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THE JOURNAL OF THE Textile Trades of Canada.

Vol. XIV.

TORONTO, JANUARY, 1897

No 1

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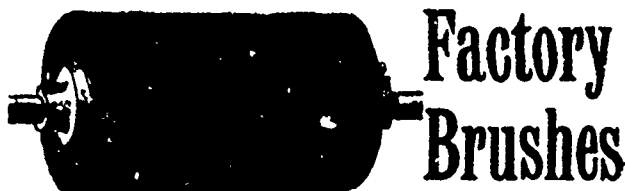
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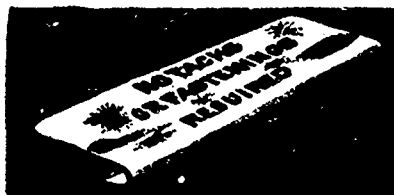
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Vol. XIV.

TORONTO, JANUARY, 1897

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CONTENTS OF THIS NUMBER:

	PAGE		PAGE
Carpet Printing	15	Mills, Among the	21
Chemicals and Dyestuffs	29	Mohair in England, American	33
Dyers, Hints to	11	Personal	20
Dyestuffs, Note on Two Natural	7	Record of The Canadian Engineer	10
Editorial	1	Slubbing, Intermediate and Rowing Frames	15
England, Meandering in Merry	2	Tanolin	11
Flax Scutching and Flax Hackling Machinery	4	Textile Centres, Foreign	13
Glove Manufacturers Abroad, The	14	Textile Designs	15
Hair Cloth Manufacture	4	Wool Trade of Australia, The	2
Literary Notes	10	Wool Market	28
Meltons, Cotton Warp	9	Woolen Mills, Globe	28
McMaster & Company	25	Woolen Manufacturing	6

Editorial

The Trade Outlook.

Now that even the most pessimistic admits that we are about to enter a period of improved commercial conditions, we can safely admit that between us and that desired haven it is not all smooth sailing. The west has made a good profit from the year's crop. The east has fared well in marketing its dairy products, and the whole country has benefited to a certain extent from the advertising incident to our mineral expansion. As soon as the new tariff is announced business will feel that expansion is not only safe, but necessary. But in

the first quarter of 1897 there are serious matters to be considered, and not the least of these is the fact that the wholesale dry goods trade of Canada gives every indication that its condition requires the most careful examination. Some of the largest houses have frankly admitted that they were not making any money. Many others would make the same admission, only that they fear to strain their credit, already tottering. A house which the public considered to be one of the strongest in the trade, recently closed its doors, and a suspension at first thought to be a voluntary liquidation is now generally recognized to be a disastrous failure. The wholesale dealers are themselves to blame. They have bought on long credit, sold to any one at any terms, renewed their customers were finally forced to the wall, carried them as supply houses. The manufacturers must now prepare to assist the trade till everyone has recovered their equilibrium. In view of present conditions there should be no further mention of credit terms except to advocate shortening them. The nearer the trade can get to a cash basis the better for all parties.

The German Commission.

The German Manufacturers' Commission which is about to visit the far East in the interests of German trade extension, will make many interesting observations, and its conclusions cannot but be of great value to Canadian manufacturers, as well as those for whose benefit it is sent. The number of members, first fixed at four or five, has to be increased eight or ten, the largest proportion being selected from the textile industries. There is not, however, perfect unanimity on the matter, as a section of German manufacturers, the chemical trade, are opposing the mission, in the belief that it will increase competition—at any rate with themselves. The first and largest contribution towards the expenses of the expedition came from the cotton manufacturers of Crefeld, and the opposition has come from branches of industry already engaged in active commerce in the East.

Price Cutting.

The wholesale traders have for years been forcing the manufacturers to give up a little at a time the margin of profit upon which they formerly subsisted. Imported goods are handled at a profit, and Canadian textiles

rushed out as "leading lines," being, in many cases, sold at a loss, thus causing a permanent fall in their value. When a manufacturer places an attractive novelty before the trade, very often he places nothing more than the samples which were secured by some wholesale merchant, in order to be submitted to a rival manufacturer, with instructions to make it at a price fixed below that of the firm which was at the cost of producing the article in the first instance. They have now fallen into the trap which they themselves have set.

MEANDERINGS IN MERRY ENGLAND.

(Correspondence of CANADIAN JOURNAL OF FABRICS.)

The merry homes of England!
 Around their hearths by night,
 What gladsome looks of household love
 Meet in the ruddy light!
 There woman's voice flows forth in song,
 Or childish tale is told,
 Or lips move tunefully along
 Some glorious page of old

After seven years' absence from the "free, fair homes of England," it was a joy to find oneself, on a sultry summer's afternoon, gliding down Halifax harbor with a south-west breeze sweeping over the dancing waves, growing ever cooler and more bracing as the good ship, "Halifax City," turned her eager prow to the open sea and left the city of her name a lessening and still lessening picture on our quarter. It was pleasant to lean over the deck rail and let the salt wind fill your nostrils with that unique aroma from the fresh ocean, which is more grateful than "all the perfumes of Arabia," and, filling your lungs with this sea elixir, to listen to the sighing of the multitudinous waves, with their "slumbrous sound—the sound that brings the feelings of a dream," while the good wishes and kind words of friends upon that fading shore still echo in the ear, and their faces come before the mind's eye from out the reflecting waves. The sun, reddening and beaming, reels towards the hazy horizon, while as I dream of Halifax and home, of empire and England, the city disappears, the harbor has merged into the thin line of the Nova Scotia coast, and that dull and dim and distant band is the last I shall see of Canada for many a day.

"Adieu! adieu! my native land
 Fades o'er the waters blue;
 The night winds sigh, the breakers roar,
 And shrieks the wild sea mew"

Good-bye, thou vast and wondrous land. Thy untrodden cliffs are built of the oldest rocks* ever formed by earth's Almighty Architect; yet thy peopled plains hold the most fresh-limbed, the most alert, the youngest of the nations of the earth! Thy lakes are the ocean's fairest daughters linked hand-in-hand by rivers whose beauty never fades, whose forms were never shrunk by drought. Thy prairies—who

hath measured them? Thy mountains—who hath explored their solitudes or determined their wealth? Tiller of the soil, dost thou seek a goodly land?—behold the richness of the ages wrapt in her western plains! Lover of nature, wouldst thou view "a full fair sight?"—behold it from the ocean on the east to the ocean on the west, behold it on the seas of lakes, behold it along the interminable rivers, behold it from the cloud-capped mountains, behold it in the arctic solitudes, behold it in the green isles of the Gulf and the balmy islands of the Pacific. With such thoughts we turn our eyes seaward and the gently heaving ship glides into the mist and clouds that come from the Banks of Newfoundland.

Passing by the incidents of a voyage that was pleasant from beginning to end, we come to the subject of this letter—England—the first glimpse of which we catch at the Lizard, near Land's End; for the Furness Line steamers from St. John and Halifax run direct to London, and the voyage up the English Channel in fair weather is one of the delights of the trip. The channel is not always choppy, and the winds that work such dismay to passengers crossing to and from the continent give little trouble usually to a Furness liner going with the wind, or in the wind's eye.

For days together on the high seas we had not seen a single ship, but now, with clear weather, we were not a moment out of sight of vessels. A dozen or more at a time are often seen, varying in size and character, from the trim and white-winged yacht, or the dirty-sailed devil-may-care fisherman, to the majestic ocean liner, or the grim and awe-striking man-of-war. As we glide along the coast and the channel becomes narrower, the craft multiply in numbers, till when we turn into the mouth of the Thames, our steamer forms an insignificant item in one vast procession of vessels from every port in the wide world steaming to and from the world's great city, London. Welcome its slimy banks, its dark green slopes, its red-sailed barges, its puffing, pugnacious, cheeky tugs, its granite quays, its endless docks, its coal sheds, its wilderness of masts, beyond which stand the factory chimneys like the stumps of a burnt-out Canadian woods. Welcome the smoky sky, the dull roar of its traffic, the thronged streets moving with the ceaseless tides of humanity, its quaint landmarks, familiar to the eye of the school boy of earth's remotest village; welcome its street cries (once heard, never forgotten), and welcome, thrice welcome, its coffee-house odors, with reviving memories of fried soles and water-cress.

THE WOOL TRADE OF AUSTRALIA

In Australia immense tracts of land which were once considered nothing but a desert, have been cultivated by the aid of sunken wells and made productive. During the year 1860 the total export of wool from the Australian group of colonies was but 160,997 bales; it increased from that time until 1882, in which year 845,982 bales were exported. Since 1882 the increase

* These rocks (of the Saguenay), at one time known as Azolic, being supposed to be destitute of all remains of living things, but now more properly known, are those in which the first bright streaks of the dawn of life make their appearance.—Sir, William Dawson.

has been rapid; in certain districts the lands have been marked off into stations and systematically devoted to sheep raising. When Capt. Arthur Phillip founded the first Australian settlement on one of the picturesque bays of Port Jackson on January 26, 1788, there was not a sheep among the imported stock. Before the close of the year about 30 were brought from Bengal. These were of the East Indian race, having long legs, fat rumps, large heads, Roman noses, arched backs and narrow shoulders. Their fleece was thin and poor, coarse and hairy and of little value, but the effect of the climate and fine pastures soon made a wonderful improvement in the animals. Small additions to the flock were made from time to time, a few Leicesters, Southdowns and low class Irish sheep being brought in government ships, and a small number came from the Cape of Good Hope. During the year 1791, Capt. John Macarthur arrived in the colony with his regiment, and seeing the facilities which the country offered, he started a flock by importing on a merchant vessel from Calcutta 30 ewes, and to these he added eight or ten mixed sheep from those already in the colony. Macarthur's imported sheep were badly formed and had hairy fleeces, but by crossing them with the English breed he obtained a fleece that was a great improvement; and in 1797, when a small flock of pure Spanish merinos was brought from the Cape of Good Hope, he secured a part of it, and after several seasons he, and others who had become interested, were rewarded by growing a fleece that they considered to be as fine as that of the pure merino flocks of Europe. In 1801, Capt. Macarthur went to England and exhibited some of his wool to the London brokers, who declared it was equal to the finest imported stock. To Lord Hobart, Secretary of State for the Colonies, he then presented an address setting forth the advantages of New South Wales as a wool producing country, and he was rewarded by a grant of 10,000 acres of land. While in England, he secured eight sheep of the purest Spanish blood at the first sale by George III. of his Hampton court merinos, held in August, 1804. At that time there were 10,157 sheep in the colony of New South Wales. From this time until 1813, the industry increased until it was carried westward to the coast. Then it was found that Tasmania (an island a little south of Australia) was equally suitable for sheep farming. Tasmania was settled in 1804. Three years later a few sheep were brought from Bengal and Norfolk Island, but the first animals that were raised were of inferior breeds, and it was not until Col. William Sorrell, governor, brought 181 sheep from the flocks of Australia that there was much improvement. In 1827, the Van Diemens Land Co. brought 264 Saxon merinos into the colony, and after that importations were made from various sources, all with the object of improving the quality of wool. It was the great aim of the early Australian colonies to grow a wool that would compare with the fine hair German sorts in the home market, and it was with this in view that the Saxon merino was introduced into New South Wales. In 1825 the Australian Agricultural Co. and

several sheep breeders brought in some pure Saxon, French and English merinos. The British merinos were chiefly from the flock of Mr. Thomas Henty, of West Tarring, Sussex, which at that time held a high reputation. They were bred up from the flocks of King George III. About 1823 the first specimens of this flock were brought to New South Wales by Mr. John Street, who had been induced by Mr. Henty to emigrate to the colony, and who brought with him, as a present from Mr. Henty, nine ewes and one ram. So great was the value of these sheep that Mr. Street sold a ram for one hundred guineas, and the original ram was leased for the season for the same amount. This success induced Mr. Henty to send some sheep on his own account, and these were eagerly bought by Capt. Macarthur and other breeders. One writer says that in 1839 the merino sheep had attained its highest degree of excellence, and although the squatters did not pay so much attention to keeping the quality up, the influence of the climate and good pastures kept the flocks in fine condition. The industry in Tasmania had flourished as well as in New South Wales. The first settlement at the Port Phillip district was made by the Messrs. Henty, who brought from Tasmania some sheep which had come from the original English flock. The next Port Phillip settlers were the Batman and Fawker parties, and in 1836 other settlers came from Tasmania and England and sheep raising began in earnest. Two years after the settlement of Victoria the colonization of South Australia commenced. In December, 1836, English settlers landed at Holdfast Bay, and sheep were immediately brought from Tasmania and New South Wales. The honor of introducing the first sheep into South Australia is due to William Malcolm, who imported thirty ewes from Mr. Macarthur's flock. The Australian Co. and private parties made efforts to improve the breeds, and a few sheep were imported from America by Angas and Murray. In 1840 the introduction of long-wooled sheep marked another step in this industry, but the breeders found much difficulty in crossing them with their flocks so as to get a satisfactory fleece. By numerous experiments many flocks were injured and made to produce an inferior wool. Gold was discovered in the colonies at this time, and a grand scramble of breeders followed, the sheep being left to take care of themselves. Soon after there came a long period of depression. The price of wool in the home market fell and the demand decreased, but during this time a great many of the inferior animals were killed, and so the flocks were much improved. About this time rambouillet, or French merino, was attracting attention in Europe and America, and in 1859 Degraives & Co. were the first to receive a lot of these sheep from the French imperial flock. Other consignments followed, and they were received with such favor that one lot was disposed of at £81 per head. It was soon found that these sheep were not suited for all portions of the colonies, and although they flourished in some portions and improved the breeds, they deteriorated in others. Frequent importations from different countries were

made to Victoria, and in 1863 F. B. Clapp imported some fine American merinos, which were bred by the late George Campbell, of Vermont, from his famous "Old Grimes" stock. These were noted for their abundance and good quality of wool. The Vermont merino was descended from the old Spanish stock, their ancestors having been introduced into America in 1802 by Col. Humphries, who was at that time United States representative at the Spanish court. No Australian colony has shown more progress in sheep raising than Queensland. The number of sheep in this colony at the time of its separation from New South Wales was three million, in eight years it had increased to eight million. There was then a decrease, until in 1878 there were but about 5,600,000. Since the introduction of the American merino there have been few importations, because the Australian wool was considered to be as near perfect as was practical. The establishment of stud flocks in both Australia and Tasmania did much towards perfecting the breeds and keeping them up to the standard. The first export of Australian wool to England was from Port Jackson in 1807, and consisted of 245 pounds. In 1815 the quantity was 32,971 pounds, and in the next six years it increased to nearly six times that amount. The subsequent increase was also rapid, and in 1880, 278,053,498 pounds were exported. The reports of the Australian Agriculture Co. show that in 1828 washed wool brought 20d. per pound, the next year, the clip being better quality, it was 24d., and wool from some of the finest imported sheep brought 2s. 6d. to 5s. 3d. per pound. In 1833 wool from Capt. Macarthur's flock was sold at 3s. 6d. per pound, and some extra superior sold at 4s. 6d. In 1840 combing wool, washed, was quoted at about 2s., clothing wool 1s. 8d. and greasy at 9d., in 1850 the average price of merino greasy had risen to 12d., but rapidly returned to the former figure. Prices went up and down, the highest average in 1857 being 15½d. The sheep breeders' associations and agricultural societies hold fairs and exhibit annually sheep of the most excellent type. There are also held exhibitions and sales of wool. Capt. Macarthur and the other pioneer sheep breeders made persevering efforts until they brought their flocks up to a point where they would compare favorably with that of any other country. To them is partly due the rapid colonization of Australia and the recognition of its valuable resources by the mother country. Australian wool is known all over the world, and its production and sale gives employment to thousands of people, besides bringing Australia into closer relation to Europe and America.

HAIR CLOTH MANUFACTURE.

The manufacture of hair cloth is one of the most interesting of the textile processes. The loom for making the kind of hair-cloth chiefly sold at the present day takes a warp of cotton, but instead of having a shuttle for putting in the weft, there is a slender bar, having on its end a gripper, and this rod is pushed through be-

tween the warp threads at each movement of the warp. Catching a single horse-hair from a bunch at the farther side of the warp, it pulls it through, and then lets go just at the moment it is all within the warp. One may watch this loom for hours and never see this wonderful little gripper fail to pick a hair from the bunch, nor yet catch more than one hair at a time. Its work is so infallible that the beholder is fain to think it endowed with the unerring instinct of the animal creation. A single hair is so fine that only a keen and quick eyesight can follow it—especially if its color is gray—as it darts into the loom, dragged there by the unerring gripper, yet in a whole piece one may not find a hair that has missed its place in the fabric. The horse hair for this fabric comes from widely separated quarters of the world, Russia furnishing a considerable quantity. There are two factories in Canada (one less than there were five years ago), and only four in the whole of the United States—one large one of 500 looms at Pawtucket and three small ones around Philadelphia. Both Canadian factories are at St. Catharines, that of the Canada Hair Cloth Works having 75 looms, and being in some respects better equipped than any concern in the United States. As mentioned elsewhere, the other Canadian factory has just shipped goods to Europe, and the Canada Hair Cloth Works have also in the past made exports to the United States at certain times. The manufacture of hair cloth, however, is limited; and since the days when fashionable sofas and chairs were covered with pure black hair cloth, the demand for solid hair cloth fabrics has fallen off and is now largely confined to so-called "crinolines," and coat and dress linings and stiffeners.

FLAX SCUTCHING AND FLAX HACKLING MACHINERY.*

BY JOHN HORNER, BELFAST.

