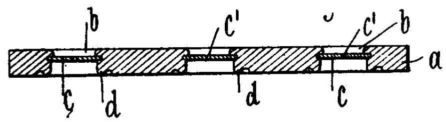
Glass filieres will not stand over 15 days of continuous service because of the mechanical friction and the action of the alkaline solution. Gold and platinum have been used for the filieres, which are usually 5/8 inch thick. Owing to the cost of the solutions, very high pressures have been used and under these conditions the metallic filieres do not meet the requirements. The filiere invented by P. Girard and C. Buffard (French patent 442,783, April 20, 1912) is designed to overcome this difficulty. It con-

FIG 6



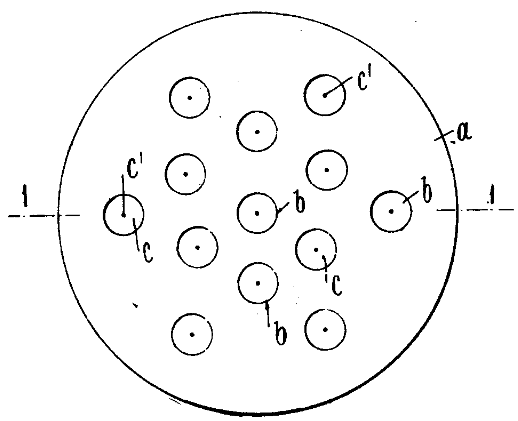


FIG. 7

sists of a support, a, Fig. 6, which is not affected by acids. The metallic plates of gold or platinum are inserted at b. These plates are pierced with a capillary hole, c', and are fixed firmly in the supports. The support, a, Figs. 6 and 7, correspond to 6, Figs. 1 and 2, the illustrations showing clearly the method of construction.

Attempts have been made to produce the artificial filament without pressure and in the open air, the viscose solution running by gravity and coagulating in the air. The process invented by G. Cahen (French patent 434,868, Dec. 8, 1910) is based on this principle and uses the following solution mixed at an ordinary temperature:

100 parts Collodion by weight,
20 parts Chloride of Alumina.
4 to 10 parts Formate of Soda,
6 parts Nitric Acid, 40° Be.,
40 to 80 parts Water.

The mixture is stirred vigorously for several hours until the mass is perfectly homogeneous and sufficiently fluid to run like a thick oil. It is left standing for several hours and then filtered. This mixture is run into filaments without pressure, possessing this property by reason of the combined action of the formate of soda, chlorine of alumina and nitrate acid. The filaments are passed through a solution of sulphohydrate of ammonia.

DEPRESSION IN THE SCOTCH-TWEED INDUSTRY

By CONSUL RUFUS FLEMING, Edinburgh

The South Scotland tweed industry, which for two or three years has been very active, is now somewhat depressed. During the last three months orders have fallen off. At the annual meeting of the Manufacturers' Corporation, in Galashiels, on October 9, it was stated by the chairman that the depression was due in some measure to the waste of capital caused by the Balkan war and the mobilization of great masses of men by Austria and Russia, but that the principal cause of the loss of trade was the decree of fashion in favor of fine Saxony makes of cloth and against cheviots, thus giving worsted manufacturers an opportunity which they were strenuously improving, while tweed manufacturers were facing a winter of poor promise.

In regard to the probable effect upon the Scotch-tweed trade of the reduction of the American tariff on woolen goods (which will take effect on Jan. 1 next), there are differences of opinion. The new American tariff is at present considered by most mill owners an uncertain element in the situation, mainly on account of (1) the free-listing of wool, which, while lowering prices to American mills, may increase prices in this market; (2) the American preference, for the time being at least, for worsted goods; and (3) the competition of cheaper English and other European cloths.

THE WEAVING OF FILLING LENO

By J. T. B., Forsyth Dyeing Co.

For more than twenty years there have been to my knowledge in various textile journals in this country and abroad frequent

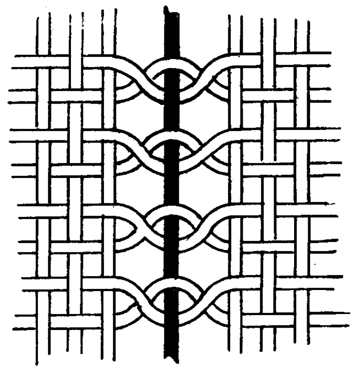


FIG. 1. THE SIMPLEST FORM OF FILLING LENO

inquiries for information regarding the methods employed for weaving filling lenos, such as are seen in certain kinds of scrims and curtains, and occasionally in imported towelings. This information no one seemed

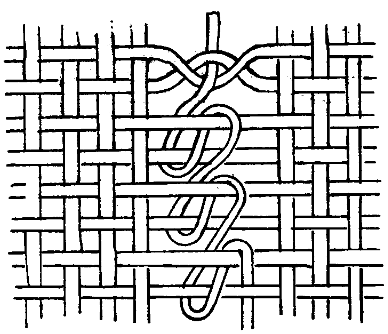


FIG. 2. SHOWING THE LAY OF THE BINDER THREAD

able or willing to impart. One reason is perhaps that many of the filling leno effects are not woven automatically, but are put in

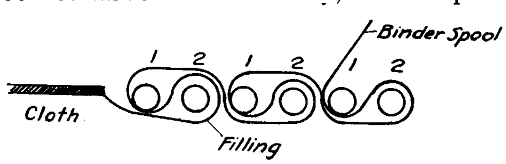


FIG 3. A SECTION OF THE BINDER THREAD

by hand, and come under the head of hand-drawn work. The lack of information obtainable as to the weaving methods of filling leno effects is due principally to the fact that no one has tried to produce this weave in any quantity, because it is the general conclusion that, outside of the interest usually taken in

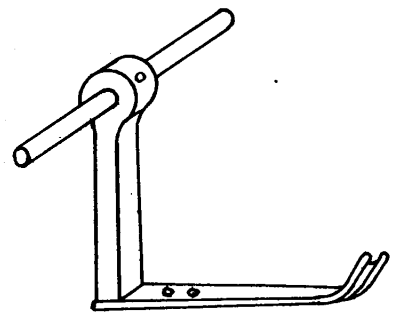


FIG. 4

novelties, the manufacturer of filling leno would have no better chance of selling his

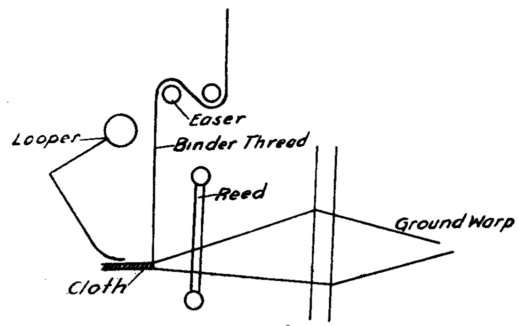


FIG. 6

product over the counter than he would have of disposing of any good warp leno of

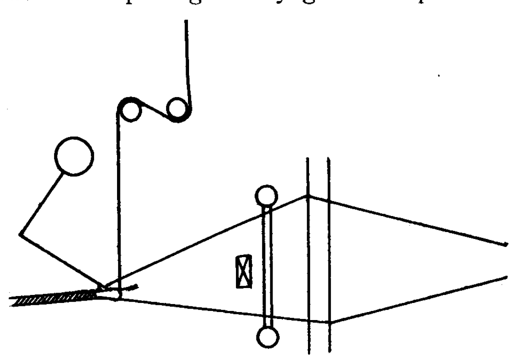


FIG 7

the same grade, and that the production of the filling leno is consequently not worth the effort. Many manufacturers and weavers have grown up with the idea that a filling leno is practically impossible and unprofitable, and a good thing to let alone.

Before allowing ourselves to concede that anything is impossible simply because someone has said so, let us recall for a moment the story of Columbus and the egg. After a study of the accompanying sketches, it should be remembered that all things are not what they seem to be, and that a filling leno is not a filling leno until after it is woven. In other words, the crossing of the filling threads does not occur until after all the picks are in, and is then due to the tightening up of the binder threads.

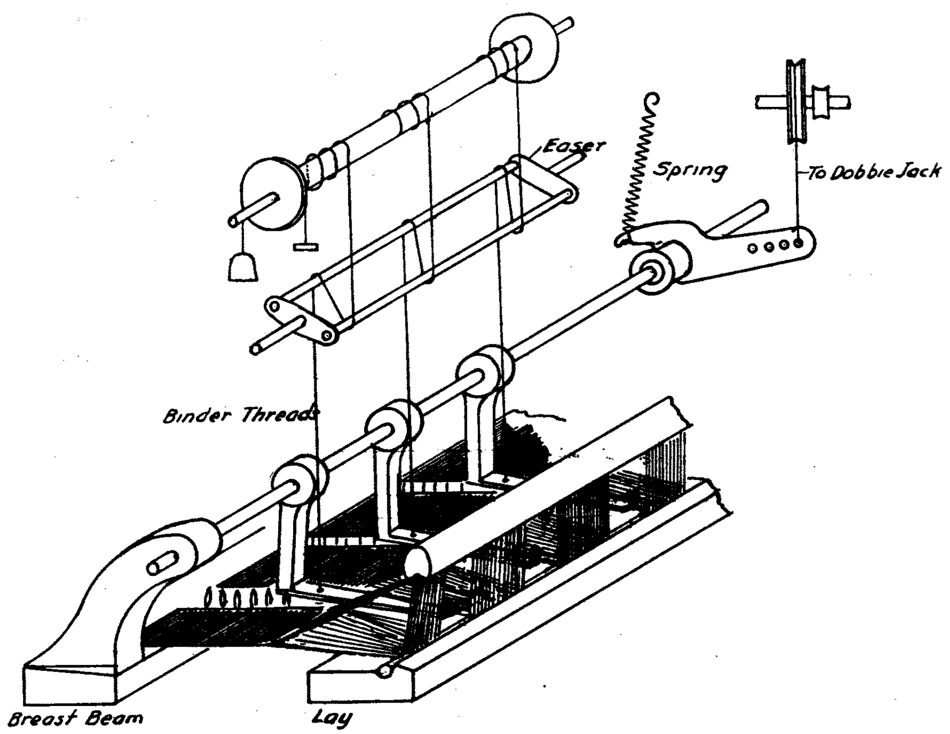


FIG. 5. THE DEVICE FOR WEAVING FILLING LENO

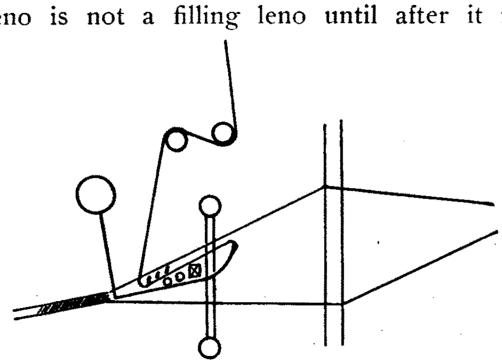


FIG. 8. SHOWING POSITION OF LOOPER AT FOURTH, FIFTH AND SIXTH PICKS

Fig. 1 is a sketch of the simplest form of filling leno. Fig. 2 shows the lay of the binder thread, looking down from above the cloth, as it appears before being drawn tight. Fig. 3 shows a section of the same binder thread. After a careful study of Figs. 1, 2 and 3 there can be no question remaining except as to how the binder thread can be inserted during the process of weaving. If this can be done, we are well on our way toward the successful accomplishment of one kind of so-called filling leno.

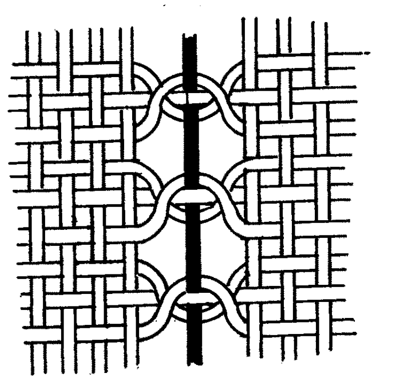


FIG. 9. A FILLING LENO

I will now consider the attachments required on a common power loom to insert a binder thread as shown in Figs. 2 and 3. Mounted in brackets fastened to the breast

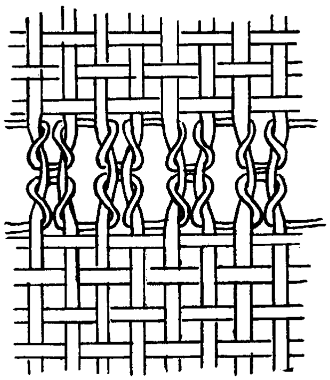
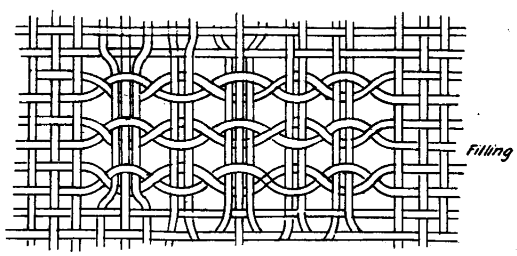


FIG. 10. A FILLING LENO

beam, 6 inches above and directly over the fell of the cloth, is a 7/8-inch shaft, on which brass castings are fastened at intervals. To the lower end of each of these are



Filling Leno Ground Warp as Binder

FIG. 11. A FILLING LENO

brazed or otherwise fastened strips of spring steel, 1/16 inch by 1/4 inch, bent to the proper form and forked at the end to engage the binder thread.

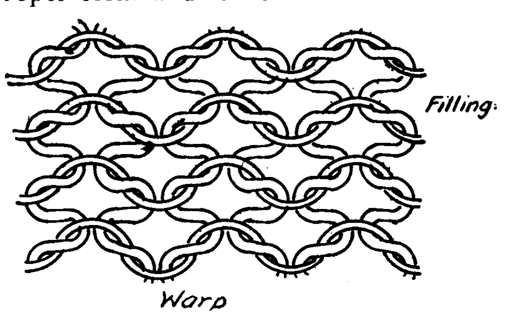


FIG. 12. A FILLING LENO

gage the binder thread. Fig. 4 illustrates the principle involved, but no attempt is made to show the exact form required. Fastened to the most convenient end of the shaft is a double end lever, to one end of which is fastened a spring; and to the other end a strap or cord, which passes over a

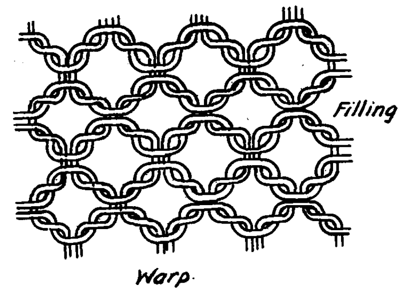


FIG 13. FILLING LENO NET EFFECT

pulley to the jacks of an open shed dobby. Mounted on the arch of the loom are brack-

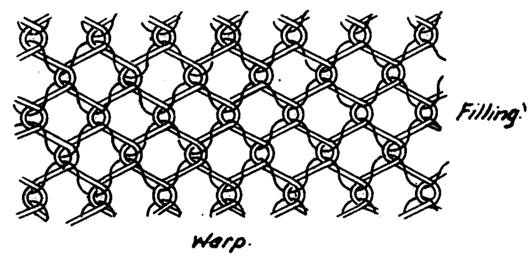


FIG. 14. FILLING LENO NET EFFECT

ets carrying a spool of binder yarn, and an easer similar to a trailer lappet. Fig. 5 shows this device and also the openings in

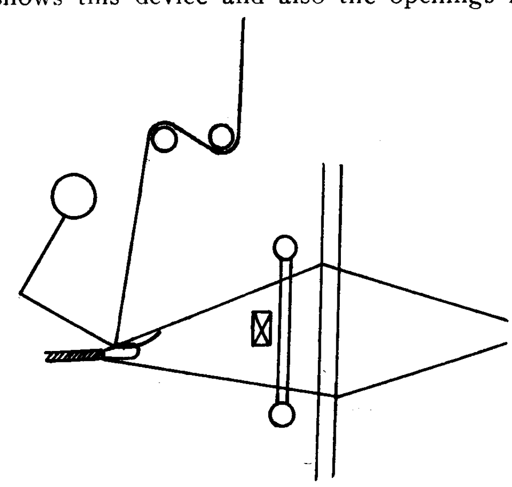


FIG. 15. SHOWING THE POSITION OF THE LOOPER AT THE SECOND PICK

the reed through which the loopers project.

