by Turkish women, with the exception of the dyeing, which is entrusted to the men. The country supplies excellent wools at 5.05 quarter piastres in Jordes. The wool is dyed by about ten dyers, for from five to seven piastres per oka, and there is also a public dyeing establishment in the bazaar. Some of the dyes, such as indigo, cochineal, as well as certain acids, come from Europe. Vallonia, madder, &c., are produced in the country. Amongst the colors should be noticed the Gordes mavisi, or blue of Jordes, the ancient natural blue, and the Griffith sarisi, Griffith yellow, so called because recently introduced in the manufacture of Turkish carpets by the firm of Messrs. Griffith in Smyrna. The carpet manufacture of Jordes is very ancient, but it is only during the last forty years that it has extended itself so much. The Smyrna merchants give the design, the dimensions and color according to the requirements of the European and American markets. Hence it is that in a village which in 1885 produced carpets to the value of £T25,000 and £T28,000, not a carpet could be bought, as the manufacture depends entirely upon actual orders. Jordes carpets are manufactured for the firm of Messrs. P. d'Andria & Co. (Italian), W. Griffith & Co. (English), and Hebisse, Pollaco & Co. (Turkish), all in Smyrna. The firm of Andria & Co. employs from 200 to 1,000 female workers at Kula, and 3,000 at Usciak. There are at present in Jordes from 250 to 300 looms, all made in the country, and of the most primitive description. Messrs. Andria & Co. have a large factory at Usciak where 500 Turkish women work at machines for carding, dyeing and performing other preliminary operations upon the wool. The looms are of various dimensions. At Jordes, the largest are six metres long, but at Usciak there are some 10 and even 12 metres long. The height is usually two metres. The Government favors the manufacture, there being no tax upon the looms. The municipality exercises a strict superin-

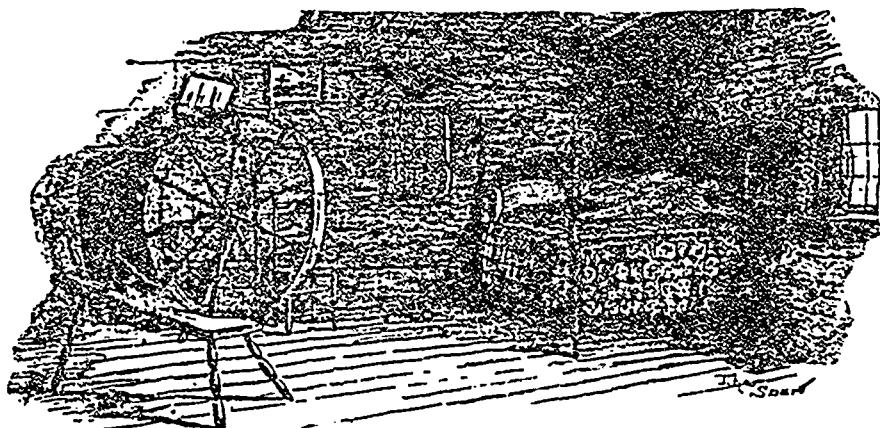
tendence over the dyes and dyeing establishments, so that the manufacture may not be discredited by the use of inferior dyes. At Kula and Usciak the carpets are of pure wool, whereas at Jordes the wool is of cotton. The work is tedious. Jordes carpets are of different qualities, the commonest of which costs, in Jordes itself, from 37 to 38 piastres per square piece, the second quality from 40 to 43 piastres, and the best quality 50 piastres and more. Before reaching Smyrna, the carpet is subject to an increase in the price, viz., 5 per cent commission to the agent, 2 per cent. expenses of transport by horse and rail, from $\frac{1}{2}$ to 1 per cent. postal expenses. From Jordes to Saliki the carpets are carried on horseback, and cost 35 piastres per bale of from 80 to 90 kilos. The Usciak carpets are transported on camels as far as Alasceio in bales of 150 kilos, and the carriage costs 15 paras per oka. Most of the orders for Jordes carpets now come from America, but few coming from England and France, and none at all from Italy. The manufacture at present is very flourishing, and it is supposed to increase by 15 per cent. every year.

THE SPANISH TEXTILE INDUSTRY.

The growth in the textile industries of Spain has recently attracted the attention of British manufacturers to the state of things in that somewhat unknown country. British imports both into Spain and into Spanish colonies have fallen off considerably during the

nearly all the jute cloth required by Spain and her colonies is now produced within her own boundaries, the chief mill being managed by a Dundee man, and consuming about 800 bales per week. Spanish labor, however, compared with that of Dundee for instance, does not amount to much, the spinners not being able, without great difficulty, to keep up a side of 68 spindles, and they are very slow in handling broken ends. Wages range from 10 to 12 pesetas (a peseta is about equal to 16 cents) for spinners, 3 pesetas for shifters, 25 pesetas for mechanics, and 15 to 17 for other male hands. Food is dear, though this is perhaps partly counterbalanced by the extreme lightness of diet indulged in by the Spaniard of the lower class. His taste in other things also is not luxurious. The dress of both the men and women varies hardly at all, the women wearing homespun winceys and silk or cotton handkerchiefs over their heads the whole year round. Strikes are very infrequent, though the people are very quick to resent and avenge the bare suspicion of insult. It is stated that the Spanish market for jute, and perhaps one or two other textile goods, is becoming overstocked, and the cry in Spain may possibly soon be what it is in most other countries, viz., over-production.

The accompanying cut represents a spinning loom in one of its primitive stages, and will no doubt prove of interest to such of our readers as like to compare old things with new.



past two or three years, whilst at the same time the rivalry of Barcelona and other Spanish centres has been speedily increasing in importance. The cotton manufacturers there are protected by duties ranging from 32 cents to 52 cents per pound. On velveteens the duty is about 54 cents per pound, this being equal to a duty on an average article of about 13 cents per yard. On muslins, lawns, etc., the duty is about \$1 per yard, while on quilts and piques it is nearly as much. On cotton tulles, it amounts to about 95 cents per pound, and on cotton lace it is somewhat greater still. On plain linens, the tariff ranges from 19 cents to 85 cents per pound, according to the count of warp threads, whilst on the plain jute goods it is from 5 to 20 cents per pound. Chiefly owing to this high protection,

THE area in Manitoba under flax was stated in a Government bulletin of last June to be 23,540 acres. This has been found to be about 7,000 acres less than later reports indicate. Total area is now placed at 30,500 acres. Average yield, 12 bushels per acre. Total crop, 366,000 bushels.

J. W. LOVIBOND, the inventor of the tintometer, an instrument which is used for testing the colors of dyed fabrics, &c., recently read a paper before the London Society of Dyers and Colorists. He divides the principal six groups of colors into two groups, based on the results obtained with the tintometer, the first including orange, green and violet, which he calls monochromatic both structurally and visually, and the second including red, yellow and blue, which may be said to be visually

monochromatic, and structurally trichromatic. The *Dyer and Calico Printer*, commenting on this classification, thinks that red, green and violet are monochromatic colors in every sense, while the others are only visually monochromatic, but structurally di- or trichromatic, according as they are formed by the combination of two or three of these colors, which are distinguished as primary colors. Our contemporary thinks that Mr. Lovibond is not quite right in his classification; for working with any known colored bodies, he cannot produce red, yellow or blue by combining them together by means of his tintometer or in any other way. These should be classed as both visually and structurally monochromatic. On the other hand, orange, green and violet are obtained by combining red and yellow, yellow and blue, and blue and red, and they are, therefore, visually monochromatic but structurally dichromatic colors.

In manufacturing woolen cloths the sliding of the fulling machine is often unnoticed by the work-hand, owing to the peculiar sound given out in that process being drowned by the constant buzz of several other machines moving in the same vicinity. Some machine builders have therefore introduced a colored star, visible at some distance, moved by a cord from the upper guide roller. This roller itself obtains its motion from the cloth, and thus the stoppage or jerky movement of the star is a sign to the fuller that the cloth has either stopped, or else is sliding along in the machine. The objection to this plan, however, is that the fuller cannot well watch these indicators all the time, and in consequence of this a further improvement has been made. This consists in the introduction of an ingenious contrivance by which, whenever the slipping occurs, the machine is stopped and a bell is rung to call attention to the fact. The apparatus required is located upon the prolonged axle of the upper guide roller, and forms a sort of clutch composed of two parts, the inclined faces of which seize one another so long as the machine behaves in the normal manner. One half of the clutch rotates with the axis of the guide roller, while the other half, which turns loosely upon the guide roller axis, obtains its motion by a cord pulley and cord from the lower cylinder axis. So long as the progress of the cloth corresponds to the circumference speed of the cylinders, the oblique faces of the two halves of the clutch are united, but if there is a difference, caused either by the sliding or the stopping of the cloth, the oblique faces of these halves open at their highest point, because one of them rotates more rapidly than the other, and the half which is connected with the brake by an ingenious device is then pushed out and stops the machine. This anti-friction apparatus stops the machine at once and at the proper time, and thereby all injurious consequences are prevented.

THE *Indian Textile Journal* says that in spite of the amount which has been written of late about the Indian mill hand, the ordinary Englishman has but a very vague idea of his personality, the only point pos-

essed by him in common with the Lancashire hand being that they both follow similar callings. Whilst the latter lives practically in face of the alternative of "work or starve," the former not infrequently for long periods does neither; and he does not appear to be much the worse for his abstinence. In India, charity is so universal and food is so cheap that death from starvation is practically unheard of. Trade Unions are unknown in Indian mills, and are likely to remain so for a long time to come, for the same reason that keeps the lower class of natives from placing their savings in banks. Their savings are usually invested in jewellery or clothing for the sake of effect. Strikes, therefore, although they may be on a large scale, can never last, as the public charity would be overloaded; but the mill hands already understand the way to boycott a mill, or several mills at once, causing serious inconvenience to their owners, while the constitutional aversion of every coolie to routine and punctuality stands constantly in the way of his personal improvement in mill work. Fines of double pay for every day of unauthorized absence do not prevent him taking a holiday when he likes, and expulsion is treated with the gravity of perfect indifference. A man in Bombay will earn on an average Rs. 14 per month, a woman from Rs. 7 to 8, and children from Rs. 6 to 7. A family of a man, a woman, and two children may earn Rs. 32 per month. The food of the family will cost Rs. 15, and the rent Rs. 3; there is thus a surplus of Rs. 11 per month for a family that is disposed to work steadily. Food and lodging thus cost 66 per cent. of their income, leaving 33 per cent. for other necessities and luxuries or economies. An Indian mill hand is not given to trying experiments; whatever class of work he becomes accustomed to in the mill he keeps to for the rest of his life there. He learns just enough to ensure his pay and that is all that can be said. He is of course ignorant and illiterate, and machinery depreciates in value whilst under his "care" to a shocking extent. The cheapness with which the Indian operative can live would render him a very formidable competitor with Lancashire were it not for his habits, he is slovenly and ignorant, and his love of noisy amusement when the fit seizes him, overcomes every other consideration. Increase of income, instead of leading him into a better style of living, is generally dissipated in profitless or vicious pleasures, so that at the end he remains as ignorant and as shiftless as he was at the beginning.

S. F. MCKINNON'S large wholesale millinery establishment, in Toronto, which was only completed a short time ago, was badly damaged in the fire which consumed the *Globe* newspaper offices. Loss on building and stock about \$150,000. Insurance \$120,000. Nicholas Rooney's dry goods store also suffered damage to the amount of \$65,000, with insurance of \$55,000, and the Williamson Rubber Company's premises were injured by falling walls to the extent of \$4,000.