Flax after being pulled up by the roots undergoes a retting process, by being placed in still water until fermentation sets in, and until the gummy matter has been removed which joins the boon or woody part to the fibre encircling it. It is then spread out in thin layers on short grass, and after a time is ready for the scutch mill, where the boon is removed and the fibre prepared for the market.

In introducing the subject of flax scutching as carried on in Ireland, and in giving an explanation of the machinery in use for this purpose, nothing novel can be described. This important branch of flax manipulation has not been directed by scientific skill; in many parts the hand process still survives. For breaking the boon, the stalks in small parcels are beaten with a mallet, and for clearing the flax of the broken boon, the workman with his left hand holds the flax over the stock, while with his right hand he strikes or threshes the flax with the scutcher. This process is precisely the same as that carried out in Egypt some three or four thousand years ago. In scutch mills mechanical methods are employed, and the following account,

* A paper read before the Institute of Mechanical Engineers, Great Britain.

taken from the British Encyclopedia of 1806, of the operations in use forty years prior to that date, will serve as a description of the processes at present in vogue in most of the Irish scutch mills: "A water mill was invented about forty years ago, which, with some late improvements, makes great despatch, and in skillful and careful hands gives satisfaction. It has been generally constructed to break the boon by three dented rollers, placed one above the other, the middle one of which being forced quickly round, takes the other two along with it; and one end of the handfuls of the flax being by the workmen directed in between the upper and middle rollers, the flax is immediately drawn in by the rollers; a curved board or plate of tin behind the rollers directs the flax to return again between the middle and undermost rollers; and thus the operation is repeated till the boon be sufficiently broke. Great weights of timber or stone at the ends of levers press the upper and under rollers towards the middle one. The scutching is next carried on by the mill in the following manner. Four arms project from a perpendicular axle, a box around the axle incloses these projecting scutchers, and this box is divided among the workmen, each having sufficient room to stand and handle his flax, which through slits in the upper part and sides of the box they hold in to the stroke of the scutchers, which, moving round horizontally, strike the flax across or at right angles, and so thresh out or clean it of boon. The horizontal stroke of the scutchers was long thought too severe and wasteful of the flax; and to obviate this objection an imitation of hand scutching has been applied to water. The scutchers then project from an horizontal axle, and move like the arms of a check reel, striking the flax neither across nor perpendicularly down, but sloping in upon the parcel, exactly as the flax is struck by the hand scutcher. This sloping stroke is got by raising the scutching stock some inches higher than the centre of the axle; and by raising or lowering the stock over which the flax is held, or screwing it nearer or farther from the scutchers, the workman can temper or humor the stroke almost as he pleases."

It will hardly be imagined by mechanical engineers that the above process of flax-breaking and scutching, in use before Watt invented the steam engine, is so perfect as to be incapable of improvement; nor will it be supposed that an age so prolific in mechanical invention has not attempted the production of better means. That the system is far from perfect is evident from the fact that quantities of valuable fibre suitable for spinning are either wholly lost, or by re-scutching are in part restored, but only to be spun into the coarsest yarns. Machine makers and others interested in flax culture and flax spinning have from time to time devised methods tending to deal more gently with the fibre; but in this country at least no encouragement has been given them. It is obvious that, in order to gain a distinct advantage in flax breaking and scutching, the principle must be adopted which underlies the preparation of the same fibre for spinning, namely, of treating it in small pieces and at low speeds. The methods actually in use in

breaking and scutching embody the opposite principle. In fact, as already stated in the foregoing quotation from the description given in 1806 of the breaking machine, it "makes great despatch", and those who are entrusted with the preparation of the flax for the market prefer this great despatch to a slower and certainly more efficient means of working. When it is considered that the fibre of the flax plant encircles the boon, and that the object of the scutching process is to get rid of the boon, it is clear that the greatest possible care should be taken in manipulation, in order not to injure the fibre, which has to be dealt with before the boon that it encircles is reached. For this purpose long series of fluted rollers have been made, beginning with coarser and ending with finer teeth, and sometimes having a reciprocating motion; the top rollers run in vertical slotted bearings with springs or levers attached, allowing the rollers to rise, and so to accommodate the large bulk of flax-straw introduced. But even these were made with a view to quantity rather than quality of work; and as a consequence in the rolled material the boon is found in a condition more bruised than broken, and the work of its removal is carried out by subjecting it in an unprepared condition to the unyielding action of the scutching handle, which thus carries to waste a large amount of valuable fibre. Some time ago the writer made a set of bottomless rollers or skeleton drums, as shown double full size in Fig. 1, in which the grooves have no bottom for the teeth to bruise the boon against; the set comprised some eight or ten pairs, running in fixed bearings, beginning open and gradually getting closer in pitch. Their action was to crack the boon thoroughly, without the slightest injury to the fibre; the rollers being bottomless prevented any rubbing, and the action was one of cracking, not crushing; from the construction of the rollers, too, the material was held loosely between them, and no undue strain was felt when it was gripped by the finer flutes. It was found that the greater quantity of the boon was separated, and fell beneath the machine, while the remainder was so thoroughly broken that a light scutching handle and little labor sufficed to remove it. Having fixed rollers, the machine would not allow of more than a certain quantity of material passing; and consequently the manipulation was considered too expensive, although the actual results were vastly superior.

That the flax-scutching industry of this country should be in such a backward condition is scarcely to be wondered at, when it is considered in whose hands it is. The farmer, whose interest it should be to get the largest yield of fibre from his growth of flax, is callous of such a result, and insensible to any advantages in scutching save those of expedition and cheapness. The scutcher has, therefore, no encouragement to improve, and if he had, his power capacity, generally water, curtails him, and he is naturally unwilling to lessen his output under existing arrangements.

The flax is now prepared for the threefold process of hackling: roughing, machine hackling, and sorting. The first and last are hand operations, and depend, the

latter especially, on the skill and judgment of the operators.

Roughing is carried out as follows. The flax is divided into pieces or handfuls, each weighing from one-seventh to one fifth of a pound according to quality. These are drawn through a coarse hackle or "rougher's tool," till the fibres are arranged parallel and uniform in length. The flax is then passed to the hackling machine.

According to the quality of the flax and the degree of fineness to which it is to be hackled or cut, these machines vary from six to twenty hackles or tools in length, and from twenty to thirty hackles in the circumference of the leather bands or sheets which carry them. A machine having ten hackles in length, has the various parts of the machine supported on frame ends bound together by iron rails. A couple of bottom shafts communicate motion, by means of broad leather bands called "sheets," to two top shafts set 24 inches higher on the frame. On the inner circumference of these sheets, cast-iron teeth are fastened by means of screws passing through holes in the sheets, and kept in position by iron plates on the outer circumference, which act as washers. The iron teeth have a couple of supports cast on, upon which, and resting on the outer circumference of the sheets, longitudinal angle bars are screwed; these bars run the length of the machine, and on them are fastened the hackles. On the bottom shafts are pulleys with teeth, and on the top shaft sockets with teeth, both corresponding in pitch with the teeth on the sheets; the bottom and top shafts are by these means geared together, and the corresponding sheet of hackles is geared in a similar manner. The hackles on one sheet are placed in alternating order in relation to those on the other sheet, and by means of wheels on the ends of the bottom shafts they are driven at the same speed in opposite directions. Change wheels are provided to vary the speed as desired. Suspended above the hackles by a leather strap fastened to a segment, and counterbalanced by a weight, is a longitudinal trough or channel, along which move the holders, each having two of the roughed pieces of flax screwed into it. This channel receives an up and down motion from a lever arrangement, actuated by runners on the faces of two wheels gearing into each other, and conveyed by connecting-rods to the segment. The speed of this motion can be varied by means of change pinions, and the dwell or rest of the channel when at its lowest point can be altered by means of hinges on the lever. Working in the channel is a long bar called the catch bar, having fingers or catches attached corresponding in number with the holders in the channel, and having a to and from longitudinal motion conveyed from a cam wheel, which acts through two levers. The machine being put in motion, and the various wheels and levers taking up their work, the sheets and hackles revolve toward each other; the channel in which are the holders of flax moves the flax down and up again, thus subjecting it to the action of the revolving hackles; and when it has attained its

highest point, the catch bar comes into play, and shifts the holder of flax to the next or finer hackle, and so on, till the flax has passed through the entire machine, and has thus had one half of its length hackled. It is then quickly changed to another holder, in which it is gripped this time by the hackle portion; and it is passed in a similar manner through another machine, which hackles the other half of its length, and the process of "machining" the flax is thereby completed. As one holder of flax is shifted by the catch bar to receive the action of finer hackles, another takes its place; thus the machine is hackling at any one time as many holders of flax as there are hackles in its length.

(To be continued.)

WOOLEN MANUFACTURING.*

The subject of woolen manufacturing is one that interests the whole country, from the fact that every man, woman, and child wears clothes, the product of the woolen mills. It is surprising to those who are familiar with mills throughout the country to know what slipshod methods prevail in so important an industry, particularly in the preparation and blending of stock. The reader of the current textile journals cannot but be impressed with the importance that is attached to the picking and blending of stocks in the cotton mill; improvements, however trivial, are eagerly sought for, and there is a continual discussion of ways and means to secure better results. How different with the woolen manufacturers. You find articles in the columns of trade papers on weaving, spinning and dyeing, occasionally a discussion on carding, but rarely ever a word on the foundation or starting point. What would be thought of a builder with a contract for a twenty-storey building who gave no thought to his foundation? Hundreds of mills throughout our country have the same old equipment in their picker rooms that was put in when the mill started, and the chances are that it was second-hand then; this you may say is an extreme case, but it is a fact that any travelling man will verify. While it is a fact that the cotton manufacturer does not hesitate to throw out machinery, however good, if convinced he can make an improvement, either in quality or cost of production, it is also a fact that in the majority of cases it is almost impossible to get a woolen manufacturer to consider an improvement in his picker room, unless actually compelled to by the necessities of the case, and yet there is no more important room in the mill—in fact, all things considered, if as important—and yet, how little care and thought is given to it in a majority of cases. I say most important, because here is the starting point in the manipulation of stock as it starts on its way to be converted into cloth; here is the foundation, and on the work done here depends largely the results in the subsequent processes.

Take, for instance, the old-style picker room, and let us follow the stock through the mill. A cheap man

* Paper read by W. H. Hassett at the annual meeting of the National Association of Woolen and Worsted Overseers, Boston.

has charge, and word is sent in to make up a batch, so many pounds of this and that. He piles his stock up in the corner with little regard as to how, and proceeds to have a small boy feed it into the picker. The chances are there is no burr picker; if there is, it is small, and the stuff is jammed through, and then to the mixing picker. There is no feeder, because the feeder would make the boy lazy, and the boy throws it on in armfuls, and you recognize the familiar sounds of chunks going through, and the weights pounding on the floor. It is ground over three or four times to get a mix, and then the carder commences to wrestle with it. With such roving, poor fellow, he gets the best results possible, but the carder has never been born who can run a card successfully both as picker and carder. He has burrs to contend with, because the boss thinks the burr picker cuts the stock, and the card clothing is all jammed up, because it is cheaper to buy a bill of card clothing every time the agent comes, and charge it to expense, than it is to make a permanent investment of a few hundred dollars. Then the spinner tackles the stuff, and has a hard time with ends breaking down, twits, etc.; and finally it gets into cloth and reaches the finishing room, where a corps of burlers try to get the goods in shape to pass muster. Then the boss wonders why he has so many seconds, and why it costs him so much to make his goods—all this because the foundation or beginning is not right.

Now, there is a right way and a wrong way to do everything. There is room for discussion as to ways, but it is certain that in order to make perfect goods at the lowest possible cost, the preparatory processes must be right; and in order to prepare the stock right, proper and modern machinery must be used. You may have modern cards, modern mules, modern looms, and expert carders, spinners and weavers; but if your picker room is not properly equipped and run, you cannot obtain the results in perfection or economy that it is possible to obtain. In past years, the picker room has not been considered of importance, but simply a place to open stock and mix it up, regardless of how it was done. Two or three burlers, more or less, at 75 cents per day, do not amount to much, but still it is \$225 per year for each one. One boy to stand at a feed apron of a picker doesn't amount to much, but his wages for a year would pay for a modern feed which gives perfection in feeding. No man can reasonably expect good work in any department unless the workman has proper tools; neither can any carder make the best yarn possible unless the stock is properly cleaned and blended.

It is surprising the amount of ignorance and carelessness displayed in the handling of the delicate fibre of wool. It is treated in many instances as a farmer would a lot of grain, where the object is simply to get out the grain, regardless of condition of the straw, for if the straw is broken up it is in much better condition for the manure heap than if not broken. The picker loom should be in charge of a competent man, under the supervision of the carder (for the carder who cannot control his picker room is not on a bed of roses)—a man

who has brains enough to realize the importance of the work in hand. The picker room should be of large size, in order that batches of good size can be laid down. It should be equipped with a good duster, one or more double-cylinder burr pickers, and a full complement of modern mixing pickers, all equipped with modern feeds, as also garnet machine to handle the clippings. I say one or more burr pickers, for if you have white and colored stock, or wool and cotton, both can be run at once without waiting to clean out between the white and colored lots, which saves time—and time is money. One or more mixing pickers, for then you are equipped for different lots without waiting, with feeders on all—because you can then feed the stock evenly and as light as you wish, without the necessity of watching; and, lastly, a blower and conveyor to carry the stock to the cardroom without handling.

To be continued.)

NOTE ON TWO NATURAL DYESTUFFS *

BY O. PIERQUET.

In spite of the incessant progress realized in the artificial coloring matter industry, there are a certain number of natural tinctorial products which seem to victoriously resist the invasion of the innumerable derivatives of coal tar. Among these catch, indigo and logwood may be put in the first rank. Madder has not been replaced in the Turkey red dyeing of cotton nor in dyeing wool for military red, except by its own coloring principle, alizarin, obtained synthetically. The greater part of the dyewoods, and orchil, saffron, cochineal, alkanet, etc., have on the other hand found substitutes of which the chemical composition is not related to that of the corresponding natural coloring matter. The synthesis of indigotine has been realized by Professor Dr. A. Bayer, but the actual processes of manufacture do not permit it to compete in price with natural indigo. It would be imprudent to affirm that an artificial indigo at a price allowing it to be used will never be made, but even in that case natural indigo will still be used to a great extent; its market value alone will be attacked. As concerns logwood, if the chemical composition of its coloring principle, hematine, is known, the constitution of this is still undiscovered. Catch, which in this article interests us more particularly, owes the constant vogue which it enjoys to the diversity of its properties. If we compare yarns or pieces dyed with catch and artificial coloring matters respectively, we note that the first have a whole series of advantages over the second. The fibre is better dyed and has a much stronger reflex. Its weight is increased in an appreciable proportion, the resistance to various agents is considerable, and finally the thread, which is tanned in some degree, has become stronger. It is because of this last advantage that the use of catch constantly increases in the preparation of fishing nets, sails and army cloths.

It is worth noting here that for military equipments and also for a large number of articles for exportation when indigo blue or catch shades are asked for, the con-

* A communication to the Mulhouse Society.

sumer, whether it be the State or the native of far-off countries, is not contented with conformity in the shade, be it as perfect as possible. He insists that the designated coloring matter should be the exclusive base of the dye, whatever may be the permanence of the products of another nature which the dyer might wish to substitute for it. The divers administrative departments have very simple processes, rendered public and communicated to all interested in the matter, which enables them to know whether the exact conditions have been strictly observed. The special exigencies of the shippers' customers who are little disposed to change their habits have obliged European manufacturers to enquire into the processes of manufacture of native cloths, and to study the coloring matters most in favor, so as to put on the market stuffs to the taste of each country, but offering over local goods the advantage of better manufacture, and above all, less cost. The English are past masters in these imitations and these improvements of exotic industries, a simple enumeration of their successes in this line for long years past would exceed the space of this essay. For special articles they often employ tinctorial matters, the name and origin of which they hide with a jealous care, and when the results to be obtained seem to them to be worth the trouble, do not hesitate to send out experienced men charged with the duty of gathering all information on the spot. The numerous customers which they find in their vast Colonial Empire allows them to go to an expense which, as regards French manufactures, would be out of proportion to the end to be attained. Nevertheless, for some years the outlets reserved for our industry have become more numerous, and the attempt should be made to substitute for the English products so far alone on the markets, products which can replace them as exactly as possible.

In endeavoring to procure tinctorial products destined for special dyeings, I have been led to examine two products sent me from Annam, which I believe to be almost unknown in France. The first of these is in the form of a heavy tuber weighing in a fresh state from one to two pounds. When I received it it had several eyes like a potato upon it, and I regret not to have had a sufficiently large number to make the attempt to cultivate it. This is the *cunao* or *cunar*, much used in Low Tonkin, and particularly in the provinces of Vinh and Hatinh. The vegetable is half ligneous and slightly resembles dried red beetroot. The *cunao* is only employed in a fresh state. It is kept by surrounding it with moist earth to prevent it from drying up. I have noted that the coloring power much diminishes when the product has lost its natural humidity.

In using the *cunao* the Tonkinese peel it, cut it into strips, and pound it in a mortar, adding five or six times its weight of water. They decant the bath, and steep in it the stuff to be dyed for five or six hours. The cloth is then spread on the grass and dried without being turned over. The face thus exposed to light and air takes a darker shade than the other, and is the right side of the cloth. To increase the lustre

of the stuff, it is next put on a wattle over the dye-bath, which is then boiled. The whole is covered during this operation, which is merely a primitive steaming. The same series of operations is repeated two or several times, according to the intensity of the shade desired. Sometimes a gluey substance coming from China, and called *phen-den*, is added to the *cunao*. The tissues thus treated that I have received from Annam, have the right side much darker than the other, and appear as if varnished. Very perceptibly the dyeing is as uneven as possible, and the tissue seems to be weakened. Amongst the samples is a piece of silk cloth dyed by the same process. In addition to the faults above, it is to be noted that the brilliance of the silk is almost nil, and is only given to it by the varnishing. In dyeing and finishing we always try to give cotton the look of silk. It seems that the Annamite dyers try to obtain the contrary result, which is a much easier thing to do. The following reactions were got with an extract of *cunao*, prepared with distilled water:

Geiatine—Little action.

