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A Monthly Journal of the Textile Industries

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THE SPRING 1911 SEASON.

As the opening of the Spring 1911 season goes slowly on, the question becomes all the more complex as to whether woolens will hold the position they gained or will give way to worsteds.

Both factions are working, as it might be said, in the dark, as far as the trend of the market is concerned, but it is noticed that the worsted faction has withheld their prices until after the woolens open. This condition opens a question of doubt as to what the outcome will be as it has been many years since woolens were allowed the distinction of establishing the price precedent.

In sizing up the situation of the market, a mill agent remarked that buyers are going to get the biggest surprise of their lives. The general impression seems to be that prices will be reduced, but when they come to realize the situation they will find prices higher than they expected. From present indications it appears that cotton worsteds will be higher than last year, woolen goods will be about the same, while worsteds will probably be from five to ten per cent lower, whereas buyers expect them to be about 25 per cent lower.

As is usually the case, mills who have very little to do and are anxious to run looms will compel the business at prices far below values which will cause an irregular attitude among the trade.

Barring such conditions, it is thought the beginning of the season will be as favorable to the buyer as any other time and that the bottom of the market will be reached this season. Raw materials are in a position

that will make advantageous prices possible in the early opening days. The prices of materials may be expected to advance a little later on. These conditions, it is thought, with the depleted condition of the market, will tend to strengthen the opening of the various lines.

A REVIEW OF THE MEN'S WEAR TRADE.

There is very little of interest throughout the line, the markets have been featureless and what buying was done was in spots, everyone seeming to be interested in the same subject: the probable trend of values for the Spring 1911 Season.

Curtailment seems to be in order throughout the worsted division, and it is said that there is a large amount of worsted materials in Summer weights being offered by the leading manufacturers at extremely interesting values with extraordinary selling terms.

Stock goods have felt the influence of lowering prices and it is thought that this may be a reflection on what is to be expected when prices are issued for the Spring 1911 worsteds, which it is presumed, will put the worsted industry on a basis that will look very attractive when compared with the prices for the past Spring 1910 delivery.

Heavy weights have been rather sluggish, although some orders have been booked, but the volume is nothing near normal. Considerable attention is given to the fact that indications point to the beginning of this long delayed activity, along towards the latter part of this month.

The worsted trade is finding great consolation in the fact that a great amount of woolen goods are coming back as unsatisfactory, and look upon it as a turning point toward renewed favor for worsteds in the Spring.

In making their reports for the past season, some mill agents of the worsted section are complimenting themselves on equaling last year's business. This however does not signify anything, as it will be remembered that the season in question was not very profitable, there having been many agencies at work which retarded the buying of men's wear to a marked degree.

At the same time, some factors whose sales per piece numbered about the same as last year, consider it quite an achievement; but when the yardage is taken into consideration, it is apparent that the sales were below last year, as the buying was mostly on woolens, each piece containing less yards than a piece of worsted.

Among the better grades of woolens, considerable business is being lost on account of not having the colors most in demand, the shortage being most apparent in blues, browns and blacks, and to quote a prominent factor: buying is only being done on that which has already proved a ready sale.

Serges, are having considerable attention, a general opening on this class of goods being expected about the first week in July.

A REVIEW OF THE DRESS GOODS TRADE.

There is throughout the trade an absolute lack of any indication which might be a guide for the coming season, and the condition is such that the larger factors, who usually place the majority of their line before the season is advanced, are no better off than their smaller competitors. What the ultimate outcome will be is a question.

The best authorities have concluded on broadcloth and cheviot effects, and to anything further it seems that minds of buyers are very perplexed over the diversity of fabrics shown this season. Due to these conditions, it appears that the ultimate outcome will be quite similar to the last fall season.

Considerable demand is being shown on serges, fancy lustre goods, panamas and voiles.

Extensive inquiry is manifested for the latter fabrics, made of yarn which produce a wiry finish, of which there appears to be very little on hand.

Among serges, creams in the cheaper all wool qualities are most in demand.

Plaid blacks are having quite a run and they bid fair to assume marked proportions, but it is not unusual for the demand to come and go in one season.

A REVIEW OF THE SILK TRADE.

Throughout the silk trade there seems to be a sort of quandary among the mills as to whether the fancies which seem to have the demand will continue.

It is a self evident fact that while large orders have been placed for this class of goods only, a few of the mills are able to handle the same to advantage, and selling agents look upon the present condition as entirely out of question.

On satin faced goods considerable business is being booked in a quiet way, a few instances being known where orders were sufficient to place quite a number of looms under engagement for several months to come, and the mills look forward to a general awakening to the demand for this line in a short time.

Those mills which are making warp prints, plaids and crepés are being favored with an abundance of business for autumn deliveries. One of the largest mills claims that the total advance orders on warp prints and plaids were far in excess of anything registered in five years or more, and that their greatest trouble rested in keeping the designs and color combinations out of their competitors hands, who were showing a strong inclination to copy their styles. As a safeguard the patterns have in many instances been withdrawn from further sale.

Shantungs are popular, which is undoubtedly due to the fact that they are unweighted and wear better than the weighted goods.

Plain piece dyes seem to be looking up again and jobbers are showing a steady interest.

Black taffetas are in demand in quantities and are finding great use for costume purposes.

Throughout the ribbon trade a general change is apparent, the figured goods giving way to the plain.

Throughout the tie silk trade it is seen that the general indication leans towards the return of the silk tie to favor, and it is thought that striped and figured goods will be more in demand than plain goods.

A very peculiar condition of affairs has lately presented itself in the silk industry, which silk men claim is without a precedent.

The problem is the hardest that the mills have had to solve in many years. In order to keep their looms employed, the proposition is put to the mills to lay out the work for the looms for the next three or four months, they to assume entire responsibility, design and produce fabrics along their own ideas which must possess selling quality; if they are not salable, the mill to be the loser.

This has been quite a shock to a number of mills

who heretofore were used to laying out the work once, and then going ahead, but under these conditions it appears that they will always be laying out something new and taxed to their utmost ability.

From what can be learned, it is presumed that these circumstances were caused by the absence of duplicate orders, the vague demand except for fancies, and the inability of sales managers to select fabrics which would be salable; to get over the difficulty they threw the whole thing in the mills.

It remains to be seen what the outcome of such methods will be, but it seems to be a sure thing that the operations will be along mighty conservative lines until later in the season.

A REVIEW OF THE HOSIERY AND UNDERWEAR TRADE.

Throughout the hosiery trade a somewhat better feeling is shown. Among the staple lines considerable inquiry is being made by those who have been in the habit of giving foreign goods the preference, but operations generally are conservative.

A very satisfactory business has been done in light weight fancy hose of domestic manufacture, although the orders generally have been for small lots, and for immediate delivery.

In some circles it is said that mills have been offered the 65c. basis of last year for one pound eight goods, but have declined the business, naming 70c as the lowest figure.

The volume of business that has been booked for fall trade is not of such proportion as had been anticipated, but the largest houses are looking forward to a general return of buying in a month or so, and until that time are advising their mills to accumulate no stock, but to run on orders only.

A general exodus of foreign buyers has occurred. They claimed that they do not expect to find any very high prices on the German markets, their contention being that the mills there must have the business at any price. In England, the hosiery trade is said to be showing improvement.

Taken as a whole, the general appearances are that as soon as the new cotton crop is in, and the consumer realizes that hosiery must naturally advance in proportion with other necessities, the hosiery trade will again resume its normal attitude.

With the knit goods trade, the early spring 1911. season has opened and the mills seem to be certain of getting their normal amount of business.

A majority of the cheaper lines opened at an advance of about 5 per cent, in one instance a line retailing at 25c was offered at \$1.75 per dozen, the same line having been sold at \$1.67½ last year.

Among the better grades of ladies' fancy ribbed goods, bleached and lace trimmed, and made in many varieties of stitching and pattern effects, there has been great rivalry, as to producing novelties in these fine yarn garments. Due to this fact it is evident that the season will show the widest range of garments ever offered in quantities, by the domestic mills.

From present indications it seems that there will be nothing startling at the beginning of the season. This is attributed to hesitancy of jobbers who balk at the necessary relatively high prices, indirectly due to the cost of material and labor, and they claim that until they can see a desire on the part of the retailer and consumer to purchase at prevailing prices, they will remain inactive.

Some factors concluded that they would start the season going by dropping a few points in the prices, but this did not have the desired result, and it has come to be a conclusive fact that the desire for spring goods, at this time, is rather retarded and that the safest thing to do is to wait a couple of weeks, when they will be glad to get the goods.

Coming back to the subject of prices, it is very apparent that buyers will have to pay a much higher price if they insist on having the quality of merchandise offered in other years; this is especially true of goods made from Egyptian yarn.

The situation is best explained by the way in which a manufacturer showed that if he must use combed Egyptian yarn, as he has in past years, his line will have to bring \$4.12½ instead of \$3.50 as before.

A very singular thing was noticed in a line of ladies' union suits. They opened at the same price as last year \$3.50 a dozen and to the inexperienced eye the general trimming and construction were identical with other years, but upon closer investigation the laces were found to be domestic, and some minor points were different, but yet allowed the line to get through at the old price. One thing, a majority of the mills who are making goods to meet the prices are doing, is, not pretending that they are the same goods as offered previous years, but are designed to resemble them and fit the price buyers want to pay for goods.

Other mills, instead of running the chances of casting a shadow on the reputation of their staple lines, by putting out inferior goods, are eliminating the same and devoting their attention to those lines where price is no consideration.

From the buyers standpoint it is said that a firmer attitude on the part of agents and mills as to prices would be welcomed; as it is to-day they can not get themselves together, for fear of a lower price on the same line after they place their order. A general realization of these conditions will go far to put the season on a paying basis.

AMERICAN ASSOCIATION OF WOOLEN AND WORSTED MANUFACTURERS.

The fourth semi-annual meeting of the Association was held in the Waldorf-Astoria, New York, May 18th. The attendance was rather encouraging for a mid-year meeting, there being about 80 members present.

The sessions were opened by the president of the association, Frederic S. Clark, of the Talbot Mills, and interesting discussions followed, which were of vital interest to those present, whether engaged in the manufacture of cloth or its distribution.

Some interesting points of discussion were: Advisability of obtaining signed orders from customers and mills alike; the difference in width of worsteds and woolens, etc.

The closing session of the meeting was devoted to reading papers on the following subjects: Modern Methods of Sponging, by M. D. Barnes; Maximum Production and Reduced Costs, by Charles R. Stevenson; Decatizing Machines and their Uses, by R. M. MacIntosh, and an extremely interesting paper on Finishing, by J. A. Kerlé, of the Firth and Foster Co., Philadelphia.

NATIONAL ASSOCIATION WOOLEN AND WORSTED OVERSEERS.