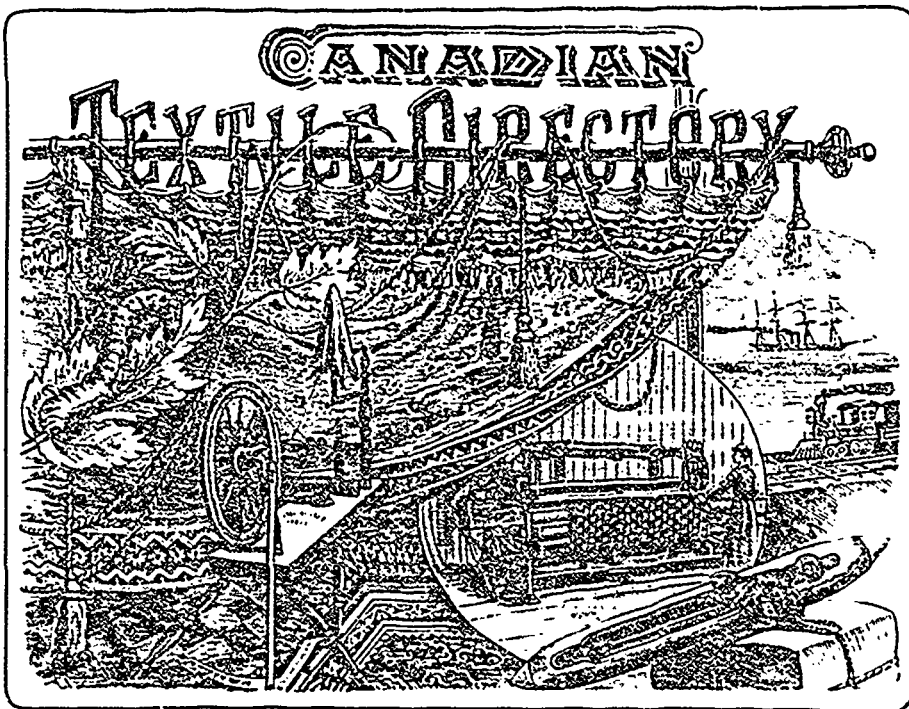
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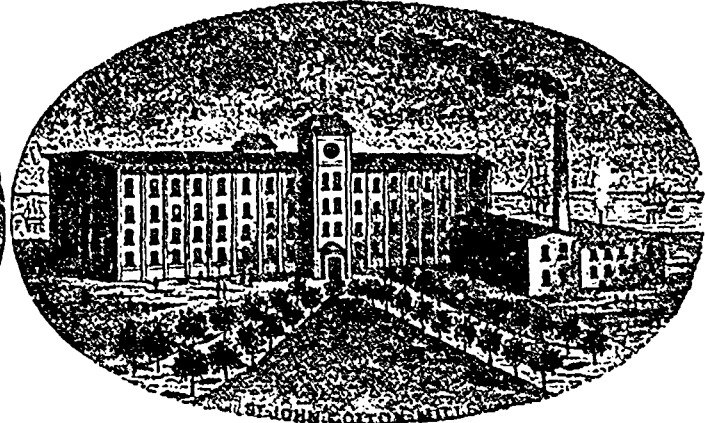
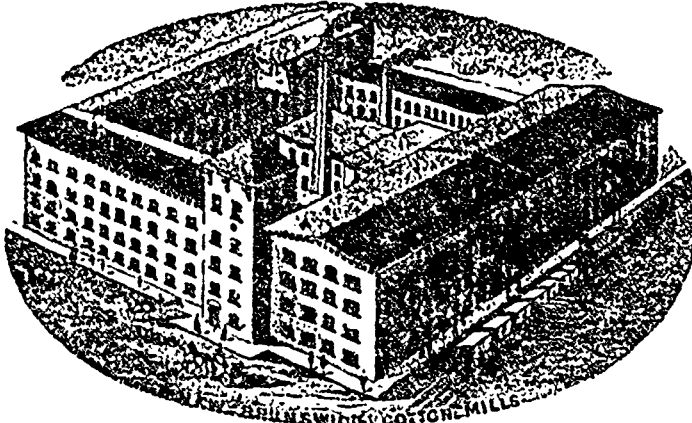
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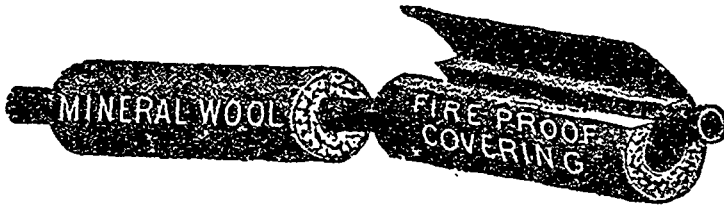
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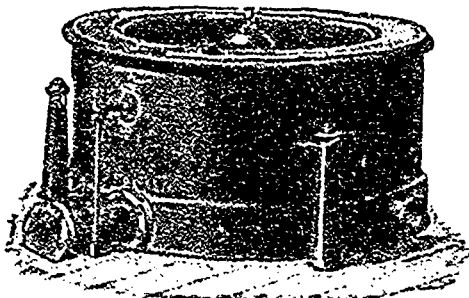
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TROUSERINGS.



Warp.—2/36 worsted.

1. Bright Blue. 4. Lavender. 1. Maroon.
1. Black. 1. Green, Orange, and Blue Silk. 3.
Dark Bronze Green. 7 Black.

72 ends per inch.
72 picks "
12's reed.
6 ends in each split.
64 inches wide in the loom.

West. All 1.20 Black Worsted



Warp 2/36

- 1 Dark Brown
1 Light Drab.
2 Dark Brown.
1 Light Drab.
1 Dark Brown
1 Crimson.
1 Light Drab.
1 Black and Blue
1 Dark Brown.
1 Light Drab.
1 Dark Brown.
1 Crimson.
1 Light Drab.
1 Black and Blue
1 Dark Brown.
1 Light Drab.
2 Dark Brown.
1 Light Drab.
2 Dark Brown.
1 Light Drab.
1 Dark Brown.

West: All Black 1/20.

72 ends per inch.
72 picks "
12's reed.
6 ends in each split.
66 inches wide in the loom.

24 ends.

SUITINGS.

Warp:



- 1 Light Blue.
3 Black
4 White and Fawn.
1 Scarlet.
3 Black.
4 White and Fawn.

West:

- 4 White.
1 Olive Mohair.
2 Red Brown.
1 Olive Mohair.
8 picks.

16 ends. 2/36 skeins woolen.

40 ends per inch.
38 picks "
10's reed.
4 threads in each split.
66 inches wide in the loom.

THE FLEMISH LACE INDUSTRY.

People of the present age are losing their appreciation of artistic skill and hand labor, whose products were so highly prized by previous generations. In most branches of industry machines have supplanted the fingers, set patterns have succeeded individual tastes. Still, in some few articles, especially those which pertain to luxury, the machine continues to be at a disadvantage. The art connoisseur prefers the oil painting to the photograph or lithograph, even though the subject may be equally beautiful. It is likewise true of lace. The genuine hand-made article enjoys an irreproachable reputation. Indeed, only by close imitation is machine manufactured lace able to-day to obtain a market for the sale of its finer qualities. The purchaser sooner or later learns to his regret the deception which he has suffered, for it is a fact generally admitted that lace manufactured on the machine is much less durable than that made by hand. The object of this report is especially to call attention to the small importation of real lace into the United States

from the district where it is made. If this trade may be revived or indirectly benefited by the brief statement which follows, it will prove that want of knowledge, not want of appreciation, has heretofore been the reason of its decadence.

Lace may be classified as hand-made or imitation. My consideration will be directed only to real lace, as the imitation is not manufactured anywhere in this consular district. Hand made lace must again be subdivided into laces *a la quille* and *aux fuseaux*. The former, as its name indicates, is made by the needle. First, a foundation framework of threads is constructed, and then the special design is filled in. Lace *aux fuseaux* was formerly made by means of the distaff, and, even now, in some remote localities, this ancient hand machine is found generally speaking however, the lace is made on a cushion, the threads being wound off small bobbins around a multitude of pins, thus forming the design.

Flanders contests with Italy the honor of having invented lace, says Henry C Morris, United States consul at Ghent. It is quite well established that lace existed before 1600. Reasons for the early superiority of Flemish laces and their subsequent renown are not lacking. The quality of flax produced in the two provinces is unsurpassed; then, the damp climate is favorable to the proper texture of the lace; the patient industry of the peasant women and low wages of labor have also aided, and, perhaps more than any other cause, the prevalent convent life, where even to this day thousands of old and young women are employed in producing lace, which they are always ready to sell at nominal prices. Throughout three centuries, certain convents have preserved their renown for certain qualities and designs. To obtain the best at the cost prices, the purchaser must go where the lace has been produced for several generations. The manufacture of almost all the variously named laces has been introduced into Flanders, and has here been brought to perfection. In many towns of Belgium, schools still exist where girls are taught, from the age of five years, the fabrication of lace work. When ten years old they are able to earn their livelihood.

Valenciennes.—Of all laces, *aux fuseaux*, that known as Valenciennes, is perhaps the most generally produced in Flanders. It was introduced in the seventeenth century. Ypres commenced its fabrication in 1656. In the year 1850, there were 20,000 women employed in the vicinity of that city in its production. Ypres produces this lace in a most beautiful quality and workmanship. For a design two inches in width, 200 or 300 bobbins are required. For the widest patterns, at least 800 different threads are used. To-day, the Belgian monopoly in this article amounts annually to several million francs. The other principal centres of the manufacture of Valenciennes are Bruges, Courtrai, and Menin, in West Flanders, and Ghent and Alost, in East Flanders.

Black Lace.—The city of Grammont is also famous for its production of black lace

Guipures de Flandres.—This lace had a great success in the seventeenth century. It is especially suitable for furnishing purposes. It is even yet extensively employed for the decoration of curtains, bedding, and table linen. Bruges is the chief centre of its manufacture. The finer guipures, for personal wear, are known as "Honiton" and "Guipure duchesse."

Application d'Angleterre.—Flanders received from England the original idea of this design, but by improvement and alteration it became entirely adopted in this country, although still known under its original name. Still other varieties are known under the general title of *Dentelles d'Application*. Brussels, Ghent and Alost remain without rivals in these laces.

American merchants may be assured that they can purchase in Flanders the finest qualities of duchesse, Valenciennes, guipures and torchons in flax or cotton, at the most advantageous prices. Their attention should certainly be directed to the producer. The present method employed by most American houses is to produce their stock in Brussels, but they should always remember that they are paying for this privilege the fancy profit of a superfluous intermediary. There are said to be about 60,000 persons employed in the making of lace in Belgium, the majority of them live in the two provinces of Flanders and sell their work to the local merchants in business at Ghent, Bruges, Courtrai, Ypres and other towns. Of

these dealers there are about 375. Many of them have as good stocks and as great a variety as any house in Brussels. Any observant person will be convinced of this fact by their exhibits at the Antwerp exposition. They are in a position to sell cheaper, and they do, as a fact offer similar qualities at several per cent less than their Brussels rivals.

Most of the lace sent from Annaberg, Glasgow, Manchester, Nottingham Rouen St Etienne and St Gall is probably machine made. It amounts to \$6,693,547; that imported from Brussels, Caudry, Ghent and Paris is mostly hand made; total, \$690,837. These figures are significant—the United States use machine-made lace to the amount of \$6,693,547, and hand-made lace to the sum of \$690,837 per annum. The probability is that a very large proportion of machine made lace is sold to the consumer under the belief of its genuineness. It is probable also that considerable quantities of Belgian laces are purchased by Americans in the London and Paris markets, and that, in this manner, they find their way to the United States.

FASHIONS IN LONDON

Little or nothing new is to be seen this week in millinery or gowns as the majority of the houses are taking advantage of their well-earned Christmas rest, remarks Jeanne in the *Drapers' Record*. Parisian velvets in light stripes and spots on a dark ground have gradually made a place for themselves, and the smartest vests, as well as blouses, are made in this lovely fabric. An extremely up-to-date costume for the afternoon has a skirt of black verglas, with steel and jet trimming placed in series of straps seven or eight inches from the hem, with large buttons as a finish. The bodice of black velvet, with white star spots, is laced into the waist, and has two stole ends of rich guipure lace reaching three-parts down the front, coming from the shoulder seams, where rests a bow of black satin ribbon, with a small steel butterfly in the centre, the waist is encircled with a black satin steel embroidered belt. For a change, there is an extra collar and waistband of cerulean blue velvet, provided the latter with a bow and two short jet steel embroidered ends hanging down the left side.

A SIMPLE DINNER GOWN

for a young lady is in the palest yellow *moire*; the full round and perfectly plain skirt is pleated into the waist and sides. A mauve gros grain bodice is entirely covered with deep tinted guipure lace, which is gathered into the waist, and so arranged in front as to form a butterfly across the front of the *decouillage*. Softening the edge of the bodice is some pretty lemon tinted ostrich feather trimming, with coquettish bows of mauve and yellow satin ribbon at the top of the yellow puffed sleeve. English evening skirts are very much trimmed with lace, chiefly Valenciennes and other fine makes. The favorite way of arranging them is either to place insertion strips down the skirt alternately with the material (usually *foncee* or *erpon*, or some soft, simple material), or to trim the bottom and sides with frills arranged scallop or waterfall fashion. These skirts, in a variety of colors and style, have had a great sale this winter, as an artistic home dressmaker can create with the generous quantity of bodice material and lace supplied a dainty corsage, the whole toilette being inexpensive and *chic*.