Alum and acetate of alumina—A gelatinous-like brown precipitate.

Iron salts—Greenish-black precipitate.

Sulphate of iron—Sepia brown precipitate.

Bichromate of potash—Dark yellow brown precipitate.

Acetate of lead—Voluminous light brown precipitate.

Salts of tin—Chamois precipitate.

Dilute acids—Dirty yellow precipitate.

Alkalies—Color darkened.

Bichloride of mercury—Voluminous dirty white precipitate.

Ferro-cyanide—Little action.

Ferri-cyanide—Yellowish brown precipitate and color.

Nitrate of silver—Yellowish brown precipitate quickly turning black.

Chloride of lime—Dark brown precipitate quickly turning yellow; on warming turning to canary yellow; then on cooling the solution becomes a clear brown with a very light precipitate.

In dyeing and in printing the best results are obtained by using first a solution of the coloring matter in water, either alone or with the addition of alum or acetate of alumina, and then fixing with bichromate. The dyed color should be steamed an hour. It gives sharp outlines without running.

The other tinctorial product is *cayda* or *cayia*. It is the bark of a tree, sold in little packets weighing 40 to 50 grammes, and kept together by two ligatures of dried grass. It resembles coarse cinnamon. This bark comes from the *brugniera gymnorhiza*. The Annamites pound it to reduce it into a coarse powder, and put it into a bag of clean cloth, in which they boil it in water, thus preparing the dye-bath. The method of dyeing is the same as for *cunao*; but the two faces of the cloth are alike. The shade obtained is a reddish brown, and is of great permanence. The dye-stuff has a certain

analogy to ordinary cutch, but the browns are much purer and more brilliant. I have tried this product in printing and dyeing, and it seems to me more interesting than the preceding one. The extract made with distilled water gives the following reactions; and here it may be noted that the trial of the reactions given by the coloring matters, with the principal metallic salts employed in dyeing, is of great importance. It is the surest and most rapid means of gauging the tinctorial properties of products; at the same time necessitating the use of merely a small quantity of the extract. The reactions are the same on the fibre as in the test tube.

Geiatine—Voluminous brownish precipitate.

Alum—Light brown precipitate.

Acetate of alumina—Precipitate more abundant than with alum.

Acetate of iron—Dark greenish gray precipitate.

Sulphate of iron—Violet black precipitate.

Ferric sulphate—Intense black precipitate.

Sulphate of copper—Blackish brown precipitate.

Bichromate of potash—Dark reddish brown precipitate.

Acetate of lead—Voluminous light pink brown precipitate.

Acetate of tin—Voluminous light pink brown precipitate.

Stannous chloride—Voluminous light pink brown precipitate.

Stannic chloride—Voluminous light pink brown precipitate.

Dilute sulphuric acid—Apricot precipitate.

Dilute hydrochloric acid—Apricot precipitate.

Dilute nitric acid—Apricot precipitate.

Ammonia—Darkened color.

Caustic soda—Darkened color.

Ferro-cyanide—Light brown deposit.

Ferri-cyanide—Abundant brown precipitate.

Bichloride of mercury—No precipitate, brown deposit after some time.

Nitrate of silver—Light reddish brown precipitate, rapidly turning black.

Chloride of gold—Light brown precipitate.

Chloride of lime—Dark brown precipitate, turning yellow on warming.

To sum up, I believe that the cayda rather than the cunao could find interesting applications in the dyeing of permanent shades. Without exactly competing with cutch, to which nevertheless it seems to have a considerable likeness, it would have its uses pointed out for shades in which a certain vivacity was needed without diminishing their permanence, as is done when cutch is used with the aniline colors. I regret that the small quantity of raw material at my disposal has not allowed me to extend these experiments further, and to study more completely the applications of these dyestuffs in dyeing and in printing, but, superficial as they have been, they allow me to conclude that it is desirable that all products of this nature from our colonies should be submitted to the administration of societies such as ours where the necessary elements to gauge their value are

to be found, for the more we draw upon our colonies for the raw materials necessary for our industry, the better chance we have of replacing them by our manufactured products.

For THE CANADIAN JOURNAL OF FABRICS

COTTON WARP MELTONS

There is a class of goods manufactured now a-days which requires more than passing care and skillful treatment in the finishing-room. I refer to cotton warp meltons. If the goods are properly laid out in the start, they are, as a rule, a pleasant line of goods to finish; provided, of course, the finishing is in the hands of an experienced man, with a reasonably equipped room to preside over. These goods should be finished so as to cover up the warp as much as possible. It assists very materially if the goods are carefully and properly gighed before fulling. It often happens that it is necessary to scour before fulling the goods; but this makes no difference to the gighing previous to fulling. Whether scoured or not before fulling, it certainly will be a benefit to the final appearance of the goods, to gig them before fulling them. I dwell on this, because I know there are but few finishers who do it. [It is not my intention now, nor at any future time, to criticise or in any way belittle any other finisher's method of obtaining the desired result; but simply to write of certain things as I have discovered them to exist, and the final result of methods adopted by me.] As to the method of gighing the class of goods of which I am writing, it is not only a good thing to gig one way as much as possible; but to my mind, it is a bad thing to do to reverse the goods at all whilst gighing.

USE OF SALT.—In this class of goods there are often used fancy colors which cannot be properly termed fast in every sense of the word, hence I earnestly recommend the use of fine table or dairy salt. A word or two as to how to use it. If the goods are run in fulling mill lry, then after the ends are sewn together pour on from two to three quarts in a fine steady stream whilst the goods are running in the mill, and let them run in the salt for from ten to fifteen minutes before putting on the soap.

TWEED.

(To be continued)

VICE-CONSUL THOMSON (Britain) says the cultivation of the cotton plant in Russia is increasing to such an extent that in ten years Russia will be independent of the Western market. Last autumn, it is reported, Mr. Thomson saw at one of the great cotton centres of Persia large quantities selling at 3d per pound. To encourage the sale of her cotton goods in Khorasan, and also the export of raw cotton from Khorasan to Russia, the Russian Government grants a bounty on all cotton piece goods exported to Khorasan, provided that with the proceeds of the sale the exporters buy and send back raw cotton to Russia. The published yearly returns of the Moscow cotton mills show large profits and very big dividends, which has caused much money to be invested in the cotton spinning trade. Calico printers have not done so well as either the spinners or the weavers. The value of the cotton goods taken to the Nijni Novgorod fair in Russia last year is officially stated to have been £5,700,000. The chief demand was for Siberia and the Caucasus.

THE RECORD.

To whom it may concern :

Toronto, Dec. 4th, 1896.

This is to certify that the statement given below is a true account of the copies of THE CANADIAN ENGINEER we have printed and mailed for Biggar, Samuel & Co., beginning with May, 1895, issue, and ending with Dec., 1896, issue

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Per A. W. LAW, Sec'y-Treas.

Volume	Date of Issue III., No.	Copies Printed and Mailed.
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"	" 5, Sept., "	3,975
"	" 6, Oct., "	3,725
"	" 7, Nov., "	3,800
"	" 8, Dec., "	4,050

LITERARY NOTES.

It will surprise most people to know that there are over 2,500 deaf children in the United States who are taught entirely by means of speech that is by the movement of the teacher's lips. John Dutton Wright, of New York, instructor of the deaf, gives in the January *Century* a most instructive account of how this method of teaching is carried out, with some wonderful experiments in teaching the reading of shadows and vibrations. In the same number of this admirable magazine the man of military mind will have much to satisfy him in the articles, "Campaigning with Grant," by Gen. Horace Porter "Napoleon's Interest in the Battle of New Orleans," and "Nelson in the Battle of the Nile," the last named by Capt. A. T. Mahan, of the United States Navy, whose treatise on the "Influence of Sea Power on History" won for him the honors of English universities. Capt. Mahan shows the far-reaching effects of Nelson's victory at the Nile on the European nations. "In completeness of immediate results upon the field," he says, "no fleet action has ever equalled the battle of the Nile." It became impossible for Napoleon to continue his expedition to cut off India from Britain—which was the object of the expedition to the Nile nor could he hold his own in Egypt. Nelson's annihilating blow altered the attitude of every nation towards Bonaparte. The description is very comprehensive and graphic, and the positions and manœuvres of the two fleets are rendered clear by diagrams showing how the ships lay during the great action, in which eleven out of the thirteen French ships of the line were taken or destroyed. Prof. Chas. D. Roberts is among the Canadian contributors to this number. The *Century* Co., Union square, New York.

The January number of the *Canadian Magazine* opens with an entertaining sketch of travel and hunting in the Selkirk Mountains. A. D. Deceles, of the Parliamentary Library, Ottawa, tells us

much that is instructive in a short review of the history of Laval University, which is illustrated with a portrait of its indomitable founder—type of the "heroic age of New France"—with a fine engraving of its present young and brilliant rector, Mgr. Laflamme. "Artistic Country Roads," by A. W. Campbell, C.E. (who may without slang be called the "road agent" of the Ontario Government), is both interesting and edifying, and is a happy thought of the editor. John Charlton, M.P., makes an able, and, on the whole, a temperate reply to Mr. Blackstock's article in a previous number on the bearing of the Venezuelan settlement on the special interests of Canada. This magazine, now in its fourth year, maintains its position at the head of the literary periodicals of Canada. Ontario Pub. Co., Toronto.

For the student of Canadian history, undoubtedly the book of 1896 is "In the Days of the Canada Company," by Robina and Kathleen M. Lizars. It is a record of the early settlement of the tract between Toronto and Lake Huron, and gives our first insight into the characters of the courageous pioneers who founded the settlements of the "Huron tract," such as the Galts, Dunlops, Stricklands, Dons, Hyndmans, Haldanes, Luards, Lizars and others. When one gets into the heart of the book the stories are so naturally told, the record of events is so stirring and so frequently touched with humor and pathos, that it is hard to lay down the book till it is finished. To those inclined to hero worship, perhaps the most satisfying portions are those that portray John Galt, the soul of the old Canada Company, who stands before us in a clearer light than we have yet seen him in any biographical sketch. This is a work the authors have done with love and enthusiasm, and this feature alone would entitle the work to a high place in the literature of Ontario, for Galt is the industrial hero of Upper Canada, as Sir Isaac Brock is the military hero. What he suffered, and how he labored to lay the foundations of settlement in so wide a region of Western Canada, few Canadians of this generation have any conception of; and what we learn in this book makes us long to know more, not only as to the inner workings of the company, but as to the personal and domestic life of this remarkable man. Galt's literary career alone is not eclipsed by that of any author whose life is associated with this country, and yet the average Canadian of to-day reads little of him in the parrot sketches of Canadian literary men to be found in our magazines. How many young Canadians knew that John Galt is the author of over sixty books? How many knew that he was the pioneer, not only of settlement in the Lake Huron region of Ontario, but of that style of Scottish story-telling which is making Ian Maclaren and S. R. Crockett famous? The present day novel reader is just learning it in the announcement that a prominent London firm has brought out a new edition of some of Galt's Scottish novels, and judges of Scotch character at home will yet have to pronounce whether Galt or his modern imitators are truer to the life. The present editors of *Blackwood's* are now proud to boast that their magazine discovered Galt. Fashion runs in novels as in clothes, and so it is that the story reader of to-day knows so little of Galt. No story of the early half of this century had a wider popularity than Galt's "Lawrie Todd." The writer has a copy printed in New York in 1847, and it had already run through sixteen editions! But in the short space of a newspaper review one cannot do justice, either to the career of Galt or to these admirable pictures of early settlement in the Huron tract. This much we can guarantee, that no one interested in the history of Western Ontario can be disappointed in the possession of this book, which runs to nearly 500 pages, has 42 illustrations, and is beautifully printed and bound. Wm. Briggs, publisher, Wesley Buildings, Toronto.

The U.S. department of agriculture at Washington has issued a pamphlet on the cultivation of jute and hemp in the United States. The pamphlet, which is ably edited by C. R. Dodge, special expert in textile fibres, gives the practice carried out in foreign countries where hemp and jute are grown, the mode of preparing the fibre for market, and the machinery used for dressing the fibre, with statistics of the growth of the plants, are given, the whole being illustrated with engravings.

GERMANY'S TEXTILE INDUSTRIES.

Consul Sawter, reporting from Glauchin, Germany, states that in the German textile industry over 1,000,000 persons are employed, and the interesting fact is noted that there has been a yearly increase of female employees. The exact number of employees was 1,017,112, against 932,592 in 1882. Since 1883 the males decreased from 582,070 to 552,230. Their places have been filled by females, whose number grew from 350,522 to 464,316 in the same period. One curious result of these changes is the improved sanitary surroundings and comforts provided for the employees. Their every interest in this way is being considered to encourage good labor. Washrooms and lockers for non-working apparel are provided, and dining-rooms where coffee is made, and potatoes (the latter one of the chief components of the luncheon) roasted or boiled. There are also separate lunch rooms for whole families employed in the factories, where they can distribute food from the family basket, and enjoy together the recreation afforded by the noonday meal. Some of the larger factories have a buffet, where can be purchased at a merely nominal price, beer, sausages, rolls coffee, cake, or any little luxury in the form of pastry.

HINTS TO DYERS.

In these days of competition it is not at all unusual for dyers to neglect a considerable number of apparently small precautions, which, if at first observed, would prevent a large amount of bad work, and also save the dyer a lot of worry and anxiety. In this present article the writer wishes to show how very simple things can create a very great nuisance.

One point which is very often neglected is that of entering solid dyestuffs directly into the dye-pan without first dissolving it. Neglect of this simple precaution may often cause trouble, especially when using such coloring matters as the methyl violets, Victoria blues, etc. Some coloring matters, when thrown into water, seem to cake together and form little lumps, which appear to be insoluble in water. On entering the material to be dyed, these lumps get on to it and cling to it with great tenacity, and, as a matter of course, the material is stained with very dark patches. When this occurs, which is more particularly the case in dyeing light blues, lavenders and slates, it very often happens that the goods are completely spoiled for that shade, and have to be dyed in a very much darker shade before these blemishes can be hidden. If an attempt were made to strip the color from the goods and then redye, the chances are that the last state of those goods would be worse than the first, and thus in either case compensation would have to be given to the merchant or manufacturer; whereas, if the dyestuff had been dissolved previously in boiling water, and then sieved into the dye-pan, no trouble would have been caused. As a rule, yarn dyers are more apt to do this sort of thing than are piece dyers, who generally keep standard solutions in stock of the different dyestuffs they use—a practice to be highly commended to all dyers.

Other dyestuffs, on being thrown into the dye-pan, do not cake together, but they are only partially dissolved. A very good example of this type is the monosulphonic acid and alizarin, sold as alizarin-red powder. The writer has very often seen solid particles of this coloring matter adhering to goods which have been dyed by its aid. The defect, of course, is best shown up when dyeing light shades such as fawn, drab, slate, etc., using alizarin-red powder as the red constituent, when, should any of it remain undissolved, it manages in some way or other to get on to the material in operation, and naturally causes patches of a fairly deep red tone, thereby giving a blotchy appearance to it, and in such a case it is practically useless trying to improve the shade by stripping off the color and redyeing. The remedy is to make quite sure that no such solid particles get into the dye-pan. Again, when solid dyestuff is thrown into the dye-pan and is not all dissolved, there is a possibility of its not being entirely removed when the waste dye-liquors are run away, and the dye-pan washed out. It is not uncommon to find particles of solid dyestuff at the bottom of the dye-pan, alizarin red S in particular being often at fault in this respect. If the dye-pan is

not thoroughly washed out before commencing a new dyeing, there is a possibility of subsequent dyeings being damaged by the dyestuff remaining in the dye-vessel, even if it should then be dissolved, which is not very probable. Another point, which seems a very trivial one, but which nevertheless is important, is that of carrying solid coloring matters into the dye-house. This is a frequent cause of goods being spotted. For example, suppose goods are being mordanted with bichrome, and that afterwards they are to be dyed slate by means of alizarin violet and fustic, while the mordanting operation is going on, some alizarin red powder is being carried through the dye-house, and a little of it is carried by the wind to different parts of the dye-house, and finds its way on to the goods which are being mordanted; and thus they are dyed in certain places in a red shade, and consequently even after they are dyed to the proper shade these spots, where the red has been, show up and spoil the appearance of the goods. All solid dyestuffs, if carried into the dye-house, may cause equal trouble.

There is a case on record in which a firm, whilst dyeing a number of pieces in light shades, were constantly troubled by the appearance of blue spots. After considerable worry, these spots were subjected to a chemical analysis, when it was found they were due to a blue coloring matter which was being used in the next room, but which had to be carried through the piece-dyeing room.

The moral to be drawn from the above remarks is that all powder dyestuffs should be properly dissolved before placing into the dye-pan, and that the solutions should be sieved to make quite sure that no solid particles get into the dye-liquor. Moreover, we can go still further, and say that no coloring matter should be dissolved in the dye-house; but, on the contrary, it should all be dissolved before being allowed to go into the dye-house. No trust should be placed in the fact that some coloring matters are very soluble, and are sure to dissolve without any trouble if placed into the dye-pan; for, if such trust be placed in a coloring matter, the dyer is sure at some time or other to be caught napping.