The annual meeting of the Association was held at

Fields Point, R. I., on Saturday, May 21st. There was a large attendance and a number of new members were accepted. A dinner was served at 1 o'clock and the following officers were elected for the year 1910-11: Frank P. Gallagher, president; Louis Allison, vice-president; Walter Pickford, secretary; and Thomas Buchanan, treasurer.

WASHINGTON, JUNE 4.—Cotton acreage for this year indicates that about one million more acres are under cultivation this fall than were last. This is the statement of the department of agriculture on the cotton crop of 1910.

The statement says: "It is conclusive that the area planted to cotton this year in the United States, including that already planted and expected to be planted, is about 102 per cent of the area planted to cotton last year, equivalent to about 33,196,000 acres, as compared with 32,292,000 for last year.

"The condition of the growing crop on May 25 was 82 per cent of normal condition, as compared with 81 per cent at the corresponding date in 1909 and 80 per cent, the average condition for the past ten years.

"Texas has the greatest cotton acreage. This year there are 10,504,000 acres planted in the Lone Star state, 4,811,000 for Georgia; 3,312,000 for Mississippi; 2,601,000 for South Carolina; 2,446,000 for Arkansas; 2,128,000 for Oklahoma and 1,477,000 for North Carolina.

COTTON SPINNING.

The Ring Frame.

(Continued from page 67.)

Banding.—Spindles generally run right-handed, or clockwise, and are driven from cylinders by bands, which should be put on with a pull of about three lbs. This is theoretical, as the pull cannot be gauged exactly unless some form of scale is used, but a man in charge of a spinning room soon learns to know when the band is of just the right degree of tightness. It should just be tight enough to run the spindle without slipping excessively. If too tight, power is lost; and if too loose, bad yarn is made, besides production is lost. It is best to err on the tight side, even though it takes more power. Usually about 100 spindles are allowed per horse-power, or 2 H. P. per frame of 208 spindles.

The bands are put around the tin cylinder and the whirl of spindle, drawn tight and tied. In the style of band called the loop-band, one end of the band is in the form of a loop, where it has been doubled over itself to make it two-ply, the two free ends are slipped through this loop and tied.

Banding a spinning frame is a most important feature. Experiment has shown the degree of tightness in spinning bands has more influence on consumption of power than has any other one factor. Slack bands tend to make soft yarn and soft bobbins. Tight bands absorb power unnecessarily. When it is considered that a band has to pass around a whirl $\frac{3}{4}$ " in diameter from 7,000 to 10,000 times a minute, it is evident that bands must be well made and of suitable material, so that they will not become slack after running a short time, and that the knots must be made care-

fully so as to present the least obstruction in passing round the whirl of the spindle, to prevent a jerking or jumping motion being given to the spindle bobbin.

As new bands will stretch after use, it is well to apply them tighter than they are intended to run. A new band should pull perhaps three to four pounds; after running a short time, it should pull about two or three pounds. Bands are very treacherous, as their tension depends on freshness, moisture, and amount of oil absorbed. A new band, if put on at a high tension, proceeds to slacken materially, and then by absorption of oil and moisture, usually tightens and grows hard and wiry. Bands frequently break, besides they undergo surprising changes in tension; they need attention especially

instead of on it. This should be corrected at once, because that part of the spindle is smaller than the whirl, hence if the banding drives from there, it will give more twist in the yarn, and the extra twist may be the cause of the filling kinking at the loom.

Spindle banding should receive careful attention and be made from good strong staple cotton, roving or yarn, not from waste or tangled yarn as is sometimes done. The twist should be so adjusted that when bands are completed, a fairly soft band or one that will not stretch very much will be produced, since if it is twisted too hard, it will have to be put on very tight, or else it will soon get loose and make slack twisted yarn. The size of bands should be governed by work required of them. Bands should be marked

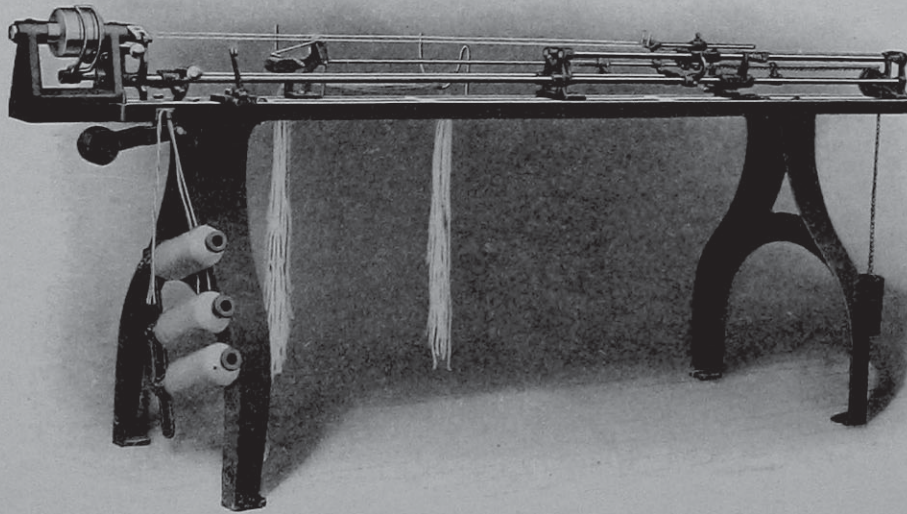


FIG. 280

after several days of very damp weather, which draws them tight, and when they dry out many are too slack.

Careful attention must be given to slack bands, since they are the cause of soft wound bobbins, an eye sore to any weaver, and waste to the mill. Either replace such bands at once or repair them. While it will not do to have slack bands, the method of prevention by tying them over-tight is decidedly wrong, as the power consumed is enormously increased by over-tight bands and the spindles are more rapidly worn. To avoid the possibility of bands being tied too tight, some mills use very light bands, 230 to the pound, which cannot be tied tightly without breaking. If a tension of two pounds will not run the spindle freely, it shows that it has been fitted too tight or is in need of oiling, as actually a tension of one pound should be sufficient to run it.

Bands are put on with the frame either when running or when stopped, of course, they can be applied better with the frame stopped, but this means a loss of time from stopping the frame.

It sometimes happens that the bands are carelessly put on so that they run above the whirl of the spindle

at the point where knot is to be tied. Care should be exercised in having the mark placed so as to give proper tension when band is on the frame. Bands made of roving or very soft twisted yarn are usually preferred to bands made of common yarn, as they have fewer strands and less stretch; but whether yarn or roving is used, it is poor policy to think that any waste material is good enough for bands, since the saving in cost of material is lost in poor work long before the band is worn out. Never lose sight of the most important feature of a good band, that it will not stretch.

Experiments have been made with mercerized cotton yarn for use in making bands, on the theory that the stretch was already taken out of the material by its previous treatment, and that consequently the bands would give less trouble from stretching from use. Experiments have also been made in the way of treating bands with different compounds to make them more durable and uniform in wearing qualities. Nothing definite on this subject, however, has yet been made public, these theories are referred to here to suggest further experiments on the part of those interested.

BANDING MACHINES.—Bands are customarily made on banding machines which stop automatically when a certain length of band has been made, and a certain amount of twist put in, so that uniform bands are obtained. Several types of banding machines are on the market, the best being the Rhoades Banding Machine, as built by the Draper Co., and which has attached to it the Watter's Marker, for automatically marking the desired length of bands. This machine supersedes their older type, the Weeks' banding machine. The Rhoades Banding Machine, and of which an illustration is given in Fig. 280, is semi-automatic in action, changing from twisting to doubling, and stopping itself when the band is done. It can be set so as to get any desired amount of twist, making either a hard or soft band, the twist always being uniform. Its simplicity of construction and operation will recommend it to all. This machine is usually run by a boy, and its capacity is only limited by the individual skill and quickness of the operative. 1500 bands a day is by no means a maximum, the machine usually running at a speed of about 2000 revolutions. The Rhoades banding machine, as mentioned before, is fitted with the Watter's marking attachment, which is arranged to automatically make a mark on the band at a definite length, for the purpose of showing the band boy where the knot should be tied. By this means, an even tension can be had on all spindles, within very fine limits. The attachment is very simple and automatic, and furnishes a cheap method of accomplishing a long

(To be continued)

Yarn Testing.

For testing of yarns, one of the most necessary

is directed to one which is being introduced by A. Suter, the prominent Textile Engineer, 487 Broadway, New York.

The reel, as shown in the illustration, is very durably constructed and for the purpose of winding from cops, seven upright spindles are provided, the width of the reel being sufficient to wind seven skeins. For winding from spools or cheeses, four additional spindles are provided.

Another feature of this reel is the tension device for regulating the amount of tension on the yarn according to the strength and size.

The movement of the reel is very easy and rapid and by means of a multiplying gear, to which the handle is attached, it is given two complete revolutions to one turn of the handle, eliminating any sudden jerk or variation of tension on the yarn.

For determining the length of the hank reeled, a registering dial works in conjunction with the reel; for every 120 yards wound on the reel, the signal is given by the tap of the bell.

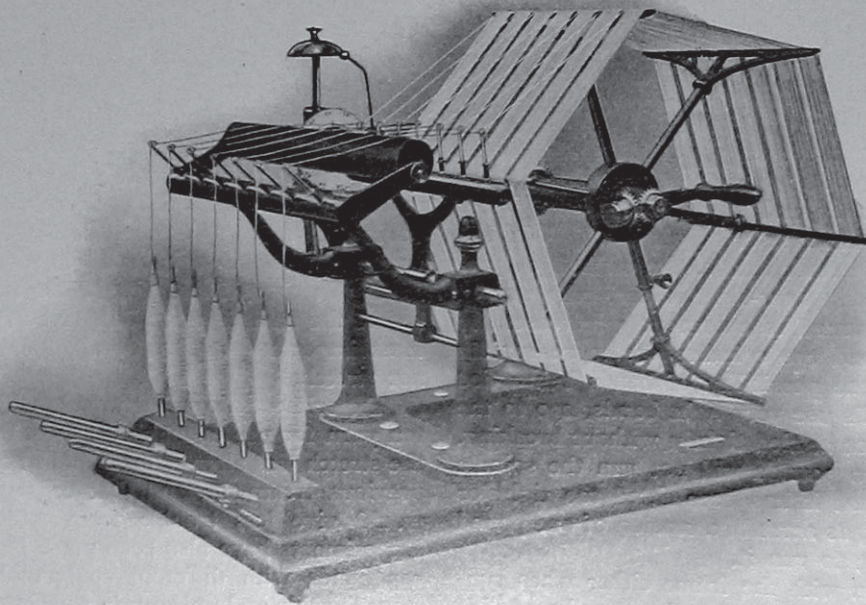
This is but one of the high class instruments carried by Mr. Suter, who is one of the progressive textile engineers of the day and who is also an Importer of European Spun Silk and Cotton Yarn for weaving and knitting purposes.