SOME NEW MORNING GOWNS,

two of which were trousseau garments, were on view at a leading house to a privileged few last week. A dark green serge composed the first gown. The skirt, lined with dark shot green and pink silk, was bordered with a fur and jet trimming; a pretty short jacket of the cloth was cut up at the back and edged with the fur *passmenterie* jet motifs in points being placed round the neck at the back. The front formed revers, also jet embroidered, as were the wrists of the full sleeve. In the same color as the gown was the silk vest, full in front and finished at the neck with a softly-folded jacqueminot satin collar, and double bow and short ends at the back. The belt was of the same, fastened in front with a similar bow. Elegantly simple must the second gown be styled. Mastic, soft camel's hair cloth, being the chosen fabric. On the left side

of the otherwise plain skirt was a bow and ends of black satin ribbon attached to a soft black ribbon-rucked *ceinture*. The only trimming on the bodice, which fastened at the back, was a square jet collar, edged with an accordion pleated narrow satin frill, and trimmed either side of the opening in front with three large jet buttons, the collar was of black silk, and the sleeves, very similar in style to the leg o' mutton or angel, were caught down in the centre of the forearm with black double rosette. A fawn tweed, with undefined stripe running through it, was trimmed with black key patterned braid on the skirt and bodice, and a *chic* costume in regal purple had a square collar of black *moire*, much decorated with jet buttons and edged with narrow fur, showing a vest of black linen silk arranged into three broad pleats. The feature of the collar was the "Japanesque" or outspreading bow at the back of the waistband. Orange velvet of the Tangerine shade is much used on gowns and bonnets, toned down with velvet or silk of contrasting color. A simple and effective way of trimming a black satin or brocade dinner-gown is to arrange a wide orange ribbon folded down the left side of the bodice and letting it go round the waist, after which from two loops and a knot it falls in double lengths down the left side of the skirt, being caught up with true lovers' knot bow eight or nine inches from the bottom. The sleeves of orange brillantine to a well arranged in full short puffs and frill; reaching well above the elbow. Caracul cloth is gaining in favor, and it is now the fashion to have the skirt of one color and short double-breasted coat of another.

NEW NORFOLK BLOUSES,

reaching well over the hips, with leather belt, fancy buckle, and turn-down collar, are in velvet, flannel, and cloth, another style has two pleats narrower at the top and bottom, and silk or satin neck and waistband, with puffings at the side and in the centre, but the ultra-fashionable have adopted the large box pleat in the centre, ornamented with three large buttons. Of the several stylish sleeves to be seen on the latest costumes, the newest are those cut all in one piece, but extravagantly full to the elbow, the fulness being kept in place by straps of velvet, jet, or other trimming placed lengthways from shoulder to elbow, and terminating with rosettes in piece silk or satin. For evening or day dresses the butterfly sleeve is taking well, also a new double puff. The leg o' mutton, showing much variety of treatment in the style of trimming the cuff, still holds its own.

SOME CLEANING RECIPES.

Matting should never be washed with anything but salt and water—a pint of salt to half a pailful of salt water moderately warm. Dry quickly with a soft cloth. Twice during the season will probably be sufficient washing for a bedroom, but a room much used will require it somewhat oftener.

Oilcloth is ruined by the application of lye soap, as the lye eats the cloth, and after being washed it should be wiped perfectly dry or the dampness will soon rot it. If laid down where the sun will shine on it much, it will be apt to stick fast to the floor unless paper is laid under it.

Velvet requires very careful manipulation, as it loses its fine appearance if wrung or pressed when it is wet. To remove dust, strew very fine, dry sand upon the velvet, and brush in the direction of the lines until all the sand is removed. The brush must be a new one. To remove dirt, dissolve ox-gall in nearly boiling water, and add some spirits of wine, dip a soft brush in this solution and brush the dirt out of the velvet. It may require repeated brushing. After this hang the velvet up carefully to dry. For finishing, apply a weak solution of gum by means of a sponge to the reverse side of the velvet.

To Clean Carpet.—The carpet being first well shaken and free from dust, tack it down to the floor; then mix half a pint of bullock's gall with two gallons of soft water, scrub the carpet well with soap and the gall mixture, when perfectly dry it will look like new, as the colors will be restored to their original brightness. The brush used must not be too hard, but rather long in the hair, or it will rub the nap and injure the carpet.

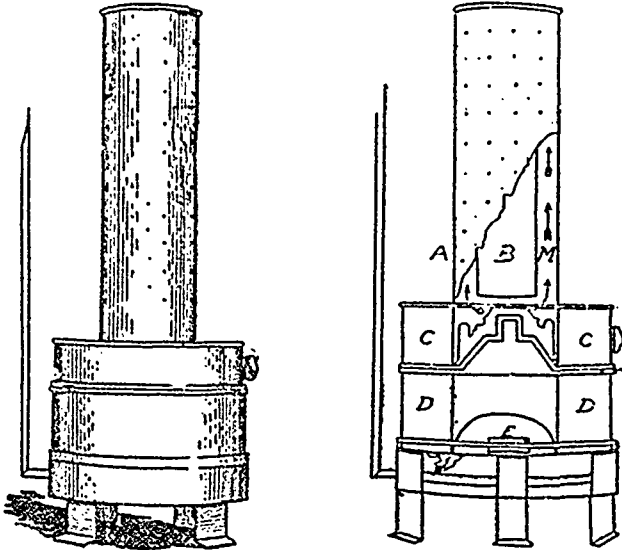
To clean white kid gloves without benzine, the odor of which is offensive to many, a solution of soap in hot milk is recommended. The yolk of an egg beaten to snow may be stirred into half a liter of the solution and a few drops of ammonia water added. The gloves are drawn upon the hand and rubbed with a woolen rag dipped in the mixture. By hanging them in the shade to dry the leather will keep soft.

To remove oil paint stains, rub them with tampion dipped in clean oil of turpentine. Then place a piece of blotting paper over and under the stain, and pass a hot iron over it. Finally, if the articles will bear it, wash them in warm soap water.—*Starch Room.*

A NEW STEAM CLOTH SPONGER AND FINISHER.

The Blumenthal Oxide Electro Steam Cloth Sponger and Finisher is claimed to be one of the latest and most improved apparatus, both mechanically and scientifically, put on the market. It is made of the best class of material. The perforated cylinder, or sponging part, is made of the very best plate, copper tinted on both sides, so as to protect the fabric from being damaged from any verdigris that might otherwise form, from the condensation of steam. The boiler, or steam generating part, is made of the heaviest galvanized iron, centre pivots of tinned iron, placed on the inside so that it will support 250 lbs. weight. All that it is necessary to do is to roll the cloth on the cylinder; light a gas stove, place it on a stove or coal oil lamp, and in from 12 to 15 minutes the goods are sponged; and a cutting board and the goods are dry immediately.

This little apparatus is so compact that it does not occupy more than a space of 15 square inches. The inventor has not forgotten to provide for economy. As will be readily perceived, the



insertion of the cylinder B within the cylinder A, cylinder B being solid or imperforated, which is used in filling up the space within A, and only leaving one half inch space M, to be filled by the arising steam, gives a greater pressure, and thereby a saving of fuel, and condensation. The drip pan, marked C, receives all condensed steam that naturally will be water, which is almost immediately again converted into steam, by the close proximity of the boiler D, being heated to a high degree, and thus saving a great amount of trouble in emptying the drip pan on every occasion after each time the apparatus is used. E is a block of zinc put into boiler D, and, as has been explained, the boiler is made of galvanized iron, with a piece of zinc in the centre of the bottom, soldered on. The upper part A, and C, the lower part of the perforated cylinder, are of copper, on both coming in contact from an electric current, and the heat of the steam arising therefrom through the channel M, so that the fumes or gas drive out the hydrogen and retain in the goods sponged the pure oxygen, giving us the oxide of zinc, which is deposited in the texture of fabric through the agency of the steam. The oxide is immediately taken

up by the color of the fabric, and becomes part of the cloth. The oxide of zinc absorbs all oily matter which has not been properly taken out of the fabric in the course of manufacture, and imparts a semi bright finish, and soft and fine feeling to the touch, and will improve the value of the fabric, and destroys all germs, moths, etc., and protects the cloth from moths and other insects detrimental to wool, and gives the fabric a bright and uniform appearance, especially where there are one or more colors. This useful little machine is made by the New York Manufacturers Co., Montreal.

RECENT CANADIAN PATENTS.

Edward B. Near, Humberstone, Ont., has patented a washing machine, the inside of the body of which has projecting ears at the top and a ren.oval mechanism, consisting of a slatted segmental bottom, and slatted inclined sides hinged to the latter. There is a beater or rubber consisting of toothed segments, with handles journaled upon a shaft, with arms pivoted upon studs held on the sides, which are secured to the frame pieces of the bottom.

Allen Conkling, Chicago, and T. S. Wiles, Albany, N. Y., have patented a metallic guide and feed tape for laundry machines. At right angles with the tape is a rod, beneath which the tape passes, and there is a yielding take-up mounted on the rod and connected with the tape.

Robert R. Thompson, Bloomington, Ill., has patented a machine for stuffing mattresses. It is constructed with a floor and vertically adjustable top, these being made with a number of laterally adjustable beams provided with laterally adjustable overlapping plates. Mechanism is provided for adjusting the beams and plates in the top and in the bottom of the machine at the same time.

W. H. L. James and G. C. Warr, both of Paterson, N. J., have patented a method for softening vegetable fibre, which consists in first subjecting it to the action of a solution of alkali, soap, oil, and glycerine, until the fibre is saturated and softened, and in then drying it out.

C. H. Wilkinson, Milnsbridge, Yorkshire, Eng., has patented a shuttle-guard and shuttle-catcher for looms. The mechanism comprises a series of horizontal rods and chains and collapsible brackets.

W. Berlowitz, Memel, Prussia, has patented a process for making buoyant and waterproof fabrics, by impregnating them with a solution of resins and hydrocarbons.

J. H. Lorimer, Germantown, Pa., has patented a conveying apron for textile machines, in which there are two flexible parallel chains or bands connected at intervals by transverse rods, a series of interposed independent frames composed of inter laced or woven wire, and loose connections between the interposed frames and the transverse rods.

W. A. O'Brien, Boston, Mass., has patented a kind of union garment, and the process for making it. This method consists in knitting the web of fabric for a leg or front, which comprehends the leg, widening this web to what is substantially the widest course for the leg or hip, then transferring part of the loops to change the character of the knitting for the waist, and consolidating the loops for part of the width of the web to leave a waist start, and then continuing the knitting for the front of the waist and the bust covering part of the front.

Frederick Walton, London, Eng., has patented a machine for manufacturing mosaic floor cloth, comprising several sets of rollers arranged to deliver sheets of colored floor-cloth material to as many sets of pressing rollers and cutting cylinders, arranged partly around a drum provided with an apron having projecting pins, comprising also a reel to deliver the backing fabric, a pair of pressure rollers, a heated roller, and set of pressing rollers with a travelling apron and its guide rollers, and a reel to receive the floor-cloth, together with suitable fabric interposed between its layers.

TRADE MARKS.

Isidor Frankenburg, of Greengate Rubber and Leather Works, Salford, Eng., has taken out a trade mark for articles of clothing.

Foreign Textile Centres

MANCHESTER—The market has been considerably interfered with by the holidays. The demand has nowhere been of full dimensions and prices have only weakly been maintained. Irregularity has been the rule in nearly all cases. The cotton market has been depressed by the continuance of heavy receipts, which has caused prices to fall by from one to two points. Only a retail trade has been transacted in yarns, and prices in nearly every department are weak and irregular. A moderate demand has continued to present itself for cloth, but at such low prices as rarely to admit of acceptance. It is generally hoped that business may improve after the holidays, but this is not justified by any substantially good outlook at present.