Another cause of uneven dyeing, says *Dyers' Trade Journal*, is sometimes due to the fact that light has an action on wool mordanted with bichrome, with or without the aid of sulphuric acid. Wool so mordanted is really prepared with some compound of chromium in a fairly high state of oxidation. In fact, it is generally said to be prepared with chromic acid or chromium trioxide. If goods so mordanted be not dyed at once there is a possibility of those portions of the goods exposed to light being acted on, and the yellow chromic acid reduced to green chromic oxide, and as these behave differently with a considerable number of coloring matters, it is highly probable that uneven colors will result on dyeing goods which have been so exposed. If it should be really necessary that mordanted goods be left undyed for some considerable time, it is advisable to work them in a dilute bath of bisulphite of soda for a few minutes before dyeing, when the whole of the chromic acid will be reduced to chromic oxide.

TANOLIN.

The "chrome" process of tanning glove and other leathers, referred to in a former issue of this journal, has made steady advances. Chrome leather is remarkable for its resistance to wet and decay, and for retaining its strength and pliability under conditions that would utterly destroy leather tanned by the ordinary methods. The only drawback to the process was that it required great nicety in the measurement and proportioning of the materials, so that a novice was apt to spoil a great deal of leather before good work could be done, and the expert use of the process was attained with difficulty, as two baths with varying materials were required. The Martin-Dennis Chrome Tanning Co. of Newark N. J., for whom Wright & Dallyn, of Hamilton, are the Canadian agents, have now introduced a one-bath process of chrome tanning, which greatly simplifies the whole operation. The value of this process may be understood from the fact that the proprietors' refusal to join the U.S. leather trust is considered the chief element of weakness and

uncertainty in the combination Mr Dennis does not hold his discovery on royalty, but manufactures the solution and sells it to tanners outright, shipping to all parts of the world

The following is a short description of the method of applying the tanolin, as the new liquor is called

Common salt often serves a useful purpose in bark and sumac tanning, and it is recommended to be used in connection with tanolin to prevent the hides or skins from drawing on the grain under the astringent effect of the chrome liquor. More or less salt may be used, but only so much is necessary as will prevent the drawing of the grain. In a general way the chrome tan liquor is handled in much the same manner as a gambier or sumac liquor. The skins are entered into a weak liquor, say two or three per cent., that is, two or three gallons of the concentrated liquor added to one hundred gallons of water. As the hides or skins absorb the tanning material, the tanning bath will become lighter in color, the color, however, of the bath should be maintained by the addition of more chrome liquor. When the skins are well struck, the bath should be strengthened still more and the skins tanned out of a fairly strong liquor, say a four to six per cent. solution. Assuming that a paddle wheel is used for tanning, the skins are allowed to float and turn in the liquor by the action of the paddle. When by wringing out a portion of the thickest part of the heaviest skin, it wrings out dry, and by cutting a section through the thickest part, the skin appears to be of a uniformly greenish blue color and fibrous throughout, the skins are tanned.

On removing the skins from the tanning bath, they should be rinsed off in clean water to remove the adhering liquor, not washed for any length of time, but simply rinsed off. The skins should then be struck out on the flesh side with a slicker; the tables used for this purpose should be perfectly clean and free from any grease or oil, so that the grain will be protected from any extraneous substances, for in this condition the grain of the skins will absorb stain or grease easily and quickly, and interfere afterwards with the coloring.

After striking out the skins should be shaved, remembering during the shaving to protect the grain from stain or grease.

When the tanned skins are removed from the tanning bath, there will still be left a considerable quantity of tanning material in the old liquor. This should not be thrown away, but a second pack of skins may be entered in this old liquor, and the fresh skins will completely exhaust it; a new liquor can then be made and the skins from the old liquor tanned out in the new liquor by strengthening it from time to time as in the beginning. In this way not a drop of the tanning material need be wasted, and great economy in the cost of tanning can be attained.

If the same liquors are to be used over again several times, say for five or six packs, it is advantageous from time to time to correct the tanolin liquor by adding to it slowly and carefully a solution of sal soda prepared in the proportion of 1 lb. sal soda to 3 gallons of water. This soda solution may be added until the tan liquor begins to appear cloudy, then stop. This procedure will render the tan liquor so sensitive that it will yield to the skins the whole of the tanning material.

The reason for using the sal soda is this. The skins, by absorbing the chrome oxide from its solution, sets free the solvent, which is slightly acid, and by repeated additions of tanolin and the constant absorption of the chrome oxide as would be the case when several packs follow one another in the same liquor, there results an accumulation of the acid solvent in the liquor which is detrimental to the tanning. The sal soda does not remain as such in the tanning bath but is converted by its combination with the acid into chloride of sodium (common salt), which is in no way harmful, but on the contrary is beneficial. Care should be taken not to add too much of the soda solution, as a surplus of the alkali would cause the tanning material to be precipitated from its solution and thus wasted. By correcting the liquors as above indicated, the old liquors may be used over and over again by simply adding more tanolin with each new pack so as to maintain the color of a 3 to 4 per cent solution. The above, of course, applies more particularly where rocker vats or paddle wheel tubs are used for tanning.

but the chrome liquor can be used just as successfully in a pin mill drum, although in this case the liquor would have to be fed to the hides or skins more frequently, as the tanning would proceed more quickly in a pin mill than in a paddle wheel.

The time usually required to tan with the chrome liquor is as follows (in a paddle wheel)

For heavy steer hides, from seven to ten days; for cow hides and kip skins, from four to seven days; for calf and kangaroo skins, from two to four days; for goat and sheep skins from twenty-four to forty-eight hours.

When softness and firmness are required in the leather, it is well to treat the skins on coming from the tanning liquor to a bath made in the following proportions. Dissolve ten pounds common salt in a barrel of water (fifty gallons) and mix into five pounds bolted whiting. This is thrown into a drum or pin mill along with the skins, and the skins allowed to tumble about for about half an hour; then pull out the plugs of the drum and turn on a constant supply of clean water through the hollow trunnion or axle of the drum, and allow the skins to wash until every trace of the whiting has disappeared. After rinsing off the skins from the tanning bath, or after washing them from the bath of whiting and salt, and after striking out and shaving, they are then ready for staining, fat-liquoring, coloring, setting out, oiling off, etc., which, in order to obtain the best results on chrome leather, should be done before they are dried out. After drying out they may be dampened, staked or perched, seasoned and finished same as leather tanned by any other process. If the skins are to receive fancy light colors, as in dip dyeing, it is better that they should not be fat-liquored or stuffed until after they have been dyed; but if brush colors are to be given on a table it is better to fat-liquor the skins before dyeing.

If hides are to be tanned it is better to suspend them on rockers in the vats, so that the liquor may be gently agitated. If the hides are split after tanning, it is better to scour the splits with brush and slicker, or else mill them in the drum and then return them to the liquor for at least twenty-four hours.

There are no hard and fixed rules that can be laid down for the guidance of a tanner, because, no matter what tannage is used success will depend largely upon the judgment and skill of the operator. The quality of leather also depends so largely upon the beam house preparation of the hides or skins before tanning, and the manipulation of the hides or skins after tanning, such as stuffing, currying, coloring and finishing, that it would be impossible to assure a tanner that he would get an equally good result as another tanner in using tanolin. Therefore, all that can be guaranteed is that tanolin is an efficient, safe and cheap tanning material, and that it will convert the raw hide substance into leather, and that the chrome leather thus produced will possess all the superior qualities inherent in such leather, and that these results are obtained more easily and are more uniform and reliable than by any other process of chrome tanning.

While it is advised that skins be thoroughly cleansed from the substance adhering to or impregnating them from the beam house treatment, nevertheless this precaution is not necessary when the skins have been thoroughly bran drenched and the lime and puer completely eliminated. The skins should not be allowed to remain too long in a weak liquor, for the same thing will happen to skins in a weak chrome liquor that happens to skins left too long in a weak bark liquor—they will fall, lose their plumpness, and tan out thin and barren. In other words, after the skins are well struck they should be fed sufficient tanning material to enable them to grow into plump and lively leather. There is no economy in saving a few cents per dozen on the tanning material and losing dollars on the resulting leather. If in the mind of the tanner there is any uncertainty as to the skins being sufficiently tanned after being in the liquor a given time, no harm can come to the skins by allowing them to remain in the chrome liquor until it is certain that they are completely tanned. It is absolutely essential that the skins should be thoroughly tanned, for a thin sheet of rawhide substance through the centre of a skin will cause it to be hard and tippy when dried out.

Sheepskins should be wrung or pressed to remove the animal grease, and then milled in a solution of common salt and water to open up and soften the fibres of the skin.

If pickled sheepskins are to be tanned, it is better to remove the pickle before commencing the tanning operation with a drench of "C. T. Bate," or if this preparation is not at hand, with a drench of bran and salt. But under no circumstances use a drench of whiting and salt to remove the acid pickle. This gives the skins an alkaline character which will cause them to tan too quickly on the surfaces, closing up the pores, shrinking the skin, and producing a high, harsh grain. For this reason fairly soft water should always be used in making up a solution of tanolin for a tanning bath. Very hard water, containing the salts of lime and magnesia, will cause the tanning material to be precipitated from its solution, rendering it unfit to be used.

In most instances, previous to placing the hides or skins in the chrome tanning liquor, it is advisable that they be given a pickle of alum and salt in the proportion of one to two lbs. alum and about five lbs. salt to the dozen skins. The use of the alum and salt, however, is optional. The object in using it is to keep the skins open and plump, to prevent them from drawing on the grain and to keep the skins during the process of tanning in such condition that they can be worked and set out with a slicker after being tanned without having that spring to the leather which a good many complain of in working and currying chrome leather.

The alum used in this manner as a pickle does not act as a tanning agent, but in a manner similar to the salt, because alum does not really tan the skin until it is dried in. In this case the alum is removed by the subsequent washing and working of the skin previous to drying.

On removing the skins from the pickle of alum and salt, it is well to horse them up and allow them to press and drain for at least twenty-four hours before placing them in the tanolin liquor.

To give character and quality to the chrome leather, various kinds of softening and lubricating materials are used, such as stuffing compounds, fat-liquors, egg yolk and soap baths, but as a general rule the chrome leather does not require, nor will it absorb as much grease as bark tanned leather.

"Probably the most efficient means of incorporating oils and greases in chrome leather is by 'fat liquors,' so-called. There are various ways of preparing and using these fat liquors, according to the quality it is desired to give to the leather. The fat liquor in most general use is an emulsion of soap and oil, preferably a potash soft soap and a fine quality of Neatsfoot oil, used warm and in a dilute manner, and milled into the leather by means of a pin-mill drum.

"Other preparations are recommended, such as an emulsion of degreas and egg yolk, and also an emulsion of egg yolk and olive oil. These fat liquors seem better adapted for lubricating the fibres and nourishing the leather than the hard greases and heavy fish oils which are used on bark leather. They impart to the chrome leather the necessary strength and flexibility without rendering it greasy and smeary."

On removing the hides or skins from the fat liquor they should be placed on a horse, or laid out flat in a pile on a table, grain and flesh to flesh, to press and drain for at least twenty-four hours. This gives the fat liquor a chance to penetrate, combine with, and nourish the leather.

"Chrome leather is easily dyed, and takes all shades of color most readily. If the neutral basic aniline colors are used, it is necessary to mordant the leather with some wood dye, and then color to shade with aniline. For very light shades a weak decoction of sumac may be used; for medium shades a fustic liquor, and for dark a mixture of fustic and logwood may be used as a mordant.

"It is said that the acid aniline colors dye directly, without the use of a mordant; very recently, it is claimed that chrome leather may be dyed successfully with alizarine colors. In order to fix these colors on leather, it is necessary to heat the dye. Chrome tanned leather will stand a high temperature without the slightest damage, and for this reason good results are to be had with chrome tanned leather by using alizarine dyes."

Foreign Textile Centres

MANCHESTER—Business has been unevenly distributed, and there is some uncertainty regarding the prospects of the crop. Up to the present there has been none of that falling off in the arrivals at the ports prophesied by the bulls, although the real facts of the situation do not seem to be fully known. Prospects in the Indian market are poor. Spinners have bought spot or arrival cotton freely. Cloth has not been very active, but business has been offering to a moderate extent. The South American trade, however, has been slack, and some markets have been a source of considerable anxiety to merchants during the course of the year. The United States trade has been a little better. Manchester has wonderfully improved its position by building the canal. Before it was opened trade was leaving the district, much of it going to distant points, and the heavy machinery industry and allied businesses were in a weak position. Now, in spite of the activity of building operations, it is difficult to get a house, and suitable business premises to let are few and far between. The drapery trade of the city, wholesale and retail, has benefited greatly by these changes, and the outlook generally in Manchester from the business standpoint is a bright one. The district promises, in fact, to grow at a greater rate during the next few years than has been known for a long time, and this notwithstanding the increasing tendency amongst Manchester men to live in the country districts of Cheshire and Derbyshire.

LEEDS—Heavy woolen cloth manufacturers are so quiet that only a part of their machinery is running at present. The tone is depressed. Worsteds coatings would be found by large buyers to be lower in price than ever. The rush there was a month ago after next spring patterns has ceased, and merchants will make concessions. It is not quite so bad in the case of vicunas and serges, but quotations have weakened. Cheviots are firmer in price than anything else, but the turnover at present is very small. Travellers expect an average spring trade. For the time of year a fair amount of work is done at the ready-made clothing factories, and prospects are rather better in the fancy rug trade. The home trade in blankets and army cloths is quiet.

NOTTINGHAM.—Perhaps the most interesting thing in our lace trade occurring recently is the threatened overproduction of lace curtains and window blinds. The orders in hand are really up to the season's average, and the past fortnight has seen a respectable addition to the total. But the quantity of machinery in the town is so large, the consequent production has been so great, and the competition of the Scotch and foreign manufacturers has been so severe, that the inevitable has come about rather earlier than usual—the supply in stock and in immediate prospect is much in excess of a season's demands. What is more, the continental purchases have been relatively poor. It is really a pity that some of the older machinery (of which there is more than enough in the district) cannot be dismantled and replaced by more of a later type, which will enable Nottingham men to produce with greater economy. In other departments of the trade, with the exception of that which is concerned with silk millinery laces, more activity is reported. Perhaps I should add cotton embroidery trimmings as well, for not much more than half of the machinery in the town devoted to this purpose is well engaged, and no novelties are being shown. Bobbinets continue brisk, and prices are still firm. Ordinary and fine qualities are selling for shipment to Germany, and miscellaneous home and foreign markets are taking fair quantities of mosquito and corset nets. In light tulles, silk and cotton good business is going forward, but much of the supply of these articles comes from the West of England, and only the local jobbers benefit from any considerable movement in them. There is a limited demand for point d'esprit and stiff foundation nets. Manufacturers of fancy cotton laces are fairly busy with a few specialties, for which a number of shipping orders have been placed. The week has seen some improvement in falls and veilings, and several manufacturers

are doing well on the latest novelties, though they complain of the severity of competition.

LEICESTER—In the yarn market spinners are giving more attention to clearing up and stock-taking, and prices show no change. In the fancy hosiery trade the finish has not been quite up to expectations. Still stocks are fairly light, and with the turn of the year there may still be a good run of special orders. Plain hosiery manufacturers, with the exception of cashmere hose, have remained well employed up to the end.

BRADFORD—The wool market shows no encouraging feature. Business is very quiet and strictly limited, and the tone is not particularly cheerful. Spinners do not find their requirements necessitate extensive purchases, and they show no disposition to anticipate their future needs. There is a general disposition to await the development of events. For crossbreds there is very little inquiry, and where business is done prices are in favor of the purchaser. The position of English wools is pretty much the same. Mohairs also are quiet. In the yarn branch the operations of export merchants are confined to small lots, and spinners are being obliged to stop their frames in consequence of the lack of new orders. Values are in favor of the buyer, but there seems no disposition to speculate. In mohairs there is scarcely anything doing and the position generally at present is most unsatisfactory. In the piece trade manufacturers are in a very similar position and badly in want of new orders to keep their machinery employed, but fail to obtain sufficient, with the result that more looms have been brought to a standstill. For home and abroad there is little doing.

ROCHDALE—Business is quiet. There is no doubt that the cold weather will stimulate the consumptive demand as usual, and it is only a question of time that drapers' stocks will be replenished. There is a certain amount of curtailment of production, and probably this will go on rather more than it did this time last year.

SOUTH OF SCOTLAND—The South of Scotland tweed trade is at its dulllest. Some mills have been working short time, and they will probably have to continue doing so for a few weeks in the New Year. Orders are certainly scarce, but should the wintry weather last for a month or so, manufacturers' books will no doubt present a healthier appearance. There is a better tone in the Glasgow cotton yarn market, and spinners are consequently not so anxious to sell at the low rates which were general in the beginning of the week.

BELFAST—Business cannot be said to have shown much change of late. The market all round has been well supported, and orders have been placed on a fairly liberal scale, more especially in the cloth end. Values are going to keep up, and United States buyers may operate with confidence. With European markets business is sensibly quieter, and general export trade is not brisk. Home demand for white goods is keeping up very well, and in spite of the end of the season being so close at hand orders to a satisfactory extent have been dropping in. Brown goods have received a considerable share of attention, and, with few exceptions, the turnover has been fully up to any recent average. Tow goods and unions have both come in for a fairly brisk demand, and handkerchiefs and piece cambrics are selling with ease. Yarn prices are firm.