In weaving the filling leno shown at Fig. 1, it makes no difference whether it is one pick crossing one or ten crossing ten, the motion is the same. The loopers must be made to assume three different positions (which can be readily accomplished with an open shed dobby) all the way out, half way

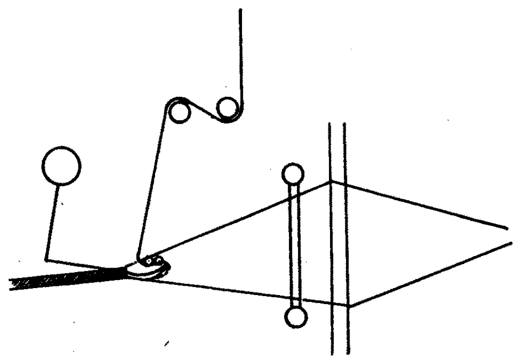


FIG. 16. SHOWING POSITION OF LOOPER AT THE THIRD PICK

in, and all the way in, as illustrated in Figs. 6, 7 and 8, the loom being fitted with a warp and attachments shown at Fig. 5. These three positions of the loopers will cause the insertion of a binder thread in any number of picks in a position similar to the con-

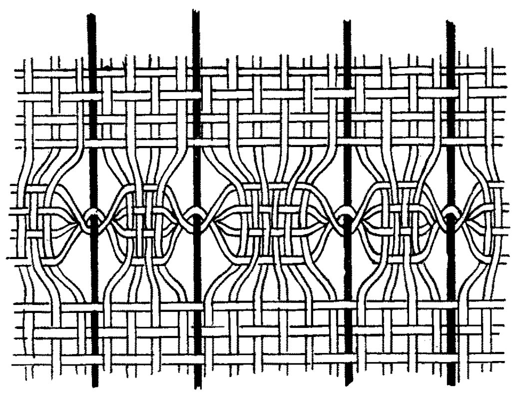


FIG. 17. SHOWING THE CROSSING OF PICKS IN A PLAIN WEAVE

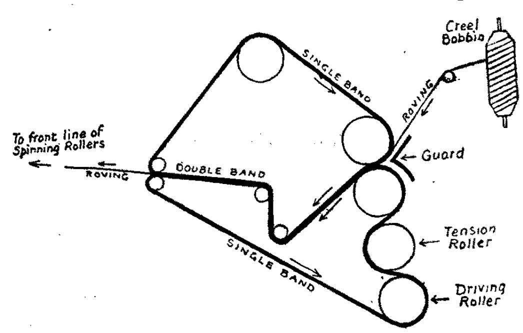
struction shown at Fig. 1. Fig. 15 shows the position of the looper at the second pick; Fig. 16, at the third pick; Fig. 8 at the fourth, fifth and sixth picks.

These sketches illustrate one of four ways of producing filling leno effects on a power loom. A loom fitted as shown at Fig. 5 is not more difficult to run than a trailer lappet, and if properly adjusted should weave at about 150 picks per minute with a 30-inch reed spacer.

Figs. 1, 9, 10 and 11 show filling leno effects in stripes and blocks, while Figs. 12, 13 and 14 illustrate the much doubted, but not impossible weave in net effects. It is in the latter class of work, especially such as is shown at Figs. 12 and 13, that the future of the filling leno undoubtedly lies. Many such intricate and interesting weaves are not only possible, but are entirely practicable. Fig. 17 shows the crossing of picks in a plain weave, using a colored thread as a binder which weaves into the plain cloth ten picks before and after crossing the filling and then floats until the next repeat. It is afterwards cut off by hand.

A NEW COTTON SPINNING DEVICE

There has been applied to a 48-spindle ring spinning machine at Sabadell, in Spain, a remarkable spinning attachment which may prove to be the most important improvement in spinning during recent years. On the small scale mentioned it is reported to have demonstrated that the intermediate and roving frames of a mill can be dispensed



A COTTON SPINNING DEVICE

with without disadvantage. The inventor is Senor Casablancas, a Catalonian, and the company working his patents is the Sociedad Anonima Patente Casablancas. About 400 spinners and other persons interested recently attended a demonstration of Senor Casablancas' apparatus, during which the 48-spindle ring spinner was spinning on one side 70s yarn from 1.00 hank slubbing of Egyptian cotton and on the other side 60s yarn from 1.36 hank slubbing of low American cotton. The draughts were, therefore, respectively 70 and about 45.

The mechanism is simple. Taking the whole machine, the differences entailed by the Casablancas arrangement are these. The back and intermediate lines of drawing rollers are absent, and instead of them there are two endless leather bands, similar to those used in waste or woolen carding engines, running over guide rollers in such a way that they come into running contact with each other during part of their travel and carry the roving along between them from the creel bobbin to the front line of spinning rollers. From this point the operations proceed as usual. The arrangement is shown in the accompanying diagram.

With regard to the performance of the apparatus, it is stated that with a draft of 40 to 50 obtained in this novel way the resultant yarn is strong. With drafts above this it is said, on the authority of one spinner, to be weaker than yarn spun in the ordinary way. It is claimed that, if the sliver is unequal, the natural tendency of the apparatus is to make it more regular, the leather bands pressing more heavily on the thicker sections. It is said, but without any qualifying reference to the drafts employed, that there is a general increase in strength of 5 per cent. over yarn spun in the ordinary way.—The Manchester Guardian.

A NEW PROCESS OF WEAVING WARP PILE FABRICS

BY BOHAIN

I have read with interest the article in your October issue on the process of weaving velvets which is controlled by the Societe francaise du Nouveau Velours, and would like to make some comments suggested by investigations that I have made. The company in question controls the Girard and Clemencon patents and claims the exclusive right to weave with a "lost pick," which is used to form the pile. Vanoutryre & Co., of Roubaix, in their French patent 258,851 of Aug. 12, 1896, seem to have been the first to propose this method of weaving. They used a fixed warp of brass wire, which produces the same effect as the Girard blades. The great difficulty of removing this wire warp from the cloth caused the idea to be abandoned. Nevertheless it was taken up by M. Vincent Gaudonnet (French patent 380,118, July 25, 1907 and May 17, 1910). This operator solved the question of removing the wire and has been operating a number of looms fitted with his device.

The first patent by Girard, dated Feb. 1, 1911, is an exact reproduction of the earlier patents. His second patent was filed in France on Feb. 26, 1912, and relates to the form of the blades. The same is true of the Clemencon patent of Dec. 11, 1912. Since that time the Societe Rodier has obtained a patent for the same kind of goods, patent No. 453,849, Jan. 31, 1913.

This point being settled, we come now to an examination of the value of the process as compared with the methods now in use. The principles of weaving are specialized for different classes of velvets. Looms are constructed for the product desired, the silk looms differing from worsted looms just as different classes of velvet looms differ from each other. The Girard loom can be compared to the wire motion loom used for certain classes of upholstery goods and plush. In narrow widths the maximum speed of the wire motion loom is 100 picks per minute. The Girard loom can be run 130 picks per minute. It costs $120 to adapt an ordinary loom for the Girard system, making the total cost $220. A wire motion loom costs $300 and can be used only for weaving velvets, there being no advantage in weaving other classes of goods on the velvet loom.

The advantages of the Girard loom as compared with the wire motion loom may be summarized as follows: 1. High speed. 2. A saving of $80 in the cost. 3. Less floor space. 4. Built to weave both velvets and ordinary goods on the same loom. There are, however, a number of inconveniences in connection with the Girard system. Although running at a higher speed than the wire motion loom the Girard loom has a smaller production. The blades, which are only 7/1000 inch thick, break frequently and cause loss of time. The shuttle wears the blades rapidly and the lay also wears out quickly, unless the precaution is taken to protect it with a thick covering of wool plush which has to be replaced frequently. It is also necessary to guard against the flying out of the shuttle when passing over the blades. There is great difficulty in "picking-out" for the purpose of repairing a defect in the cloth. Moreover when the cloth is woven it is necessary to shear it in order to cut the tops of the loops and produce the pile, thus causing a waste of material. There is, moreover, the increased waste resulting from the lost picks which must be removed by hand at extra expense. The company claims that the removal of the lost picks costs only a few centimes per meter, but the post picks are drawn tight against the selvage and must be cut carefully so as not to damage the goods.

The operation of the blades requires two extra harness close to the reed which cause difficulty in mending broken threads. Moreover, the pile warp must be woven under slight tension. The system has the advantage of enabling pile fabrics to be woven on an ordinary loom, but it cannot be compared with the regular wire motion loom for the economical production of cloth. It is not possible to weave silk or mohair goods with the new system on account of the low tension under which the pile warp is woven. With material as expensive as silk or mohair this would cause too high a cost. The Girard looms are running at Bohain and Roubaix. There are none in the velvet district of Lyons and Amiens.

A HAND BOOK OF WEAVES

By G. H. Oelsner, Director of the Weaving School at Werdau.
Translated and Revised by Samuel S. Dale

This Series began in July, 1911

DOUBLE CLOTHS

A double cloth consists of two distinct fabrics, face and back, which are generally stitched together by interlacing the face threads with the back threads. The various applications of double cloth construction are as follows:

FIG. 1357

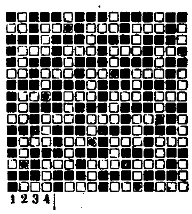
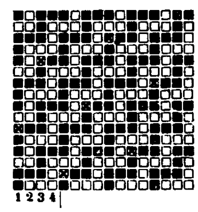


FIG. 1358

FIG. 1359



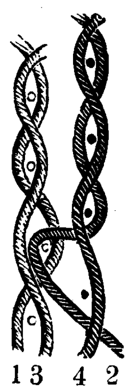


FIG 1360

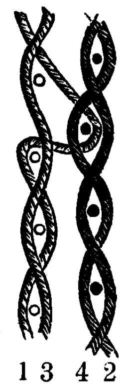


FIG. 1361

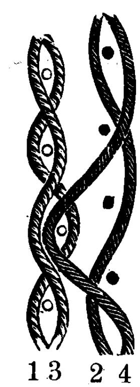


FIG. 1362

1. Hollow fabrics, such as lamp wicking, fire hose, seamless bags, woven felt for covering pipes, etc. The face and back are joined at both sides, forming a tubular fabric.

2. To increase the weight and thickness of a cloth. Often the face does not permit the addition of a back filling only, in which case a separate set of warp threads for the back must be added to carry the back filling.

3. To make the fabric thicker and heavier than is possible with back filling alone. It is evident that in double cloth, the warp threads being divided into two parts, a much

smaller number of threads is woven in one texture than is the case with back filling cloths, in which all the warp threads are woven together. The more open the set of the warp, the more easily will it receive the filling, and thus the thicker and heavier can the cloth be made.

4. For the better production of plaids and checks in both light and heavy goods. If such patterns are made in filling back fabrics the set of the filling is likely to be too coarse, as it is difficult to insert as many face picks per inch in a filling back cloth as in a cloth without back filling. The result of the more open filling set is that each square of the weave represents a space which in the cloth itself is longer than it is wide. The chief defect of such a texture is that the warp colors are more prominent than the filling. This is due to the more open set of the filling, which leaves the warp threads more exposed. This difficulty may be relieved by laying the warp with more open set, using finer yarn for the back filling and inserting more picks.

FIG. 1349 FIG. 1350 FIG. 1351 FIG. 1352

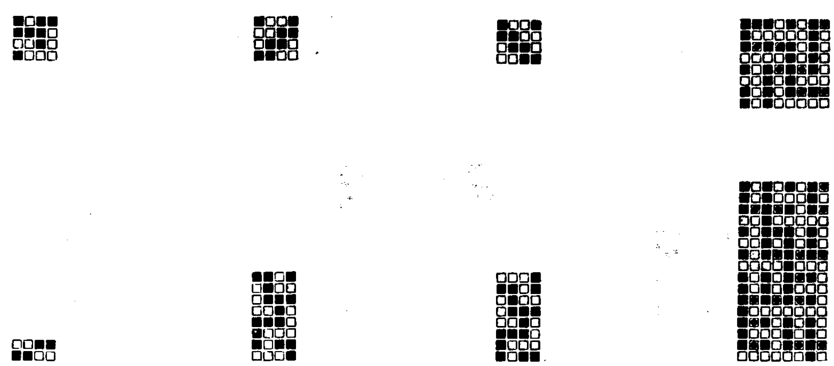


FIG. 1353 FIG. 1354 FIG. 1355 FIG. 1356

FIG. 1363 FIG. 1364 FIG. 1365

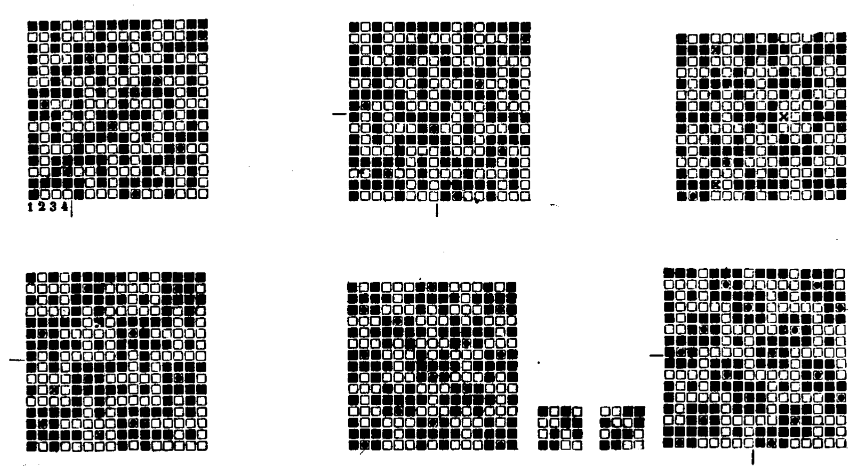


FIG. 1366 FIG. 1367 FIG. 1368-1369 FIG 1370

5. Cloths are also made double that the cost may not increase in proportion to the increase in the weight and thickness. Double textures not only permit of a closer set of the filling, but offer the advantage that in both warp and filling the backing yarn can be made of much cheaper material than that used for the face. This is especially true of the back filling yarn which in double cloths is often very coarse and made of exceedingly low stock. Such yarn, if used for the backing of regular back filling cloths, would be likely to show through on

the face. Moreover the large size of the backing would make it impossible to drive the required number of picks into the fabric.