BRADFORD—There has not been much animation in the wool trade, but there is a good deal of quiet buying in both merinos and crossbred wools, and some considerable weights of tops in both these descriptions have been sold during the past few days for forward delivery. Prices, therefore, are firm, but there is no indication of any advance at an early date. There is one feature in the market which seems to point to a possibility of a largely increased inquiry for lustrous fabrics. Prices are advancing and business is increasing in both raw mohair and alpaca notwithstanding the fact that there is the greatest quietness in the braid trade, in which a very large proportion of both these raw materials are usually consumed. In the yarn trade we have a good many large offers for various kinds of yarn from export merchants at impossible rates, and though, no doubt, some concessions have been made by a few of the most eager spinners, one cannot hear of any actual business of moment resulting.

NOTTINGHAM.—As is usual at the close of the year, business is in a somewhat stagnant condition in the lace trade. Manufacturers and warehousemen are, however, looking forward more hopefully towards 1895, as everything tends to show that the state of trade generally is slowly but surely improving. The goods most in request at the present time are caps, aprons, collarettes, and other fancy goods, which are in moderate demand. In ruchings and frillings manufacturers are introducing novelties, for which there has been some call. In Oriental laces a good business has been done, whilst the lace curtain, window blind, and furniture lace departments are moderately engaged with orders for future delivery for the home trade and for shipment. There have recently been large exports of bobbin nets to the Continent, but Nottingham people do not look upon this as an unmixed good, for no doubt in the near future they will be placed on the market in such forms as to compete seriously with Nottingham-made cotton laces. For the Continent, too, large orders have been placed for braids and beadings. There is more inquiry for stiff Valenciennes and Maltese edgings for shipment, and a few good orders have been booked. No fresh demand can be noted for silk laces, which continue very depressed. The foreign competition in this branch is so severe that local manufacturers find it impossible to meet it, and in consequence the bulk of the trade is in foreign hands.

HIDDERMINSTER.—The year which has passed away must be regarded, as far as the carpet trade in all its branches is concerned, as a very disappointing one. It is increasingly evident that the carpet trade depends very largely upon the condition of the general trade of the country. Outside our own country we have had very little assistance. The depressed state of trade in the United States, coupled with the great uncertainty with regard to the effect of the Tariff bill—even after it was passed—had a marked effect on this side the Atlantic. The improvement in the colonial trade comes slowly. The reaction from the breakdown of two years ago has not been as rapid as was anticipated by many. There are, however, now distinct signs of steady, if slow, improvement. The same can be said of our relations with South America, and there are indications which lead to the conclusion that the solvency of the country is becoming established upon a better basis than there has

been for several years, though the volume of trade is small compared with what it was some time ago. In our own country it is not difficult to see indications that business has taken a turn for the better. The good harvest has had its natural effect upon the industries of the country; and there is an expansion of trade generally which gives hope and confidence in the future. This will react upon the carpet trade, so that the prospect is that our looms will be much better employed.—*Shuttle*.

BELFAST.—In the linen market the aspect of trade has altered but little lately. Although manufacturers are still buying only to supply immediate wants, there has been a considerably larger turnover in both line and tow yarns than has been the case for some weeks past. Very low prices are spoken of as having been accepted for the range of line wefts, but the sales referred to were exceptional, and for a very low quality of yarn. Some makers who were tempted by the low prices quoted for inferior spinnings, and were induced to make a trial of some of them, have been obliged to give them up and revert to the better spinnings. As a rule, prices are unchanged and remain firm at recent quotations. In linen piece goods a brisk business is passing in the coarser end of the trade. Almost all kinds of tow goods and unions are selling freely. For the United States market there is an immense demand for "scrimms," but the time of delivery of these is in most cases limited to March. Pales, especially union pales, are in good demand, especially for the making-up trades. White linens are slow of sale, as are also hand loom damasks, but a fair demand exists for power loom damask cloths and napkins. Ballymenas are somewhat easier in price. Apron and pinafore manufacturers are having a good run of trade, and are at present working up to the full strength of their production. In holland goods the Belfast makers have this season been even more fortunate than in former years. The greater part of the London and Manchester orders for holland goods for the coming spring seem to have come to this side of the channel, and the factories have plenty to do to keep up to time with their deliveries. The demand is again stronger for union hollands—cotton warp and linen weft—than for all linen, most of the holland apron orders, indeed, are for the union qualities.

DUNDRE.—The tone of the market is better all round. Jute is 5s. dearer—that is to say, sellers ask 5s. more, and £10 5s. is now the lowest for best firsts. Hessians are unfortunately not wanted at any advance, and only very good 10½ oz. 40 in. bring 1½d. mangled. Common qualities and light weights are swamped by the Calcutta goods. Flax falls from day to day. The quality of the new crop is variously reported on; but in a few weeks spinners will be enabled to see the flax on the heckle, and to know what they may expect. Flax yarns are offered by bleachers at low prices, and to effect sales a slight concession from the very low prices current would be made. Tow wefts are cheaper than they ever were. This trade is at the moment very unprofitable. The inquiry for linens for the spring trade is better, and the prospects improve. The recovery is not to be sudden, and if real and permanent this will be an advantage. The jute fancy trade extends, and the demand for perfect goods for oilcloth and other materials requiring skill and care in their manufacture extends. Jute carpets of pretty design are wanted, and the demand for cords and ropes for special uses increases.

GLASGOW.—Fifeshire linen manufacturers are continuing to receive good orders from all markets, and the close of the year is much better than the beginning in regard to orders and outlook. While this is so, there has been no increase in prices for manufactured goods. The Ayrshire lace curtain trade is still improving, and the opening of the year is expected to still further increase the demand. The American orders are steadily coming to hand, and the exports in the early weeks of 1894 will be in pleasing contrast to the early months of 1894. In respect to the winter's home trade, some makers report that it has been the best lace curtain winter they have experienced. The Glasgow cotton yarn market has been very quiet, and any transactions that have taken place have been carried through at prices that are only slightly above the lowest point reached lately. In the South of Scotland tweed trade the last fortnight of 1894, which is now concluding, has not given hopes

of a good start for the new year. Winter season orders have been fully supplied, and the weather and other causes have prevented repeats from being sent in, with the result that the position of makers and their workers is about the same as in the closing days of December last year. The hosiery trade in Hawick and district has been well maintained, and a good increase in the winter season's trade will be recorded by manufacturers generally. In merino goods the tendency has been to a heavier class of goods this year, which has helped to increase returns.

ZURICH.—The demand for silk fabrics has decreased, and it is not likely to increase again until the spring season opens, but manufacturers have sufficient orders on hand to be satisfied. Under the excitement of the good business done in the last quarter of the year, the fact had been overlooked that novelties almost exclusively have been ordered. In the calmer period of stock-taking this fact assumes more importance, as the stocks of staples existing have to be counted up and call for more attention than when order taking is going on. It is now found that notwithstanding the great rush for novelties, plain merveilleux and surah have done poorly and can only be sold at a sacrifice. The same is the case for blacks, which find a limited sale even at a loss. This, however, will be more than compensated for by the good business in novelties, if the results of next spring's season shall be as satisfactory as is now anticipated.

LYONS.—The silk goods market has not changed much, and while the demand for Paris has slackened, a good inquiry has been kept up for the United States, England and the continent. Manufacturers are not receiving many orders for goods in advance, but are sufficiently well provided to keep busy for some time to come. A fair demand is reported for goods for ready delivery. Goods now on the looms have also found buyers. What looms are not working on fixed orders are working for manufacturers' own account. Taffeta in changeable effects, boiled taffeta, and checked taffetas continue in good demand. Light fabrics of all kinds have done well. Gaufrage pongees, with or without printed effects, have also good prospects for spring. Satin duchesse in black and colors is still causing some life in the business. Muslins are ordered well ahead, plain and in embroidered effect. Embroideries have done well and tulle and crepes have not been neglected. The demand for velvet has lessened, but ready lots still find a good market. Prices, however, are well held and those manufacturers who had not yet advanced the weaving wages are doing so. Fancy velvets find good buyers for ready delivery. Velvet ribbons are in good demand at firm prices. The ribbon market is fairly active, staple ribbons being in regular demand, while stripe and check effects are taken in large lots. Plaids and fancies are receiving some attention.—*Dry Goods Economist*.

CREVELD.—There is little activity in the demand for silk fabrics, either from retailers or from wholesale buyers. The wholesale houses have already placed their orders for spring, and, not feeling any pressure from their customers, are waiting for the opening of the new season. Except for the cloak trade, manufacturers of silk goods are booking very little new business. Little is being done in fancies, which have already been sufficiently well ordered for spring. In staples, buyers are only ordering new colors to keep their stocks up to the requirements of the times as regards re-assortment of shades. Manufacturers can, however, not complain, as they are already very busy filling previous orders, and they are more troubled (with the scarcity of looms and weavers) to execute those they have already secured than with the comparative absence of new business. In plain dress fabrics the business done has been comparatively smaller than in fancies. Tie silks and umbrella silks continue to keep quite a number of looms busy, and many hand-loomers are now engaged on these. Ribbons have been well ordered for spring. Medium widths have sold well, especially in the better grades of piece-dyed goods.

MELBOURNE.—Stocks of bagging have been increased by the arrival of the steamer "Clitus" from Calcutta, with 2,870 bales of gunnies. Sales continue to be made and deliveries of previous purchases of cornsacks, but owing to the position of the supply and

the current rate in Calcutta, prices are not so good as six weeks since, 200 bales placed at 4s. 4½d., 70 bales of woolpacks quitted at 1s. 8½d., and branbags about 3s. 2d.

SYDNEY.—Jute goods have been quiet. Woolpacks have been moving for trade requirements at easy prices. In cornsacks there is at the moment rather a firmer feeling. Some "bear" sales made earlier in the season have been cancelled, in consequence of the inability of the sellers to cover their contracts. There is, however, no reason to believe that there will be any scarcity for the coming harvest.

AMERICAN TEXTILE PATENTS.

The following list of patents granted by the United States Patent Office for inventions relative to textiles and textile machinery is reported for THE CANADIAN JOURNAL OF FABRICS, by Glascock & Co., patent attorneys, Washington, D.C., of whom printed copies can be obtained for 25 cents each.—

- H. Donner, Chemnitz, Germany, knitting machine transferring apparatus.
- E. Kastler, Philadelphia, Pa., mechanism for regulating the movement of loom cloth rollers.
- H. Minister, Zaleski, Ohio, cloth measuring machine.
- A. W. Cochran, New York, N.Y., sewing machine knoter.
- J. Tripp, New York, N.Y., sewing machine shuttle actuating mechanism.
- B. Bodell, Auburn, N.Y., spinning jenny.
- G. E. Chandler, Fall River, Mass., mechanism for actuating revolving rods of spinning machine.
- J. T. Meats, Taunton, Mass., carding machine.
- W. R. Dillmore, Philadelphia, Pa., knitting machine.
- J. Bradley, North Chemsford, Mass., warp knitting machine.
- E. Guilbert, Woonsocket, R.I., loom picker motion.
- E. H. Graham, Biddeford, Me., two patents, positive shuttle motion.
- J. H. Northrop, Hopedale, Mass., four patents, looms.
- G. and F. Priestley, Bradford, Eng., loom for weaving double pile fabric.
- A. Waddington, Bradford, Eng., loom shuttle guard.
- J. C. Liberty, Easthampton, Mass., jacquard mechanism.
- H. R. Mathews, Trenton, N. J., loom picker check.
- J. B. Daudelin, Fall River, Mass., self-threading loom shuttle.
- J. E. Bertrand, Boston, Mass., sewing machine.
- P. L. Cox, Boston, Mass., sewing machine.
- C. H. Foster, New York, N.Y., sewing machine guide.
- P. Dichl, Elizabeth, N. J., sewing machine shuttle.
- J. Faust, Cincinnati, Ohio, automatic stop action for sewing machines.

SOME EXCELLENT INTEREST RULES.

The answer in each case being in cents, separate the two right-hand figures of result to express in dollars and cents.

Four per cent.—Multiply the principal by the number of days to run, separate the right-hand figure from product, and divide by 9.

Five per cent.—Multiply by number of days, and divide by 72.

Six per cent.—Multiply by number of days, separate right-hand figure, and divide by 6.

Eight per cent.—Multiply by number of days, and divide by 45.

Nine per cent.—Multiply by number of days, separate right-hand figure, and divide by 4.

Ten per cent.—Multiply by number of days, and divide by 35.

Twelve per cent.—Multiply by number of days, separate right-hand figure, and divide by 3.

General rule.—Multiply principal by number of days, and the product by double the rate of interest, and divide by 73,000.

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Among the Mills

The woolen mills at Bolton, Ont., are now lit by electricity. Kingsville, Ont., woolen mills have closed down for a few days.