LYONS—The silk market at Lyons is quiet. Prices are rather weak, but considering the long spell of slow demand, they are showing a fair undercurrent of strength as far as European and Levant silks are concerned. These had not advanced much in October, and had, therefore, little ground to lose. Where prices have felt more keenly the effect of the disappointing demand has been in Asiatic silk, and especially Japan sorts. These have lacked the support which America was expected to give to the Yokohama market. Holders in Japan have had to moderate their demands in regard to prices, and even at present quotations there are only few buyers for Japan silk, which is still relatively higher in Europe than other sorts, considering quality.

ZURICH—The raw market is quiet, manufacturers buying little except for actual needs, and contracts for future requirements are not being made. Japan raw silk is now the feature, and as it

had been the leader in the advance, it has subsequently become the leader in the decline. Prices of Japans are weak, and this also affects Italian silk to some extent. Holders in Italy have become more approachable, but this is only the case in the lower grades of silk, on which some concessions are obtainable.

CHEMNITZ—The busy season in the Chemnitz factories is now on, as the greater part of the orders on the books should be shipped before February 1st. Up to now shipments have not been hurried much on account of the strikes in Hamburg and Bremen, but as the latter port is open at present, a considerable volume of goods will find their way there before the end of the year. Several orders had to be refused because buyers would not wait for delivery until the latter part of February, until which time mills are filled up on a number of special articles. In general, buyers will have no trouble in placing duplicate orders, with the exception of the higher-priced fine-gauge staple goods and low-priced boot patterns. Coarse-gauge single-thread has been ordered lately in fair quantities for ladies' and men's wear. Herringbone soles are much desired still, and sell at popular prices.

THE GLOVE MANUFACTURE ABROAD.

The glove manufacture was one which, like straw-plait and pillow-lace making, seemed destined to remain the permanent stronghold of hand labor, and to furnish the most satisfying instance of our old system of domestic manufacture, says a writer in the *Nineteenth Century Review*. Machinery which had so successfully encroached upon most cottage industries, seemed powerless to affect this one, and women, to all appearance, possessed an inalienable heritage in the mode of work peculiarly calculated to commend itself to believers in 'sex in industry,' desirous of seeing women engaged in light and cleanly occupations carried on by the domestic hearth, in the midst of infant workers of the future.

Little by little, however, the ties of mechanical invention set in. First, a French punch, or cutting machine, shaped like a hand, was introduced, capable of cutting out gloves with speed and accuracy. Until this time all the slitting had been performed by hand, with shears—a by no means occasional irregularity in the length of the fingers bearing full witness to the fact. Then a man named Kohler, of Chemnitz, invented and patented in all European countries a machine with two needles for doing the ornamental stitching at the backs of the gloves. The sole right in England, and one hundred of these machines, were purchased from him by a manufacturer of Torrington, who in a month's time was laying on the point for 1½d. a dozen pairs, and doing 2,000 dozen a week.

It scarcely needs to be said that this particular individual rapidly made a fortune; but much temporary loss was entailed on those women who had previously worked at this branch at the rate of 7d per dozen pairs. The mass of workers, however, remained unaffected, for the simple reason that the sewing of the seams, the process which gave the women of the gloving districts their chief occupation, still resisted all endeavors to bring it under the domination of machinery. The first machines invented were practically useless, as they would not close up the fingers, and the good hands among the glovers naturally refused to finish machine-begun work.

But in 1880 a machine called the "lower" was invented which at once revolutionized the whole system of production. The new machines were quickly adopted by the manufacturers of Yeovil and the adjacent districts, and the centres for the gratuitous instructions of the glovers were formed in the principal villages, so that soon skilled machinists were springing up on all sides. As the glovers naturally were not in a position to purchase the necessary machines, a more or less uniform system was established, under which the manufacturers supply them to the workers.

Putting aside slight differences of detail, the prevailing tendency is to "keep a hold on the workers by retaining ownership of the machines." Messrs. White, of Yeovil, for instance, provide the machines and keep them in repair; while Dent, Allcroft & Co., who began by taking a weekly payment and allowing the machines in time to become the property of the workers, now lend them out in the same manner as the other masters.

Although the manufacturers here mostly own the machines, there is always a section of the glovers shrewd enough to see that it is a manifest advantage to be themselves the owners, as they can then accept work wherever it is to be had, and can also refuse reductions in wages without any dread of being told to "send in their machines." Such far-seeing, thrifty and independent personages get their sewing machines for £8, of which £1 has to be paid before delivery and the rest in monthly instalments. To the manufacturers only £6 10s. cash is charged, but this seeming unfairness is explained by the fact that they purchase in large quantities, and that with them payment is certain.

CARPET PRINTING.

The printing of tapestry and velvet carpets, after being woven in the white, dates back fifty, or more, years ago. Old carpet men will at once recall the fabric made by John Bright, at Rochdale, England. Their introduction, however, was difficult, as they came in conflict with the productions of John Crossley & Sons, then the greatest producers of the original tapestry and velvets in the world. The difference, of course, between the two productions was that the Crossleys had the designs printed, as now, in colors, on the warp before weaving; while that made by John Bright (tapestry) had its figures and colors stamped upon the fabric by hand after it was woven. The latter process, however, presented a drugget effect, and lacked the style and accurate registration of the Crossley carpets. They had one thing to commend them, says the *Carpet Review*, they were very durable. Bright's goods were first printed with blocks, and, being durable and cheap, their sale was large in many countries. Cylinders, or rollers, were afterward used by Bright, the cue being taken from calico and kindred printing, but they varied much in their construction. One of these, used by an English manufacturer, was a very elaborate and expensive affair. The engraving of the design upon the cylinder was very deep, and the colors placed in their proper places to correspond precisely with the fabric itself: a painted design, containing every color to be employed, being used as a guide. In fact, the exact coloring of the carpet was placed upon the cylinder, and from it transferred to the plain fabric.

John Wilkinson, an English inventor of a machine for printing pile fabrics, thus describes the operation of it:

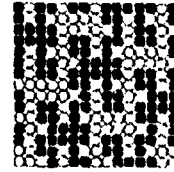
"In the machine which forms the subject of my invention, the carpet fabric to be printed is carried forward in an uninterrupted and continuous manner, under a series of printing cylinders, or rollers, to suitable bearings in fixed frames, on which are also mounted color rollers, with the necessary appendages and accessories for the printing rollers, so that, when the fabric is set in motion, the printing operation may be carried on continuously and without any interruption or intermission, until any desired length of fabric has been printed." The patent of the above bears date, 1866

Another English invention for printing pile fabrics was operated in an exactly reverse manner, the cylinder travelling over the fabric, instead of the fabric passing under the cylinders. In operating this invention the engraved cylinders were mounted upon wheels, which rested on a railroad. The fabric to be printed was stretched tightly between the track, upon a long and smooth platform. The cylinder was adjusted to rest upon the fabric and then pushed along from end to end. From the farther end it was turned over upon another track and brought back to the starting place, where the cylinder was re-charged with colors and sent over the fabric as before. This was repeated until the carpet was completely saturated with the colors. It has been stated that none of the earlier printing machines ever made a success in the fabrics for which they were made. The cylinders that have been used in this country for many years vary somewhat in their construction. Those intended for printing the heavier fabrics were covered with copper and the engraving deep enough to dye the pile through to the very back, sometimes appearing upon the reverse side. The old calico cylinders have been used successfully in printing heavier fabrics by bringing to bear an amount of weight—either residing in the cylinder itself

or obtained by outside pressure—to flatten the pile down close to the back, from which position it is raised by a steam process to its soft and velvety texture

Textile Design

WORSTED TROUSERINGS



Complete Weave.
15 x 15.

Warp.—6324 ends, 2/40's worsted, 15 harness, straight draw
Reed.—15½ x 6 = 68 inches wide in loom
Dress.—3 ends, 2/40's worsted, dark.
3 ends, 2/40's worsted, medium No. 1.
3 ends, 2/40's worsted, dark.
3 ends, 2/40's worsted, medium No. 2

12 ends in repeat of pattern
Filling.—92 picks per inch arranged thus —
2 picks, 2/40's worsted, dark.
1 pick, 15 cut woolen backing.

3 picks in repeat of pattern

WORSTED CHEVIOT.



Complete Weave.
Repeat 8 x 8.

Warp.—2,100 ends, 2-ply, 13's worsted, cheviot yarn, dark shade.
Reed.—10 x 3 = 70 inches wide in loom.
Filling.—38 picks per inch, 2-ply, 13's worsted cheviot, dark shade.
Finish.—Rough finish, 58 inches wide Shrinkage at fulling, 8 per cent.

FANCY WOOLEN TROUSERING



Complete Weave.
8 x 4.

Warp.—3,648 ends, 16 harness, straight draw
Reed.—12 x 4 = 76 inches wide in the loom

—*Textile Record*

SLUBBING, INTERMEDIATE AND ROVING FRAMES.

These machines, an illustration and description of which are given herewith, are manufactured by Brooks & Doxey, the celebrated English builders of textile machinery, their American agent being W. L. Haines, of No 161 Pearl street, Boston. These machines are capable of giving the highest production without interfering with the quality of the work, and require careful designing and construction throughout. Brooks & Doxey have kept this in view, and the points aimed at have been to give strength, solidity, correct proportions, rigidity, steadiness in working, use of good, tough metals, etc., planing and milling of all parts forming joints, faces, etc., accuracy and finish in constructing the various parts of the machines by special mechanical tools and templates, facilities for good lubrication, and the constant adoption of improvements to add to the efficiency of the machines.

These frames are constructed from new models designed to give strength and solidity when working. The roller beam is of the box pattern, and planed on the top, front and under side. Ample spring pieces or frame supports are introduced of a thick, strong pattern. The lifting shafts are made 1½ inches diameter. The driving shafts are made 1½ inches diameter. The bearings generally throughout the frame are made of brass. The cap bars are milled all over. A stronger coupling-up beam for carrying gearing

has been introduced. To prevent breakages of swing wheels, a new top rail box with improved strengthened bearings is now supplied. The creels of intermediate and roving frames are made of angle iron. All roller gearing, copy wheels, and ratchet wheels, are cut from the solid, the middle and back roller wheels being of steel. The top clearers are usually stationary, with polished cast-iron hinged covers, but when ordered specially, clearers with revolving felt, or round clearers, are supplied.

When the bobbins are full, a special motion automatically stops the frame and locks the strap fork, rendering it impossible for

the operative to start the frame; as before this can be done, it is necessary for the cone strap to be wound back to its original position. A special motion is employed for more easily lifting and lowering the bottom cone drum, the cone being completely raised by two half turns of the shaft. To give a steady motion to the driving shaft, the end of it is carried on a special fender bearing or suspended pedestal. To facilitate changes, the speed of the lifter can be altered, without changing the small bevel at bottom of the upright, by means of a small pinion and carrier placed immediately under the differential motion.

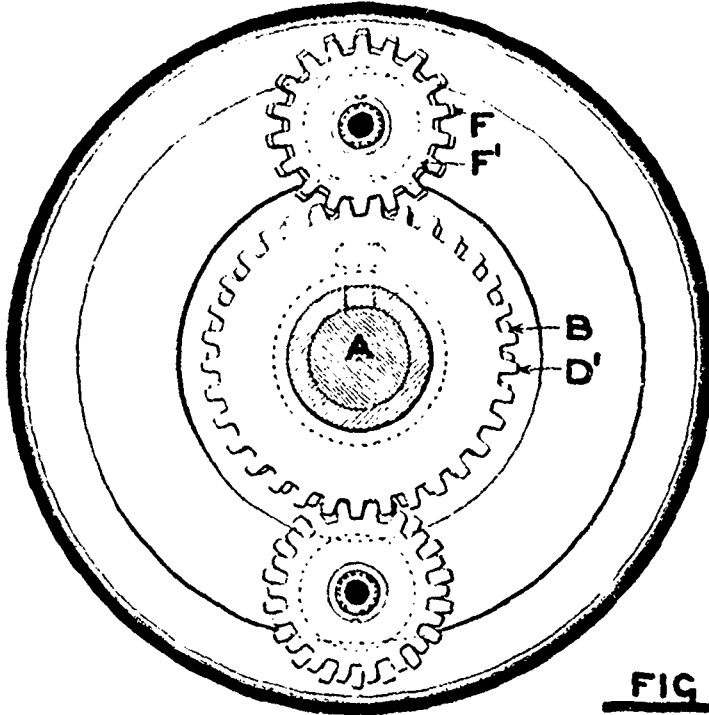


FIG 1

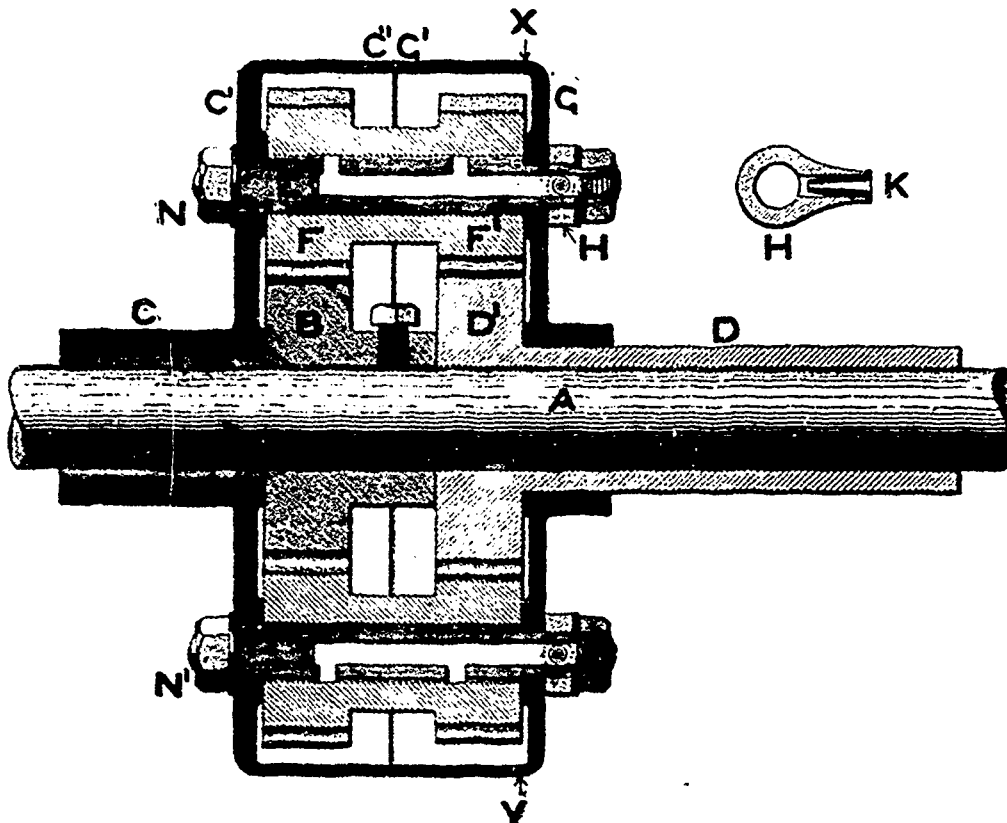


FIG 2

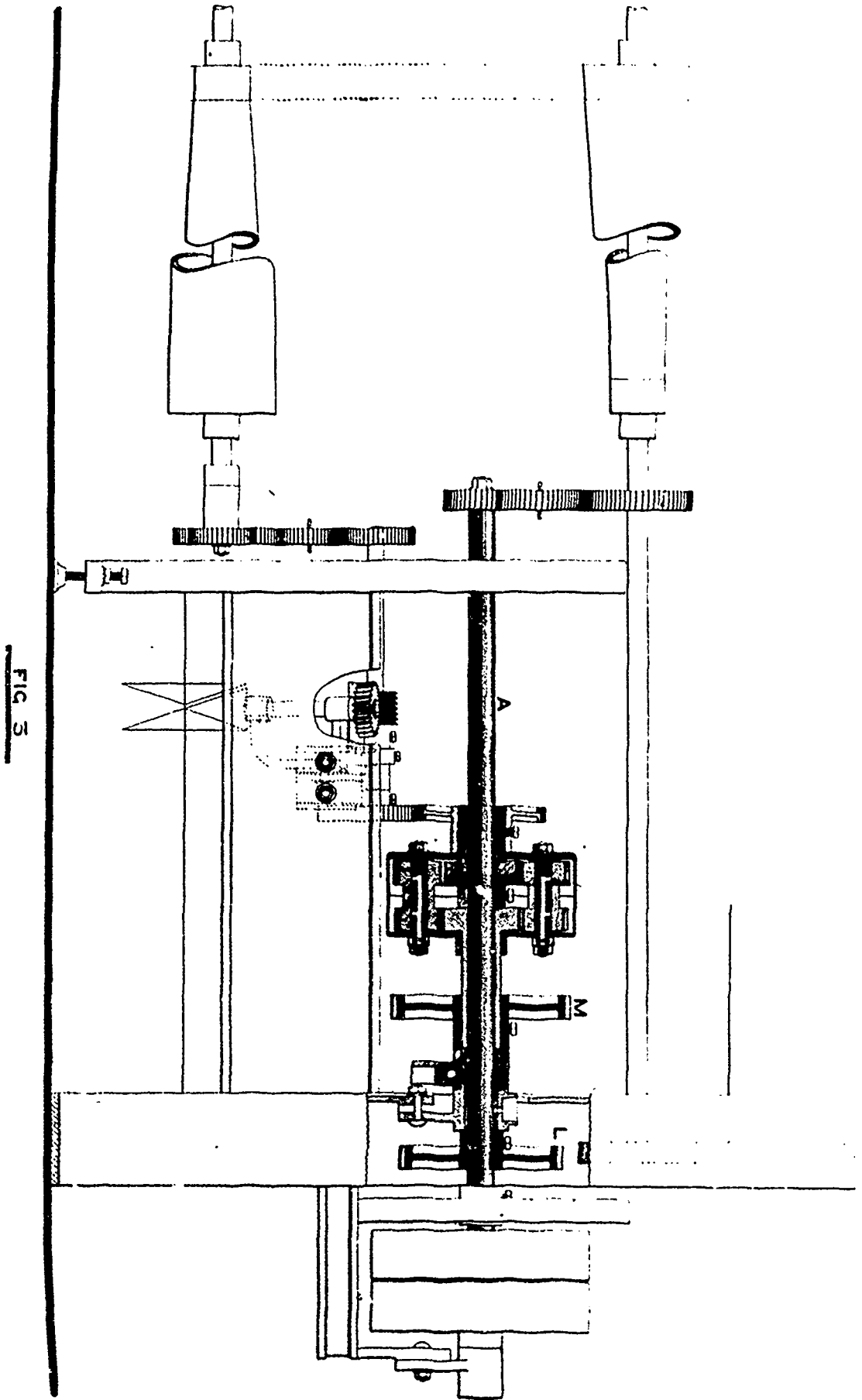


FIG. 5

All inaccessible places of oiling are provided with long brass tubes, the ends of which to receive the oil are placed within easy reach. The slubbing or intermediate spindles make 2.65 revolutions to one of the driving shaft, and the roving spindles make 3.22 revolutions to one of driving shaft, thus reducing speed of main shaft, and causing less wear and tear in the ordinary differential motion.