DYEING COTTON CHAINS.

(Continued from page 98.)

Chain-Yarn Tension Device.

In connection with Long Chain Quilling Machines, as described in the April issue, and Beaming Machines described in the February issue, the proper tension on the chain yarn during the process of winding, beaming or quilling, involves quite a different problem from that of handling single ends, because these chains are composed of a large number of ends of yarn. In machines of this kind it has been customary



accessories is the yarn reel. There are quite a number on the market, but special attention at this time

to provide one of the drums for receiving the yarn with a constant or rigid tension in the form of a

brake, which always holds back and does not give or take or yield with the yarn, if one or more ends break, or if the chain of yarn catches and cannot take up the slack. In such a case, therefore, some damage to the yarn is liable to be done before the machine can be stopped.

To overcome this trouble, Mr. David Lowe, Superintendent of the Parkhill Manufacturing Co., Fitchburg, Mass., lately designed a device of sufficient interest to be referred to.

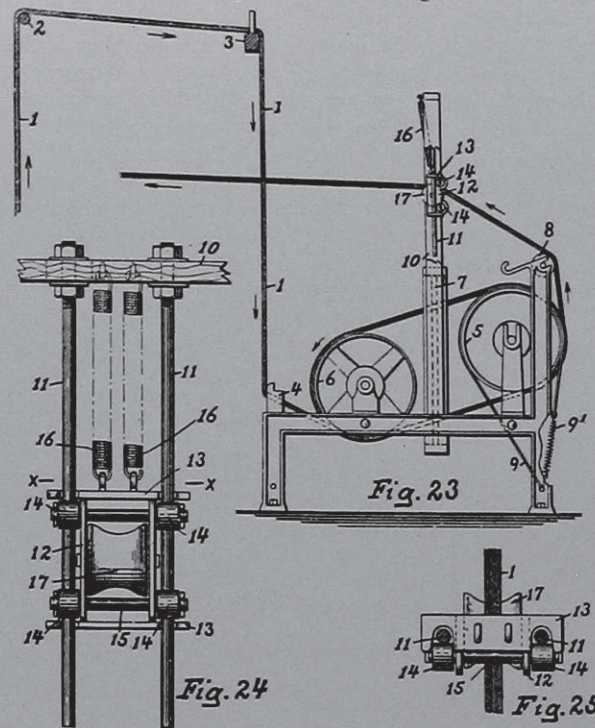
The principal objects of the new device are a construction adapted to meet individual needs and varying conditions; and that will be suitable for use to keep a chain of warp or filling yarn of any kind taut yet with a yielding pressure and an even tension at all times, so that in case of catching or breakage, the tension device will give way or draw back and take up the slack so that the operator can get a chance to stop the machine before any damage is done, with the result that many break outs will be prevented, production increased, and poor or weak yarn made to run better.

In order to be able to more clearly explain this new device to the reader, diagrams Figs. 23, 24 and 25 have been prepared, and of which Fig. 23 is a side elevation, showing a pair of ordinary drums for receiving a chain of yarn, showing also the application of the new device thereto. Fig. 24 is an end view showing this chain yarn tension device on an enlarged scale compared to Fig. 23. Fig. 25 is a sectional view on the line *x-x* of Fig. 24.

The chain of yarn 1 (see Fig. 23) is shown as passing over guides 2 and 3, through stationary guide 4 mounted on the frame of the machine. From the latter, the chain of yarn passes to a pair of drums 5 and 6, around which it is wound one or more times between guide rods 7, and from which it is delivered to a guide roller 8. Drums 5 and 6 and roller 8 are mounted on the frame of the machine, in fixed bearings. Extending around the drum 5 is a brake band 9 attached to a fixed point on the frame and having a spring 9' for giving a tension to the band so that it acts as a brake and tension device to resist rotation of that roller in one direction.

Fixed to the frame of the machine is also support 10 which projects between the drums 5 and 6 and extends a considerable distance beyond them. This support is provided with guide rods 11 parallel with the support and extending back toward the frame. On these guides is mounted carriage 12 having a pair of plates 13 at opposite ends, each projecting out over the rods 11 and having notches for receiving them. The carriage is also provided with rollers 14, which bear on the rods and are mounted on axles 15 carried by the frame. One or more springs 16 are also provided, and which connect with the other end of the support at a point beyond the side of the bars opposite that on which the rollers are located. The purpose of these springs is to draw the carriage 12 so as to cause a tension roller 17 on the carriage to be pressed with a yielding tension against the chain of yarn passing over it. On account of their angular position,

the springs draw the rollers on the carriage toward the guide rods and thus permit the carriage to move back



and forth very freely on the rods, preventing the end plates 13 from binding thereon. The roller 17 is made with projecting flanges so as to properly guide the chain of yarn under operation.

(To be continued.)

Bleaching Cotton Goods.

By H. L. Gantt, M.E.

The customary method for transferring the goods in the process of bleaching is to sew the end of one piece to that of another, in this way forming a string of goods, permitting them to be more conveniently handled.

This string of goods, in the process of bleaching, is subjected to the action of various liquids, being first boiled in an alkali and then washed. After being washed, the goods are usually impregnated with acid (soured), and then allowed to remain in a pile for a short time to allow the acid to act.

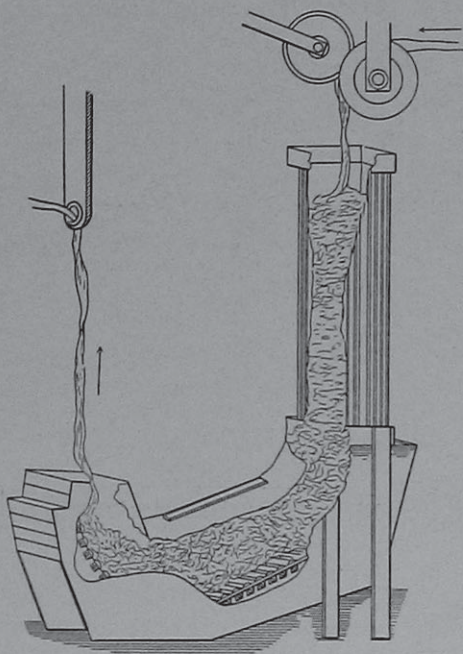
As the piling operation is repeated after each of the several impregnating operations, the successive pilings divide the process into a series of separate and distinct stages, with a consequent loss of time between every two.

The usual method of piling is as follows:

The cloth is drawn from the souring machine by an overhead roll, which drops it to the floor beneath. A boy stands on the pile of cloth and so guides it with a stick that it is piled in substantially uniform horizontal layers. When the pile has reached a size determined by the judgment of the bleacher, the string of cloth is broken at a seam, and a second pile is formed. When in the judgment of the bleacher, the first pile has stood long enough, the cloth is withdrawn

and pulled through a washing machine into a bath of chlorine water (chemic), after which it is again piled in the same manner by a boy with a stick. The judgment of the bleacher as to the time cloth should lie in a pile after impregnation seems to be frequently controlled by his temperament, rather than by knowledge, for we find that hardly any two bleachers have the same opinion as to how long the cloth should be subjected to the action of the acid; and the practice varies from a few minutes to twenty-four hours, although as a matter of fact, the acid does all its work in ten minutes or less, and no beneficial effect can be discovered by a longer treatment.

Inasmuch as it is necessary to pull the cloth from the top of a pile, the leading portion as it leaves the sour pile has been acted upon by the acid a shorter time than that at the bottom of the pile.



The top of the second pile is attached to the bottom strand of the first pile, and the top of the third pile is attached to the bottom of the second.

As each strand of cloth usually goes through several pilings in the course of being bleached, the action of the bleaching liquors on any portion of the cloth will be alternately long and short, according as that portion of the cloth was at the bottom or the top of a pile. If the string of cloth was always broken in the same place, the worst that could happen would be an unevenness in the bleach due to the difference in treatment. It frequently happens, however (and this is more often the case than not), that the string of cloth is not broken in the same place; and when this occurs the various lots of cloth of which the string is composed, and which frequently belong to different mills, become almost hopelessly mixed. The expense of straightening out such a mixup has usually been considered one of the legitimate expense to the bleachery. Add to this the fact that the piling boy often piles the cloth so carelessly that it tangles as it is pulled off the pile, and not only damages itself, but usually

compels the stopping of the machine for awhile.

If we also realize the fact that chlorine, or chemic, not only forms a most unpleasant atmosphere to work in, but is actually injurious to the lungs, it would seem that some automatic piling machine which would hold the required amount of cloth and permit the leading end of the pile to be withdrawn, would long ago have been devised. Inasmuch, however, as this is not a problem requiring great mechanical skill, but one requiring a somewhat different kind of knowledge, it apparently had never been attacked until the writer came in contact with it.

The accompanying illustration shows an automatic piling machine, showing the cloth as it is delivered to and withdrawn from it.

The machine consists of an inclined chute, with upturned ends having a bottom composed of a series of independent, freely revolving rollers. The cloth is dropped into the tall stack, and falling on the rollers, is carried by its own weight to the bottom of the incline. The incline is filled, and as the fabric rises in the receiving stack, the forward end of the pile is forced upward in the other end of the machine, from which it is pulled off at the rate at which it enters the receiving stack.

By making the chute of the proper length, a pile of cloth of any size may be held, and the cloth may be subjected to the action of the impregnating liquor for any desired time, all portions of the fabric receiving exactly the same treatment. Such action produces uniformity of bleach, impossible to be produced under the old conditions, and as there is no need for breaking seams, the goods go through the bleach house in the order they went in, producing in turn a saving of expense and worry realized only by the man who has operated under both methods.

The straightening out of *mix-ups* and the closing out of *short lots* are the bane of a finisher's existence, and anything that reduces these troubles does much, not only to smooth the operation of the works, but to assure the customer that he is getting back exactly the goods he sent. Moreover the dirt and damage caused by the piling boys are eliminated.

The saving in always having clean goods in uniform condition, is greater than the saving in wages of the boys, and the relief to the bleacher of having a smaller number of bleach-house boys to manage, makes it possible for him to devote his time to bleaching rather than to boys, with distinctly beneficial results to the bleaching.

DYEING WARPS IN THE SIZE.

A very good and serviceable imitation of the natural color of flax may be imparted to cotton warps in the sizing process by using for about 200 lb. of cotton warps the following mixture: A solution in boiling water is made of 100 parts of Diamine Catechu B, 90 parts of Diamine Fast Yellow B, 5 grms. of Diamine Blue Black B. A size liquor is made by boiling in water 12 to 15 lb. of starch, 3 lb. of dextrin, 1½ lb. of tallow, ½ lb. of Japan wax, ¼ lb. of Turkey-red oil, and ¼ lb. of phosphate of soda. When properly boiled the color solution is added to the size.