At the Kingston knitting mill some new machinery is being put in.

The Wellesley, Ont., woolen mills have closed down for a few days.

D. McCallum's carpet factory in Strathroy, Ont., was burned down a short time ago.

The Waterloo, Ont., Woolen Manufacturing Co. have been putting in some new machinery.

Jas Livingston's mill at Stratford, Ont., recently turned out in one week 6,000 lbs. of dressed flax.

The Cornwall Mfg. Co.'s woolen mill closed down for a few days last month, but re-opened on the 2nd inst.

Kingston Penitentiary binder twine factory will manufacture 550 tons this winter, to be ready for market in June.

Kingston cotton mill closed down recently for a week in order to allow of the machinery being looked over and repaired.

The Listowell, Ont., woolen mill, a few days ago, sent seven carloads of wool to the States, the value of which was \$15,000.

Joseph Holden, an employé in the Merriton, Ont., cotton mills, died suddenly last month of apoplexy. He was aged sixty.

The Weston Ont. woolen mills experienced a breakdown in the machinery for a short time the other day, but are now running as usual.

Innisville, Ont., woolen mill has closed down altogether, and J B Ferguson, the late lessee, has removed with his family to Renfrew.

Irene Trotter's carding mill at Grondines, Que., has been destroyed by fire. No insurance. About twenty-five hands are thrown out of employment.

J M. L. Schlomon, Montreal, is setting up a shirt factory, and the business will be carried on under the name of the Canadian Shirt and Overall Company.

Owen Farnham, an employé in the St. Croix Cotton Mill, had his side and head severely injured a few days ago by a bolt thrown from a saw in the machine shop.

W. A. Semple, from a large woolen mill in Norwalk, Conn., is now a designer in Gillies & Co.'s woolen mill, Carleton Place, having assumed his duties last month.

H. Close, of the Universal Knitting Company, Toronto, has been on a visit to Peterboro. He thinks of building a factory in the latter city 100 feet long by 45 feet wide.

Robert Meighen, of Montreal, president of the Lake of the Woods Milling Company, has been appointed managing director of the Cornwall Mfg. Co., woolen manufacturers.

Wm. Johnson, an employé in the St. Croix Cotton Mill, St. Stephen, died suddenly on the 2nd inst. of heart failure. He was 56 years old, and leaves a widow and six children.

Wilcox & McCosh, of the Canning, Ont., woolen mills, are stated to be in financial difficulties, owing to over-production in their special line, viz., blankets. The assets are about \$10,000, and the liabilities are considerably more, principally due to Hamilton firms.

C. F. Titus, of Boston, and Charles and John Dickinson, of Woodstock, N.B., have joined together in business under the name of the Maritime Wrapper Co., for the purpose of manufacturing ladies' wrappers, tea gowns, children's goods, etc. They have already erected a building in Woodstock and put in a good deal of machinery, and expect within a few months to have 60 machines in operation, giving employment to about 60 hands.

The Woodstock, N.B., woolen mills are now lit by electricity, a dynamo having been put in with sufficient capacity for seventy 16 candle power lamps. Power is derived from the engine running the mill machinery. The mills are running overtime.

William Somerville, of the Globe Woolen Mills, Montreal, has left for Cornwall, where he will take the position of superintendent at the Cornwall Woolen Mfg Co.'s mills. Before leaving Montreal, Mr Somerville was presented with a handsome gold watch by the employés of the mill.

James Kendry, manager of the Auburn Woolen Co., Peterboro', has been elected mayor of that enterprising Ontario town for the third time, and David Cram, cashier of Gillies & Co.'s woolen mill, has been elected to fill the mayor's chair in Carleton Place, Ont., having last year been elected reeve. Both gentlemen went in by acclamation.

A M Cruickshanks, who last year contested the Waterloo, Que., Knitting Company's right to go into liquidation, but failed in his endeavor, has now succeeded in the Court of Review, on the ground that less than two thirds of the shareholders voted for liquidation. The company, which will now perhaps become insolvent, will have to pay costs of the suit.

Wm Somerville, superintendent of the Globe Woolen Mills, Montreal, for the past four years, has resigned that position to take a similar one in the Cornwall Company's Woolen Mill. Mr Somerville's place in the Globe mills has been filled by A G. Sykes, formerly of Cleckheaton, Eng., but for the last two years with the Ashland Mfg. Co., of Baltimore, Md.

Bellhouse, Dillon & Co., Montreal, have been appointed agents for the United States and Canada for the West Indies Chemical Works, Ltd., of Jamaica, for the sale of their extracts and dyewoods. These have the advantage of being manufactured on the spot, thus losing no time between the cutting down of the tree and the utilization of the product.

Dupont & Wilson, mat, rug and carpet manufacturers, of Kingston, find it necessary to enlarge their works in the spring, as they are thinking of starting in other lines, such as the manufacture of table oilcloth and black enamelled cloth. There is some chance of their removing their factory from Kingston altogether, and they are asking Galt whether it will offer any inducements for them to locate there.

AUSTRALIAN WOOL MARKETS.

Fuhrmann & Co. (Ltd.), wool dealers of Melbourne and Sydney, report to THE CANADIAN JOURNAL OF FABRICS, under date 23rd November, 1894, as follows:

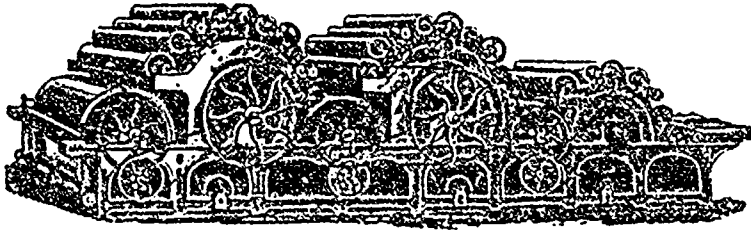
Since the issue of our last circular (26th October), a considerable business has been transacted in our Melbourne and Geelong markets. The attendance at the public sales has continued large and bidding brisk, except for faulty and inferior wools. American, English and German buyers have been very active, whilst French representatives complain of heavy stocks of 'tops' in their home manufacturing centres and consequently buy less than usual.

During the past month some of the best Western Victoria clips have been sold to American and English buyers at prices varying from 8½d to 9½d., first cost, for the top lots of superior brands. Best Western wools, as well as shafty Riverina combing parcels, fairly free from burr, are in good request, but most of the other descriptions have lately shown a distinct downward tendency, and the level of prices for these may now be quoted about 3 per cent. below this season's opening rates.

In spite of these extremely low prices the great bulk of the wool offered is being freely sold by the growers, and out of 132,000 bales catalogued so far, about 120,000 bales have been disposed of in our colony.

The total exports from Australasia (New Zealand included), since 1st July last, amount to 341,000 bales, as against 431,000 bales at the same period last year. The decrease of 90,000 bales is

TEXTILE MACHINERY (New and Second Hand)



English Sales Attended.

CARD CLOTHING TETLOW'S

Stock in Canada

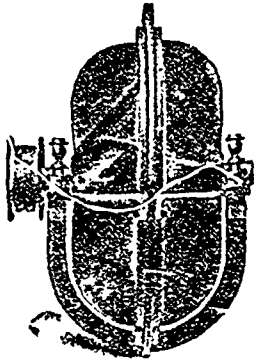
Condenser Aprons

Buffed Surface
Plain & Grooved

Oak-Tanned and White Belting
Cotton Banding, Rim Spindle and Braided
Shuttles, Pickers, Heddles, Harness
Patent Frames, GENERAL FURNISHINGS

ROBT. S. FRASER

3 ST. HELEN ST., MONTREAL



BARNEY VENTILATING FAN CO.

Ventilating Engineers
and Experts in Textile Manufactories

MANUFACTURERS OF

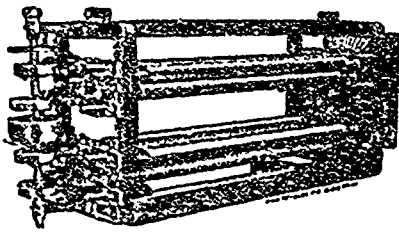
BARNEY'S COMPOUND VENTILATING WHEEL

Prompt Delivery, and no Customs Duties.

MANUFACTURER'S AGENTS FOR THE

Manville Wool-Felt Sectional Steam-Pipe Covering

54 Oliver St., BOSTON, Mass., U.S.A.



We manufacture Barker's Patent Noiseless
Fast-running Doffing Comb

Barker's Patent Double Apron Rubbing
Motions for Condenser Cards

Are in successful operation on all grades of stock, being generally
adopted because they change carding and spinning
rooms for the better.

James Barker, Cotton and Woolen Machinery

Second and Somerset Streets, PHILADELPHIA, Pa.

mainly due to the delay in shearing and the lateness of our season in general

There can be no doubt that at the end of the statistical year (30th June, 1895) the export figures will show a substantial gain on last year's figures, as a large increase may be looked for from both New South Wales and Queensland, whilst it is expected that the Victorian production will not differ materially from last season's, owing to the wet weather having caused an abnormally heavy death rate among sheep.

Steamer freight to Boston, via San Francisco or Vancouver, or, via London, is quoted $\frac{1}{2}$ to $\frac{3}{4}$ per lb. grease Exchange— $\frac{1}{2}$ per cent. for 60 days' sight on London.

TORONTO WOOL MARKET.

No foreign demand; locally, very little doing yet. There are some indications of an improved demand, but up to the present sales are small. Prices are unchanged at 18 $\frac{1}{2}$ c. for fleece combings, 19c. for fleece clothing Pulled super is worth 18c. to 19c. and combing same prices. Extra, 20c. to 21c.

NEW DYESTUFFS.

Wm. J. Matheson & Co., Limited, of New York and Montreal, call your attention to a sample card with dyeings, which they are distributing to the trade, illustrating another very valuable addition to their list of Diamine Colors, namely, Diamine Fast Yellow B. The color dissolves readily, and is dyed as follows.—

Cotton may be dyed in copper or wooden vats, in alkaline or neutral baths—that is to say, with soda and Glauber's salt, or with the latter only—which property distinguishes it advantageously from competing products

Diamine Fast Yellow B is distinguished by its great fastness to light, surpassing in that respect all other yellow dyestuffs, including Alizarine Yellow. Severe washing does not influence the shade of dyeings done with Diamine Fast Yellow B, and white washing together with such dyeings is scarcely tinted. Its fastness to hot ironing is good, and the color will even resist the passage through a strong solution of chloride of lime. The above properties, in connection with the low price of this dyestuff, render it one of the most desirable colors not only for self colors but for mixtures. Diamine Fast Yellow B does not change by diazotising and developing, and is well adapted for mixtures with dyestuffs that are to be diazotised, for instance, in combination with Diamine Black or Diamine Brown.

Cotton and Wool or Cotton and Silk.—It gives the same shade on the different fibres, with the advantage of covering the vegetable fibre on wool and silk.

Wool and Silk.—Its fastness to washing and water should make it welcome to the silk industry. Wool and silk are dyed with the addition of 10 per cent. Glauber's salt and 5 per cent. acetic acid.

Printing.—Diamine Fast Yellow B can be applied as a print color on all kinds of fabrics by simply printing and steaming. It should be of particular advantage for printing mixed goods composed of animal fibres. It is well adapted for padding, on account of its ready solubility, and producing the important cream and straw shades on cotton. Diamine Fast Yellow B can be as easily discharged as our Diamine Yellow N and Diamine Gold.

They will be glad to send further particulars to those interested.

LEMOND BELANGER, dry goods, Quebec, is offering his creditors 75 cents on the dollar. Liabilities nearly \$30,000.

GEORGE B. FRASER, of S. Greenshields, Son & Co., returned last month from a trip to Great Britain and the continent.

THE Dominion Rubber Reclaiming Co., Montreal, have elected Wm. Clendinning president, and W. Currie, vice-president.

THE Whitehead & Hoag Co., of Newark, N.J., manufacturers of badges, have opened an office at 71 Yonge street, Toronto, with J. B. Short in charge.

A FIFTH and final dividend has been declared in the estate of Boyd Bros & Co., insolvent wholesale dry goods merchants, Toronto, at the rate of five mills on the dollar.

LOUIS TAILLEFER'S dry goods store in Ottawa was two or three weeks ago completely gutted by fire. Loss about \$10,000, insured for \$6,500. The origin of the fire is unknown.