The differential motion usually supplied is the Brooks & Shaw's patent motion, a description and illustration of which is given on the next page. It runs in the same direction as the driving shaft, and its distinctive feature is that the entire power to drive the bobbins is taken direct from the driving shaft, only leaving the differential speed to be governed by the cones, reducing the strain on the cone strap and insuring better winding. In all other motions a much larger proportion of the power has to be conveyed by the cone strap. It also insures the absolutely positive driving of the bobbins. A new swing for carrying the gearing for bobbin range has been recently patented, to prevent the loss and gain of the bobbin shaft wheel due to the rise and fall of the lifting rail. The cones are not only large in diameter and long, but a special pair of cones have been patented recently to insure the grip of the strap being on correct diameters of top and bottom throughout the entire length. These cones have superior advantages over the ordinary system of cones. Briefly summarized, the difference between the two systems is as follows:

Ordinary system of cones—Gripping edges of strap engaging with direct diameter of top cone and incorrect diameter of bottom cone at start, and with incorrect diameter of top and correct diameter of bottom at finish of winding. Effective taper of top cone, 7 inches to $3\frac{1}{2}$ inches, effective taper of bottom cone, $3\frac{1}{2}$ inches to 7 inches, difference, $1\frac{1}{2}$ = 88 per cent. Patented improved system—Insures gripping edges of strap engaging with correct complimentary diameters of the two cones throughout the entire bobbin. Effective taper of each cone, 7 inches to $3\frac{1}{2}$ inches.

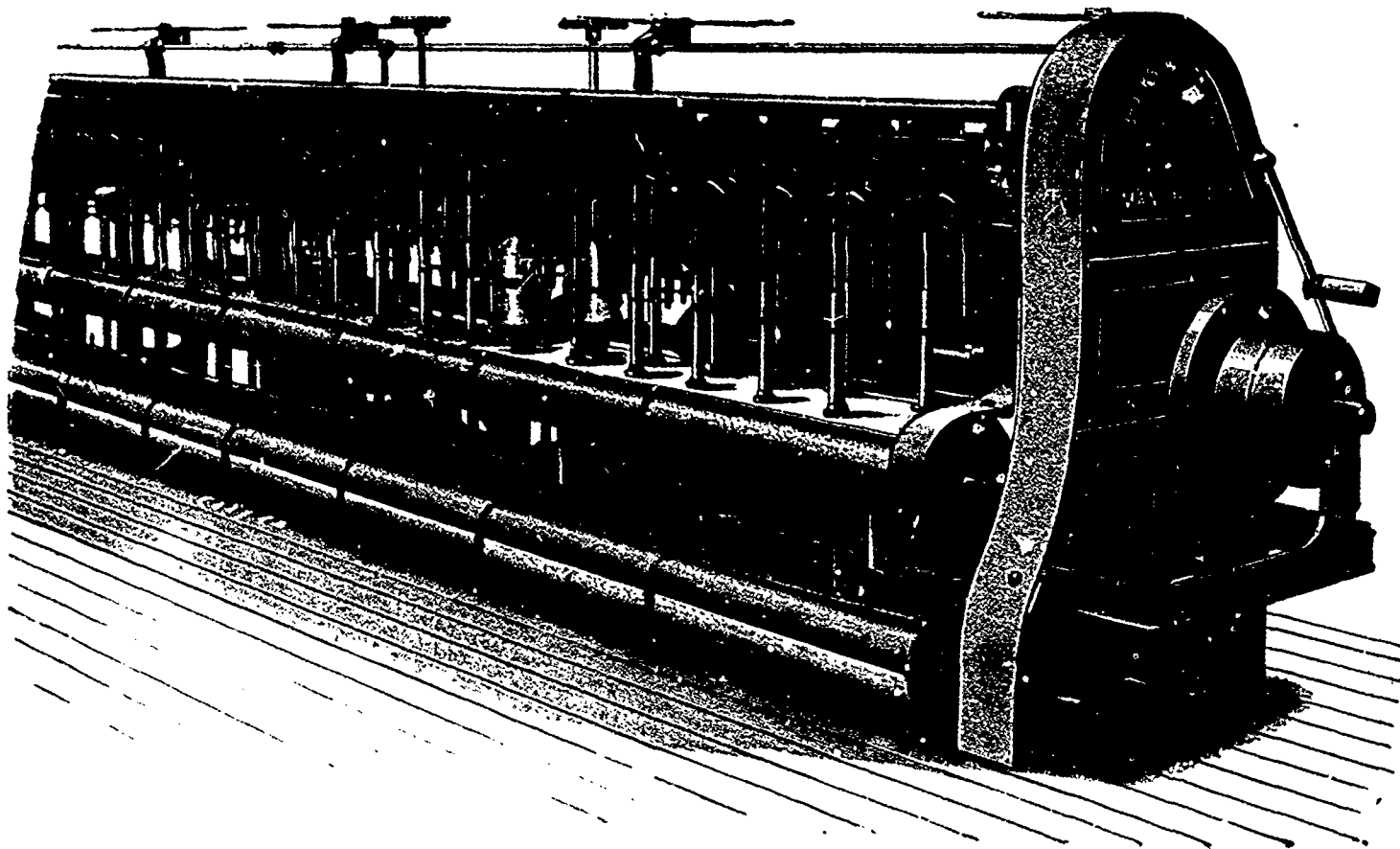
The illustration shows a recently patented "compensating" swing. The object of the invention is to prevent the "axial" movement of the bobbin-shaft wheel, which takes place in an ordinary swing range during the up and down traverse of the lifting

rail, and the consequent stretching or thickening of the roving. In an ordinary swing, consisting of a swing arm, 1, and a fender bracket equivalent to links, 2 and 3, the bobbin shaft wheel, *A*, in moving from position, *A*¹ to *A*², would turn on its axis from the full arrow point to point, *X*, during the first three-fourths of the lift, and from *X* to the point of the dotted arrow during the last one-fourth, producing an average stretch in the roving of $1\frac{1}{4}$ per cent. during the top one-fourth of the up-lift, and a corresponding average thickening of $1\frac{1}{2}$ per cent., during the top one-fourth of the down-lift.

By the improved patented swing the variation in the yarn existing with the present style of swing is obviated, as it is found to be possible and practicable, by making the centre between the links, 2 and 3, movable instead of fixed, and controlling this centre by means of a link, 4, pivoted some distance behind and below the driving shaft, *V*, on bracket, 5, to make the rail travel up and down without producing the slightest axial movement of the bobbin-shaft wheel, as shown by the "full" arrows. The advantage of this arrangement will be apparent to any one who has closely studied the question of how to produce yarn in an approximately level or even condition throughout its entire length. The Cook & Harrison patent variable traverse motion is applied to all frames built by Brooks & Doxey, a slight description of which is herewith given.

With a view to prevent unequal wear of leather on the top rollers of preparing and spinning frames, and securing consequent advantages, various kinds of traverse motions have within recent years been introduced. Through defects in the principle of a number of existing traverse motions, the advantages derived from their use have not been so great as anticipated or claimed. The careful attention, therefore, of parties interested is solicited to the description now given of the patent variable traverse motion.

The following are a few of the advantages claimed for this motion: 1. A varying traverse upon the surface of the roller. 2. A considerable saving in leather and other material, as the rollers last much longer; the saving in leather, etc., has been proved to be at least 50 per cent. 3. An improvement in the quality of yarn produced. 4. No dwell at the end of the traverse. 5. A perfectly steady movement without any lifting of the traverse rod. 6. There



are few wearing parts 7. It is claimed to be the simplest and best adapted for procuring any throw required within certain limits 8 As there is an equal friction on each bearing surface, no undue wear can take place in any one part, and consequently there is no backlash.

So much depends for good work in preparation frames upon the differential motion that no apology is needed for calling special attention to the one illustrated on these pages. It is really an improvement on Brooks & Shaw's previous patent.

Referring to Figs. 1 and 2, *A* is the first motion shaft of the machine, and receives its power directly from the mill gearing. Fixed to the shaft, *A*, is the spur wheel, *B*; upon one side of the wheel, *B*, is a loose sleeve, *C*, and disc, *C*¹, upon the other side is a loose sleeve, *D*, and wheel, *D*¹. Wheel *B* contains 30 teeth and wheel *D*¹ 33 teeth. Fixed to the disc, *C*¹, are two studs, *E*, which project over the peripheries of the wheels, *B* and *D*¹. Upon studs

motion is positive in action, if driving shaft, *A* and wheel *B* are revolved, wheel, *D*¹, is driven in the same direction, no matter whether sleeve *C*, and disc, *C*¹, are stationary or not. Shaft *A* and wheel, *B*, run at a constant speed wheel *D*¹ and sleeve *D*, lose one revolution for every eleven turns sleeve, *C*, makes less than wheel, *B*. They run at the same speed as *B* when *B* and *C* run together and gain one revolution for every seven revolutions sleeve, *C*, makes more than wheel, *B*, and always run in the same direction as shaft, *A*, and wheel, *B*. The motion is so arranged that in practice sleeve, *C*, and disc, *C*¹, do not require to run faster than wheel, *B*, and as disc, *C*¹, if unconnected with the cones, would be carried round at the same speed as *B*, it follows that the strain on the cone strap in retarding the disc, *C*¹ is practically nil. The following summary of advantages are claimed for this improved and patented motion —

1 Its distinctive feature is that the entire power to drive the

COMPENSATING SWING

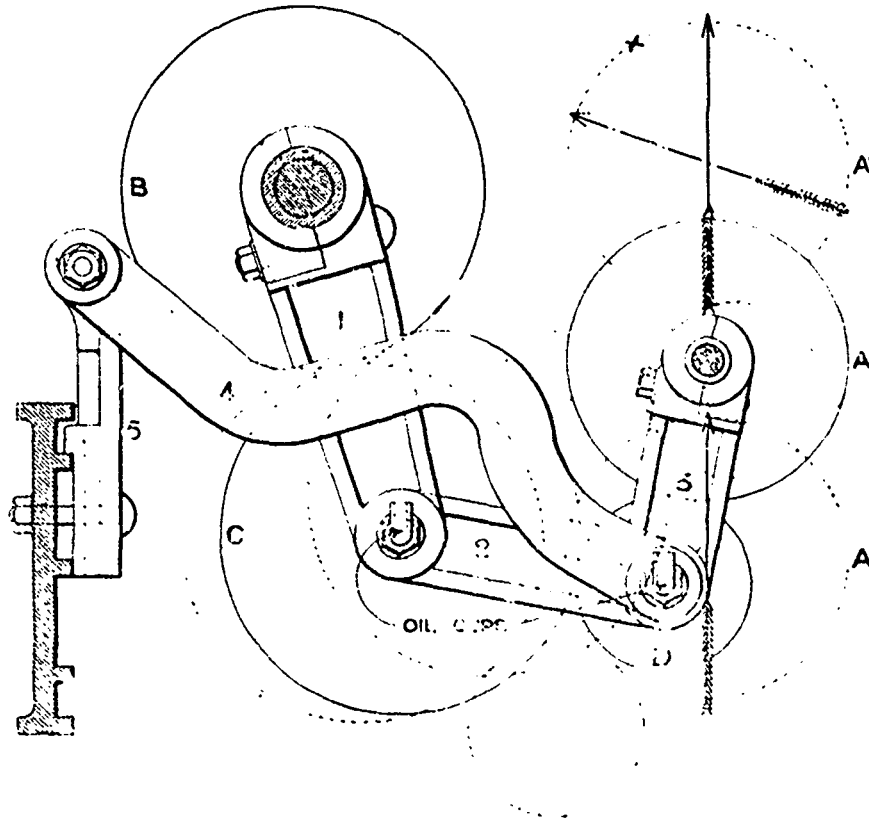


FIG 6

E, bolted to disc, *C*¹, by nuts, *N* and *N*¹, run double carrier pinions, *F* and *F*¹, each containing 18 teeth. These two pinions are cast together, and are, of course, perfectly rigid, and gear with the fixed 30-teeth wheel, *B*, and the loose 33-teeth wheel, *D*¹. The out ends of the studs, *E*, are carried on a loose disc, *G*. Discs, *C*¹ and *G*, are provided with flanges, *C*¹¹ and *G*¹, which meet and form an oil-tight joint. The studs, *E*, are bored, as shown, in order that the double carrier pinions, *F* and *F*¹, may be oiled from outside the casing, and the out ends of the studs, *E*, are provided with oil cups, *H*, and nozzles *K*, which effectually prevent any oil being thrown off outside the casing. The carrier pinions *F* and *F*¹, are revolved round the wheels, *B* and *D*¹, at a speed which is governed by the cones (see Fig. 3), and the bobbins are driven by means of wheel, *M*, fixed to sleeve, *D*. The spindles are driven in the usual manner by means of wheel, *L*, fixed to shaft, *A* (Fig. 3). The

bobbins is taken direct from the driving shaft, only leaving the differential speed to be governed by the cones, reducing the strain on the cone strap and insuring better winding

- 2 The driving shaft and bobbin driver run in the same direction, and thus reduce friction
- 3 Bobbin and spindle commence revolving exactly together
- 4 Slow speed of gearing in the motion.
5. More regular winding and greater production
- 6 Less wear and tear than in any other motion
7. Simplicity and accessibility.

THE JOURNAL OF FABRICS received an invitation to be present at a lecture delivered by Hon. E. Atkinson, of Boston, before the Philadelphia Textile School, December 18th, on "Fibres Used in the Textile Arts"

FABRIC ITEMS.

R. Hall, dry goods, Peterboro, Ont., has assigned

S. L. Hahn, clothing, Hanover, Ont., has assigned to K. Trew, Toronto

Theresa M. Walsh, clothing, Winnipeg, is moving to Vancouver, B.C.

Conway & Co., dry goods, Chatham, have assigned to Joel Hallworth

Rowell & Co., dry goods, Barrie, Ont., have called a meeting of creditors

The dry goods stock of Henry Collins, Vancouver, has been sold to Simon Leiser.

J. H. McClung & Co., dry goods, St. Catharines, are financially embarrassed. Liabilities, \$18,000

W. C. Smith, tailor, Halifax, N.S., has sold out to John T. Taylor and F. Jones, who will continue as W. C. Smith & Co.

Hoffman, Rubins & Co., dry goods, etc., St. John, N.B., have offered to compromise at 35 cents on the dollar. The liabilities are \$35,000

Richmond Co.'s dry goods and millinery, Kingston, Ont., was burned January 2nd. The stock was valued at \$75,000 and was well insured

Price lists have been received by jobbers from spool cotton manufacturers, quoting a reduction of 4 to 8 per cent., taking effect after January 2nd

The wholesale house of Macpherson, Grills & Co., hats, etc., Toronto, has assigned to E. R. C. Clarkson. The firm carried a stock of about \$20,000.

S. R. Cossey, of Northup & Cossey, wholesale woollens, Halifax, N.S., retired from the firm first of the year and will return to England to reside

A recent fire on Stanley street, Montreal, destroyed the home of F. W. May, of Thomas May & Co., wholesale millinery, and slightly damaged that of D. Morrice, jr., of D. Morrice, Sons & Co.

W. A. Murray & Co., Ltd., applies for an Ontario charter to carry on a departmental store in Toronto, capital \$600,000. The incorporators are J. Drynan, W. T. Murray, J. A. Murray, J. W. Drynan and G. W. Kennedy.

The officers of the dry goods section of the Montreal Board of Trade for the year are: President, E. B. Greenshields; vice-president, A. Racine; treasurer, Wm. Reid; directors, George Sumner, S. O. Shorey, F. May, and B. Tooke.