6. Cloth with face and back of contrasting colors, such as plaid back overcoating. The set and weave of the face of a double cloth are usually made to conform somewhat to those of the back. This, however, is not essential; both set and weave of the back may be entirely different from those on the face. This is not to be understood as permitting the use of any and every possible combination of diverse weaves for back and face, as the shrinking or fulling properties of the different weaves in combination must be considered. Judgment must be used on this point as no fixed rules can be laid down.

The face and back threads in both warp and filling are arranged so that one back thread comes after one, two, three or four face threads. Following are some practical combinations:

Face Weave	Back Weave	Set
Plain	Plain	1 face 1 back
Plain	Plain	2 face 1 back
Plain	Twill 2 up 2 down	1 face 1 back
Plain	Basket 2 up 2 down	1 face 1 back
Basket 2 up 2 down	Basket 2 up 2 down	1 face 1 back
Basket 2 up 2 down	Plain	2 face 1 back
Basket 3 up 3 down	Plain	2 face 1 back
Basket 3 up 3 down	Plain	3 face 1 back
Twill 2 up 1 down	Plain	2 face 1 back
Twill 2 up 2 down	Plain	2 face 1 back
Twill 2 up 2 down	Twill 2 up 2 down	1 face 1 back
Twill 2 up 2 down	Twill 3 up 1 down	1 face 1 back
Twill 2 up 2 down	Broken twill 3 up 1 down	1 face 1 back
Broken twill 3 up 1 down	Broken twill 3 up 1 down	2 face 1 back
Broken twill 3 up 1 down	Plain	2 face 1 back
Satin 5–leaf	Satin 5–leaf	2 face 1 back
Twill 3 up 3 down	Plain	3 face 1 back
Twill 3 up 3 down	Plain	2 face 1 back
Twill 3 up 3 down	Twill 2 up 1 down	2 face 1 back
Tricot long	Plain	4 face 1 back

The set of face and back in the warp may be different from that in the filling. For example, the warp may be set 1 face 1 back and the filling 2 face 1 back, or the warp may be set 3 or 4 face 1 back, and the filling 2 face 1 back. The object of such variations is to increase the proportion of filling in the goods, on account of the lower cost of the filling, and to obtain a better cover on the back.

Weaves for double cloths are drafted as follows:

1. The spaces for the back threads are indicated by the diagonal lines, Figs. 1341 and 1342, in which the set is 1 face 1 back and 2 face 1 back respectively. This is to distinguish the back threads from the face, and serves no other purpose.

2. The face weave is next drafted with black squares indicating warp risers, and blank squares for warp sinkers. For example, Fig. 1343 shows a plain weave on Fig. 1341; Fig. 1344, a 2 up 2 down twill on Fig. 1342.

3. All face warp threads are now raised above the back picks. This is shown by Fig. 1345 for Fig. 1343; by Fig. 1346 for Fig. 1344.

The weave intended for the back is drafted on the back warp and filling threads. The dotted squares indicate warp risers. Figs. 1347 and 1348 show a plain weave on the back of Figs. 1345 and 1346 respectively.

For cloths set 2 face 1 back, the draft is begun 1 face 1 back.

All double fabric weaves are drafted in the manner just described. It is evident that face and back each form separate textures, which may be of different colors.

TUBULAR FABRICS

Seamless sacks or tubular fabrics, such as lamp wicks, fire hose, bags, etc., are usually woven with a plain weave. The warp is made with an odd number of threads. For example, a warp for lamp wicking is made of 67 ends, of which 34 are for the upper and 33 for the lower fabric. This arrangement is necessary to prevent two adjacent threads at the edge from being woven alike.

The double plain weave is shown at Figs. 1347 and 1358, the picks being thrown alternately on face and back. Four threads are drawn in the outside dent of the reed; in each of the next two dents, 2 threads; and 3 threads in a dent for the rest of the warp. The more open set next to the edges is to counteract the tendency of the filling to contract more at the sides than in the center of the cloth.

Fire hose is often made of hemp yarn: warp, 3 ply; filling, 5-ply twisted slack. The warp is reeded 3 in a dent. The filling is set very close, causing a warp take-up of 20 to 25 per cent. The weave is shown at Fig. 1347.

Bags without seams at the bottom are woven with 2 back picks alternating with 2 face picks. The shuttle passes from right to left and return for 2 back picks; then from right to left and return for 2 face picks. In this way the right side is closed, forming the bottom, and the left side is open, forming the top or mouth of the bag. The weave is shown at Fig. 1349.

Each side of the bag is closed by weaving the entire warp (face and back) for a short distance into a single fabric with the weave shown at Fig. 1353. The projecting edges are turned inside the bag.

Seamless bags are frequently woven like fire hose. At the beginning the whole warp is woven single for a short distance, as just described, to close the bottom of the bag. The sides are woven seamless and the edges at the top are seamed after the bag comes from the loom.

Circular woven fabrics are sometimes made to cover cylindrical objects. In Europe the cylinders of rotary cloth presses are occasionally covered with a circular woven felt, which must be accurately made in order that the covered surface of the cylinder may be smooth. Usually they are woven with a 4-leaf twill, 2 up 2 down. In order that the twill may run in the same direction throughout the circumference of the tubular fabric, the twill of the upper weave is run in a direction opposite to that of the lower weave as both are viewed in the loom.

If this requirement is not observed the twill in one-half of the completed fabric will be to the left, that of the other half to the right. Fig. 1352 shows the draft to be used for this purpose; the upper twill is shown at Fig. 1350; the lower twill at Fig. 1351.

For very thick double felt the face and back are each woven with back filling, frequently with a broken 1 up 3 down twill, Fig. 1283. In such cases the order for the filling threads should first be determined. Two methods are available. The upper and lower picks of the face texture can be inserted in succession, and followed by the upper and lower picks of the back texture; or the two inner picks of the cloth (the lower pick of the face and upper pick of the back) can be woven first and then followed by the exterior picks of the cloth, upper pick of the face and lower pick of the back.

Figs. 1354, 1355 and 1356 show a broken 3 up 1 down back filling twill in the first named order, Fig. 1354 being the face, Fig. 1355 the back, and Fig. 1356 the complete double weave. In the woven tube the outside filling corresponds to the upper picks of the face, and the lower picks of the back weave.

REGULAR DOUBLE FABRICS

Double weaves are chiefly used, not for tubular goods, but to increase the weight and thickness of a fabric. For this purpose it is necessary that the two textures should be carefully and regularly stitched together, by interlacing the threads of one fabric with those of the other; in other words, either by raising the back warp above the face filling or by lowering the face warp below the back filling. Raising the back warp above the face filling is called stitching from back to face. Lowering the face warp below the back filling is called stitching from face to back.

The method of stitching has great influence on the appearance and handle of the cloth.

Following are the principal points to be observed:

1. Uniform distribution of the stitchers.

2. The right number of stitchers. General rules on this point are as follows: For 1 face 1 back weaves, 2 stitches are inserted in an area of 8 threads square; for 2 face 1 back, 2 stitchers in an area of 6 threads square; or 2, 4 or 8 stitchers in an area 12 threads square.

3. As far as possible stitch with each back warp thread, when stitching from back to face.

4. Insert, as far as possible, each stitcher where the stitching warp thread is above both the preceding and following picks; also where both warp threads next to the stitching thread are up so as to cover the back

stitcher. This rule refers to stitching from back to face.

5. Arrange the stitchers so as to disarrange the color pattern and weave as little as possible.

ENGLISH NOTES

By Our Regular English Correspondent

Bradford, Nov. 22, 1913.

The fact that two or three Boston wool dealers are opening offices in Bradford is accepted as a sign that business is meant. The incident has not escaped the notice of Bradfordians with American connections and the opening of new offices in America may be expected as a matter of course. The movement will perhaps do something to equalize buying upon American account. It has long and often been said that by spreading their purchases over a greater length of time American consumers might get the same amount of wool for appreciably less money than in buying by jerks. Apparently the proposition is undeniable. Time and again has the news that American buyers were here resulted in raising prices all round. The trade circumstances that compress American buying into short periods have doubtless still to be reckoned with, but according to the stories current on the Exchange, American buying is to be done in future upon a more thrifty plan than in the past. If this means that useful parcels are to be picked up whenever they look cheap the wool will certainly be bought for less. Tops to the value of about $2,000 figure in the monthly consular returns for October and the item is noteworthy as the first shipment of tops made from Bradford to the United States since 1902, when a sample lot was sent. It may be added that in that length of time about $150,000,000 of Bradford tops have been exported to other countries, mainly European.

* * *

There have been inquiries for many other kinds of English textiles than the chief sorts. One received from New York before the signing of the tariff was for made-up coffin linings. Horse blankets and wool finished blankets have been asked for from separate sources, as well as woolen gloves, sweaters and hosiery. Linen table cloths and towelling have also been sought. No very large business has materialized as yet, but a few orders for worsted serges are said to have been placed. The increases in exports to America from Bradford during October were most marked in cotton linings, silk yarn and silk noils, but it is not known that these are attributable directly to tariff reduction. A shipment of $2,500 of human hair possibly means that filter cloths are going to be made with this material. The hair employed in Yorkshire is brought from China and made into tops for the press-cloth, belting and canvas interlining trades.

* * *

A French material called "soie vegetale" which is being exploited in England is in experimental use by makers of furnishing fabrics. The fiber is derived from flax by a special process which improves the natural luster and it is spun, apparently, on worsted machinery, up to 70s cotton counts. The material bleaches to a good white and dyes like linen. The yarn is dearer and not so level as mercerized cotton, but it is understood to retain its luster better in use. It has the advantage of cheapness as compared with spun silk. Some interest has been displayed in the material by straw hat manufacturers, who may be supposed to see in it an alternative to ramie for making braid. Pile mats for bathrooms made from "soie vegetale" instead of from cotton look rich and have a good handle. The yarn has been tried by lace manufacturers without being largely adopted.

* * *

The suggestion has been thrown out to Lancashire spinners that they might do better to adopt night work than build new mills to meet the temporary needs of a boom. Both courses have their disadvantages, but those who have built most new mills of late years have not been men who have stayed to consider the general interests of the industry. Lancashrie operatives are quite unlikely to sanction the introduction of night work and if the union were brought to agreement there would remain the difficulty of obtaining labor. As it is hard to get a sufficient number of young piecers for day work, it is not to be thought it would be readily possible to get them for night. Only a rough class of labor can be got in Bradford by the commission combers who run nights regularly throughout the busy season. In some small communities in Yorkshire the inefficient held that is procurable for emergency night shifts has proved itself very costly in damage to goods. The Colne Valley carded woolen mills have almost standardized the double shift system and although it is to be inferred that the mill books show some advantage in the arrangement there are plenty of doubters among experienced mill men. Some disposition to lessen night working by enlarging plants is seen in the woolen trade.

* * *

The sooty atmosphere of the English textile towns, which is in part the creation of the industries carried on, is not without influence on textile developments. Manchester silk manufacturers point out that these surroundings are very unfavorable to the production of many goods that can be made in Lyons. The dirtiness of the air has moved many finishers of white goods to take special precautions, as for instance in having drying machinery enamelled white so that dust can be seen as soon as it effects a lodgment. One finisher of white wool goods is said to have walls, woodwork and machinery all enamelled white. A Bradford dyer, troubled by coal dust as well as by smoke, surmounted a heartbreaking series of difficulties only by taking in air for the white department through the mill roof and conducting it downwards through filters to a horizontal trunk for distributing air in the room. These measures do not exclude all dust, but in conjunction with active care in covering all standing goods with clean sheeting they make satisfactory results possible. Mill chimneys are well watched by the smoke inspectors and are perhaps more apt to turn out grit than soot in these times. Household fires consuming or distilling soft coal in open grates are believed to be the most efficient air polluters, but they get some assistance from industrial furnaces in such places as Glasgow, where there is a soot-and-dust fall of 1,330 tons per square mile per annum. New gauges that are now being erected in various towns will give fuller information concerning dirt in some other places. The loss of sunlight through smoke and dust suspended in the atmosphere in manufacturing towns in this country is computed at 25 to 40 per cent. Fifty years ago Leeds people used to grin at each other through the smoke clouds and say, "More smoke, more trade," but that dogma has been fatally shaken.

* * *

A speaker at a textile students' dinner in pointing out ways to become a millionaire mentioned one which should produce the desired result in five years. All that is needed is to invent a process for softening the handle of wool so that manufacturers can give the softness of 64s to cloths of 50s to 56s quality. The reward may look liberal in relation to the achievement, but it has to be recognized that the highest class markets of all countries demand this softness as a minimum. When the price of merino rises to excessive heights attempts are made to substitute 56s, but the market is never comfortable with this quality and after ordering a few pieces resolves that what it really wants is 64s at a lower price. The lower quality may actually be the better value in wear, but it never fills the place of its superior satisfactorily. An achievement that would bring 64s down to the price of 50s, or establish the large supplies of fine crossbred in the same markets as merino ought to be worth a million in sterling, although some more momentous discoveries have brought less to their inventors.

* * *

It is recalled that when J. & P. Coats was formed into a combine twenty years ago the chairman told the shareholders they would not be given any particulars of the business, as the publication of details would be against their own interests. The rule has been kept and when the policy of the directors in respect of the handling of reserve funds has been questioned, they have met the challenge by offering to resign in a body. They have construed it as their duty to pay 35 per cent. on common stock and to pile up reserves of $45,000,000 behind the nominal $50,000,000 of capital. Their profits last year are about $500,000 higher than before and are very close to $15,000,000. Three members of the Coats family deceased within the last two years have left an aggregate twenty-five millions and it is to be expected that the visible total will be considerably increased by the recent death of Peter Coats, whose fortune is not yet disclosed. These profits from sewing thread mainly made in the last twenty years interest people who remember that Paisley was so notoriously poverty-stricken half a century ago that its people would resort to any circumlocutions to conceal their place of origin from strangers.