A. H. PALARDEAU, dry goods merchant, Quebec, has assigned at the demand of Thibaudeau Frères. Liabilities, \$37,960, assets, \$36,220. The creditors are chiefly Quebec firms.

THE firm who will, under the leadership of Mr Griffith, carry on the manufacturing business of the defunct Royal Corset Co., Sherbrooke, is composed of Messrs Griffith, D. McManamy, E. P. Cornier, O. Dupont and T. A. Bourgin.

H. BRADFORD CLARK, dealer in upholsterers supplies and dry goods, Toronto, is seeking to effect a compromise with his creditors. The immediate cause of Mr. Clark's difficulties seems to have been the recent failure of the Hault Manufacturing Co., Ingersoll.

THE Alaska Feather and Down Co., of Montreal, have completed arrangements with the Hudson Bay Company to take over from the latter the whole amount of feathers from wild fowl caught on the coasts of Hudson Bay and Labrador. The quantity of feathers from this source will amount to about six tons per year. They are collected chiefly by Indians, from ducks, geese, gulls and partridges, and have for the last two centuries been shipped to England.

TO MANUFACTURERS AND COMMISSION MERCHANTS.—Traveller would like lines on commission covering territory from Winnipeg to Pacific Coast, calling on Wholesale Dry Goods and larger retailers. Address, "Travel-ler," P. O. Box 1960, Montreal.

WOOLEN MILL WANTED.—Wanted, a one-set Woolen Mill for local trade. Must be permanent water power and have good local trade. Address, with particulars, Box 142, Smith's Falls, Ont.

ENGLISHMAN, now residing in United States, thoroughly practical in the manufacture of Marseilles crochets, Mitcheline quilts and Turkey red table covers, is desirous of meeting capitalists who are willing to put capital against experience, or would superintend new place in a stock company, if compensation is satisfactory. No objection to any location, and is willing to learn inexperienced help and guarantee better results than any other manufac-tured fabrics. Address P.O. Box 267, Beverly, New Jersey, U.S.A.

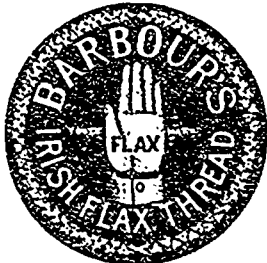
WANTED—By a Maritime Province mill—a piece sewer and mender. None but a first-class hand need apply. Good wages will be paid. Ad-dress Box 1, JOURNAL OF FABRICS, Fraser Building, Montreal.

LINEN
THREADS

1784

SPOOL
THREADS

CARPET
THREADS



SHOE
THREADS

1895

SKEIN
THREADS

GILL NET
THREADS

6 Highest Awards at World's Fair,
CHICAGO. 1893

THOS. SAMUEL & SON, SOLE AGENTS FOR CANADA

8 St. Helen Street, Montreal
3 Wellington Street East, Toronto
473 St. Valler Street, Quebec

Full Stock carried at each address

J. BERNARDIN, dry goods merchant, Buckingham, Que., has assigned on demand of P. P. Martin & Co., wholesale dry goods, Montreal. Liabilities large.

THE wholesale fur firm of Gnaedinger, Son & Co., Montreal has dissolved partnership. Joseph Bourdeau, who has been partner for nearly twenty-five years, will retire, and the business will be carried on by F. G. & J. T. Gnaedinger, under the old style.

RAW FUR MARKET REPORT

Montreal, Jan. 15th 1895

The market is still quiet, and the prospects for shipping fur are not very bright.

Beaver	.....	\$3 50	to \$4 00	per lb
Otter	.....	9 00	" 12 00	each.
Mink	.....	1 00	" 1 50	"
Marten	.....	1 00	" 1 25	"
Fisher	.....	3 00	" 5 00	"
Muskrat, winter	.....	0 08	" 0 12	"
Red fox	.....	1 00	" 1 50	"
Raccoon	.....	0 20	" 0 60	"
Skunk	.....	0 20	" 0 60	"
Lynx	.....	1 75	" 2 50	"
Black bear, large	.....	12 00	" 15 00	"
" small	.....	5 00	" 10 00	"

CHEMICALS AND DYESTUFFS.

The market has been quiet since the close of navigation. Prices quoted as follows:

Washing powder	.....	\$ 2 20	to \$ 2 50
Bicarb soda	.....	2 25	" 2 35
Sal soda	.....	0 70	" 0 75
Carbolic acid, 1 lb. bottles	.....	0 25	" 0 30
Caustic soda, 60°	.....	2 30	" 2 50
Caustic soda, 70°	.....	2 60	" 2 75
Chlorate of potash	.....	0 15	" 0 20
Alum	.....	1 40	" 1 50
Copperas	.....	0 70	" 0 75
Sulphur flour	.....	1 75	" 2 00
Sulphur roll	.....	2 00	" 2 10
Sulphate of copper	.....	4 00	" 5 00
White sugar of lead	.....	0 07½	" 0 08½
Bich. potash	.....	0 10	" 0 12
Sumac, Sicily, per ton	.....	70 00	" 75 00
Soda ash, 48° to 58°	.....	1 25	" 1 50
Chip logwood	.....	2 00	" 2 10
Castor oil	.....	0 06½	" 0 07
Cocoonut oil	.....	0 06½	" 0 07

A. KLIPSTEIN & COMPANY

122 PEARL STREET, NEW YORK

Chemicals and Dyestuffs

ANILINE COLORS OF EVERY KIND

SPECIALTIES

Fast Colors for Wool Such as DRY ALIZARINE, ALIZARINE BLUE, GREEN, YELLOW, etc

Also CAUSTIC POTASH FOR WOOL SCOURING

WRIGHT & DALLYN, Agents - - HAMILTON, Ont.

We note that the managers of the cotton mills in Maco, Mo., have issued an order to their work girls that they must not wear their hair hanging down, but must coil it close to the head, and that their dresses must be close fitting. This is in order to prevent the accidents which have occurred so frequently, in various mills, due to the hair or dress of operatives catching in the machinery

In Toronto's second great fire this month there were incurred several large losses to the dry goods and kindred trades. James E. Knox & Co., representing the Merchants' Manufacturing Co., Montreal, and the Yarmouth, N.S. Duck and Yarn Co. lost a stock valued at \$42,000, insured for \$25,000. Robt Darling, dry goods, lost on stock \$100,000, insurance \$60,000. Thos. Dunnet & Co., furriers, lost \$,000 on stock insurance \$40,000. Breerton & Manning, wholesale furs, lost \$50,000, insurance about \$30,000. R. H. Gray, white cotton goods, lost on stock \$50,000; insured for about \$30,000. Boisseau & Co., wholesale clothing, loss \$80,000; insurance \$60,000. and Geo. D. Ross, dry goods, \$50,000 loss.



Established 1842
ADAM LOMAS & SON,
 SHERBROOKE, QUE.
 Flannels, Dress Goods and Tweeds
 Selling Agents, JAB. A. CANTLIE & CO.
 Toronto and Montreal

"We hold thee safe."

The Dominion Burglary Guarantee Co.
 Limited

Head Office, Montreal, Can.

CAPITAL, \$200,000.

Insurance against burglary and housebreaking. Policies clear and free from vexatious or restrictive clauses.

JOHN A. CROSE, GENERAL MANAGER.

THOMAS MEALEY & CO.



MEALEY STAIR PAD

Manufacturers of
Wadded Carpet Lining
 and STAIR PADS
 Hamilton, Ont.

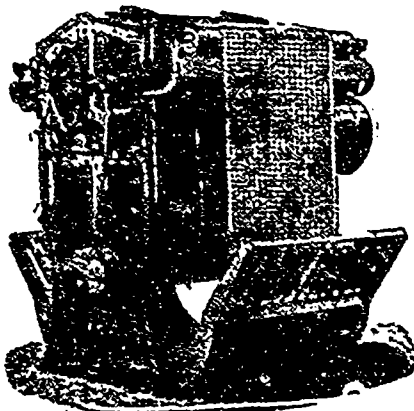
OFFICE:
 24 CATHARINE ST. NORTH

H. W. KARCH,
 HESPELER, ONT.

MANUFACTURER OF

Woolen Machinery,

Fulling Mills,
 Cloth Washers, Wool and Waste - Dusters, Drum Spool Winders, Reels, Spooling and Doubling - Machines, Ring - Twisters, Card Greels, Rag - Dusters, Dead Spindle Spooler (For Warp or Dresser Spools), Pat. Double Acting Gigs, etc., etc.

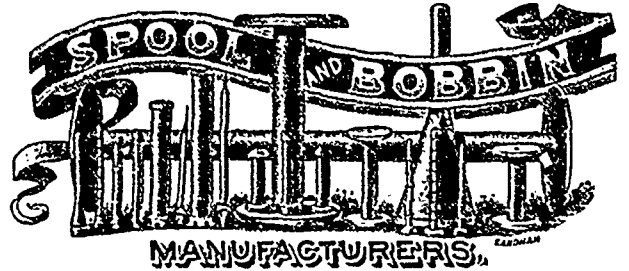


THOMAS KER

J. HARCOURT

KER & HARCOURT,

ESTABLISHED 1857

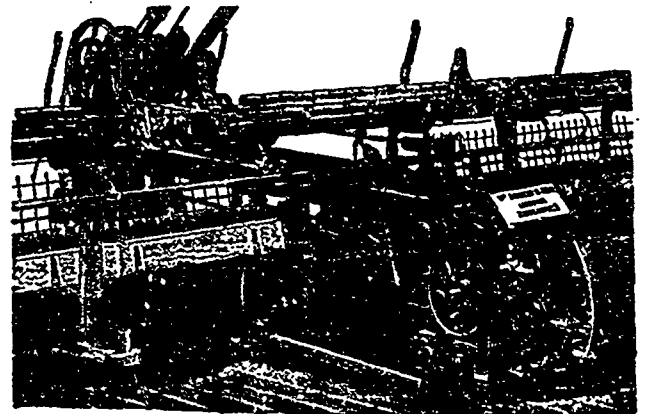


MANUFACTURERS,

Orders by Mail will receive prompt attention.

Walkerton, Ont.

WILLIAM WHITELEY & SONS,



LOCKWOOD, HUDDERSFIELD, ENGLAND.

Winding Machinery, Improved Self-Acting Mule, Suspended Steam Driven Centrifugal Hydro-Extractor, Tentoring and Drying Machines, Patent Wool and Cotton Dryer, Patent Wool Scouring Machine, Cross Raising Machine, Patent Crabbing and Winding-on Machine, Warp Sizing, Cool Air Drying and Beaming Machine, and other Woolen Machinery.

CATALOGUE ON APPLICATION

WM. SHAW & CO., Agents,
 163 McGill Street, - Montreal.

The Sun Life Assurance Co. of Canada

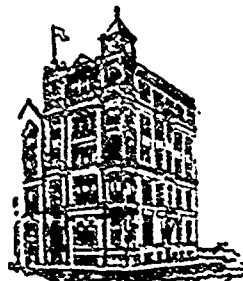
Head Office: MONTREAL

This is a strong and prosperous Canadian Institution, with well-invested Assets

Assets \$3,403,700 88

Income \$1,134,867 63

Life Assurance in force . . . \$23,901,048.64



T. B. MACAULAY, Secretary.
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JOHN HALLAM,
83 & 85 Front St. East, - - - Toronto,
and
88 Princess Street, - - - - Winnipeg
Wholesale Dealer in
DOMESTIC AND FOREIGN WOOLS,
Sumac, Japonica, &c.

LONG & BISBY
DEALERS IN
Foreign and Domestic
WOOL AND COTTON
GENERAL COMMISSION MERCHANTS
HAMILTON, ONT.

A. T. PATERSON & CO.
Importers of **Foreign Wools**
35 St. Francois Xavier St.
MONTREAL, Canada

THE SMITH WOOLSTOCK CO.
Manufacturers and Dealers in all Lines of
Wool Stock, Shoddies, &c., Graded Woolen
Rags, Carbonizing and Neutralizing.
Best prices paid for Wool Pickings, Woolen
and Cotton Rags, Metals, &c. Hard Waste, &c.,
purchased or worked up and returned.
210 Front St. E., Toronto | Foot of Ontario St

The Montreal Blanket Co.
Manufacturers of
Shoddies, Wool Extracts
and Upholstering Flocks
Office and Works: COTE ST. PAUL
P.O. Address: MONTREAL

ROBT. S. FRASER
Wools, Cottons, Noils, Yarns.
Specialties:
*English Pick Lambs and Downs,
Foreign Wools and Noils
Egyptian and Peruvian Cottons
Fancy Yarns*
3 St. Helen St., MONTREAL

ROBERT FLAWS,
Dry Goods Commission Merchant
AND MANUFACTURERS' AGENT.
Bay Street Chambers, Toronto, Ont
Cor. Wellington Street W.,

DAVID KAY,
Fraser Building, - Montreal
REPRESENTING
WM. PARKS & SON, Ltd., St. John, N.B.
C. G. ELRICK & CO., Toronto.
ASCHENBACH & CO., Manchester.
E. PUTTMANN, Barmen, Germany.
Correspondence Solicited.