The merchant tailors of Buffalo, N.Y., are sending a delegation to Washington to ask a remedy for the competition to which they are now subjected by the Toronto tailors. It is claimed that visitors to Canada come home in new clothes, to the great loss of the United States tradesmen

A. Cohen, Chatham, Ont., clothing, who carried a stock estimated at \$35,000, failed recently. Some of the creditors are -- Vineburg and E. A. Small, Montreal; John Calder & Co., Hamilton; Burns & Lewis, London; Hudson Bay Clothing Co., Hamilton. Cohen doubled his store capacity, bought heavily at 30 days. After holding a clearing sale he left town

Geo. Thorpe & Co., woolen importers, 25 Melinda St., Toronto, who assigned a short time ago, estimate their liabilities at \$13,152; assets, \$7,115. The principal creditors are: Globe Woolen Mills, Montreal, \$2,012.60; Jas. Lockhart, Son & Co., Toronto, \$1,850.39; Granite Mills, St. Hyacinthe, \$1,392.98; Dalgleish, Patterson & Barrett, Campbellford, \$1,211.47; Albrecht & Albrecht, Leeds, Eng., \$1,162.20; Frank Muff & Sons, Leeds, Eng., \$1,105.31; Gault Bros. & Co., Montreal, \$860.43; W. J. Stethem & Co., Montreal, \$740.75; J. A. Tesky, Appleton, \$546.79; A. Bradshaw & Son, Toronto, \$559.60; Suckling & Co., Toronto, \$298.30; Wm. Clapperton & Co., Montreal, \$246.83; Montreal Cotton Co., Montreal, \$216.82; E. J. Joseph, Toronto, \$117.25.

PERSONAL.

Designer Johnson is now mill superintendent for the Cobourg, Ont., Woolen Company

Alex. Y. Gilmour, of J. Y. Gilmour & Co., wholesale dry goods, Montreal, died suddenly, December 29th.

Geo. Bond, employed in Aberdeen Woolen Mills, Lanark, Ont., fell from a step-ladder recently, in such a way as to receive severe internal injuries.

J. E. Boswell, secretary of the Cobourg Woolen Mfg. Co., recently accepted the position of book-keeper for the Paton Mfg. Co., Sherbrooke, Que.

On the occasion of his retirement, O. F. Lilly, who has been with the firm of D. Morrice, Son & Co., for twenty-five years, was presented on New Year's eve with a handsome reclining chair by the employees

Fred L. Carton, the popular commercial traveller, formerly with Burns & Murray, wholesale dry goods, Halifax, N.S., went on the road first of the year for W. & C. Silver, wholesale clothing and carpets, Halifax, N.S.

F. Brook, son of Joseph Brook, of the Brook Woolen Co., Ltd., Simcoe, Ont., who carries on a clothing business in that town as the Brook Clothing Co., was assaulted and seriously injured by a robber in his father's grounds recently.

James McGee, who for many years was weaver in the woolen mills at Weston, Ont., died of heart failure recently. Although he carried a watch, he could not tell the time, and although he had considerable money, he could not count it.—*Ex.*

Albert Randle, youngest son of James Randle, woolen manufacturer, Meaford, Ont., met with a painful accident in the woolen mill recently. He was working at the picking machine when his hand came in contact with the teeth of the cylinder, lacerating the ends of two of his fingers.

W. F. Lowe, superintendent carding department, Rosamond Woolen Co., Almonte, Ont., is a poultry fancier, with a number of successful exhibitions to look back on. At the Eastern Ontario Poultry Association exhibition held at Kingston during the holidays, Mr. Lowe took five prizes and one special prize on six exhibits.

G. F. Smith is retiring from the Toronto Dry Goods Import Company, 39 Front street, Toronto, on April 1st next, when this season's trade will be completed. Mr. Smith has been in the dry goods trade for 36 years; since 1875 in the wholesale trade in Toronto, and before that in retail trade in St. Mary's, Ont.

The Vassalboro Woolen Co., North Vassalboro, Maine, is prospering under the management of J. M. Masson, formerly manager of Hawthorne Woolen Co., Carleton Place. *The American Wool and Cotton Reporter* says that they have added to their plant 30 high speed looms, which addition proved insufficient to enable them to make satisfactory deliveries, and they have lately put in 20 more looms of the latest pattern. They will also add to their carding and spinning in the near future.

Robert H. Gray, formerly R. H. Gray & Co., manufacturers of overalls and ladies' underwear, Toronto, the retiring president of the Commercial Travellers' Association of Canada, was on New Year's morning the gratified recipient of a very handsome gold-headed cane, accompanied by a note from James Sargent, secretary of the association, begging Mr. Gray's acceptance of the cane as a slight acknowledgment of the thanks of himself and his assistants for the many acts of kindness and uniform courtesy shown by Mr. Gray during the time he filled the offices of treasurer, 1st vice-president, and president of the association

On a recent evening at stopping time for the day foree at the Richmond mill, Columbia, S.C., G. F. Freeman and Miss Nancy Gainer were married in the engine room by L. A. Hughes, notary public, while the engine moved on for the night force. Both the contracting parties were weavers. They went from their looms to the engine room, where the nuptial knot was tied, and then to their home.—*Exchange.*

Among the Mills

Co-operation is one of the guiding principles of industry to-day. It applies to newspapers as to everything else. Take a share in "The Canadian Journal of Fabrics" by contributing occasionally such items as may come to your knowledge, and receive as dividend an improved paper.

North Bay, Ont., has a new industry in the form of steam dye works.

Geo. Cook, carpet weaver, Hamilton Ont., had his premises damaged by fire last month.

Dovercourt Twine Mills Co., of Toronto, Ltd., will hold its annual meeting 19th January.

J. T. Huber & Co., shoddy manufacturers, Dover, Ont., will pay their creditors 2½ per cent.

Warren Bros., St Catharines, Ont., recently added three knitting machines for athletic goods.

Horn Bros., Lindsay, Ont., woolen mills, have added some new machinery to their plant recently.

The Berlin *Record* says a company has been formed in that town to manufacture a fibre interlining.

The Hawthorne woolen mills, Carleton Place, Ont., are running overtime this week to keep up with their orders.

The Canadian Colored Cotton Mills Co's mills, at Milltown, N.B., will close for a short time January 25th.

The Montreal offices of the Corticelli Silk Co were burnt out recently, and their new premises are on St. Nicholas street.

It is reported that the Consumers' Cordage Co., of Montreal, will be controlled by a syndicate of English capitalists in future.

The C. Turnbull Co Ltd., of Galt, Ont., have sent to their customers a very pretty calendar, showing two typical English rural scenes.

Ritchie & Ramsay, New Toronto, manufacturers of coated papers and cardboards, are adding a new invention in the sheet drying apparatus line to their plant.

Almonte, Ont., has strengthened its claim on the title of the manufacturing centre of Canada by adding a broom factory to the already extensive list of its industries.

The liabilities of Thomas Clerihue, glove manufacturer, Brockville, Ont., who failed recently, are \$35,000 and assets \$27,000. An offer of 30 cents on the dollar was made.

One of the valves in the boiler of the Canada Featherbone Company's factory, London, Ont., blew out recently, and the escaping steam scalded the engineer in charge seriously.

The Berlin, Ont *Record* says that George Rumpel, who recently purchased the Hanover Felt Boot Works, is removing the plant to Berlin, and will build an addition to his factory.

H. Osgood, glove manufacturer, of Preston, Ont., was fined by J. A. Mackie, J.P., at Berlin, recently, for selling his wares without taking out a transient trader's license. Mr. Osgood claims he is not amenable to the transient trader's by-law, being a manufacturer.

A fire broke out on the premises of the Canada Jute Company (Ltd), Montreal, December 22nd. More damage was done by water than by fire, and the paper, rollers and machinery suffered particularly in this respect. The warehouse, which is separated from the factory by a thick wall, fortunately escaped intact. The loss is in the neighborhood of \$5,000, but is entirely covered by insurance. Nearly 100 men and women will be thrown out of work for a time.

Josiah Hinton, an employe of the Paton Manufacturing Co., Sherbrooke, Que., who was injured in the elevator recently, has brought an action against the company for \$4,000 damages.

W. J. Matheson & Co., Ltd., have sent out to the trade a handsomely bound color card which shows dyed samples of cotton yarns in 20 colors and shades, which are dyed with the well-known dye stuffs of Leopold Cassella & Co., Frankfurt.

R. Howorth, manufacturer of woolen stock, cotton batting and upholsterer's goods, Merritton, Ont., has recently begun the manufacture of ingrain carpets, and has four looms at work. Mr. Howorth is arranging to place his goods on the market in Toronto and Montreal.

William Oxley, manager of the Oxford Woolen Mill, was in town on New Year's day. We are informed that he has purchased a number of looms and other machinery from the Yarmouth Woolen Mill Co., which will be shipped from here next week — *Yarmouth, N.S., Herald*.

The Court of Review, in *Bergeron v. Tooke*, sustains the judgment of lower court giving damages of \$1,000 against R. J. Tooke for injuries caused to the female defendant, whose hair became entangled in a machine, which was not in the opinion of the court sufficiently protected.

At a meeting of the Mount Forest Woolen Co., W. A. Fraser was elected president, A. Filshie, vice-president, and V. E. Tanner, secretary. The directors are: W. A. Fraser, Mount Forest; Geo. Watson, Swinton Park; Chas. McInnes, Yeovil; D. K. McArthur, Hopeville; A. Filshie, Mount Forest; J. Allen, Varney.

The business of M. Harding & Son, manufacturers of shoddy, Simcoe, Ont., is still carried on by that firm. The item in our December issue, stating that Mr. Harding's oldest son had taken a position in Waterloo, Ont., was incorrect, as he continues to manage the Simcoe establishment for the firm of which he is a member.

A. W. Brodie, Hespeler, Ont., after giving the Barker rub a severe trial, has placed an order for an equipment for six sets, with a specially curved frame; also an order for drum winders from Lever & Grundy, Lehigh and Mascher street, and for doffer combs from James Barker, Second and Somerset streets, Philadelphia — *Textile Manufacturers' Journal, New York*.

James Prior, for many years manager of the old Lybster cotton mill, Merritton, Ont., has been very successful in the manufacture of hair cloth, having now 20 looms in operation at the "Stag" Dominion Hair Cloth Works, St Catharines, Ont. Mr. Prior reports that sample orders have recently come from Holland, which is a compliment to a Canadian industry.

Tenders will be received till noon on the 23rd January by James Smart, Brockville, assignee of the estate of Thomas Clearihue, for the sale of stock of gloves, mitts, moccasins, etc., as per inventory, in two parcels. Parcel No. 1, \$7,203.58, parcel No. 2, \$1,825.74. No. 1 may be inspected at Brockville. No. 2 is at the warehouse of J. McLeod Holliday, Winnipeg.

Sealed tenders, endorsed "Tender for Twine," and addressed "Inspector of Penitentiaries, Ottawa," will be received until January 20th, for the prospective output of the twine factory at Kingston Penitentiary for the coming season. The lot will contain approximately 60 tons "Maple Leaf," 270 tons "Beaver," and 170 tons "Pure Sisal," which will be delivered 100 bales, Kingston, in quantities to suit the purchaser. The warehouse to be cleared of all twine on the 1st of August next, at which date the contract will terminate. Terms cash on delivery. The quality can be ascertained by inspection at the Penitentiary warehouse. The tenders should state the price per pound for each grade.

Wool Washers || **KITSON** - - -
Dryers and Carbonizers || **MACHINE CO.**
LOWELL, MASS.

Two Crompton looms are now being put in the Etherington carpet factory at St Catharines, Ont. Six of the power looms in this factory are now driven by electricity, it being the first carpet factory in America to be so operated. It is a 14-horse-power motor and is capable of running 16 carpet looms. Mr Etherington says it is more economical and efficient than any power he has yet used.

Replying to the deputation which appeared on behalf of the binder-twine manufacturers, to appeal against the continuance of the prison factories, the Hon A S. Hardy said. "That the Government felt keenly the representations of the recent delegations to the effect that the continuance of the industry in the Central Prison might affect the workingman in those other localities where the industry is carried on."

The Sheep Breeders' Association met in Guelph, December 9th. The election of officers resulted as follows: President, James Tolton, vice-president, D. G. Hanna, Burford, secretary-treasurer, F. W. Hodson, Guelph. Directors for the various breeds: Cotswolds, J. C. Snell, Snelgrove, Leicesters, Alex. Smith, Maple Lodge, Southdowns, John Jackson, Abingdon; Shropshires, R. Gibson, Delaware; Oxfords, Henry Arkell, of Arkell; Hampshires, John Kelly, Shakespeare, Lincolns, John Gibson, Denfield, Dorsets, R. H. Harding, Thorndale, Merinos, W. M. Smith, Fairfield Plains, general director, John I. Hobson, Mosboro. Auditors, G. E. Day, O. A. College, Andrew Whitelaw, Guelph.

CHEMICALS AND DYESTUFFS.

There is little or no business to report. The New Year opens very quietly. Prices in all lines are steady and without change. The following are current quotations in Montreal —

Bleaching powder.....	\$ 2 00	to \$ 2 10
Bicarb soda	2 35	" 2 50
Sul soda	0 75	" 0 85

Carbolic acid, 1 lb. bottles	\$0 27	to \$0 30
Caustic soda, 60°	1 80	" 1 90
Caustic soda, 70°	2 25	" 2 35
Chlorate of potash.....	0 13	" 0 18
Alum	1 35	" 1 50
Copperas	0 70	" 7 50
Sulphur flour	1 75	" 2 00
Sulphur roll	1 75	" 2 00
Sulphate of copper.....	4 75	" 5 50
White sugar of lead	0 07	" 0 08
Bich. potash	0 10	" 0 11
Sumac, Sicily, per ton	60 00	" 65 00
Soda ash, 48° to 58°	1 25	" 1 50
Chip logwood	2 00	" 2 10
Castor oil.....	0 09	" 0 10
Cocanut oil	0 06½	" 0 07

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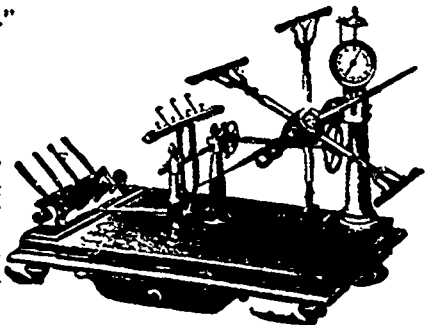
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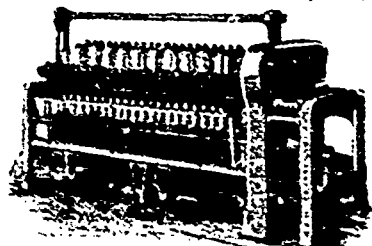
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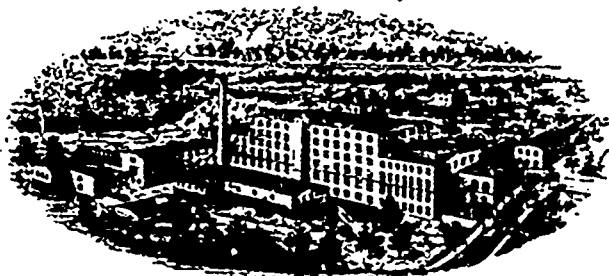
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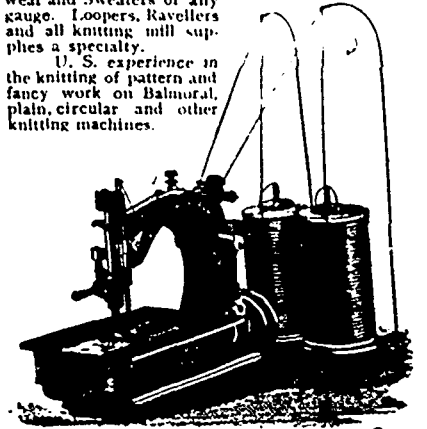
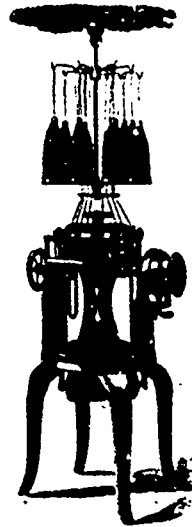
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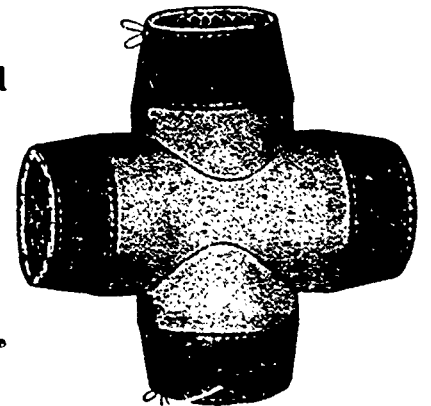
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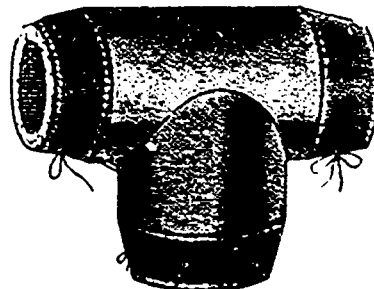
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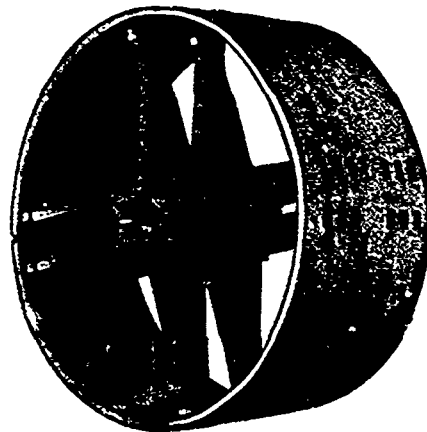
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SPEAKING of life in the Canadian backwoods, in 1841, a writer in the *Toronto Globe* gives this picture of the skill in textile arts acquired in those days by the settlers. "He had become a skillful backwoodsman, while Mrs. Ritchie had learned to make maple sugar, to spin yarn for all the clothes of the household, both fulled cloth and flannel. She became also an expert at blending colors, using the bark of various trees for dyes. In fact, she did every bit of work on the wool, from the time it left the sheep's back until it shielded the backwoodsman from the blasts of a Canadian winter." To-day such experiences are never met with.