Dictionary of Technical Terms Relating to the Textile Industry

(Continued from page 111)

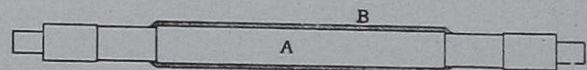
- LAPS**:—Rolls of cotton, from which the intermediate and finisher scutcher as well as the carding engine are fed.
- LARME**:—An elliptical figure, supposed to resemble a tear drop, as in a lace pattern.
- LASTING**:—A firmly woven cloth of hard twisted yarn, used chiefly for the uppers of women's shoes.
- LATHE**:—That portion of a loom to which the shuttle boxes are fastened. It supplies the race way for the shuttle to travel on; it also holds the reed for beating up the filling during the changes of the sheds.
- LA VAGUE**:—A moiré effect, formed by fine satin lines on a bengaline ground. A trade name.
- LAVENTINE**:—A thin silk, used chiefly for sleeve linings.
- LAWN**:—A sort of fine linen or cambric, made with high counts of yarns.
- LAY**:—See lathe or batten.
- LAY CAP**:—In a loom, the wooden bar which rests upon the top of and assists in holding the reed in its place in the lay, lathe or batten, affording also a convenient hold for the weaver in moving the lay by hand, if necessary.
- LAYING BRUSH**:—The brush, on a shearing machine, with which the cloth is brought in contact after passing the cutting blades; used to lay or smooth down the nap.
- LAY SWORD**:—The two arms which carry the lay of a loom, towards and away from the fell of the cloth.
- LEA OR RAP**:—The parts into which a hank or skein is divided, when it is being reeled.
The seventh part of a hank; in worsted, 80 yards; in cotton and spun silk, 120 yards; in linen, 300 yards.
- LEAD ACETATE**:—Lead acetate is only used for cotton. There it has been used for yellows and oranges in times long gone by. To-day, a basic acetate with litharge, mordants cotton on simple immersion, and is used for eosines and similar colors. Lead acetate has a sweet, pleasant taste, but is a virulent poison. Its antidote is Epsom Salts (which forms an insoluble lead sulphate), the white of eggs, and emetics.
- LEAD SINKER**:—One of a series of weights used to depress the yarn between the needles in a knitting machine. They alternate with the jack sinkers.
- LEAD SULPHATE**:—This is obtained on a large scale in the manufacture of acetate of alumina, and its use as a filler for weighting cotton fabrics, is largely due to the need for finding some use for it when so produced. It is white, insoluble in water, and very heavy, but has the great disadvantage of being poisonous, and of blackening in the air of towns where coal gas is used.
- LEAF**:—The same as harness; thus either 3-leaf twill or 3-harness twill, etc.
The Scotch term *leaves* is equivalent to the English *shafts* and American *harnesses*.
- LEASE**:—In beaming, warping and weaving, the crossing of the warp threads, to keep them separated,

effected by passing each warp thread alternately over and under lease strings or lease rods.

LEASE ROD:—In weaving, one of the wooden rods, usually of oval cross section, over and under which the warp threads are alternately passed in forming the lease, *i. e.*, to keep the warp threads separated. Two or three of these rods are used together in a set for forming a lease in the warp.

LEASH:—All the harness cords in a Jacquard harness, that are combined, and in turn adjusted to one neck cord of the Jacquard machine.

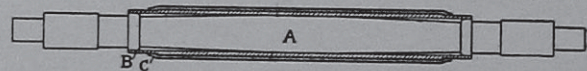
LEATHER ROLLERS:—These may be fast boss rollers



FAST BOSS ROLLER.

A the cast iron roller; *B* its leather covering, drawn over a felted woolen covering.

or shell or loose boss rollers. In the fast roller all the parts are fast together, and all revolving. In the shell roller there is the arbor, or mandrel,



SHELL OR LOOSE BOSS ROLLER.

A the arbor; *B* the iron shell; *C* its leather covering, drawn over a felted woolen covering.

which does not revolve, and there are the shells, or sheaths, which form the revolving part.

LEDGER BLADE:—In cloth shearing machines, the fixed straight edged blade which coacts with the spiral



LEDGER BLADE AND ITS BACK.

blades of the revolver; this action trims off the nap on the cloth to the desired uniform depth.

LENO:—The name given to a variety of fabrics characterized by their openwork effect, somewhat resembling lace. Leno fabrics are those in which the warp threads, in addition to interlacing with the filling threads, are twisted with threads of their own system. Leno weaving is also practiced in connection with regular weaving, to produce fancy effects. Lenos are usually cotton fabrics, although they are occasionally made from silk or worsted yarns (*see Gauze*).

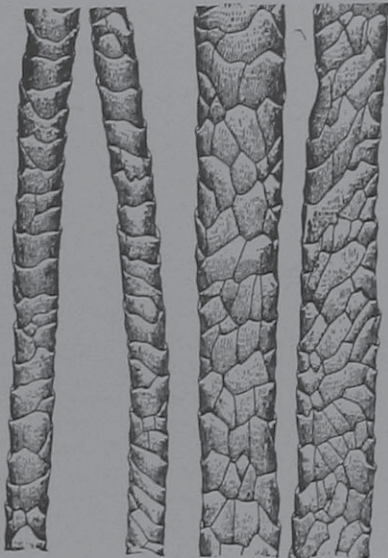
LEICESTER SHEEP:—The Leicester, or as now called,



LEICESTER SHEEP.

the New Leicester, was originated by Robert Bakewell, by crossing the old Leicester with different

species, but without much keeping of a record. The fleece is fine, glossy, silky white, and of but

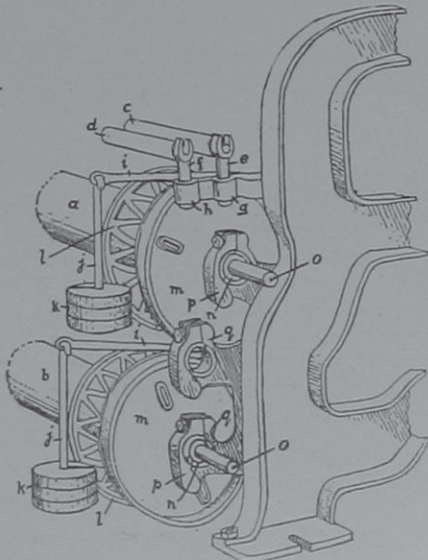


FIBRES FROM THE LEICESTER SHEEP (Magnified).

moderate length, weighing on an average from 7 to 8 pounds. It was first imported by Washington, and as now found here closely resembles the Cotswold.

LE JUNGLE:—A fabric of a heavy coarse texture, interlaced with a weave showing glimpses of yarn of contrasting colors, with Oriental suggestions.

LET OFF:—In weaving, any one of a variety of devices for feeding or letting off the warp from its



CROMPTON & KNOWLES FRICTION LET-OFF.

a, b the warp beams; *c, d* its respective whip rolls, which rests in pockets *e, f*, setting in back roll stands *g* and *h* respectively; *i* the friction levers, *j* their racks for holding weights *k*; *l* the flange heads of the beams, *m* the outside beam heads having hub bearings *n*; *o* the beam shaft, and *p* the lock levers which hold each beam respectively in its stand *q*.

beam, at a corresponding rate as the cloth woven winds itself on the cloth beam.

LEVANT COTTON:—Cotton grown in Greece and Turkey.

(To be continued)

THE NEW DUPLEX CARDING SYSTEM.

In the May issue a mechanical outline of this system, from a technical point of view, was presented, and it is our object to give an idea of the general construction and its advantages in this issue.

As was mentioned, the fundamental principle of the operation is to increase the production over systems now used in this country, and it may be said that tests have determined that the increase in production amounts to from 50 to 75 per cent.

It is a well defined fact that the value of a yarn produced, depends to a great extent, upon the carding of the stock. In dealing with short or medium staples it is next to impossible to secure the maximum efficiency if only one fancy and one doffer are used in removing the stock from the swift, as a large quantity of the same is retained by the card clothing and when the swift again comes in contact with the licker-in, its carrying capacity is greatly reduced, due to the amount of stock which was retained in its clothing.

In carding by the single doffer system, should imperfections occur in the roving, they have to be eliminated in the drawing and twisting, necessitating a loss of time, whereas, if the duplex system is used, imperfections are reduced to a minimum, the stock is better worked and the condenser yarn requires less attention in the spinning room, with the result of an even and stronger yarn, besides increased production.

It is for this purpose that the duplex carding system is designed, and its ability to overcome the existing conditions can readily be seen from the accompanying illustrations.

Fig. 1 gives an idea of the principle, showing in perspective a self-feeder, a combination 1st. and 2nd. breaker, the latter having the duplex system applied to it.

Passing the feeder and 1st. breaker, and only noticing the general construction of the 2nd. breaker carder, it is evident that the new carder is an improvement on the German two doffer Gessner system, each doffer being clothed over its entire surface, giving it the advantage of taking off a continuous web. Leaving the doffers, the two webs are further worked on the two auxiliary swifts, and are then combined together on the final doffer, as one web.

Coming back to the main point of contention, it is seen that a second fancy and a second doffer, is placed below the first pair. Said second doffer removes all the stock from the clothing of the swift which was not thoroughly removed by the first doffers. When then the swift reaches the licker-in roller, its surface is free and clean, ready to take up its maximum quantity of stock.

From this explanation it is plainly evident that such a construction will accomplish the desired results without having to increase the speed of the carding surfaces or in any way cause weakening or deterioration of the fibre in process. By reason of such

combinations, the production is increased, as well as the strength, and a better blending of the stock obtained.

Upon leaving the 1st. or 2nd. breaker, as the case may be, the sliver is fed to the intermediate or to the finisher carder, as the case may be. The machines are built from 48 to 72 inches wide.

For the purpose of further explanation an illus-

tration of the finisher carder, with condenser attached, is shown in connection with our illustration.

The construction of this condenser is such that the empty or return tape, which was used to convey the web to the rollers, passes through the upper side of a top, deep grooved roller on to a long diameter shallow grooved roller. As can be readily seen, this method allows no empty tape to pass a loaded tape in an op-

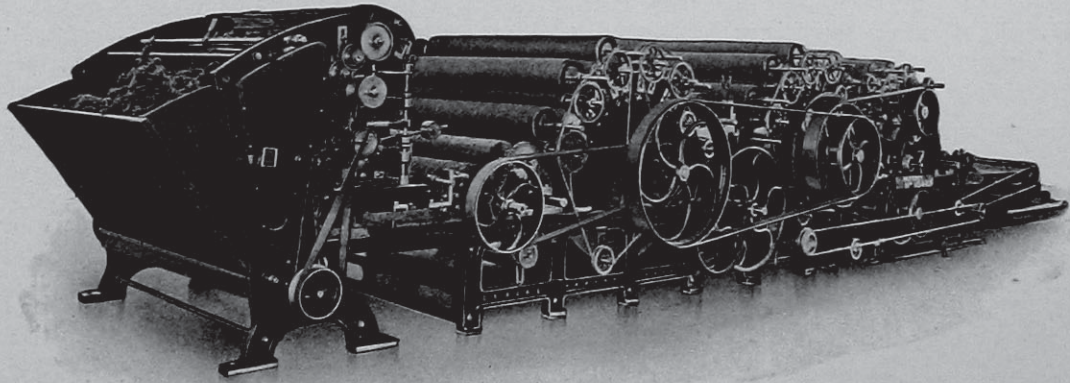


FIG. 1.

tration of the finisher carder, with condenser attached, is shown in Fig. 2. It is built along the same lines as the former, the operation being identical until the two films are taken up by the main doffer.