WM. D. CAMERON,
Woolen & Cotton Manufacturers'
Agent,
HALIFAX, N.S., & ST. JOHN, N.B.
Address P.O. Box 401, HALIFAX, N.S.

CHAS. E. STANFIELD
TRURO, N.S.
Manufacturér of —
WOOLEN AND KNIT GOODS
Specialties:
CARDIGAN JACKETS and LADIES'
NON-SHRINKABLE UNDERVESTS

JOHN REDFORD
Dry Goods Manufacturers' Agent
Sample and Stock Rooms:
16 George St., **HALIFAX, N.S.**

KINGSTON HOSIERY CO., LIMITED
KINGSTON, Ontario
Manufacturers of
The Celebrated **ESTY HOSIERY**
The Celebrated **BENBOR SOCKS**
Overshirts, Shirts and Drawers
Selling Agents: | **JOHN S. SHERRER & Co., Montreal**
W. P. ROBERT, Toronto

YARMOUTH WOOLEN MILL CO., Ltd.
Manufacturers of
Fine Woolen Tweeds, Homespun, etc.
YARMOUTH, Nova Scotia
JAS. A. GANTLIE & CO., Selling Agents
MONTREAL and TORONTO

JAMES LESLIE & CO.
MANUFACTURERS OF

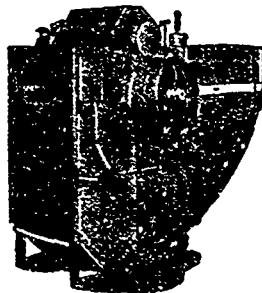
Card Clothing, Loom Reeds, Leather Belting



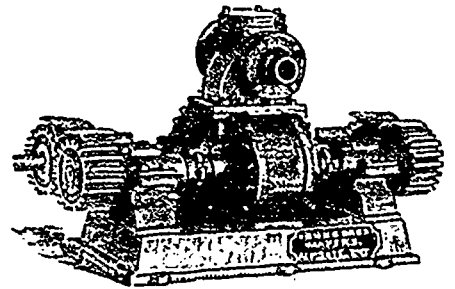
Cotton and Woolen Mill Supplies, &c.

428 ST. PAUL ST. *Cor. St. Francois*
Xavier Street
MONTREAL.

MISSISSIPPI IRON WORKS



ESTABLISHED
1875



Manufacturers of English or American Fulling Mills and Washers, Wool Pickers Ex-
haust Fan Driers, Dusters, Rotary Force Pumps for Fire Duty, Boiler Feed Pumps,
Shafting, Hangers, Castings, Pulleys, Gearing, Forgings.
Full equipment of mills of every kind. **YOUNG BROS.,** Almonte, Ont.

HAWORTH & WATSON
MANUFACTURERS OF
COP TUBES
PAPER COP TUBES FOR MULE SPINNING.
LARGE PAPER TUBES FOR USE ON BOBBINS.
FULL LENGTH TAPERED TUBES.
PAPER TUBES SILK MANUFACTURERS.
PAPER CONES & TUBES FOR CONE WINDERS.
LOWELL, MASS.

UNIFORMITY IN LOOMS.

To see the way looms are harnessed in some mills is enough to make a horse laugh, says the *Boston Journal of Commerce*, and is disgusting to any fixer that takes an interest in his work and prides himself to have everything about the loom neat and trim. To this end harness frames should be used where the heddle-rod is adjustable at both ends, that at the harness splits where hooks are put in the frame may be turned upside down, thus giving, as the hooks are nearer the centre at bottom than top, a new place for said hooks without change of heddles, as is necessary where rods are drawn through the end of frame. To put the hook anywhere else than in its proper place does not do, all arguments to the contrary notwithstanding. The result is seen wherever such practice is allowed. When rails are so badly worn that hooks cannot be made to hold in the wood and wire has to be twisted around them and a hook thus formed, it is time to throw it out and put a new one in its place, for the break-downs on account of poor harness frames poor and head-bent heddles, cause more loss of time and production than new frames and heddles would cost.

We find that in mills where some person is charged to look after the harnesses and keep them in working order, we seldom have a heddle smash, hooks pulling out, crooked rods, which, if so, catch each other while running, result in one or more broken harness frames when they do catch. It is next to impossible to do good weaving and turn off the production with poor harnesses and heddles. If no man is allowed in the weave room to look after this part, plenty of rails should be kept in stock, so that when a set of harnesses come to the drawing-in frame, the fixer that is to have the warp may look them over himself, and if, in his opinion, there are some that ought to be replaced by new ones, he may do so before having a break-down in the loom.

So much for this. The next thing we notice is the picker-stick. This article, as simple as it looks, needs some care after sawing them out. Instead of having them lay around in any out-of-the-way place, they should be carefully piled up straight, flat side down, and kept under a heavy weight to keep them straight and prevent warping, for a stick twisted out of shape is useless and just so much money thrown away.

Pickers will give better service to soak them in oil for a week before using, instead of getting them from storehouse where they have been drying, and use at once on the loom. Keep same in oil all the time, and take from there as needed. The same with picker strap-leather, when all dried up, it will not wear one half as long. The shuttles should be kept smooth and free from slivers the points be points. There is nothing better to keep shuttles in good shape than fine sand-paper and shellac. As soon as it is seen that the shuttle becomes rough it should be sand-papered, and shellac applied with a fine brush, and hung up to dry and harden, after which it will be as good as ever.

A JAPANESE SILK FACTORY.

The method of weaving silk varies in the various silk-growing and silk-weaving countries. Probably the most curious, yet at the same time simplest, way is practised in Japan. There, although the Japs have adopted many modern European and American inventions, agricultural machinery, electric lighting, etc., they still cling to their old-fashioned wooden looms, producing intricate Jacquard effects, even with looms built entirely of wood, although in other respects their Jacquard loom is much like the European Jacquard.

A traveller in Japan, in a recent letter to Chicago gives an entertaining pen-picture of a visit to a Japanese silk mill. He says:

"Entering the factory, the incessant crash, crash of wooden looms burst upon our ears. Not being a stranger to this noise and the source from which it came, I was not very much surprised at the sight which met my eyes. You would have been. In rather a large room (for Japan) to the right were some dozen Jacquard wooden looms, working away at a great rate, each one moved by true foot power—that is, a barefooted little Japanese *Musume*. The banto, who had now advanced, bowed low and repeatedly, as is the Japanese cus-

tom, and signified his willingness to show us what he could. This through the interpreter.

"The looms naturally come in for our attention first. To tell you about the looms—to try to do so—I must jump here and there in silk manufacture, and, perhaps, be not as explicit as I should like to be. These looms combine the most primitive and the most advanced ideas in one. In fact, they are a true child of the Jap. Here we may see the intricate Jacquard pattern passing through the different processes much as we did in Machinery hall at the fair. But what a tremendous difference in the looms. Outside of the cardboard pattern, everything utterly changed. The Japanese loom is entirely of wood—wheels, cogs and all.

"All the work is accomplished by one little Mongolian foot and a pair of brown hands. This little foot moves the pedal about once a second, or sixty times a minute—per hour, 3,600; total per diem, 36,000. If I say the foot averages 25,000 strokes a day I would probably underestimate the true facts of the case. 'How many yards do these 25,000 or 30,000 strokes make in a day? Barely five. The average output of the looms is fifteen or sixteen feet a day. The average salary is about 25 sen (12½ cents United States currency) for a day of ten hours. There are no Sunday holidays, for the simple reason that there is no Sunday. No wonder, you will say, that the Japs are soon old.

"To go back another step. The silk is obtained from the silk worm through the cocoon. The worm is killed when the cocoon is completed. Next the cocoon is unraveled (for the worm has made its home of one thread many feet long). Then the silk goes through many processes. First, it is boiled, then wound on large spools (reeled), combined with other silk fibres, perhaps twisted. From the dye pot it is dried, then wound on small spools, refined, and finally put on bobbins ready for spinning.

"All manufacturers buy their raw silk on the market. This accounts for fluctuations of price in wholesaling and retailing. The raw silk is boiled, dyed and prepared at the central workshops. The raw silk is afterwards hung outdoors to dry.

"The difference between *kaiki* and *habutai* silk, so often met with in the dry goods stores, is that in looming the *kaiki* silk thread has received its finish before being put on the bobbins—i.e., the cloth comes from the looms finished. With *habutai*, after the weaving the piece of silk is boiled and then given its finish.

"A great many of the looms—in fact most of the looms—are house looms. A house loom is a loom owned by a private family, who take or get work from the large manufacturers or middlemen. These house looms are all simple looms (not Jacquards). Only plain goods or stripes of the same size can be woven on a simple loom. Their production is about five yards a day—the same as a Jacquard."

A good deal has appeared in the papers of late in connection with the establishment of beaver ranches in this country. A correspondent writes to the *Pilot Mound Sentinel* with reference to this subject as follows: "Beavers naturally inhabit wooded countries, as the food of these animals consists of the bark of trees. Dams are constructed in order that the beavers may be able to swim amongst the submerged timber and float their sticks with ease and safety, for a beaver is always in danger if out of the water. The removal of dams and the escape of the water that was held back will give the district along a beaver stream a drier appearance than was before possessed, but the extermination or removal of beaver colonies can have no effect on the rain fall, although the disappearance of forests formerly inhabited by beavers may lessen the number of showers. It is, however, a question whether forests naturally grow on a rainy belt of country, or if the rain clouds seek to float over the forest. It is doubtful if beaver ranches will prosper. The creatures love the most retired solitudes, and usually select spring creeks where the water is not liable to freeze to the bottom. There must be a plentiful supply of small trees and suitable places to erect dams. The bark of the poplar is preferred as food, and the animals retire up or down stream if disturbed in the least.

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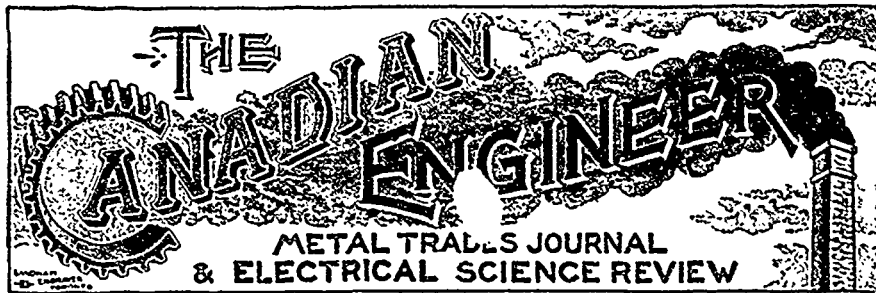
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The success of the *Canadian Engineer* has been unprecedented in the history of trade journalism in Canada, for not only was it encouraged and assisted from the start by able Canadian writers in the various branches of engineering, but it achieved what was still harder to accomplish—a sound financial position within the first year of its existence. The number of subscriptions received, and the number of firms who have sought the use of its advertising pages, have justified the publishers in twice enlarging the paper in its first year, and preparations are now being made for a further enlargement. It is hoped, by this increase, to make it twice its original size. While this will mean a large growth in advertising

patronage, it will also mean a greater variety of reading matter and illustrations for our subscribers.

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LITERARY NOTES.

We are pleased to notice that the *Textile Mercury* of Manchester has reduced its price to 1d per week. This interesting and up-to-date journal is now about six years old, and though the price has hitherto been 3d per week, has enjoyed a large and wide circulation, and we are sure that this step which its enterprising publishers are now taking will be followed by a much larger one still.

American Homes is the name of a new architectural journal published in Knoxville, Tenn. In all that makes for immediate success in a new class journal, this one seems to excel in typography, illustrations and paper, all being of the very highest class. The publishers' endeavor is to reach not so much the profession as the large class of people who think, either in the near present or future, of building their own homes, and to all such the paper will be found of unusual interest. The publishers call upon persons contemplating house-building to send them a rough idea of their wants, and they will then furnish approximate plans, and inform them as to the probable cost.