* * *

Derby is not distinctively a textile town in these days, although there may be about 2,000 persons employed there in winding and throwing silk, wrapping electrical wires, making fancy cords, trimmings and knit goods. It has, however, a peculiar interest for textile folk as the site of the first mill to be erected in England. The mill was Lombe's, who introduced power silk-throwing into England from Italy in or about 1717. Two fires have destroyed the last traces of the original structure, but it is still possible to visit the island site in the river Derwent and experience there the strange emotions that overcome one in considering the developments at large of the modern factory system from its cradle. Places of less intense interest are certainly visited by American manufacturers on their trips to England. The adjacent electrical works and the modern flour mill and flypaper factory occupying the historic site are not favorable local influences, but there are old buildings near at hand to assist the imagination. On the approach in Old Silk-mill Lane there is a genuine relic in the form of a pair of gates, not much more than six feet in width, but of great beauty. These wrought iron gates, which are the property of the Corporation of Derby, bear Lombe's monogram. In looking at them it is worth bearing in mind that in 1732 the mayor, aldermen, brethren and capital burgesses of Derby opposed Lombe's application to Parliament for an extension of his patent. They represented that the introduction of silk-throwing had been injurious both to the woolen industry and to the borough in general. Agreeing that the machinery employed a great number of hands, they pleaded that it kept the poor at home, thereby increasing the number of persons to be maintained by the poor rate.

* * *

Steps are in progress to secure a revision of the regulations as to the sorting, washing and combing of wools liable to convey anthrax and to bring the rules into line with

THE GATE AT THE OLD SILK MILL LANE

the increase of knowledge. The old theory was that the infection lay in the dust and the principal aim of the rules is to remove dust by fan-suction so that it shall not be breathed or be allowed to lodge. Dust is in some circumstances still a danger, but it is an established fact that dried blood present upon the fleece is the prime source of evil and the new regulations will certainly provide for the disposal of blood clots. Van mohair and in a lesser degree Turkish and Cape mohair, Persian and East Indian wool camel hair, alpaca and cashmere are the most prolific sources of contagion and as these materials are dealt with mainly in the Bradford area that district provides the largest crop of cases of disease. If the Bradford coroner is right, deaths from anthrax may be more numerous than has been recognized. At all events in one case death from anthrax was proved after natural causes had been ascribed. In another instance where anthrax was suspected as the cause medical testimony showed that no germs were present in the blood of the deceased. The facts disclose a margin for doubt which can only be set at rest by systematic investigation. In the case first named the sufferer died from an infection that could not, in the doctor's opinion, be more than five days' old, yet he had not been at work for three weeks. It was declared possible that the bacillus had been carried in his clothing for that length of time. The alternative possibility was that the germ might have been conveyed by his bedfellow, who did not personally contract the disease. In the eight years, 1905-1912, there have been 75 recognized cases of anthrax in the city of Bradford, of which 29 have proved fatal.

* * *

W. P. Dreaper, a chemist who has paid close attention to the nature of artificial silks, has propounded a formula based upon statistics. Omitting the data, his calculation is that the British textile industries would employ 600 chemists if one were engaged for every two thousand employes. Each would have the supervision of goods worth $2,500,000 upon the average and they would save five millions of expense if they succeeded in cutting 10 per cent. off the coal bills. How many chemists are kept is unknown, but in the dye houses there are some fair chemists who are not employed specifically as such, although their advice is available. Perhaps the number of professional chemists is less than one hundred. However there are consulting chemists as well as staff chemists and for about the same fee as is paid to the accountant for the annual audit of the books a manufacturer can have an audit of his materials. He has a right to call upon the chemist's services in testing supplies or in solving little difficulties and this arrangement brings expert assistance within everybody's reach.

MOISTURE IN COTTON YARN

BY PERICLES

Notwithstanding the widespread discussion of moisture in cotton and the fact that everyone is tending towards all possible economies, there still remains the opportunity of increasing profits by regulating the amount of moisture. I have talked to a number of mill owners and superintendents and they claim that every progressive mill pays strict attention to this item. My experience has been that of a consumer and not a manufacturer of cotton yarn. Since I first gave this matter my attention I have kept track of all the cotton yarn used in one mill, which has amounted to over five million pounds, and had records of the moisture content. Of this amount about 10 per cent., or five hundred thousand pounds was English yarn, the remainder being American spun. The American yarn gave results varying from 5 to 7.7 per cent. of moisture. which was the highest figure obtained. The average was 6 per cent. The lowest results from the English yarn was 6.6 per cent., and the highest 9.1 per cent. The average was 8.4 per cent., or approximately the accepted standard. On the other hand, there had been purchased 4,500,000 pounds of American yarn whose moisture content averaged 2 1/2 per cent. below normal.

A car of cotton came to the mill and a sample was taken from the interior of a bale immediately and tested. This showed 5 per cent. of moisture. The bale was then spread open in the warehouse and the next day tests showed the presence of 6 per cent. moisture. This yarn had gained 1 per cent. by standing in the warehouse twenty-four hours. This was almost invariably the case with American yarns, and when the inventory was taken there was always found to be on hand a large excess of yarn over the amount purchased. While there are many spinning mills that see to it that their yarn contains the right amount of moisture, there still are many that do not give this any consideration, as evidenced by the fact that 4,500,000 pounds of yarn was purchased with a moisture content far below the standard.

In regard to the variation of moisture according to the condition of the atmosphere at the time of testing, it is safe to say that this has practically no effect. When cotton is baled it is greatly compressed, and then tightly wrapped so that the surface exposed is negligible compared to the amount of cotton in the bale. When a sample is taken the bale is broken open and the sample taken from the interior. As this is immediately placed in an air tight receptacle there is very little chance for it to be affected by the atmosphere. A bale of cotton yarn was placed in a number of different rooms, varying from one warm and dry to ones cold and damp, and warm and damp. The total weight of the bale never varied more than three pounds. This is a little over one-half of one per cent. of the total weight of the cotton. In the case previously mentioned, the car of yarn had been in transit during a stormy spell, and when it arrived it was found that the roof leaked and considerable water had dripped onto the bales. In spite of this the moisture in cotton in the interior of the bale was only 5 per cent. It seems reasonable to presume, therefore, that the moisture content of cotton as just taken from the bale is the same as when it was baled in the cotton mill.

If the American manufacturer is to be on a more competitive basis as regards the English manufacturer, he should meet him on his own ground. If the English yarn man sees to it that his yarn contains the full limit of moisture, the American manufacturer who makes yarn such as has just been described is laboring under the additional handicap of curtailing his possible output 2 1/2 per cent.

I had quite a talk with the man who supplied some of the above yarn. His mill turned out 40,000 pounds a week. I did not think that he knew what the moisture content of his yarn was, so it seemed a good chance to find out. While talking I mentioned that today a concern must be up to date and know what they were getting, and to be sure they were getting cotton and not water the yarn should be sold under specifications. If the moisture was excessive allowance should be made. The man looked worried. He said his price had always been rock bottom, and he could not stand any possible loss from excessive moisture, but he knew his yarn was made honestly and did not contain much water. Of course specification buying would mean a give and take method. If the specifications allowed 8 1/2 per cent. moisture, any excess of that would mean a reduction in price, but also when the yarn was below that figure the consumer would have to pay a bonus to the manufacturer. Whether the man knew this or not I do not know, but I did know that he was not familiar with his own product for he could have increased his output 1,000 pounds a week at practically no cost.

If some manufacturers could see the inventory of this mill, and see the yearly consumption of cotton plus yarn on hand so greatly in excess of the amount of yarn purchased, it would convince them of how profitable it would be to have this gain take place in their own mill before the cotton was baled, instead of in the warehouse of the consumer.

CAUSTIC SODA IN SHEEP DIP

Editor Textile World Record:

I have read "Chemical's" letter in your November issue, in which he attacks the use of caustic soda in the sheep dip used on South African sheep. The suitability of this, or any other, sheep dip cannot be reasonably determined by a mere appeal to prejudice. Caustic soda and potash enter into soap, but it cannot therefore be said that wool ought never to be washed with soap, although it is best, of course, that the alkali should be fully neutralized. Moreover the conditions in which soap is used on wool are much more favorable to active harm than in the process of dipping a live sheep into an alkaline solution for two minutes. Those who have tried to dissolve wool in caustic soda are aware that the solution needs to be strong and hot and that the action requires some time to be thoroughly effective.

It is necessary to realize in what manner caustic soda does disintegrate wool. It acts by attacking the sulphur which all wools contain. But in the recipe given the caustic soda is supplied with an abundance of free sulphur to begin with and it is obvious that in these circumstances even free alkali is much less likely to attack the sulphur present in the wool structure during a short immersion. As cotton bleachers may well know, caustic soda combines with sulphur to form sodium sulphide and incidentally to cause yellow stains upon the goods. Had "Chemical" gone to a little more trouble in his attempt to make manufacturers' flesh creep, he might have pointed out that sodium sulphide is the re-agent used by many fellmongers for loosening skin wool from the pelts of slaughtered sheep. The sulphide is painted on the flesh side of the hide at night and the wool can be pulled away easily by hand in the morning. I will make "Chemical" a present of this fresh suggestion, merely pointing out meanwhile that no cases of hairlessness from use of this dip have been reported from South Africa. The directions as to mixing so that the soda shall "boil readily" and as to standing up-wind in adding the soda to the sulphur cream, point directly to the chemical reaction between the alkali and the sulphur.

Doubtless it would be far better—were there no reasons to the contrary—to use no dipping compositions, but to work the animals in plain water. The sheep, however, are susceptible to insect pests and to diseases which do more damage to wool than even caustic soda. Dipping compositions are used as preventatives and it is for veterinarians to decide whether from the hygienic point of view one mixture is better than another. Manufacturers have not gone very extensively into the question of how sheep dips are made and several of the mixtures are secret, proprietary medicines which may contain ingredients either less or more detrimental than sulphide of soda. Articles known to be used in making sheep dips include carbolic and cresylic acids, arsenious acid, corrosive sublimate (bi-chloride of mercury), tobacco juice, alkaloids of tobacco, sulphate of zinc, carbonates of soda and potash, rosin soap and soft soap. It is difficult to be certain that any one dip is better than another, and a manufacturer may be moderately content with any medicine that is less injurious than the disease. It is significant that no tangible evidence is forthcoming to prove damage resulting from the use of sulphur and soda. Venator.

SETTING AND REMOVING RING TRAVELERS

From Mitteilungen ueber Textil-Industrie

The apparatus shown at Fig. 1 is manufactured by Gebruder Staeubli, Horgen, Germany, and used for setting and removing ring travelers. The object is to reduce to a minimum the time lost by keeping the machine idle. The travelers can be removed from 400 rings and new travelers set in their place by two girls in 6 to 7 minutes, an operation that by former methods requires from 20 to 30 minutes. As a result of this saving

FIG. 1

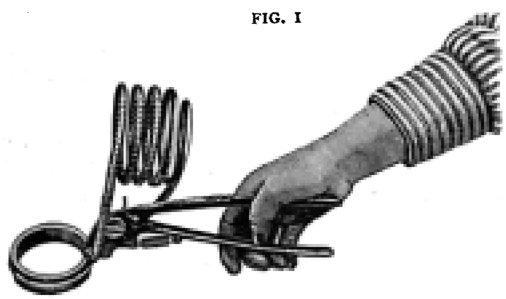


FIG. 2

of time the apparatus soon pays for itself. Heretofore the travelers have been generally placed on the rings by hand which is a difficult operation, especially in the case of heavy rings. Moreover much time is lost in separating the travelers. The new apparatus is provided with a removable spiral ring which serves to carry from 400 to 500 travelers. The travelers slide along this wire and one is set on the ring by a pressure of the hand on the handles of the apparatus. The apparatus for removing the old travelers from the rings is shown at Fig. 2. The pressure of the hand on the handle removes the traveler, which slides on a wire carrier, preventing all possibility of the traveler falling on the floor. No injury to the ring results from the use of these tools.

Questions and Answers

Under this head we undertake to answer, free of charge, to the best of our ability, questions pertaining to textile matters received from any regular subscriber to the TEXTILE WORLD RECORD. Questions should be stated as briefly and concisely as possible. Inquiries pertaining to textile processes, machinery, improvements, methods of management, the markets, etc., are especially invited, as well as any legitimate discussion on the views expressed. All inquiries must be accompanied by the name of the person inquiring, not for publication, but as an evidence of good faith.

If the question is not of general interest to textile readers and involves expensive investigation, a charge covering the cost may be made, of which the inquirer will be advised before any expense is incurred.

CROSS DYEING OF COTTON AND ARTIFICIAL SILK

Editor Textile World Record:

Is there any method of dyeing to prevent direct blues and blacks from going on the artificial silk in a cotton and artificial silk mixture dyed at a temperature of 120° to 140° F.? Solon (2148).

There is to my knowledge no method at present in use for dyeing ordinary white or colored effects on goods containing artificial silk threads. As the majority of artificial silks possess equal, if not greater, affinity for direct colors than cotton does, it seems very difficult with additions of ordinary substances to attain any suitable effects.

If, however, the material has been properly prepared before weaving, and other than direct colors are used, the case is different as several processes can be applied. By using, for instance, dyestuffs that dye only on a mordant, and mordanting only the cotton, if the same is woven with some of the ordinary artificial silks, and the woven fabric dyed in the said dyestuffs, it is possible to dye the cotton leaving the artificial silk undyed.

The following examples give an idea how the process is carried out:

Example 1: Weigh the yarn necessary for the amount of cloth to be manufactured, steep overnight in a 10 per cent. tannic acid solution. The mordant is best strong as it then draws more rapidly out of the bath the dyestuff during the dyeing; take from the mordant on the next morning, squeeze lightly, and treat in a 3 per cent. tartar emetic solution for twenty or twenty-five minutes; rinse and dry by hanging in a hot oven or chamber. When dry send to the weaver to be woven with the necessary quantity of artificial silk. The yarn destined for the warp that has thus been mordanted should not be sized, as this would only complicate the subsequent operations. As the cloth leaves the loom it can be dyed straight away in basic dyestuffs. It is, however, necessary to use certain precautions. For instance the coloring matter is added in small quantities at a time, letting the bath be exhausted between each addition. In this way the color is absorbed by the mordant before it has time to go on the artificial silk. A soaping after the dyeing should in all cases be avoided as it would through the bleeding of the basic colors dye the artificial silk more deeply.

Example 2: Boil the cotton well with soda and steep for twelve hours or overnight in a solution made up as follows:

50 parts	acetate of chrome 32° Tw.
64 parts	caustic soda lye 72° Tw.
2 parts	glycerine sp. gr. 1.260.
84 parts	water.
200 parts	32° Tw.

The addition of the glycerine is essential, or the alkaline mordant will become useless after a few hours, owing to insoluble compounds of chrome being precipitated.

When the material has been subjected to the steeping it is thoroughly hydroextracted and washed in running water for some time. It is then dried by hanging in a drying room. When dry it is sent in to be woven with the artificial silk. The cloth produced is next dyed alizarine black.

For this purpose a hot water bath is prepared containing three quarts of acetic acid 9° Tw. for every 1000 lbs. (120 gallons) of water and 25 lbs. common salt per 100 lbs. of cotton cloth. The required quantity of alizarine black is now stirred with three times its weight of water, and a small portion of this solution added to the boiling dye bath through a fine sieve. The goods are then moved in the bath, and at intervals of ten minutes the rest of the dyestuff is added in small portions at a time.