In connection with the 1st. or 2nd. breaker carder, the main doffer delivers by means of side drawing, to the scotch feed of the next machine, whereas, the

posite direction, eliminating the possibility of disturbing the web on the loaded tape.

These machines are rapidly finding favor among manufacturers, and it is said that in several instances, the system is giving a production greater than 50 per cent, increasing at the time the strength and quality of the yarn over the old system on low grade stock,

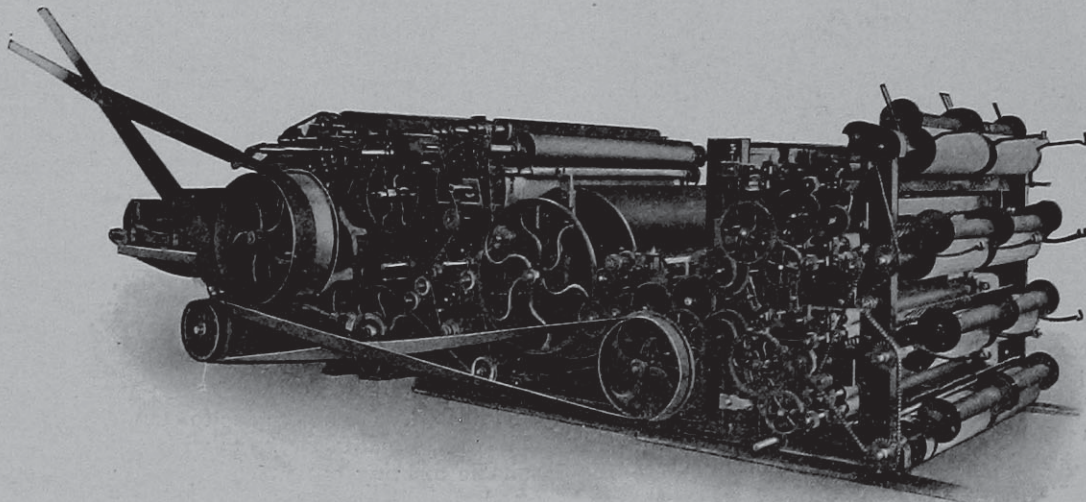


FIG. 2.

finisher carder is shown to deliver to a four tiered "Josephy" condenser.

The number of ends that can be gotten off such a condenser 60" wide, is from 96 to 180, and those taken from a 72" wide condenser, from 96 to 200. As will be readily understood, the number of threads taken off depends upon the class of work and the pitch of mules to follow. These condensers are built in

and it is evident that an increase of 75 per cent would be very conservative on better grades.

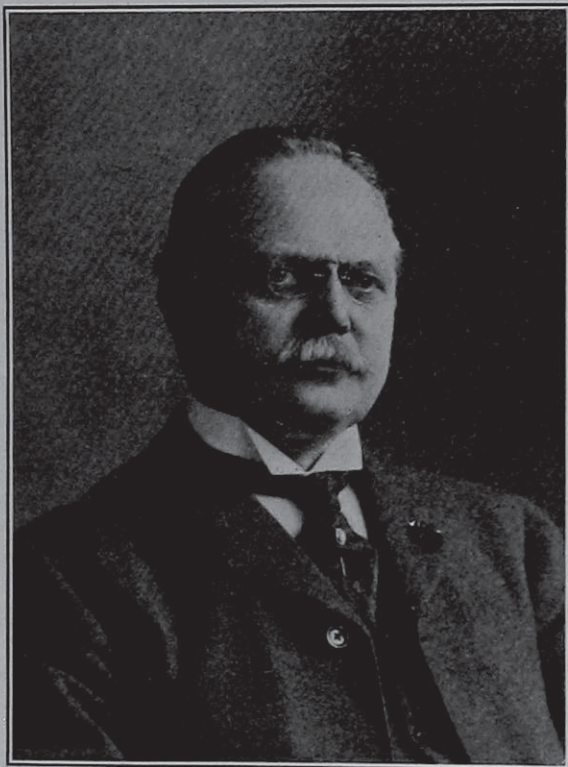
This system is being introduced by Speed & Stephenson, the well known Textile Engineers and Importers of Machinery, 170 Summer St., Boston, Mass., representing the builders, John Hetherington & Sons, Ltd., Manchester, England. Messrs. Speed & Stephenson will furnish any details regarding price, production, etc.

FINISHING OF WOOLEN AND WORSTEDS.

THE CORRELATIVE ATTITUDE BETWEEN MANUFACTURER AND THE FINISHER, OR THE DYER AND THE FINISHER.

The subject of Finishing, based on these conditions, formed an interesting topic for discussion at the last meeting of the American Woolen and Worsted Manufacturers' Association.

No one, with a better knowledge of the true conditions than Jules A. Kerlé could have been found to present this subject in the proper manner. Mr. Kerlé, as most of the trade is aware, is considered one of



JULES KERLÉ

the leading authorities on the subject of Finishing in this country, being indentified with the Firth & Foster Co., the largest individual Dyers and Finishers in this country, if not in the world.

To begin with, the subject of Finishing covers a very broad field and in order to make his subject as clear as possible, Mr. Kerlé has only referred to those points which have a direct and important bearing on the various processes:

"The first and most important is the process of scouring, and where good soap and thorough rinsing are pre-requisite; carelessness here courts failure.

In fulling, watch your goods closely at the very start until you know the felting quality of the stock.

With ordinary care, little trouble arises in crabbing and steaming. Go very slow at the start on the napper or the gig; many goods are ruined in forcing napping or gigging. Easy and gradual working up of the fibres should be the rule.

At the shearing, a man who loses his head is apt

to lose his fingers, not speaking of what may become of the goods; therefore, be careful.

Rotary or hydraulic pressing exact care and judgment. The same weight and heat will bring out a stove-pipe polish on one fabric and a raw appearance on another, all owing to the nature of the stock or the weave.

Singeing, dewing, calendering, brushing and other processes, while of minor importance, still deserve their proper share of attention to help to attain the desired results.

Ultimate success, however, depends not alone on the finisher, nor the weaver, nor spinner, but on the correlative attitude between manufacturer and finisher or dyer and finisher and each and every one's help toward a common goal.

My remarks, therefore, will not be a theoretical treatise on dyeing or finishing, or to give away any secrets of our profession—we have none—but a heart-to-heart talk from the dyers' and finishers' standpoint of the relation that should obtain between the manufacturer and the dyer or finisher.

This applies with equal force to the boss dyer and finisher of a woolen or worsted mill who does its own finishing, as to the public establishment, which practically is an integral part of the mill sending the goods there, altho' run as a separate concern.

My pleas to manufacturer and dyer or finisher, conveyed in a most friendly spirit are:

1st. Get together.

2nd. Put implicit confidence in each other.

What do I mean by *Get together?* It is this: When launching into new lines of goods and after getting your bearings as to texture, counts of yarns and particular stock, you believe to be just right, it will be wise to confer with the finisher as to what results are obtainable and what snags might be encountered in the various manipulations necessary to bring out the expected result.

This may sound trivial, but just now, when worsted mills are trying to bring out woolen effects, and woolen mills are getting to take a hand in worsteds, it seems to become of vital importance, and much time and money may be saved by an exchange of opinions. There would surely be *less chaff and more wheat* during sampling periods.

It is not possible to lay down a hard and fast rule on Finishing. Each tub has to stand on its own bottom and so each fabric, as to what processes are most suitable to bring out a desired result—if it is in the wood.

A simple illustration: A serge weave 58 inches wide out of the reed will finish 55 inches as a plain serge or 53 to 54 inches as an unfinished worsted or only 50 inches as a blind cheviot with the corresponding shrinkages in length.

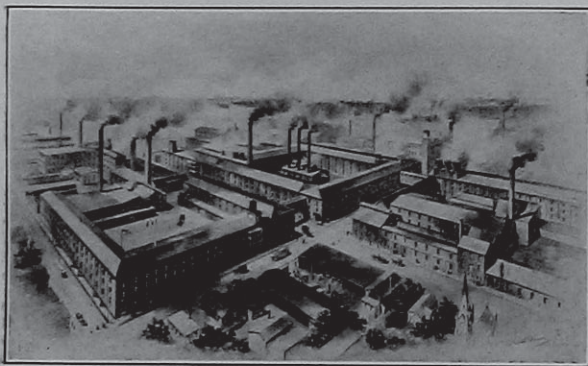
So far all right, but what about the various stocks running the entire gamut from Britch to Botany? You certainly cannot expect the same result, and this is the strongest argument I can bring to bear on the close relations desirable between manufacturer and finisher. *Two heads are better than one*, etc.

Many mill has experienced trouble in goods cockling, caused either by an uneven balancing of the weave or a mixing of dyed and gray or bleached yarns, particularly in check effects, without steaming the gray or bleached yarns in order to get it in the same condition as the dyed yarn; or the using of soft and hard stock yarn in warp stripes or in filling effects, which even that panacea for most evils—the decatizing process did not correct.

Has any one forgotten *the Resist Color Craze?*

That potent reminder ought to be sufficient evidence of the need for the manufacturer, and the dyer and finisher to get together and prevent a recurrence of such costly experiences.

Have confidence in each other; in other words, do not conceal things from each other. When a fabric contains 5 or 50 per cent. cotton, say so, and then



THE FIRTH & FORSTER CO'S. PLANT.

the dyer or finisher will know at the start what will be the most advisable procedure, in order to do justice to the fabric. When goods are fulled or after they are wool-dyed, the finisher will find it out very quickly—but too late. What is the result? He has to cobble it up; extra handling, dubious results and oft a rank failure. Who is to blame? Not the dyer or finisher—he cannot dissect every sample of fabric sent him, as the manufacturer wants it back almost before he gets it off the loom. He has no gain to make a mess of it—to the contrary, he is very deeply interested in its success, it being the fore-runner of future business, if right.

Do not expect impossibilities from the finisher. That one can't make a *Silk purse out of a sow's ear* is as true today as it ever was, altho' he is coming near doing it, judging from the appearance of some fabrics *before-and-after* finishing. Therefore, be reasonable in your expectations—if results do disappoint—don't blame him first, but seek the cause, interest him in helping to find it, thus avoiding friction or irritation.