No. 1, vol 1 of the *Imperial Institute Journal*, London, Eng., is to hand, and to those interested in the welfare of the British Empire as a whole, will be found interesting. It gives a resumé of the work undertaken by the Imperial Institute, and also gives a sketch of the conditions of labor, &c., in all parts of the Empire, besides a good deal of other information. We wish the journal success.

DOULL & GIBSON, wholesale clothiers, Montreal, have dissolved partnership, and a new partnership has been registered between F. H. and Wm. Doull.

THE Legislative Council of India have added cotton yarns and fabrics to the list of imported articles dutiable at 5 per cent. and has levied a 5 per cent. excise duty upon cotton goods manufactured in Canada.

IT is well known that employes in silk mills were not so subject to accident as those working in other textile factories. The silk associations in Milan and Turin, in order to see to what extent this comparative immunity went, sent out circulars to firms engaged in spinning, throwing and weaving silk in Italy. Answers came from 155 houses, representing 30,942 employes, and they showed that the number of accidents which had occurred within their experience was as follows: 2 deaths, 4 cases resulting in absolute permanent incapacity, 1 case of partial permanent incapacity, 256 cases of total temporary incapacity, and 218 cases of partial temporary incapacity. This makes an average of .004 deaths per 1,000 hands per year, total incapacity, .004 per 1,000; temporary total incapacity, .002 per 1,000. The statistics for the entire textile industry of Italy are: Deaths, 0.24 per 1,000 men and 0.05 per 1,000 women per year; permanent total incapacity, men 0.04, women 0.04; partial, men 1.49, women 0.77; temporary incapacity of over four weeks, men 3.03, women 1.26, of over fourteen days, men 6.51, women 2.71 per 1,000 per annum.

THAT it is not only on this continent that great things have from small beginnings grown is shown by a glance at the history of the hosiery trade in the Bolton district Lancashire. The machinery employed in the Bolton mills represents the knitting frame at its best, the improvements having chiefly been brought about by the efforts of Mr. Rothwell, who travelled through France, Germany and Switzerland in order to study continental methods. These hosiery mills are believed to be the finest in the world, and give employment to thousands of people. Yet this business, of such enormous dimensions now, was started with a capital of only £30. Of course there were difficulties to overcome, and it required a large amount of intelligence and bull-dog pertinacity to bring things to a successful issue; yet, as the saying goes, what man has done man can do again, and it serves to prove that the old country is not much behind America after all in the rewards it offers for perseverance and energy in pushing an opportunity well seized. The expansion of the hosiery trade in Lancashire came at a very useful time, and served to counteract the opposite tendency in the flannel trade, which has been declining for some years past.

THE art of making Venetian point-lace was revived in 1870, and it was about that time that a wonderful specimen of the art which had been made in mediæval times was re-discovered. This was a 15th century pillow case or cover made to lay over the pillow, on which infants were carried to baptism. It is composed of plain squares of hand-woven linen alternating with squares of lace. On the latter are embroidered in lace stitches figures representing the virtues and vices. There are justice with scales and sword, charity, conjugal affection, and a dreadful needle-picture of a man and woman named "Violence," pulling each other's hair. This pillow case is one of the greatest curiosities preserved from old Venetian times, and had been forgotten by everybody except an old woman of 85 years, who was engaged in mending the beautiful altar-faces in a church in one of the suburbs of Venice. Another specimen, made in the middle ages by Venetian women entirely of lace-stitches, is to be seen in the Pennsylvania Museum of Industrial Arts. According to the Countess of De Brazza, an authority on Italian lace-work, this and similar samples were the copy-books of the time, when all noble Venetian dames in palace and convent were engaged in rivalry over new stitches and original or more beautiful patterns than had ever been produced before.

The different kinds of starch can be tested in the following manner. Five parts of starch powder are dissolved with 20 parts of cold water; 230 parts of boiling water are then poured in, and the whole thoroughly mixed. This paste is best made in a porcelain dish. It is then allowed to cool to the temperature of the room, after which it is poured into glass vessels of equal width. After standing for several hours the difference in the paste will be seen. At first the freshly prepared samples of the paste solution are all of the same appearance, but soon the paste becomes clear and the starch deposits slowly. With better grades this will take place more slowly than with inferior kinds. Glass vessels are best to use, and if these are shaped like narrow cylinders, the observation can be satisfactorily made, as they afford the means of closely examining any lumps that may remain undissolved. A chemist says that the accidental percentage of soda contained in the starch should be considered, for a finisher who had used a sizing of glue and starch flour for many years noticed not long ago that white specks appeared on the cloth—a circumstance never before observed. Investigation showed that an alkaline reaction of the starch had taken place, and that the specks were caused by the soda, which separates phosphate of lime when glue is boiled with soda.

IT sometimes happens in the dyeing of wool, when matching a given shade, the shade turns out darker than desired. In such a case a remedy must be found to correct the mistake. Sulphurous acid affords such a corrective, and is the best for the purpose, because it makes the shade lighter without in any way attacking the goods. The most excellent results are obtained with dyes not fast against acids, while those that are fast against them—for instance, the alizarine dyes—can partly be stripped with permanganate of potash. Sulphurous acid has been found reliable for all colors and shades dyed either partly or wholly with natural dye-stuffs, and the manner of its employment is very simple. A small test, which can be made in a few minutes, will show whether satisfactory results can be obtained with a certain shade or color. If this is successful, the treatment in a more or less diluted cold bath is all that is required, and the defect is thereby corrected at once. In most cases a few quarts of an ordinary aqueous solution of sulphurous acid is all that is required. This quality is entirely harmless, as it is well known to every dyer that for bleaching wool with sulphur, two-thirds of the weight of the wool of this aqueous sulphurous acid are used, without exerting an injurious effect. The shades produced with logwood are the most sensitive of all those obtained with the natural dye-stuffs. All the browns and olive greens, especially those that are saddened, become paler and browner. Blue and black produced with logwood are readily reduced, and since the sulphurous acid removes the non-fixed dye-wood, the goods are in this manner protected against rubbing off.

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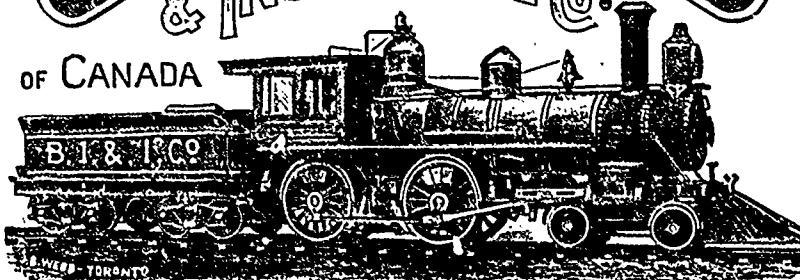
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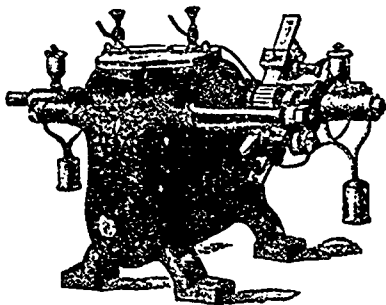
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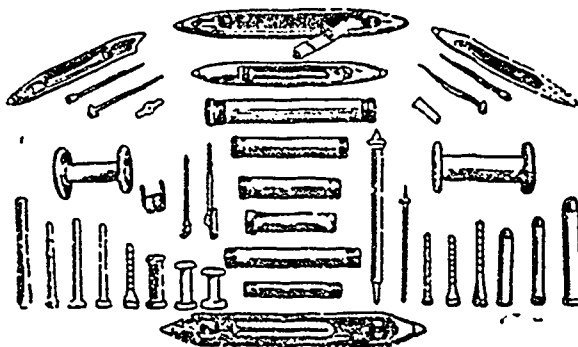
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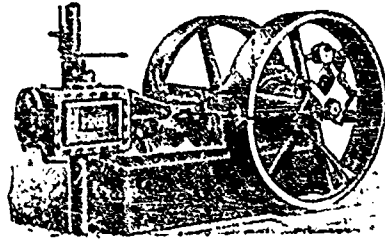
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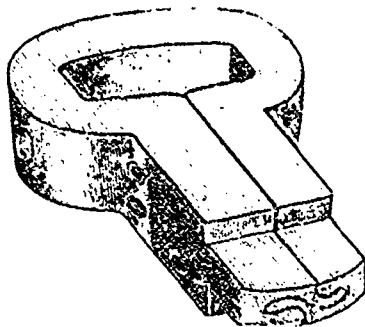
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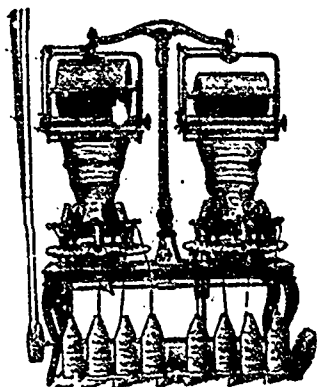
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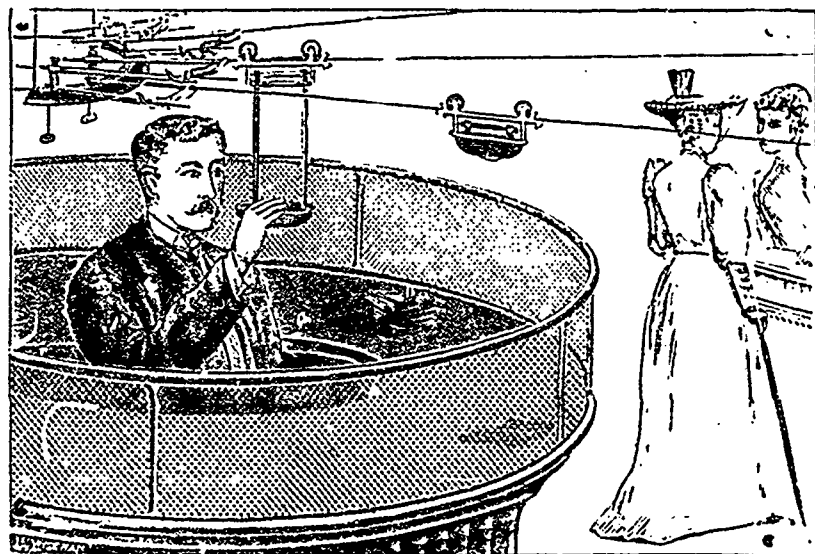
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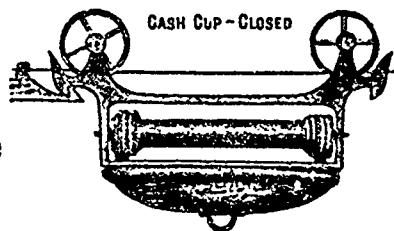
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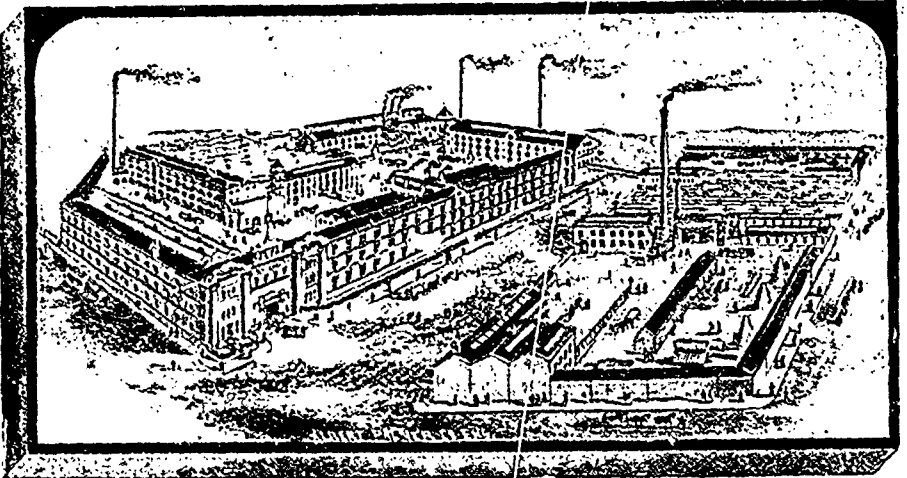
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