After dyeing, the goods are well rinsed in hot water, and, if necessary, they are soaped and treated with a weak bleaching agent. In this way white artificial silk effects on a black ground are produced. If colored effects are desired these can be obtained by dyeing the artificial silk in colors that can resist the dyeing in alizarine black.

Example 3: The cotton yarn is first boiled in a weak lye till all impurities or size has been extracted, well rinsed, soured for a short time and rinsed again. It is then steeped overnight in a very weak sodium hypochlorite solution of sufficient strength to do the bleaching in ten or twelve hours. When the desired white has been obtained the goods are well rinsed, treated with a weak sour and finally washed till all traces of acid have been expelled. They are then hydroextracted and dried. The dry yarn is then impregnated in a bath made up according to the following recipe:

50 parts (by weight) Betanaphthol are dissolved in
50 parts caustic soda lye 36° Be and
600 parts warm water.
The following ingredients are added little by little:
100 parts Turkey red oil 50% fatty acids,
20 parts sodium aluminate dissolved in
200 parts water,
130 parts gum dragon thickening 5%.
———
1150 parts in all.

The yarn is then dried at 100° to 120° F. The material thus treated is then woven at once, as the mordant after a time undergoes decomposition. On receipt from the weaving shed it has to be passed for this reason at once through the developing or dyeing bath which is prepared as follows:

12 parts paranitraniline and
8 parts sodium nitrite are mixed carefully with
80 parts cold water. This mixture is poured slowly into
40 parts hydrochloric acid 22° Be.
200 parts ice and iced water
Mix for one-quarter of an hour, filter, dilute with iced water and bring in all to
———
800 parts.

Before using add a solution containing
50 parts acetate of soda in
150 parts ice cold water, and bring in all to
———
1000 parts.

After dyeing the goods are well washed in running water and treated if necessary with a suitable bleaching agent.

I am at present studying a method of treating the artificial silk threads to resist the dyeing in direct colors, and would be willing to sell the same if a convenient offer were made me.

Raffaele Sansone.

BLEACHING BINDING

Editor Textile World Record:

We are enclosing two samples of seam binding made of cotton warp and silk filling. We weave this in the white, but wish to dye it in colors. The white is quite satisfactory, but after dyeing it, as you will notice, it loses a good deal of the silky effect. We also find that the binding shrinks and seems to have a tendency to cover up the silk.

What would you advise as the best way of handling this binding in dyeing to get the best results as to non-shrinkage and to retain the silky luster of the filling? Mayfair (2206).

The marked defect in this binding is due to the defective preparation of the material, or rather to an improper boiling-off of the silk. Boiling-off frees the silk from the gum that surrounds it and renders it soft and brilliant. The boiling-off bath contains Marseille soap equal to 25 to 30 per cent. of the weight of the silk to be treated. The silk is immersed in this solution for two hours at 95° Tw. It is a good plan in order to preserve the white to immerse the silk from three-quarters to one hour in another bath containing only 15 per cent. of soap. After boiling off the silk is rinsed thoroughly, a small quantity of carbonate of soda being added to the bath. For clear shades like the sample it is necessary to bleach in peroxide of hydrogen. The ribbon is treated from 4 to 5 hours in a solution of peroxide of hydrogen, 10 volumes, and 3 parts of silitate of soda at 40° Be. Then rinse thoroughly in water. Gaul.

COUNTERVAILING DUTIES AND THE FIVE PER CENT. DISCOUNT

Editor Textile World Record:

Please state what effect the countervailing duty has on tops imported from Australia. Australia pays a bounty on a limited quantity of tops produced in that country. Does this result in the countervailing duty being imposed on all tops imported from Australia or only on the tops on which the bounty has been paid? Has the administration any discretion in collecting the countervailing duty? I would also like an explanation of the 5 per cent. discount clause which applies to duties on goods imported in American vessels. Is this discount calculated on the total value or only on the duty? Wollfabrik (2252).

The paragraph in the Underwood tariff law imposing a countervailing duty on certain imports is the same as the one in the Payne tariff, and is as follows:

That whenever any country, dependency, colony, province, or other political subdivision of government shall pay or bestow, directly or indirectly, any bounty or grant upon the exportation of any article or merchandise from such country, dependency, colony, province, or other political subdivision of government, and such article or merchandise is dutiable under the provisions of this Act, then upon the importation of any such article or merchandise into the United States, whether the same shall be imported directly from the country of production or otherwise, and whether such article or merchandise is imported in the same condition as when exported from the country of production or has been changed in condition by remanufacture or otherwise, there shall be levied and paid, in all such cases, in addition to the duties otherwise imposed by this Act, an additional duty equal to the net amount of such bounty or grant, however the same be paid or bestowed. The net amount of all such bounties or grants shall be from time to time ascertained, determined, and declared by the Secretary of the Treasury, who shall make all needful regulations for the identification of such articles and merchandise and for the assessment and collection of such additional duties.

During the consideration of the Underwood tariff in the Senate, the Australian bounty on worsted tops was discussed. Not long after that the Assistant Secretary of the Treasury sent the following letter of instruction to collectors of customs:

Treasury Department, Sept. 8, 1913.

To collectors of customs and others concerned:

The department has received from the Secretary of State copies of the "Bounties act, 1907," and the act amendatory thereof, cited as the "Bounties act, 1912," of the Commonwealth of Australia, from which it appears that export bounties are paid by the Government of that country as follows:

1. On fruits (except currants and raisins), or candied, for a period of 10 years from July 1, 1907, at the rate of 10 per cent. on the market value, the total payable in any one year not to exceed £6,000.
2. On combed wool or tops, for a period of three years from January 1, 1913, at the rate of 1d. per pound for the first 1,000,000 pounds made by any one manufacturer, and 3/4d. per pound for each pound in excess of 1,000,000 pounds made by any one manufacturer, the total payable in any one year not to exceed £10,000.

Collectors of customs are, therefore, hereby instructed that, in accordance with the provisions of section 6 of the tariff act of August 5, 1909, additional duties equivalent to the export bounties paid by the Commonwealth of Australia upon the said articles should be collected thereon when imported either directly or indirectly from that country.

The Secretary of State has this day been requested to instruct the American consular officers concerned to certify on invoices of the articles in question the amount of the export bounty which has been or will be paid thereon by the Australian Government.

This decision will take effect 30 days after date.

Charles S. Hamlin, Assistant Secretary.

This letter makes it reasonably clear that worsted tops imported from Australia since Oct. 8, 1913 are subject to a countervailing duty equal to the amount of the export bounty paid on such imports as certified on the invoices by the American consuls. If no export bounty has been or will be paid then no countervailing duty is collected when the tops are brought to the United States.

The paragraph in the Underwood law providing for a 5 per cent. discount on goods imported in vessels of American registry is as follows:

That a discount of 5 per centum on all duties imposed by this Act shall be allowed on such goods, wares and merchandise as shall be imported in vessels admitted to registration under the laws of the United States: Provided, That nothing in this sub-section shall be so construed as to abrogate or in any manner impair or affect the provisions of any treaty concluded between the United States and any foreign nation.

This discount paragraph has proved thus far to be a dead letter. Nearly all foreign nations have treaties with the United States, which expressly provide that their products shall be admitted on as favorable terms as are granted to products imported in vessels of American registry. Under these conditions an enforcement of the discount paragraph in the present law would mean a reduction of 5 per cent. of the duties on all imports. The administration had thus far collected the Underwood duties without discount, and, unless this policy is changed, the enforcement of the discount clause will have to wait on the slow process of changing treaties with foreign nations. The discount paragraph makes it quite clear that when applied to the Underwood duty on tops it would mean a reduction of 5 per cent. of such duty, that is, from 8 per cent. to 7.6 per cent. ad valorem.

VARIATION IN SIZES OF HOSIERY

Editor Textile World Record:

I would like to know the ratio of reboards or odd sizes and sizes running larger or smaller than intended in making silk hose like sample enclosed; also the ratio of gauze weight hose manufactured on the Mayo model A and C machines. Out of a batch of 50 dozen what is the average number of off sizes? Booth (2247).

When machines are properly set for one size there should not be any variation in sizes except in the variation of the yarn and that will be found very small, either in silk or with the size used in gauze, which is generally about 2/80s on 240-needle, 3 3/4-inch machine, or 220-needle on 3 1/2-inch machine. It is possible that in running through a batch the size on the machines may be changed. Unless the fixer happens to hit it the first time he may have to make three or four stockings before getting the size right, and of course, the more machines used in making the batch the more off sizes will be the result. The machines all run with a chain for length and changes. When once set and length of stitch not changed all goods should come off alike except for variation of yarn. If the yarn runs heavy the goods will naturally be tight and short and just the reverse when the yarn is lighter than it was when the length of stitch was set for the size intended.

The variation of yarn should cause little trouble as a number of ends are used in silk and it is very seldom if ever that all light ends come together at one time. In cotton there are usually two ends twisted together, and the same rule will apply. Cipango.

YELLOW SHADE OF MERCERIZED GOODS

Editor Textile World Record:

I am having some gray goods made for a customer. The yarns are mercerized and the goods shipped to a bleachery. When these goods are woven with a plain weave there seems to be no trouble, but when they are woven with dobby figures, my customer complains that when returned from the bleachery the cloth has a yellowish tinge. Upon taking this up with the mill I am assured that the cotton and the mercerizing process for the yarns and all other details have been precisely the same as in the case of plain weave. The bleachery contends that the process is precisely the same as in the case of the plain wave and they are unable to account for the yellowish tinge. Can you throw any light upon this? Do you think mercerizing yarns are apt to affect them so that when cloth made from them is piece-bleached it would have a yellowish tinge, which would not be the case if the yarns had not been mercerized?

Manhattan (2236).

It is difficult to reply in a practical and intelligent manner to this complaint without a sample of each of the two kinds of goods referred to. Just why the plain woven goods should be free from trouble and the figured weave show the discoloration is impossible to explain, in view of the bleachery's statement that the chemical treatment of the yarns is exactly the same for both classes of cloth.

Yellow discolorations have been traced directly to the presence of iron entering the bleaching process at some point. Rosin soap has also been responsible for discolorations. Excessive bleaching is known to cause trouble which shows as a yellowish tinge.

The presence of ultramarine as a whitener when used in the dressing of yarns is often responsible for yellowing of otherwise white and well bleached goods.

There are a number of circumstances that might contribute to this disagreeable defect, but a correct diagnosis of the case can only be made after a sample of the goods be forwarded for examination. A clipping not less than 100 square inches is necessary for a proper test. Berwick.

CARDING SILK NOILS

Editor Textile World Record:

In carding 4 1/8 run yarn from 100 per cent. white silk noils we are troubled with the roving sticking badly on the card condenser rub rolls and also on the rolls of the spinning mule. We oil this stock with a double pressed red oil emulsion. Can you give us a remedy for this difficulty?

Humphrey (2223).

I have run white silk noils up to 5 1/4 run and always take them right from the bale, run them through the mixing picker to loosen them up, but never put any emulsion on them. Have the rub aprons smooth and do not run the fancies on hard. I have used red oil that made the stock stick to the rubs. I do not think it is a good plan to use red oil for cotton or silk. I run the doffers on the first and second breakers very slowly so as to get out all the splints, seeds or any foreign material that may be in the stock, but as stated above I do not use any oil or emulsion. Krenzer.

I have never used oil or emulsion on silk stock and do not wonder that "Humphrey" is having difficulty. Silk noils should be moistened up to 10 per cent. with a light soapy water or plain water could be used. It is a good idea to leave the stock pressed in a closed box for two or three days during which time the moisture is evenly distributed throughout the fiber. Wheaton.

VARIATION IN YARN SIZES

Editor Textile World Record:

We have been having trouble with all our yarn, which reels heavier than the count ordered. While we know there will be some difference, yet it has been too much and always on the heavy side. About what variation should we count on? Remember we buy in the East and it is shipped West, which will make a difference. In reeling worsted, wool and cotton yarn how many yards should be reeled and into what number should the number of grains be divided in each case?

Caravel (2231).

The question of variation in yarn sizes depends on the conditions under which the tests are made. If the sample measured and weighed is large enough to give a fair test (120 yards is usually considered ample), with the same tension in reeling, and with careful weighing under the same conditions of temperature and relative humidity, the results would be comparable. Any variation in tension during reeling, inaccuracy in weighing or variation in the temperature and relative humidity at which the tests are made, would cause corresponding differences in the indicated count. The variation due to changes in temperature and humidity are important, though generally ignored. Take for illustration a cotton yarn which when tested on July 17, 1911, at Boston, Mass., with the temperature 68° F. and the relative humidity at 97 per cent., was found to be No. 60. The same yarn if tested on January 8, 1912, with the outside temperature at 80° F. and the relative humidity 62 per cent., in a room heated to 70° F. without regulating the humidity, would have been No. 67.4. "Caravel's" complaint as to heavy yarn is dated August 30. If he makes a careful investigation of the conditions under which he is testing the yarn for size, he will probably find that the high degree of relative humidity at that time of the year is responsible at least in part for the variation of which he complains. The yarn should be tested for size under uniform conditions. The cotton count is equal to 1000 divided by the weight in grams of 120 yards. The worsted is equal to 1500 divided by the grain weight of 120 yards. The woolen run is equal to 525 divided by the grain weight of 120 yards.

PREPARING YARN FOR MERCERIZATION

Editor Textile World Record:

I am informed that in mercerizing cotton yarn in England it is sometimes the practice to dispense with the boiling out of the yarn before mercerizing in order to clean it and to precede at once with mercerizing the yarn, adding a small quantity of petroleum to the caustic liquor, the petroleum causing an immediate impregnation of the material by the liquor. It is stated that the disadvantage to this method is that the petroleum imports an objectionable odor to the yarn. I would be glad to have you give some account of this process if you can get the information.

Houston (2262).

The regular English practice is first to steep and then to boil the yarn in a weak caustic soda solution before proceeding with mercerization. Inquiries made have failed thus far to elicit the name of any works in which the preparation with petroleum is practiced. The method is feasible, as has been shown by the series of experiments reported by Schneider. He wound raw cotton yarn round a rectangular frame and on immersing this in lye, without previous preparation, found that the impregnation was incomplete even after one hour. One sample was treated with petroleum and he observed that on placing this into the lye the petroleum rose at once in small drops to the surface, no air bubbles formed upon the yarn and the sample was impregnated immediately.

The case was the same when benzole was used instead of petroleum. Schneider used, not caustic soda, but the sulphide of either potash or soda. It is improbable that this affected the result, as it was almost certainly the caustic hydrate present in the sulphide that was the efficient agent in improving the luster of the sample. Schneider patented (English patent 19,428 of 1896) his method of mercerizing in a 30 per cent. solution of sulphide of soda or potash with an organic solvent floating on the top of the lye. The yarn to be saturated with the petroleum or benzole in entering the vessel was immersed 15 to 30 minutes, stretched and then rinsed. Perhaps this process is the one in view.