The many possible *slips* in goods going through the varied processes require vigilance, sound reasoning and experience gained from practical application and keen observation.

My advice: *Get the best man you can; he will be the cheapest in the end.* With the scientific and

comparatively easy way of using prepared coloring matter nowadays, you can make a dyer in 24 hours, but the man who will be of interest to you is the one who is still an apprentice after 24 years of close application and keeps on learning as long as he has the clogs on his feet. The man who knows it all is met every day, but does he make good? Not as a rule. It is the one who is ready to listen and willing to learn who makes success possible.

A stitch in time saves nine is a motto which should be hung alongside of the percher who inspects cloth off the loom. Too often goods come up from the fulling or scouring room full of glaring imperfections, which at this point cannot well be remedied except at ruinous expense, when the stitch in time in the fine sewing department would have been the means of turning out a merchantable piece of goods instead of a *Second*.

It is not within the finisher's province to examine goods when they come to him. Goods should be in the best possible condition when leaving the weaving department. If a piece is a *Second* from the loom, mark it that way, otherwise the finisher will call you up after goods have been handled and ask you what you know about such and such a piece; waste his time and yours—not speaking of the waste of time and, worryment, first on his part, trying to find out if something went wrong in his own place. Inevitable contention ensues from carelessness or worse, in evading these instructions, as *Murder will out*, and it will only be a question of time when the finisher will have the *Dead wood* on the manufacturer who tries to be smart at the other fellow's expense.

When things go wrong, don't jump at conclusions and blame the other fellow. We are prone to do this—it is human frailty—but get together, reason it out and let us be manly enough to stand the brunt, be it up to you or to me. It will help materially to make business less onerous, particularly in these times when every possible fibre and all kinds of weaves are tried in order to interest the buyer.

One phase of the worsted industry is to be deplored, and that is the growing lack of individuality—nowhere is there a better chance to notice this than in the public dyehouse.

For example: One particular cloth is shown in the market, and some sales effected; within a few days a score of samples from as many mills, all copied from the one sold, are tumbling in and soon similar goods flood the market. Note the consequence—throat cutting competition, followed by an inferior article. It is thrown at the buyer at every turn. He gets the nausea, cancels what he rightfully or wrongfully can and the end—a demoralized market, jobs lots for sale and the usual howl and severe losses. Here dyer and finisher also suffers along with the manufacturer. A certain set of machinery crowded to the utmost—various other sets of machinery idle—a lopsided distribution of work—feast here—famine there—this is the first spasm. Slow deliveries—the old cry—every-one feeling that he is neglected to the advantage of

his competitors and kicking all around—second spasm. Then the last and most aggravating one—goods returned, with that inevitable rubber stamp "S. S. to C." on the back of the ticket, the dyer's bugaboo and which haunts him in his dreams. He also feels sure that the pieces are stamped *BEFORE* goods are examined for fear it might be overlooked."

SILK FINISHING.

(Continued from page 80.)

Points on Special Fabrics.

UMBRELLA SILKS. In order to make them shed the rain, besides presenting an extremely smooth surface, they must be free from pin holes, and similar imperfections. To accomplish this, the fabric coming from the weave room must be carefully examined at the perch, the operator sitting behind the fabric as passing between her eyes and the window, in order to notice the smallest hole, and when, if such a one is noticed, she rubs the fabric around this spot with a small tool until the hole is closed up, *i. e.*, completely covered by the joining warp and filling threads. Umbrella silks, as mentioned before, must present a smooth surface, which is accomplished by subjecting them to the action of a rubbing machine, as was explained in the beginning of this article.

FOULARDS are thin soft fabrics, woven in raw silk, and which are afterwards boiled in a degumming solution of soap and bicarbonate of soda, after which they are singed, dyed or printed, as the case may require, sized, dried, broken and in turn pressed.

SILK GAUZE are made either of raw or degummed silk, and are finished to suit the different processes they are destined for. In most instances they receive a light sizing with gum arabic or tragacanth, after which they are simply dried and in turn polished.

BOLTING CLOTH, as used in milling, for separating the flour of wheat from the hull or bran, and which is a silk fabric with regular meshes, is made of raw silk, which in the finishing process is only polished and stretched.

BLACK SILK TAFFETA, SATIN, etc., receive either a dry or a wet finishing.

The first consists in drawing (ironing) the fabric over two idle, heated, smooth cylinders, in such a manner that both face and back of the fabric come in contact with one of the cylinders. After passing these heated cylinders, the fabric is wound on a roller, running smooth paper in between the layers, and is left on the roller for some time, to cool.

With reference to the wet process, run the fabric, under heavy pressure, through a 2-roller calender, the lower roller running in a trough containing the finishing compound consisting of gum arabic, gelatine and saccharic acid, after which the fabric is dried at once, being guided for this purpose, as soon as leaving the bite of the calender rollers, onto the tins of the drying machine. After drying, the fabrics are then subjected to breaking, pressing, measuring and winding, *i. e.*, made ready for the market.

FANCY COLORED SATINS. For these the finishing compound must be kept lukewarm and more pulpy, so as not to penetrate into the fabric. The finishing compound used consists of gum tragacanth, light colored glue and diluted alcohol.

FIGURED SILKS, also known as **SWIVEL SILKS**, provided the extra or figure threads are closely interlaced with the fabric previously to their floating on the back, we have only to sever these floats, after which the fabric is made ready for the market. If, however, these floating threads only interlace loosely with the fabric structure previously to their floating, after severing them, the fabric then must be sized on its back, in order to secure the threads, as firmly as possible, to the fabric.

The trimming off of the threads, as floating on the back of the fabric, technically known as *float* or *bridge* threads, as mentioned before, is done either by hand, or by what is known as the *Float Thread Shearing Machine*. This machine has various attachments in addition to the regular shearing device, in order to facilitate the handling of the different styles and patterns of this kind of fancy goods.

Fig. 22 shows us one of the Curtis and Marble Float Thread Shearing Machines, in its perspective view. On the front of the machine is a brush which acts on the face of the goods for brushing up the fibres so that the shear blades may trim them off. This brush may be run in either direction or thrown out of action. A beater with wooden wings is provided for cleaning the back of the goods. By means of a change speed device the speed of the cloth may be quickly changed independent of the other parts of the machine, to suit the pattern. A lifting device for raising the revolver by means of a foot treadle when the seams go through is also provided, giving the shear tender the use of both hands for keeping the fabric in proper running condition.

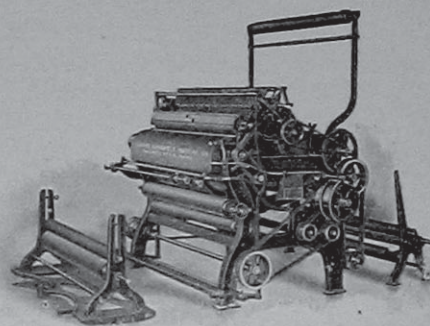


FIG. 22.

On spot goods, produced either by means of lappet weaving or floating the filling, all the work of cutting off the float or bridge threads is done on the shear, whereas on spot goods produced by means of warp floats, the bridge threads must be cut open before going to the shear by means of a loop cutting machine, of which Fig. 23 shows a specimen in its perspective view. After being cut in this way, the projecting threads are sheared off close on a float thread shearing machine.

To insure good results, *i. e.*, clear, defined spots, the threads which form the spots must be tied reasonably tight and firm into the body of the goods, since otherwise some of these threads, as forming the spots, when interlaced only loosely to the fabric, will pull out during the cutting and shearing processes.

SILK VELVETS and PLUSHES are steamed and

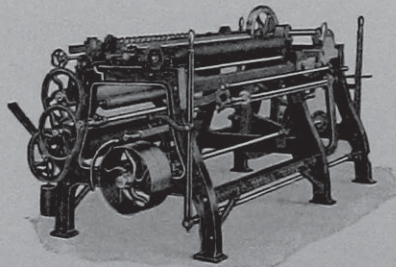


FIG. 23.

brushed, in order to fully raise the pile, after which the pile is slightly clipped on the shear, and the fabric gummed on its back and hot ironed.

LONG POIL, as is used for the manufacture of high hats, if not produced by means of pile weaving, either with wire or on the double plush principle, is then produced as a filling effect satin structure; the pile being then raised by means of gigging the face of the fabric by hand, in a diagonal direction. This process has to be done by hand, since it is impossible to gig a fabric in an oblique direction on the machine. After this, the fabric is sheared, brushed, steamed and ironed.

COTTON BACK SATINS. In order to produce a firm and smooth back for these fabrics, a special treatment is required, applying a compound made of soap, oil, beeswax, gums, glycerine, etc.; the finisher using his own judgment to suit the case. The fabrics, with their face downward, are passed over a table and under a scraper, five or six inches high, which is set on edge at the end of the table with little winged walls one or two feet long, which slants back from its ends in order to prevent the Size from flowing over. The Size is boiled to a thick paste, the operator dipping freely from a supply of this mixture, onto the cloth, which is slowly moving over the table, permitting the mixture to spread back a few inches from the board, pouring on more Size as it is carried away by the cloth. The goods should absorb enough sizing to fill the cotton but not soak through onto the silk, after which the cloth passes at once through the dryer, where by means of hot cylinders or steam coils, or both, the Size is dried, after which the goods are pressed or treated otherwise, as the case may require.

Finishing Carriage Cloths.

The same require at all times great care in the finishing department. They are mostly dyed fancy shades, and the dye is very apt to stain and bleed during boiling or gigging. With the large increase in the demand for cloths of this kind, for motor car lining, the shades have also got more varied to suit the particular color of the cars body; fawns, drabs and similar

shades being very popular. All these are very susceptible to dirt and stains.

Cloths for carriage or car linings require a special finish of their own, that is, they must be lustrous and have the threads well covered, but yet be able to stand rubbing without the nap roughing up, as the principle factor they have to stand against, is that of friction. To stand rubbing, the face must be close felted and compact, and a fine, thick, mossy nap at the bottom of the fabric is not so essential as having it well fulling up and a good cover on.

After leaving the loom, the first operation gone through, is that of burling and mending. New threads are inserted by hand where they are missing, and knots and slubs are carefully removed, after which they go to the fulling mill.