McMASTER & COMPANY.

Everyone interested in the dry goods trade has heard with regret of the suspension of the well-known firm of McMaster & Co., wholesale dry goods, Toronto. The firm is a very old one, and was founded by Hon. William McMaster nearly sixty years ago, being known as Wm. McMaster & Nephews. About 1864 Hon. Wm. McMaster gave up active connection with the warehouse, and the firm became A. R. McMaster & Brother, the brother being W. F. McMaster. In 1881 Arthur McMaster died, leaving W. F., J. S., and S. F. McMaster to carry on the business, until the captain left it in 1885. About this time the wholesale woolen business of Henry W. Darling & Co was amalgamated, the house becoming McMaster, Darling & Co., the partners being James Short McMaster and Henry W. Darling. After the lapse of some four years Mr. Darling re-

tired, and John Muldrew was made a partner, the style becoming McMaster & Co. At this period Mr McMaster came out from London, England, where he had long lived, representing the house of McMaster & Nephews and its successors, to reside in Toronto and control the business. The last change in the constitution of the firm occurred in February, 1895, when Mr Muldrew withdrew from the firm, leaving J. S. McMaster the sole partner.

When the firm announced that the business had been placed in the hands of E. R. C. Clarkson for liquidation, they estimated their position thus.

Assets:—Stock-in-trade	\$200,000
Receivables	70,000
Equity in warehouse	62,500
Sundries	12,500
	<hr/>
Direct liabilities	\$345,000
	215,000
	<hr/>
Nominal surplus	\$130,000

Among the Canadian firms said to be interested, a few are the Canadian Colored Cotton Mills Co., the Dominion Cotton Mills Co., the Merchants' Cotton Co., the Yarmouth Duck and Yarn Co., the Penman Mfg. Co., Paris; Wm Parks & Son, Ltd., St. John, N.B.; the Rosamond Woolen Co., Jas. H. Wylie, the Cornwall Mfg. Co., S. Leonard & Sons, and the Auburn Woolen Mills

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THE first edition of the **Canadian Textile Directory** was published in 1885, and made a work of 318 pages. It has since grown till it has made a volume of 486 pages, and the coming edition will probably be larger still. Some new features will now be added, and every pains will be taken to make it comprehensive and correct.

Taking it all round, there is no work published containing the amount and variety of information on the textile and allied trades that will be found in the **Canadian Textile Directory**; and the number of copies ordered from abroad for purposes of reference is continually increasing, the last edition having been exhausted some time since by such calls.

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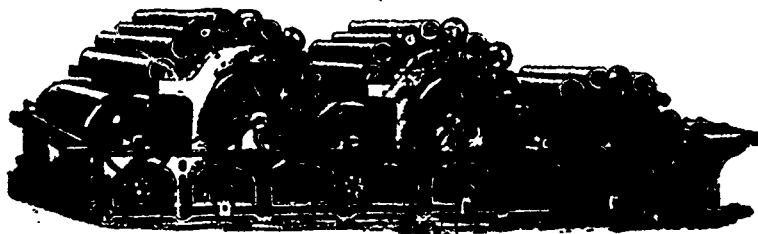
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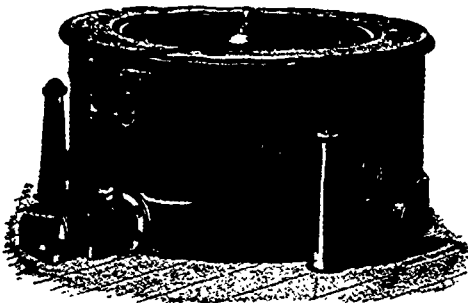
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THE WOOL MARKET.

TORONTO.—Nothing is doing in fleece wools; it would appear that the season's clip was all off the market. Prices are nominal at 22 to 24c. The mills have been very little in the market since January 1st, and trade is very quiet. We quote. Supers, 21 to 21½c.; extras, 22 to 23c.

MONTREAL.—Sales at this season of the year are generally very light, but prices remain firm at former quotations, viz.: Cape greasy, 14 to 16c.; scoured Capes, 34 to 36c.; B. A. pulled, from 26½ to 35c. The London wool sales, 1st series, open on 19th inst.

THE GLOBE WOOLEN MILLS.

The price cutting which has brought the wholesale dry goods trade of Ontario to a standstill, is already claiming its victims among the manufacturers, and the Globe Woolen Mills have been forced to suspend. The *Trade Bulletin* says that the mills have been "taking orders right and left at prices which in many instances were below cost and in others barely covered cost. No one could expect business to prosper under such cut-throat practices, and there is little or no sympathy expressed for the concern among the trade, as it was known to be carrying on business upon a basis that could not possibly last." It is said that there is a deficit of \$75,000. In order to pay 50c. on the dollar (which is offered) the directors will forego their claim to a previous loan of \$50,000, independently of their shares. The offer of 50c. has not been accepted by all creditors up to the present. If it be not accepted the directors will of course put in full claims.

A correspondent writes that the Globe Mills have been the scene of misfortunes, which were certainly not due to good management, from their first establishment. These mills were not located on the river, as they should have been in order to secure a cheap water supply, and a great deal of money was spent in trying for an artesian well. On another occasion an extension was begun and had to be pulled down because it was over the street line, etc.

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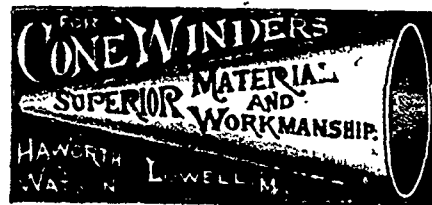
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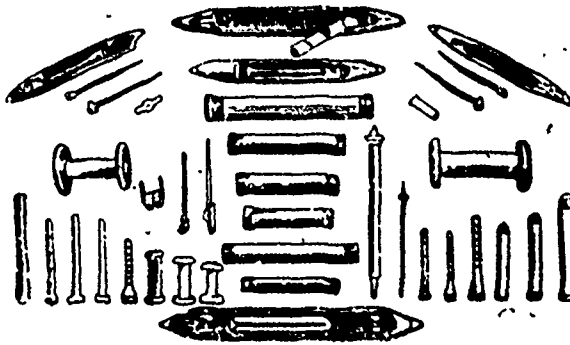
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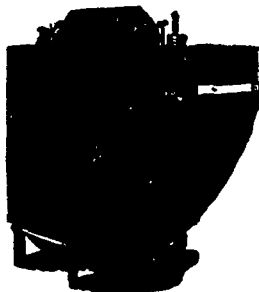
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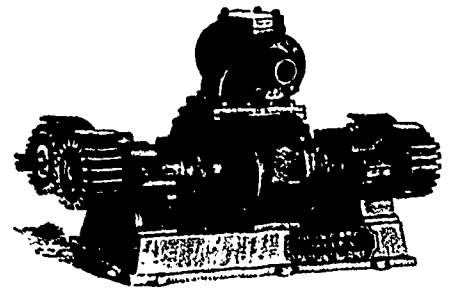
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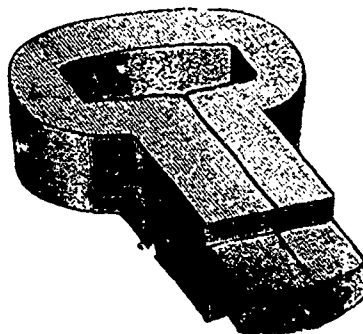
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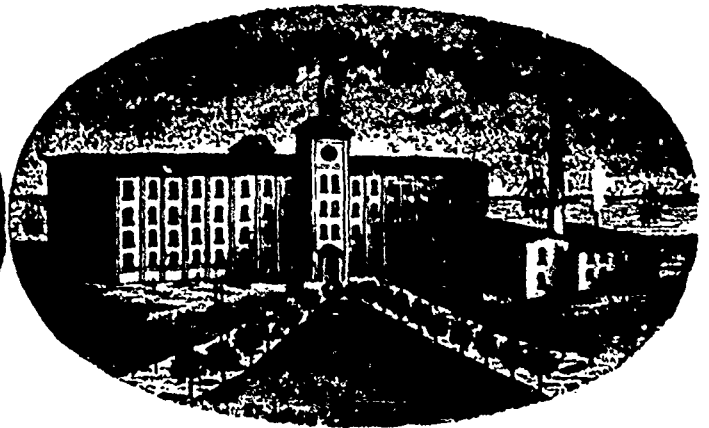
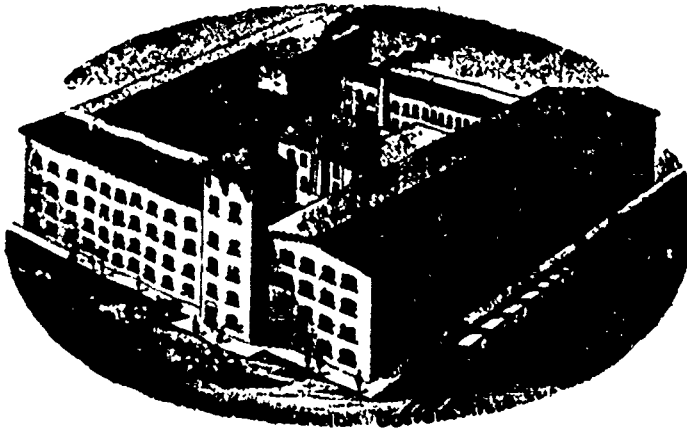


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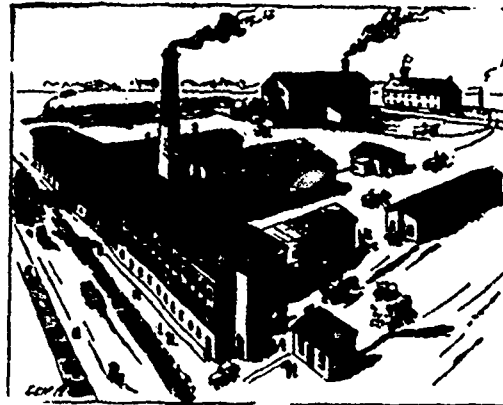
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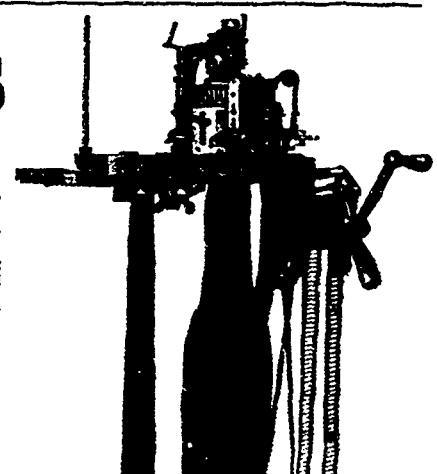
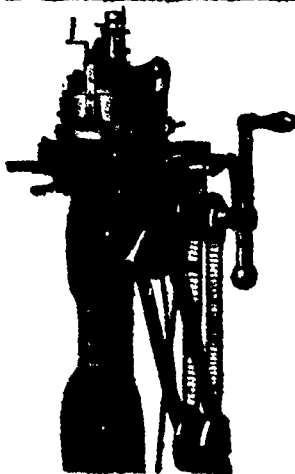
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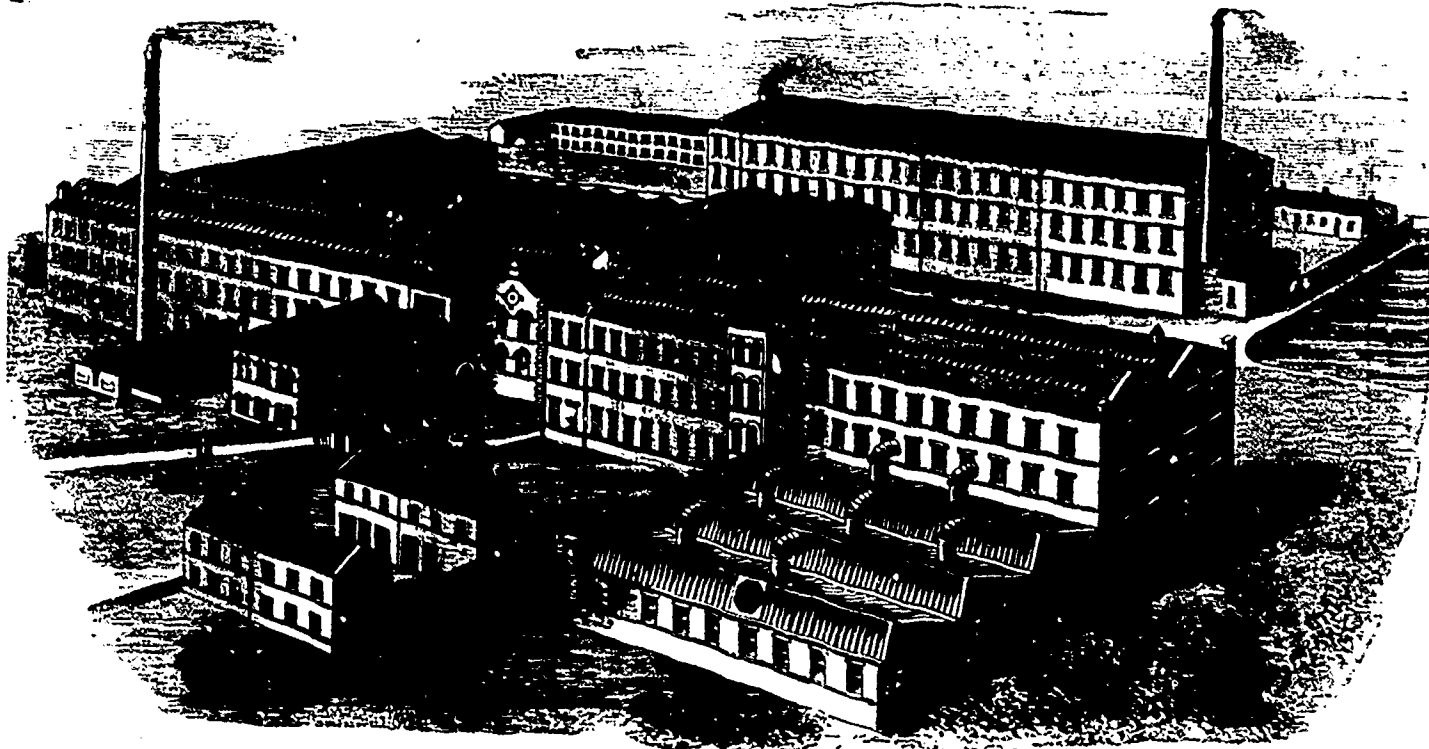
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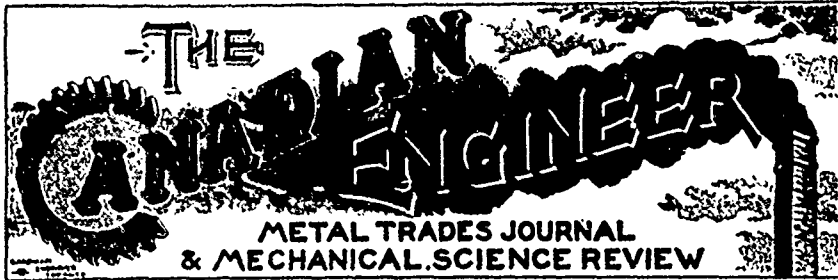
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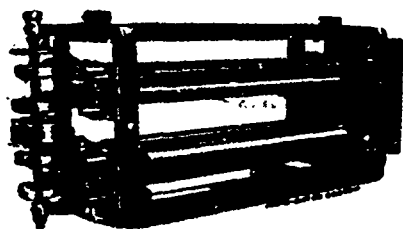
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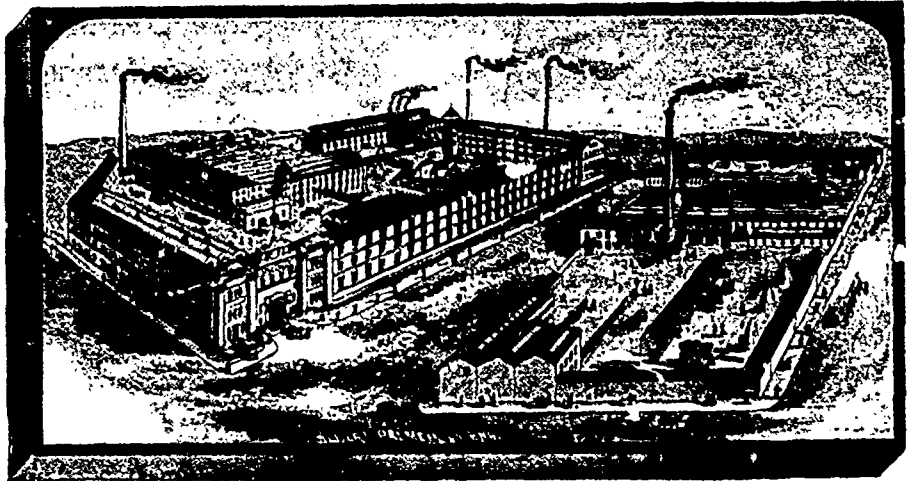
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