Strand.

WASTE IN THE MANUFACTURE OF LACE CURTAINS

Editor Textile World Record:

I enclose sample of cotton yarn waste of which we make from 2,000 to 3,000 pounds per week in the manufacture of lace curtains, and are compelled to sell it at a very low price. The yarn, which is 60s to 100s, is of exceptionally high grade, being made from the best Sea Island and Egyptian cotton. It is imported especially flattened and finished for lace fabrics made on Lever and Nottingham machines. The large quantity of waste is caused by the fact that it is necessary to change all the bobbins in the machine at one time to prevent knots from being made in the body of the curtain. The pieces of bobbins that are removed go to waste and we have been unable to find any way in which they can be used to advantage. The result is a very heavy loss. We would be glad to have you inform us how this loss can be reduced. What methods are adopted abroad for handling this kind of yarn in the manufacture of lace curtains? Merwin (2230).

Our French correspondent to whom this question was referred, replies as follows:

I have carefully examined the sample of waste sent with "Merwin's" inquiry. It is necessary to handle the yarn as "Merwin" states when making lace curtains on the bobbin machine. All the bobbins must be removed at the same time. This is the rule both at Calais and Nottingham. In place of cutting the yarn from the bobbins and running it into waste, the practice in the two lace centers named is to rewind the yarn. The pieces taken from the machine are rewound on a special machine, the ends being joined by knots in order to fill the new bobbins. I hope soon to send you a sample bobbin and also a photograph of the winding machine used at Calais.

This work of winding is done very economically by child labor, the wages being 5 centimeters ($1) for 60 bobbins that are rewound. The thread thus obtained of course contains knots where the ends are joined and consequently cannot be used on the bobbin lace machines, but can be used on the Lever machines where the knots pass into the fabric without difficulty. The rewound yarn has a less value, but is sold at a discount of 30 per cent. at the most to lace manufacturers using the Lever machine. I would suggest that "Merwin" rewind his yarn as is done at Calais and Nottingham and am convinced that he will find customers for the rewound yarn at Pawtucket, R. I.

Gaul.

PRODUCTION OF SPUN SILK YARN ABROAD

Editor Textile World Record:

Please give me a statement of the comparative production of spun silk yarn in England and on the Continent. Apex (2184).

The general estimate of the world's production is 5 million kilos (12,000,000 lbs.).

The British production (1907) was 2,300,000 lbs. and will now be a little larger.

The Continental production is very much larger than the British and it is probable that a single French concern makes as much yarn as the whole 22 English spinners.

The German output is about the same in quantity as the British.

France, Switzerland and Italy are the chief sources and their business is a development practically of the last 50 years.

English spun (fully-discharged yarn) differs in character from Continental schappe and the two serve different purposes, as well as some similar purpose.

The velvet trade is the great consumer of schappe yarn. Regent.

BLEACHING SILK HOSIERY

Editor Textile World Record:

Please send us a receipt for bleaching silk hosiery. We are at present bleaching mercerized and cotton hose with chloride of lime and having very good success in this line, but have some silk hose that we wish to bleach, and would thank you to give us a formula for same.

Elcot (2199).

Silk hose to be made ready for bleaching should be thoroughly cleansed with a light soap boil, care being taken that all soap is afterwards completely removed by a good wash. Successful bleaching can only be accomplished where the silk is clean. Silk may be bleached by different processes, the most common being either by the use of permanganate of potash and bisulphite of soda. It may also be bleached with either peroxide of hydrogen or peroxide of sodium.

The permanganate process was formerly very much used for bleaching all kinds of silk goods and when the details are given attention, the results are very good. The following quantities are for a small kettle holding sufficient water to accommodate 20 to 25 pounds of silk hosiery. To such a bath dissolve 6 ounces of commercial permanganate of potassium and add 1/2 pound of Epsom salt. The hosiery is worked in this solution until the purple color is nearly removed and the silk has attained a full rich brown color. Lift, wash, and work the brown hosiery in a fresh bath containing 6 ounces of a solution of bisulphite of soda standing at 71° Tw., together with 1/4 ounce of sulphuric acid, first diluted in a pint of water. Sometimes where the deposit of brown oxide of manganese is very heavy, a second passage through the bisulphite becomes necessary.

Bleaching with peroxide of hydrogen or peroxide of sodium is perhaps the best method for general use. Peroxide of hydrogen is used full strength (3 per cent.) as supplied by the chemical works. The silk is immersed in the solution in suitable wooden tanks without any iron or other metal in contact with the bleach solution. This solution must be made slightly alkaline with ammonia. Keep the silk well under the surface of the liquid, even if a wooden lattice is necessary. Let the bleaching proceed for six to ten hours or longer, over night is the usual practice, and in the morning, lift, squeeze to save the excess of liquor, rinse and finish.

If peroxide of sodium is used, it must be added to the bath in small portions at a time, first adding the necessary amount of sulphuric acid. The following quantities are used for 25 pounds of silk hosiery:

60 gals. water
5 lbs. sodium peroxide
8 lbs. Epsom salt.

The temperature of the bath may be gradually brought up to 180° F. if necessary, allowing the silk to remain immersed for 6 to 8 hours, afterwards lifting, washing, dyeing white if desired, and then carefully put on drying boards. Dumfries.

PASTE FOR COTTON GOODS

Editor Textile World Record:

We want to make a paste of sago flour to use cold, but find it jellies so that it will not spread smoothly and get lumpy. Can you suggest a remedy for this, something to add to the paste when warm that will pevent it from jellying? Ordinary flour paste when cold does not act this way, but we need the sago paste for a special purpose.

Finisher (2250).

My experience has been that paste made from farina, sago, corn, wheat and flour will separate, that is, the water will separate from the starch if left standing too long in a cold state. This condition will develop in twenty-four hours. If a soluble oil is used to remedy this difficulty the adhesive properties of the mixture will be affected. I have been making a few experiments and find that by not over cooking the sago paste and by adding 1/4 (one-quarter) the weight, say 12 ozs. of sago and 4 ozs. of British gum (white dextrine) it will not get lumpy for some time. When the lumps do appear I stir the mixture well and the paste seemed to be as good as ever, but smells sour after 48 hours. The longer the paste is boiled the sooner it begins to separate. Just bringing the paste to a boil and stirring well appears to be the right thing to do after adding the dextrine. Montrose.

Knitting Department

THE KNIT GOODS SITUATION

Since our last issue, the entire line of knit underwear has been opened for business for fall, 1915, delivery and a fairly good volume of business has been placed, although considerable of it is in the shape of blanket orders to be confirmed later when the buyers go to the market in December or January.

Cotton goods, of course, all show stiff advances in prices over last year's quotations. Buyers are going slow on some lines, particularly on ladies' vests and pants to retail at twenty-five cents. The prices of this class of merchandise are about as follows:

Five pound peeler at about $1.90. Six pound peeler at $2.05. Seven pound peeler at $2.20. Five pound bleached at $2.05. 5 3/4 pound bleached at $2.15. Six pound peeler extra sizes at $2.10. Seven pound peeler extra sizes at $2.25. 5 1/2 pound bleached extra sizes at $2.15. 6 1/2 pound bleached extra sizes at $2.30.

These quotations might be better about five cents per dozen for goods, if taken during the early months of the year, averaging around May first.

Buyers generally are quite agreed that ladies' vests and pants made from five to six pounds in weight and a fabric heavy enough to brush are of little use to the consumer. If great care is taken, fairly good looking samples of this class of goods can be shown, but in running the stock through the brusher, the garments become narrow and as a rule, open up unsatisfactorily. We have heard of several buyers who say they will not have 25 cent underwear in their lines for 1914. This condition will undoubtedly increase the demand for vests and pants to retail at 35 to 39 cents, and some attractive lines are being shown at $3.12 1/2 to $3.25. They are made plain stitch of carded yarn and weigh about seven pounds to the dozen. They are bought only in bleaches; in fact, very few peelers are being sold in any lines in either two piece or combinations.

Combed yarn vests and pants sold last year at $3.50 are all priced this season at $3.62 1/2. One noticeable thing in reference to the sale of these goods is that a large proportion of them are being taken made with short sleeves. This applies to vests, and combination suits as well.

Lines of women's heavy fleeced vests and pants sold under trademarked names, like "Vellastic" and "Velvet Lined" are being priced $3.62 1/2 against $3.50 last season, and the manufacturers have removed the restriction as to the jobbing prices.

Plain stitch carded yarn suits sold last year at $4.50 are now priced at $4.75. The $6.00 and $6.25 lines have also been advanced 25 cents per dozen. One line of combed suits sold at $6.50 has been raised to $7.00.

The Royal Gem Mills and Oak Knitting Mills, both of which made 8 pound plain stitch suits last year at $3.62 1/2, have discontinued these numbers for 1914.

The high price of cotton has had the effect of raising the quotations on men's ribbed and fleeced goods to the limit, $3.75. This is the price at which the Morris Mills are offering their two threaded ribbed shirt and drawer, but they have reduced the weight from 12 to 11 pounds.

The Utica Knitting Co. are also asking $3.75 for their 11 pound ribbed shirt and drawer and the same price for their 12 pound fleeces.

One line of ribbed goods made by a Southern manufacturer was sold for a time at $3.50 for 11 pound, but it is understood that this line has now been withdrawn from sale. This manufacturer's production is usually taken by a few of the larger jobbing houses in the Southwest.

The High Rock Knitting Mills have issued a circular letter to the trade to the effect that the present prices of fleeced shirts and drawers make it hard for either the manufacturer or the jobber to show a profit, but urging the sale of men's fleece lined union suits in their stead. These may be bought by the jobber at $7.00 per dozen for one quality, or $7.25 for the High Rock standard with the understanding that they are to be sold to the retail trade at $8.62 1/2.

There is no question but that the demand for fleece lined combination suits is increasing along with the demand for ribbed suits. We learn that some manufacturers of men's flat wool goods are getting out samples of combination suits to show for 1914 business.

HOSIERY

Since the middle of November, a large business has been placed on wool hosiery of all grades and there is considerable talk heard of some manufacturers being sold up for the season. The lower grades have been sold at slightly advanced prices over last year; the medium grades at about the same as for 1913. On the better end there have been lower prices by from 10 to 12 1/2 cents per dozen. In some cases the same prices are maintained where the qualities have been improved.

Stocks in the hands of jobbers and retailers are very light, as there has been a good demand for wool lines all during the present fall. Manufacturers have been so busy on orders that there has been no opportunity to make up any stock lots.

Worsted half hose for fall are being offered at 5 to 7 1/2 cents per dozen less than last season's quotations. Lines that were $1.90 are now priced at $1.85 and some $1.75 numbers are offered at $1.67 1/2.

Low priced merino goods were sold last year at 92 1/2 cents to $1.00 are priced the same generally for the coming year.

On account of some new hosiery factories having been built principally in the South, there have been a number of new lines shown in the market of late. These are low priced goods, but some of them are showing some fiber goods at attractive prices, namely, $1.82 1/2 to $1.90 and one line of tram silk half hose in wide range of colors is being offered at $2.00.

Reports from Chemnitz state that hosiery manufacturers are much exercised just now on account of the high raw material prices. Although they had been anticipating making some low prices to tempt the American buyers, their calculations have been upset by the high cost of cotton and they have practically given up hope for any large business for the present.

South America continues to take German hosiery freely as does also India, so the German manufacturers are fairly busy.

Consul Anderson of Hong Kong reports that the Chinese are buying freely of American seamless hosiery, especially silk and fiber goods that retail here at 50 cents and which are sold there for a Hong Kong dollar, which is worth about 47 cents.

Among the novelties that are attracting attention are the ankle bracelet design made principally of black silk with band about an inch wide of high color around the ankle of the stocking. These are being taken in green, yellow, blue and purple bands and to match the shade of the gowns of the wearer.

SWEATERS

The past four weeks have not been good sweater coat weather and the market looks quite different at this time than it did at the time of our last issue.

Retailers and jobbers throughout the country seem to have a stock of sweater coats on hand and of late many manufacturers have received cancellations for numbers that were being eagerly demanded a month or six weeks ago.

Shaker knit garments have suffered particularly, but Jumbo stitches are meeting with more ready sale.

Travelers are out soliciting next fall business and while there are some who claim to have received large orders, most of them are complaining quite seriously.

One buyer gives his opinion that sweater coats will continue to be good as a staple garment for men, but that their place as women's garments has been taken of late by the sport coat made of woven cloths and also by the Mackinaws.

The low priced cotton coat business is now practically in the hands of two manufacturers,—Union Mills of Hudson, N. Y., and Phoenix Underwear Co. of Little Falls. Their prices for 1914 are as follows:

V neck without pockets at $3.75. V neck with pockets at $4.00. Byron collar or ruff neck without pockets at $4.25. Byron collar or ruff neck with pockets at $4.5.0

The next price at which men's coats are moving well is at $7.00, at which fairly good quality of cotton garment may be had either from Union Mills or Gilbert Mfg. Co. These are made with one piece shawl collar put up in 2/12 boxes and get to the consumer for $1.00 in a general way.

A number of shaker knit coats made of low grade stock are being shown at $12.00 to $16.00, and at $21.00 a good grade worsted face, cotton back coat may be had.

The shawl collar, shaker coat that sold last year at $36.00, of which there were many lines, are priced for 1914 at $31.00 to $34.50.

Rope stitch garments with shawl collars are being shown by many manufacturers at $21.00 to $27.00 and it is on these lines principally that large jobbers have placed orders for next season.

Several manufacturers have added brushed coats to their lines and buyers have shown some interest in these at $30.00 to $42.00.

Some very slightly two toned numbers are being shown at $37.50 to $39.00 with shawl collars and wide belts.

Some buyers have bought sparingly of ladies' light weight brushed coats made to imitate the imported garments in high colors and in green and heather mixtures. These may be had at $36.00 to $48.00 and there are some buyers who predict a good trade in this class of coat before the season is over.

One manufacturer is showing a knit sport coat at $60.00 on which a few orders are being placed for popular colors, such as Kelly green, fawn, magenta, Copenhagen and mahogany with contrasting trimming on collar, pockets and belt. These are made with large buttons, the centers of which match the body of the coat and the rims match the trimming.

The world's production of raw silk for 1913 amounted to 54,233,725 pounds, as compared with 55,821,035 pounds in 1912.