A good soft soap, free from excessive alkali, is the best to use; of course, it is impossible to obtain a strictly neutral soft soap as the stuff is not salted out of the mother liquor like hard soaps, but a little alkali is not injurious at this stage and helps to lift the grease. Previous to entering into the fulling mill, the cloth should be well soaped in a soaping machine, the consistency of the warm soap solution being that of thick

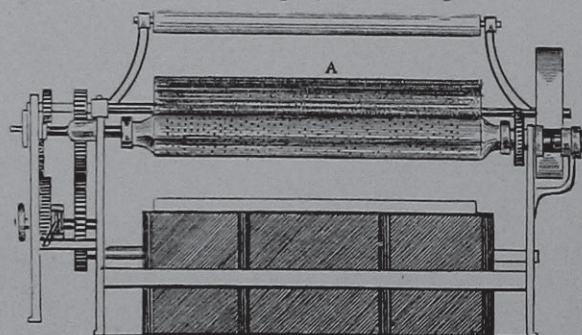


Fig. 1

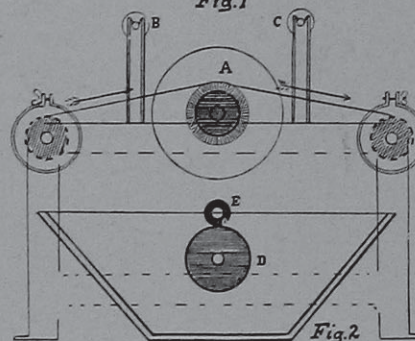


Fig. 2

soap. Too much soap retards the felting as it causes the fabric to slip, while not enough makes the fulling irregular and causes a wastage of flocks. The traps on the fulling mill should be let down for the first hour or so without any weights on, after which on examination the goods will often be found to want a little more soap. After two hours running the machine should be stopped and the fabric measured for shrinkage, the traps being weighted more or less to bring the shrinkage of length into proportion with that of its width. Towards the end of the fulling process the cloth should be watched to see that it does not get too

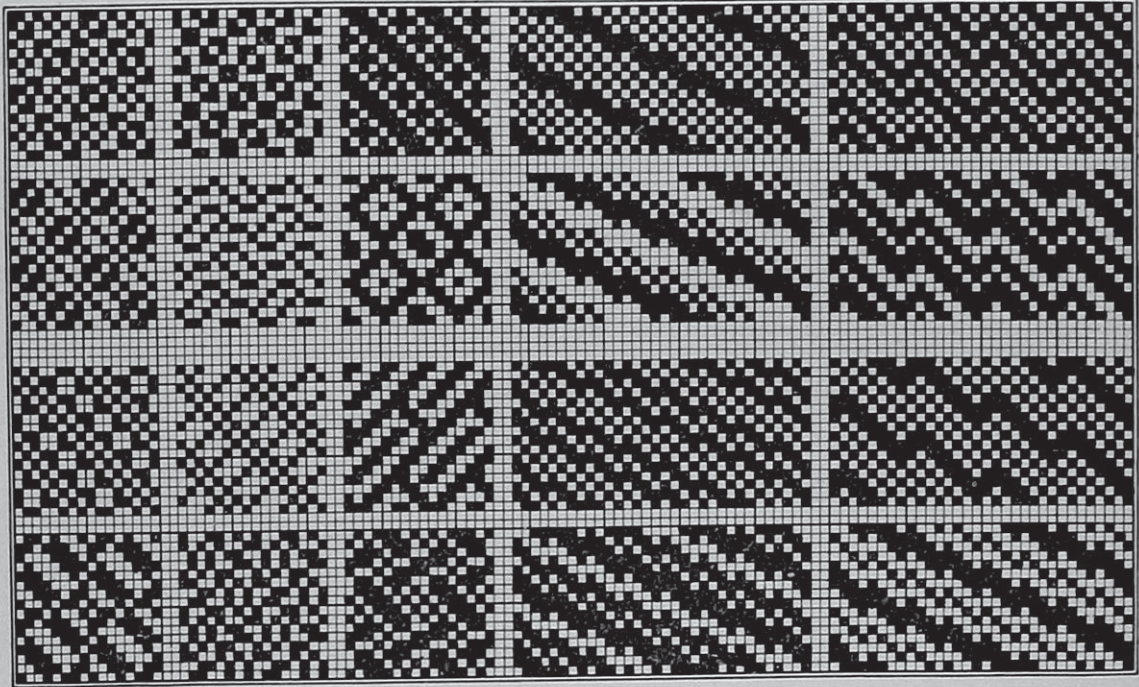
(Continued on page x)

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(The most important addition to Textile Literature ever published.)

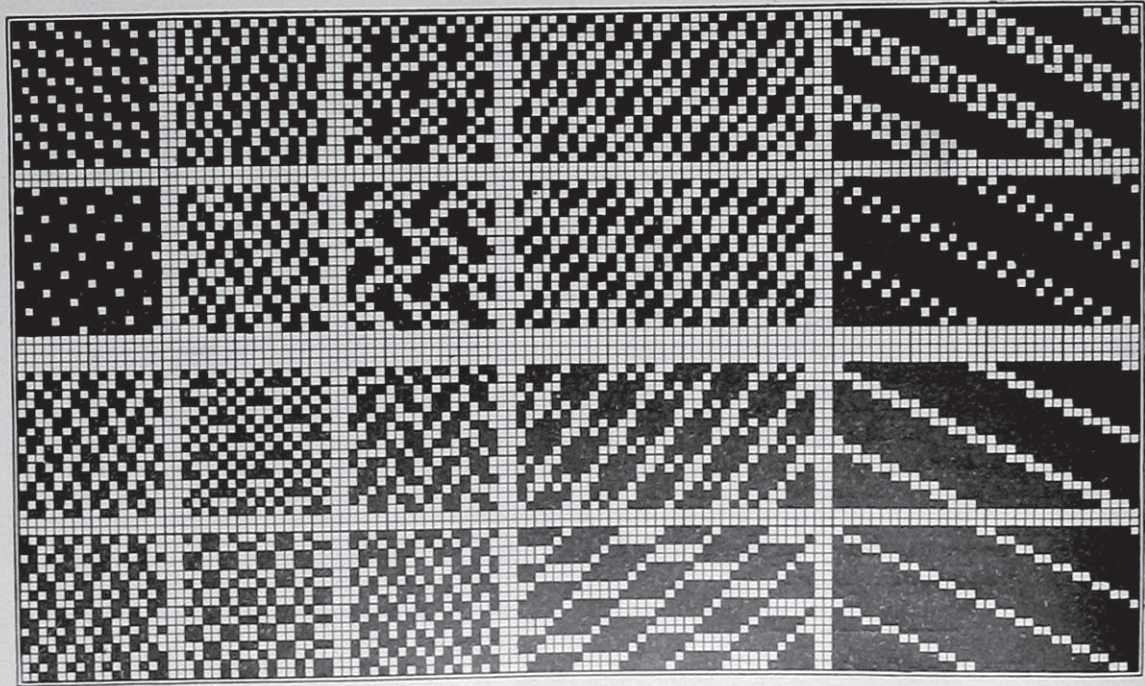
EIGHT HARNESSES

EIGHT HARNESSES



8 X 16

8 X 8



8 X 16

8 X 8

8 X 4

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S U P P L E M E N T

to

POSSELT'S

TEXTILE JOURNAL

Motives for Harness Work

COTTON, WOOL, WORSTED and SILK FABRICS

MOTIVES presented in this supplement have during the past three years appeared in the Journal. By request of our readers, we have brought the entire set together in the present supplement, for handy reference in the mill.

They are capable of being woven with from 4 to 16-harnesses, a majority of them being below 12-harness, and are suitably adapted for cotton, worsted and silk dress goods, shirtings, ribbons, tapes, etc., more particularly where the harness capacity of the loom is limited.

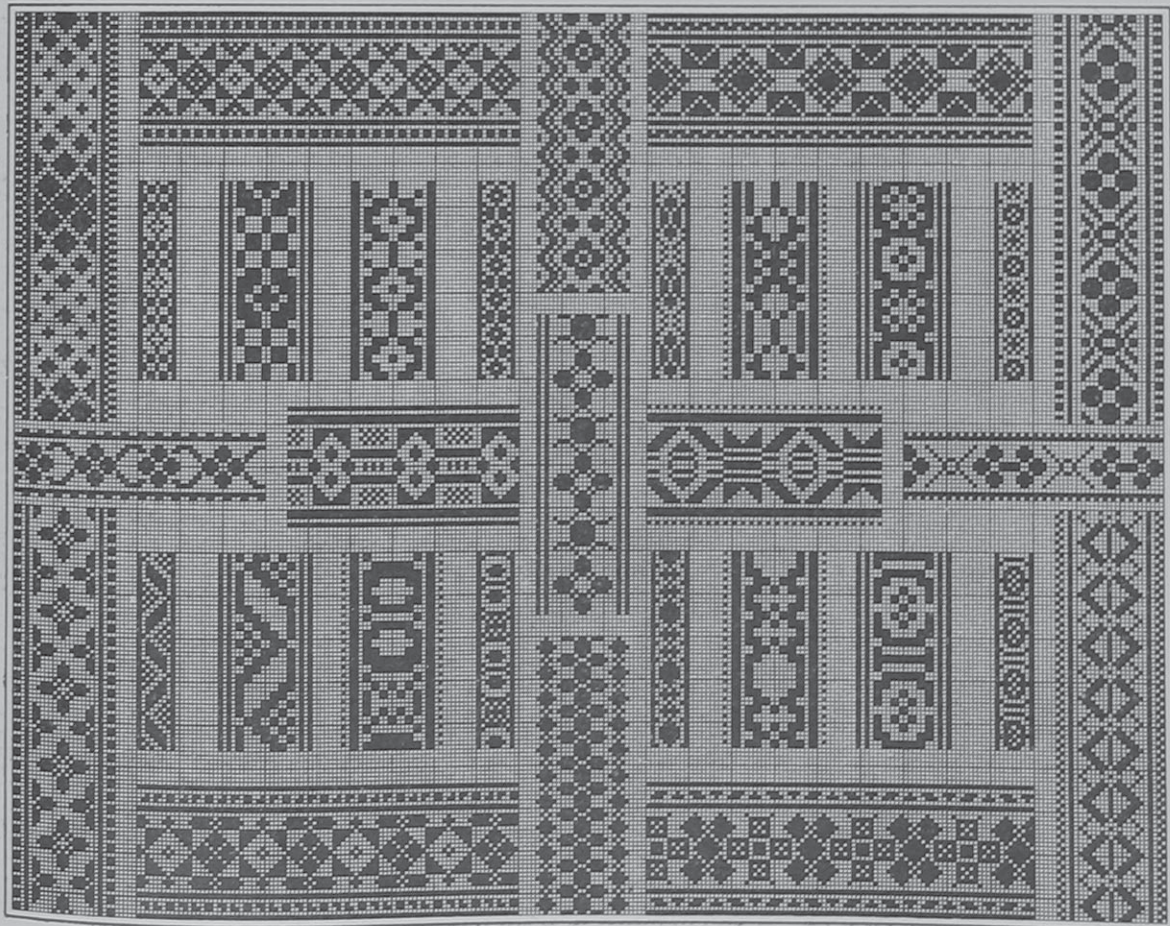
The bordering stripes as well as edges, shown in connection with the various motives, will in most instances be omitted in practical work, they having been added to more properly separate the collection of designs on the various plates. If, however, said stripes or similar ones are desired to be used, they will require tying down of the warp threads by means of satin weaves or other arrangements; this will necessitate the use of additional harnesses, the various designs themselves being constructed with the object in view to use as few harnesses as possible.