SEAMLESS HOSIERY

Editor Textile World Record:

It has been with a great deal of interest, mixed with amusement, that I have read the article "How Seamless Hosiery is Made," by "Laramie," in your September issue. I would not be critical, but would like some points explained. "Laramie" begins with "Children's Ribbed Hosiery." He gives the sizes and diameters of machines that make the various sizes of hosiery, also the number of needles in each machine. First, I would like to know if a machine of 3 3/8 inch diameter is not a little large for making these particular sizes, which are 4 and 4 1/2? These sizes are made on a smaller diameter now, 2 3/4 inch diameter being used. I have made a few children's hose and I have used different size machines. Fourteen years ago I used for 5 and 5 1/2 a 3 1/4 inch diameter; for 6 and 6 1/2, a 3 1/2 inch diameter; for 7 and 7 1/2, a 3 3/4 inch diameter; for 8 and 8 1/2, a 4 inch diameter; for 9, 9 1/2 and 10 a 4 1/4 inch diameter. Later, for infant's sizes I used for 4 and 4 1/2 a 2 3/4 inch diameter; for 5 and 5 1/2, a 3 inch diameter; for 6 and 6 1/2, a 3 1/4 inch diameter; and rise one-fourth inch to size up to and including 10s.

I note that "Laramie" says that to make a medium fine gauge stocking, he uses a 3 3/8 inch diameter, with 68 needles in dial and 68 needles in the cylinder. Further on in the article he says that for very fine gauge he uses 85 needles in both cylinder and dial, which would give him 42 1/2 needles to each cylinder and dial. This would make very much coarser goods than his medium gauge. Besides I do not see how he would work the half needles. He says, too, that these goods are made from yarn which has been previously dyed black. This is a practice that is practically a thing of the past, because it is very difficult to top and knit, while the white can be handled cheaper and dyed and finished better and with less cost and waste.

I note that "Laramie" makes 8-8 1/2, 9-9 1/2 and 10 all on the same size machine, but on the 9-9 1/2 and 10 he increases to 98 needles instead of 90. This would naturally change the gauge. He seems to be somewhat tangled on his lengths. Children's hosiery, like all others, is measured from the back of the heel to the tip of the toe, the length in inches being the size of the stocking. The length of the leg should be three times that of the foot, up to size 9. Size 9 and above for regular sizes is 27 inches.

In his coarse gauge on two and one rib he has 120 needles in the cylinder and 61 in the dial. Now there is more division of needles that the writer would like to know about. If you make a two and one rib you must have half as many dial needles as you have cylinder needles. I think 60 needles in the dial would be better. In speaking of machines that make the feet of these hose, "Laramie" describes them as having two cylinders, which type of machine is very much out of date now.

Further on he gives a case where one operator keeps 5 machines knitting "ankles, heels and toes" while 4 other operators are topping on the "legs." I notice throughout the article that neither of the kinds of stockings mentioned have feet; nothing but "heels and toes." Well "Laramie" may come out O. K. along these days without making feet to stockings, but I have to make feet to 'em yet. However, I think if we get them a good deal thinner, we will have to ask "Laramie" to tell us how to make heels with highsplice double sole and toes with nothing on the top side of the foot, and no leg at all. It seems that those who wear hosiery today want to protect their heels, soles and toes, but care very little about the other parts. If "Laramie" can give us a formula for making these "legless" kind we will all have business for next year, and the tariff will not get in our way.

Now he says that with one operator running five machines, it is up to the knitter to work quickly to keep the toppers busy and naturally the toppers work quickly to get a rest while the stockings are knitting out. "Laramie" reminds me of the son who asked his father why he wished him to go to bed so early, to which the father replied, "Why, my son, so you can get up early." But the son asked, "Why do you want me to get up early?" "So you can go to bed early. You know very little about the true philosophy of life, my son," the father replied. So I suppose this is the true philosophy of knitting. I know when I was a topper I would rather make the knitter wait just to aggravate him. But I believe he is using girls on this job and they do not work that way.

I take special note that in making ladies' hosiery, "Laramie" gets a sinker between each needle. Now there is where he's got me beat. I never have been able to get a sinker between one needle. I can get one sinker between two needles.

He says he is a getting a production of 8 dozen per day of ladies' hose 30 inches long from a 208 needle machine. Now I would like to know at what speed he would run that machine. I have made 4 1/2 to 5 dozen per day of 11 hours from a 200 needle machine. Eight dozen looks a little large unless he runs his machine over time or at a very high speed. I run at 275 revolution per minute, which I consider a very good speed for fine gauge.

He mentions making ladies' hosiery legs on a machine that has no sinkers and that this machine has a diameter of 4 3/4 inches and contains 240 needles. That is a pretty large diameter for a woman's stocking. A 3 1/2 inch diameter with 220 needles makes a stocking for anything less than out-sizes. He says that sometimes these are topped onto a machine. Now, this method may have been used 20 or 25 years ago. We are proud to say that we are improving our methods. He says that these machines make 4 to 6 dozen per day and six machines will make about 100 dozen per week. Four dozen to the machine per day would be 24 per week. Six machines would make 144 dozen per week. If we take an average from what he claims per machine per day of 5 dozen, this would give about 180 dozen per week. But it may be that the machines are as the old country woman thought the first train she saw, "Perhaps it gets tired" toward the last of the week and does not produce the full amount.

To make men's half hose "Laramie" says a 4 inch diameter cylinder and dial are used and that there are 100 needles in the dial and 100 in the cylinder. Large and outsizes are made on a 4 3/8 cylinder and dial and that there are 212 needles in the cylinders and 212 in the dial. This does seem a little like the story that is told of the fellow who fell from an electric light pole and an Irishman was sent to see if he was hurt. On being asked, Pat replied that "he was not very much disfigured, but he seemed terribly twisted." The man was in a dark room when he put on his trousers and got the front on the back side. "Laramie" seems to have his figures on wrong. 424 needles to a machine for making half hose is more than I can get into a machine of that size. Then, too, it would make the hose very large. He says another kind or grade of men's half hose is made on a full automatic machine having two cylinders. This is also a back number, as the Quill transfer has got it beat a block.

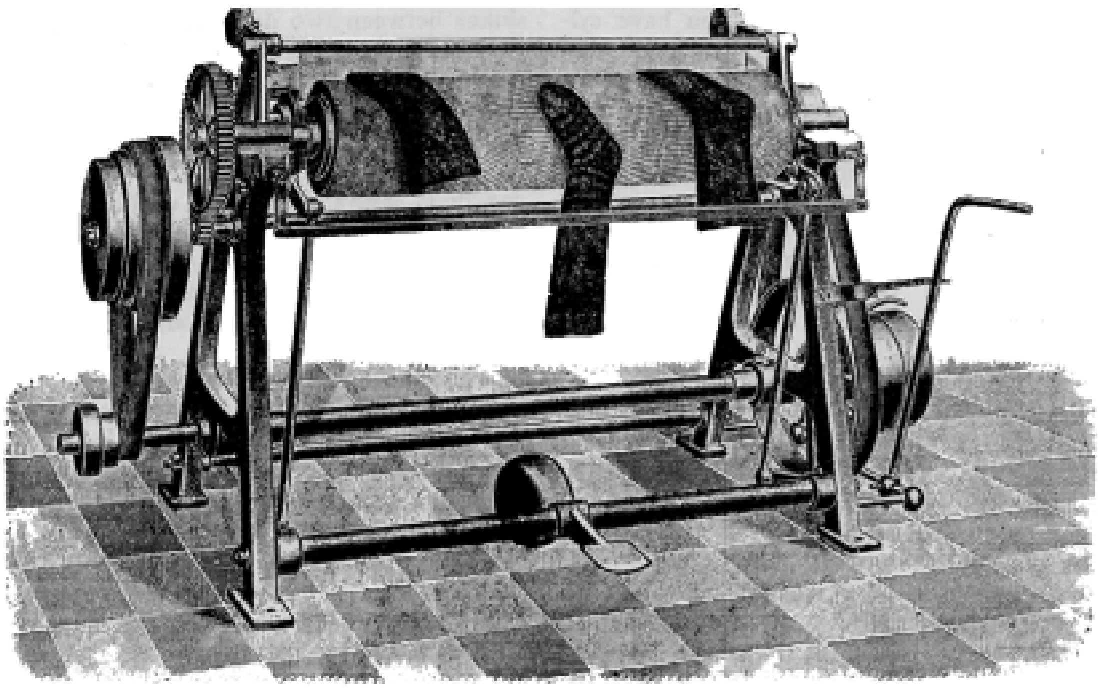
It appears that "Laramie" has made some mistake, or else he did not intend that this should be taken literally.

I think that "Laramie" has been running some out of date machines here of late or he has been out of the business for a long time, as the machines he mentions were the same that were used about 20 years ago. Perhaps "Laramie" may be able to explain.

Pete.

FLEECING MACHINES FOR HOSIERY, SWEATERS AND PIECE GOODS

The machine shown in the accompanying illustration, Fig. 1, is used for raising the nap on hosiery, sweaters, knit garments and single pieces of any kind. It is built by the Maschinenfabrik Arbach, at Reutlingen, Germany, and A. W. Buhlmann, 200 Fifth Ave., New York, is the sole American agent and is now introducing it to the American market. This fleecing machine, known as raising machine "D", consists of a cylinder covered with wire clothing upon which the goods to be fleeced are placed. The goods pass between the revolving cylinder and the screen, means being provided for adjusting the pressure of the goods against the napping surface so as to give the finish desired. The speed can be varied to meet different



A FLEECING MACHINE FOR HOSIERY, SWEATERS AND PIECE GOODS conditions and there is an arrangement by which the borders of garments are passed through the machine without being fleeced. The machine produces a wooly, uniform

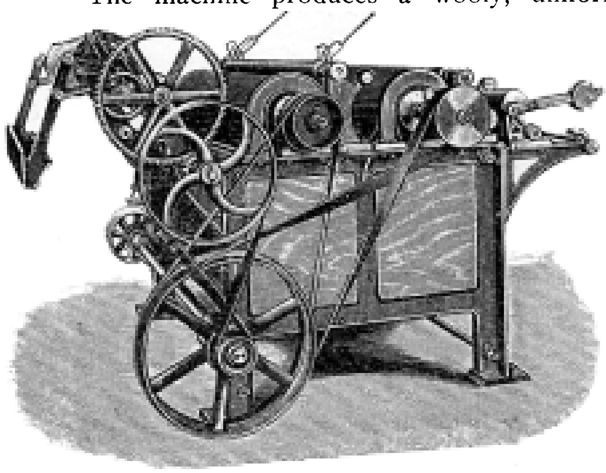


FIG. 2 A DOUBLE RAISING MACHINE WHICH IS ADAPTED FOR PIECE GOODS

fleece at one passage and an experienced operator can easily handle one thousand stockings per day. The machine is solidly built and of simple construction and as a re-

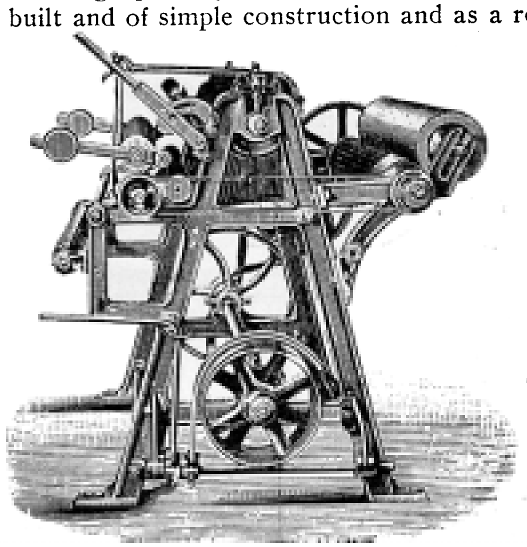


FIG. 3. A SINGLE RAISING MACHINE FOR PIECE GOODS

sult requires very few repairs. It is sold at a reasonable price which puts it within reach of any knitting mill. There are at the present time three hundred of these machines in operation in different mills throughout Europe and a number have been sold in this country within a few weeks.

Fig. 2 shows a double raising machine, "B", which is adapted for piece goods. The pieces are fleeced on both sides at one passage, the nap being uniform, all streakiness being avoided by means of an improved regulating device. Among the advantages of this machine are the uniform and thick nap raised; the large production, great durability, small amount of power required, reliability of lubrication, noiseless running and strong construction.

Fig. 3 shows a single raising machine, "C", for piece goods, the fleece being raised on only one side at one passage through the machine, otherwise the results are the same as obtained with machine "B" already described. A large number of both the single and double raising machines, "B" and "C", are in operation in European mills.

In addition to the machines just described, the Maschinenfabrik Arbach build a special raising machine, "SA", adapted for tubular goods; a double cylinder raising machine, "DTR", for napping and felting knit goods on both sides at one passage.

Full information concerning any of these machines can be obtained on application to Mr. Buhlmann.

KNITTED SASHES AND GIRDLES

BY RUTHVEN

One of the best selling novelties during the past season, made on the flat knitting machine, are the wide, multi-colored sashes and girdles used in conjunction with the plaid suitings, house dresses and evening gowns. They are made in various widths and lengths, ranging from two to six inches in width and from 1 to 2 1/4 yards in length. They are finished with hand knotted, knitted or woven fringes or tassels as desired.

Fig. 1 shows a fancy sash made on the flat knitting machine. The ground of the sash is composed of six ends of 150 denier artificial silk and two ends of 2/40s mercerized yarn, shot back and forth between a series of vertical stitches composed of 4 ends of artificial silk. These stitches bind the ground to the face of the sash, which in turn is composed of a number of horizontal movements known as slings, each sling containing eight ends of 150 denier artificial silk slung between the stitches. This num-

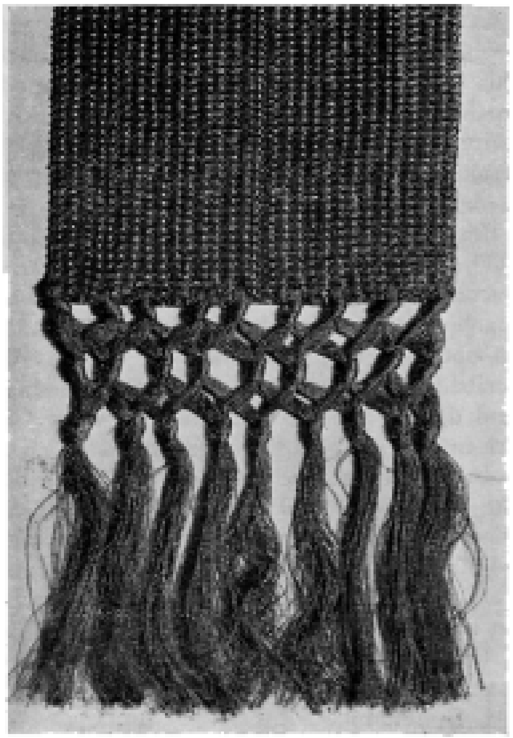


FIG. I. A FANCY SASH MADE ON A FLAT KNITTING MACHINE

ber is cut in 2 and 2 1/4 lengths, 4, 5 or 6 inches wide and are finished, as shown in

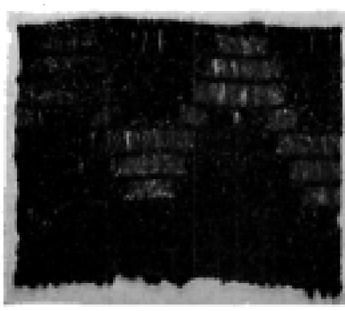


FIG. 2

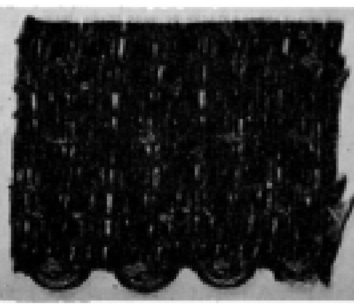


FIG. 3

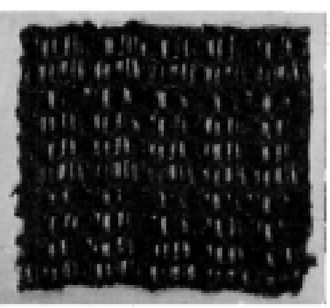


FIG. 4

illustration, with a hand knotted fringe made up of 24 ends of 2 ply artificial silk.