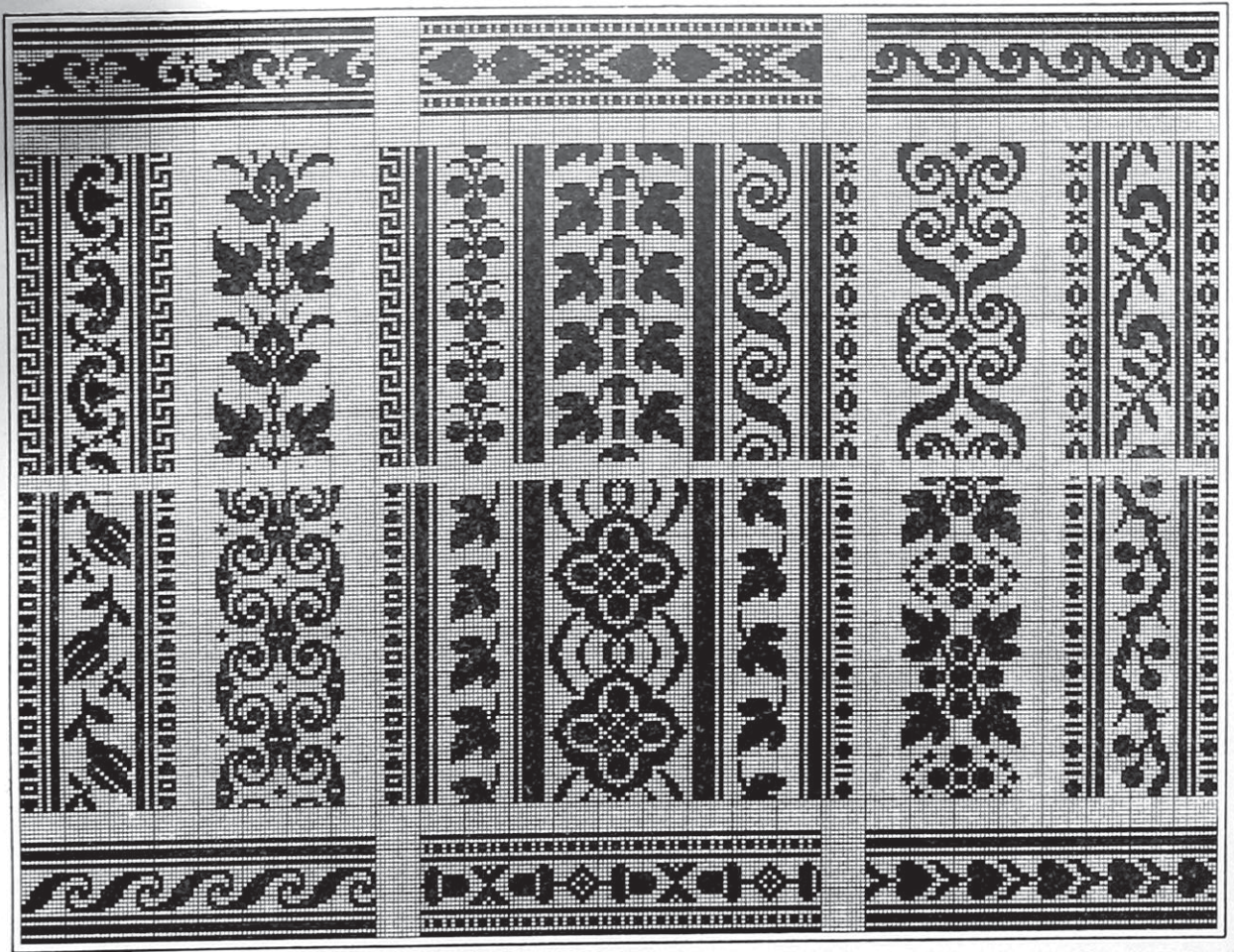
As will be readily understood, designs shown may be enlarged to suit the texture and counts of yarn of the fabrics they are to be used for.

This collection of motives refers more particularly to fabrics constructed with one system of filling and two systems of warp, *viz*: a ground warp and a figure warp, motives referring to the interlacing of the latter system.

Under certain conditions, and with a few modifications, some of the designs are also applicable for being used in connection with one system of warp and two systems of filling, *viz*: ground and figure picks; the design then refers to the latter system, considering in this instance *empty* squares for risers and *full* squares for sinkers.

Motives shown can also be applied to double cloth structures, in fact, as we may say, their use is unlimited in the textile art.





Allen, William, Sons Co., Worcester Mass.XXI	Lever, Oswald, Co., Inc., Philadelphia...XV
Altamus, Jacob K., Philadelphia.....V	Littauer, Ludwig, New York.....IX
American Dyewood Co., New York.....XII	Lowinson, Chas., New York.....XVI
Bond, Chas., Co., Philadelphia.....XIX	Ludwig, H. Alban, New York.....XXIV
Borne, Scrymser Co., New York.....XVIII	Marshall Bros., Agts., Philadelphia....XV
Brinton, H., Co., Philadelphia.....IX	Mason Machine Works, Taunton, Mass...IV
Buhlmann, A. W., New York.....XIII	McKenna, Dr. Chas. F., New York.....XIV
Calder Machine Works, Philadelphia....XIX	Metallic Drawing Roll Co., Indian Orchard, Mass.....III
Cassella Color Co., New York.....XIII	Metz, H. A. & Co., New York.....XXVIII
Chapin, Geo. W., Philadelphia.....IX	Mossberg Wrench Co., Central Falls, R. I.....XVII
Chemische Aniline Works, New York...XVIII	New England Butt Co., Providence, R. I. XXVIII
Cheney Brothers, South Manchester, Conn.VII	Palmer, The I. E. Co., Middletown, Conn. IV
Commercial Photo-Engraving Co., Philadelphia,XVII	Philadelphia Textile Machinery Co., The, Philadelphia.....XIV
Crompton & Knowles Loom Works, Worcester, Mass.....Outside back cover	Pratt, Robert G., Worcester, Mass.....XVII
Crosby & Gregory, Boston.....XV	Rex Dyeing Co., Philadelphia.....XIII
Crowther, Harry, Philadelphia.....XXVI	Royle, John, & Sons, Paterson, N. J....III
Curtis & Marble Machine Co., Worces- ter, Mass.XIV	Ryle, William, & Co., New York.....IX
Dienelt & Eisenhardt, Inc., Phila.....XXIII	Sauquoit Silk Mfg. Co., The, Phila- delphiaIX
Draper Company, Hopedale, Mass.....Inside front cover	Schnaellbaum, Rob., Co., The, Provi- dence, R. I.....XV
Epplers, John, Machine Works, Phila....XIV	Schnitzler, Chas. H., Philadelphia....XXVI
Farbenfabriken of Elberfeld Co., New YorkXXVIII	Scholler Bros. Co., Philadelphia.....XIV
Fernbach, R. Livingston, New York.....XI	Schwarzwaelder Co., The, Philadelphia..XIII
Firth & Foster Co., Philadelphia.....IX	Scott, Henry L., & Co., Providence, R. I. XXI
Fries, John W., New York.....XI	Singer Sewing Machine Co., New York..XX
Globe Machine and Foundry Co., Inc., PhiladelphiaX	Sipp Electric & Machine Co., Paterson, N. J.VII
Gowdey, The J. A., Reed & Harness Mfg. Co., Providence, R. I.....XXVII	Speed & Stephenson, Boston.....XIV
Haedrich, E. M., Philadelphia.....XV	Steel Heddle Mfg. Co., Philadelphia....IV
Hall, Amos H., Son & Co., Philadelphia..XII	Suter, A., New York.....XXI
Halton's, Thomas, Sons, Philadelphia...III	Textile-Finishing Machinery Co., The, Providence, R. I.....XII
Harwood, Geo. S. & Son, Boston.....XXIII	Textile Publishing Co., Philadelphia...XVII
Helick, Dr. Chauncey G. Philadelphia...XIV	Troemner, Henry, Philadelphia.....X
Hindley, E. B., Paterson, N. J.....XV	Ulrich Company, Paterson, N. J.....XXVII
Holbrook Mfg. Co., The, New York.....XXVIII	Villa, Stearns Co., New York.....XXIII
Hotel Cumberland, New York.....XIV	Weber, F., & Co., Philadelphia.....XX
Howson & Howson, Philadelphia.....XV	Welman Bros., Philadelphia.....XVII
Hungerford & Terry, Philadelphia....XII	Whitaker Reed Co., Worcester, Mass...XVII
Hunter, James, Machine Co., North Adams, Mass.V	Whitin Machine Works, The, Whitins- ville, Mass.....II
Kaunagraph Co., New York.....XXVI	Widmer Bros., Paterson, N. J.....XVII
Kilburn, Lincoln & Co., Fall River, Mass.XV	Wilcomb Machine Co., Inc., Norristown, Pa.Inside back cover
Klauder-Weldon Dyeing Machine Co., Amsterdam, N. Y.....XII	Woolford, G., Wood Tank Mfg. Co., PhiladelphiaXIX
Klipstein, A. & Co., New York.....XVI	Woonsocket Machine & Press Co., Woonsocket, R. I.....XXVIII
Lentz, F. G. & Co., Philadelphia.....X	

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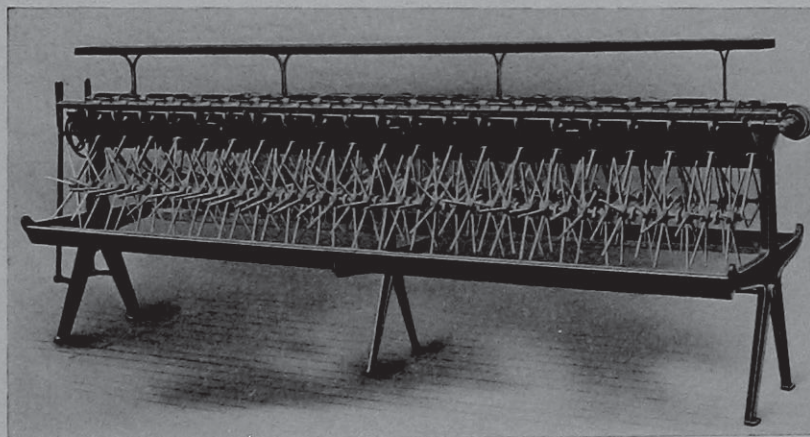
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