Fig. 2 shows a fancy girdle, used extensively in solid colors with shepherd plaid suitings. It is also used as a sash with alternate colors, as black, blue, royal, green and red, and is composed of alternate rows of 2 ends of corkscrew or spiral yarn and ten ends of 150 denier artificial silk, the

FIG. 5

stitches being 1 end of 2/40s mercerized yarn. This is sold by the yard for girdles and is cut in 2 and 2 1/4 yard lengths for sashes and finished with fringe or tassels as desired.

Fig. 3 is a reproduction of an imported French sash made on hand looms and has been one of the season's best sellers. It is known as the Bulgarian sash and is used where a sash of heavier weight is desired. It is finished with a heavy tassel composed of 2 ply artificial silk with all the colors shown in the body of sash shown in the tassel. This design has a solid back of 1 end of 2/20s mercerized yarn and 3 ends of 150 denier artificial silk. The face of the sash contains 29 rows of 10 ends each of 2 ply artificial silk twist, which is bound to the backing by a series of vertical stitches composed of 2/20s mercerized yarn. This pattern is also made in solid colors and stripes, the stripes showing four of light and dark contrasting colors, making a zigzag effect across the face of the sash.

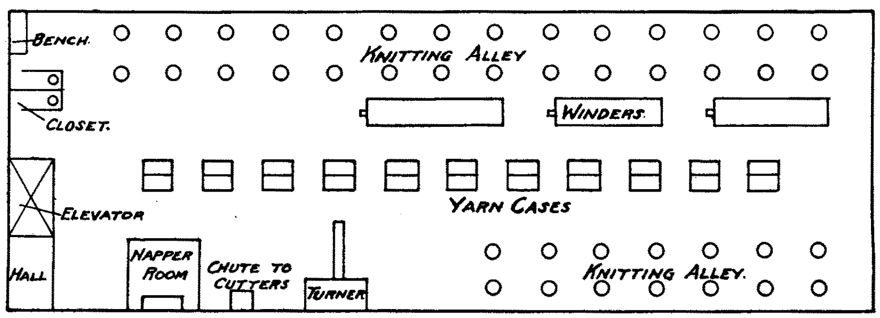
Fig. 4 is a design used principally for girdles where a sash of very light weight is required, and is made and sold in the Bulgarian colors. This, like the designs shown at Figs. 1, 2 and 3 are cut 2 and 2 1/4 yards long and 3, 4, 5 and 6 inches in width. This sash is finished with a fringe made on the flat knitting machine. The fringe shown at Fig. 5 is composed of 6 ends of 2 ply artificial silk, shot continually back and forth. The various colors are spaced about 1/2 inch apart, the fringe measuring 4 inches, including the heading, the whole making a very light weight fringe.

Figs. 3 and 4 are being sold by manufacturers of millinery trimmings in 2-inch width for bands on hats. They are also finished with small 3-inch fringes and tassels of various colors.

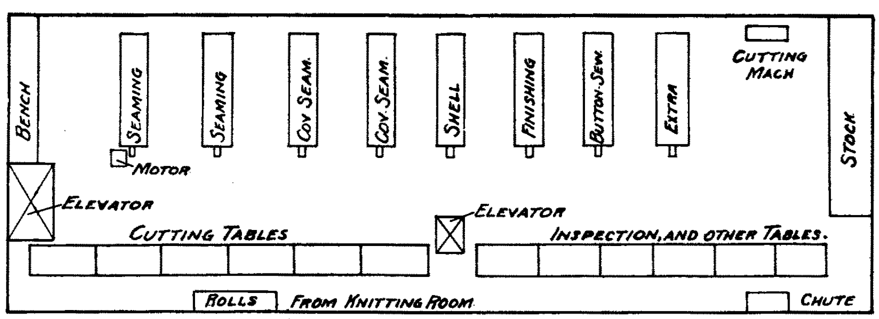
PLAN OF AN UNDERWEAR MILL

BY TRENTON

The idea of manufacturing goods in a knitting mill with the least possible handling has been worked out by one of the largest manufacturers in the business. I have been through nearly every ribbed underwear mill in the country, and consider the new mill a model of its kind. The goods go through



KNITTING ROOM



FINISHING ROOM.

PLAN OF AN UNDERWEAR MILL

the mill like clock work with as few handlings and through as few hands and frames as possible. The illustration shows the layout of the knitting and finishing rooms. The knitting frames are in a double alley on the sunny side of the room. The sizes are arranged to have the largest frame at one end and arranged by sizes until the smallest is at the other end of the room. The winders are set near the knitting frames so the operator can get the yarn by going a very few steps. There is very little winding done these days, so a space is allowed almost the length of the room for cases of yarn on cones. These cases are handy to the frames and the winders. This particular mill runs about thirty kinds of yarn and has about forty cases in all in the knitting room at one time. These cases are set in pairs with a space between, which is the best method I know of.

The napper is in an enclosed room to keep the dust from blowing away. Fans are arranged to suck the flyings into a box that has burlap sides, and the flyings are collected in sacks when the boxes are full. The cloth turner is near and the rolls for the napper is thrown through a sort of trap-door into the napping room. This door has hinges at the top and the weight of the roll opens it, closing after each roll goes through. There is a chute from both the turner and napper that leads to the rack behind the cutter tables on the floor below. There is also another chute that goes to the bleach and wash room. This room is 100 by 60 feet.

There are about 70 knitting frames. A few of these are in a separate row, as will be seen by the plan. There is room left to expand if necessary. The machines are run by electricity, three motors doing the work, 10 h. p., 5 h. p. and 3 h. p. respectively. The motors run about 2800 r. p. m., so a counter shaft is needed in each case to reduce the speed. The motors are bolted to the ceiling and endless belts are used instead of laced belts.

The finishing room is certainly the smoothest running affair I ever saw. There are no goods lying around in bins or boxes nor are the tables filled. The goods go from table to table in a basket and when the baskets arrive at the tape tables they were practically finished. The tables are arranged crossways of the room, 12 machines to a table, six on each side, and are run by a 2 h. p. motor, connected by a noiseless chain belt. One side of the room is taken up by a long row of tables, one end for cutters and the other for various other purposes. The alleyway is of ample width. There is a large stock room at one end for thread, tape, buttons and other supplies. A cutting machine for button stays and facing is in a corner near the turner that turns the stays. The finished goods are thrown down a chute to the packing room.

The wash and bleach room is in the basement connected by an elevator with the finishing room. This small elevator brings the goods to the cutting table as the chute from the knitting room did.

The office occupied the front part of the first floor. The other part is used for packing and shipping. All the latest improvements are installed, from the "Ideal" case lifter to a new style of quick stencil. A large back platform with overhanging roof is sometimes used as an extra room on rush days. There is not much washing or bleaching done, but the equipment is up to date. two men doing what it would have taken four to do with old style tubs and boilers.

IMPROVEMENT IN HOSIERY MANUFACTURE

E. A. Hirner, of the Excelsior Knitting Machine Co., also president of the Novelty Hosiery Co., Allentown, Pa., has recently perfected a knitting machine for knitting what is known as the "Hirner Fashioned Foot" on an automatic seamless machine.

The new feature is intended to make a better fitting foot and ankle without stretching or wrinkling over the instep. The foot of the stocking emerges from the leg at approximately right angles in its natural position without being boarded. This is gained through an extension of the material from the heel by a patented device.

The foot is so attached that the lower part, which would come below the top of a low shoe may be knit with white or different colored yarn, or a cotton foot can be attached to a silk leg.

At the present time this improvement will be used for silk hosiery solely by the Novelty Hosiery Co., whose selling agents are Hinchman, Vezin & Co., of New York, but the manufacturing rights to make other goods to retail for 25 cents will be sold to other manufacturers.

Dyeing, Bleaching, Finishing, Etc.

BACK FILLING COTTON PIECE GOODS

BY DEMAIN

I was interested in the article by "Palma" on the back filling of cotton goods, but think an improvement could be made on the arrangement of the machines. The two bowl mangle is one of the best machines in the starching room, if kept in good order, and should be used for such goods as sateens, pocketings, drills, towelings, cambrics, linings, sheetings and shirtings. There is also the two roll friction mangle made of one brass and one wood roll, the brass on top and the wood on the bottom. This friction mangle should be used for such goods as window shades, bookcloths, hollands, buckrams, etc., and goods that are very heavy and starched twice. The friction is put on this mangle at about one to four, that is, the brass roll on top will go four times as fast as the bottom roll made of wood. The friction mangle is the best starching machine for heavy goods and is a very good mangle if well taken care of. Starches often have the top roll on the starching machines covered with cloth. I do not think this is a good plan, for it has been my experience that good starching will not result. As soon as the cloth is removed and the bowls turned down in the bath better work is the result.

There are many overseers who do not know how to contend with the difficulties in the starching room. A man should not be put in this department who does not understand what the different materials in the finishing works are for and when and how to use them. If the goods are not prepared right in the starching room a good finish cannot be had. I know many a starcher who has no knowledge of the materials used for finishing and starching. There are the different kinds of starches, disinfecting, weighting materials, stiffenings, gums, blues, softeners, fireproofing materials, waterproofing materials and fillers; filling materials such as calcium, carbonate, magnesia, sulphate, various silicates and barnum sulphate; stiffening materials such as starches, dextrines, gelatines, glue, casein, gums, algin, preparations of Irish moss and Iceland moss, and carnauba wax; softening materials such as soap, oils and waxes; blueing materials such as ultramarine, smalts, Prussian blue and aniline dyes; antiseptics such as borax, copper, salts, boric acid, phenol, zinc compounds, formaline; waterproofing agents such as oils, gelatines, tannate, formaline, paraffin wax, insoluble soaps, ceresin and rubber solutions; fireproofing materials such as tungstates, phosphates, borates and silicates.

The back filling machine is placed in a room where there are no other machines so that the goods will not be all starch or clay dust. The best arrangement is to have the backfiller, frame and cans connected to run at the same speed. When the goods come from the backfiller they go to the frame where they are stretched and partly dried. They are then put on the drying cans and thoroughly dried. When backfilling white goods, ultramarine is a good blue to use. When colored goods are being filled it is better to have the starch the same color as the goods. Some finishers backfill their goods and run them on the cams or drying machines. This is not a good plan, but if there is a cavity can in the bleachery connected to the backfiller it is a good plan to run the goods from the filler to the cavity can. This cavity can is really a drying can, 18 to 20 feet in diameter; the unstarched side goes against the can and the filled side is on top so the filling will not stick to the cans. Still another method of backfilling is to have the top of the machine made up of heated cans and the bottom made of wooden winches, so that when the filled cloth comes off the filled side will go against the wooden winches and the side which has no filling will go against the heated cans. It is not a good plan to have a filler connected to the drying cams because the filling sticks to the cans. Sandpaper should not be used on cans and there is no need of using cocoanut oil if the backfiller is used in the manner stated above, that is, with the cavity can or drying machine made up with a wooden winch and heated cans.

The backfilling machine should be kept in good order and the doctors kept level and clean. There are two doctors on the backfiller, one to clean the starch from the goods coming from the filler, and the other to keep the bowl clean for the in-going cloth. Sometimes a rubber doctor is used to keep the bowl clean instead of a brass doctor.

AGFA SOAP

The Berlin Aniline Works, 213 Water St., New York, have placed on the market a new sulpho-derivative of castor oil, which is sold under the name of "Agfa soap." It is a hard soap similar in appearance to a high grade curd soap, but with new and very important qualities for wetting and boiling out goods, bleaching, dyeing and printing, softening and printing, washing and fulling, sizing and dressing.

The special claims for this soap by the manufacturers are as follows: Certain castor oil products are remarkable for their extraordinary wetting-out properties. With "Agfa soap" it is possible to obtain a complete saturation even in cold or luke warm water. It opens the threads, penetrates them quickly and easily, and frees them of dirt without damaging the texture. The fibers, the threads and the fabrics gain in elasticity, strength and weight, the latter to about 2.5 per cent. The bleached goods treated with "Agfa soap" are remarkable for their perfect whiteness, and also for their closeness of texture. The "Agfa soap" protects the fiber of certain materials from being too strongly attacked by boiling and bleaching liquids. The whole bleaching process is accelerated.

By using "Agfa soap" the time required for the boiling-out process is, on the average, shortened by one-half. According to the state of the material, 1/2 to 1 1/2 lbs. of "Agfa soap" to 100 lbs. of goods, and from 4 to 6 lbs. of alkali is used.

The process is equally applicable for loose material, piece goods, cops, bobbins or skeins. The manner of working varies in nearly every bleach works. It does not make any difference whether the process takes place under pressure or in the open kier.

"Agfa soap" is lime-proof, that is, it is not decomposed by the action of lime. It is especially advantageous when used with Naphtol preparations for producing developed colors, and also in the Turkey red dyeing process in place of Turkey red oil. The blue or the yellow tinge can be obtained, as desired. "Agfa soap" can also be mixed with the dye liquor and in such a case does away with the otherwise necessary preparatory wetting out. It gives a deep and bright shade, and gives the goods an agreeable soft feel without any smell.

As a softener it produces a soft, but not a smeary or greasy finish. This is especially noticeable in goods dyed with sulphur dyes. The softening baths can be used again. On an average a 3 per cent. solution of "Agfa soap" is enough; this can be made stronger or weaker according to requirements.

In finishing and scouring woolen and worsted goods "Agfa soap" has the property of transforming oils and fats, especially mineral oils, into emulsions. It loosens the dirt which is then easily scoured out; even with water, it does not form lime soap.

In sizing and dressing it may be used in combination with other preparations and in small quantities it gives the goods a soft and smooth finish. It is an excellent medium for binding China clay and salts of all kinds. It is employed in the usual manner.

The advantages of this soap are summarized by the manufacturers as follows: It is perfectly neutral; it is not hygroscopic and does not dry out, consequently it remains unchanged even when stored for a great length of time; it dissolves readily in hot water, producing a solution which remains clear on cooling; solutions of from 2 to 3 per cent. will mix with not only small quantities of mineral acids, but with any proportion of organic acids, such as formic acid, acetic acid, etc., which are not frequently used in dyeing;

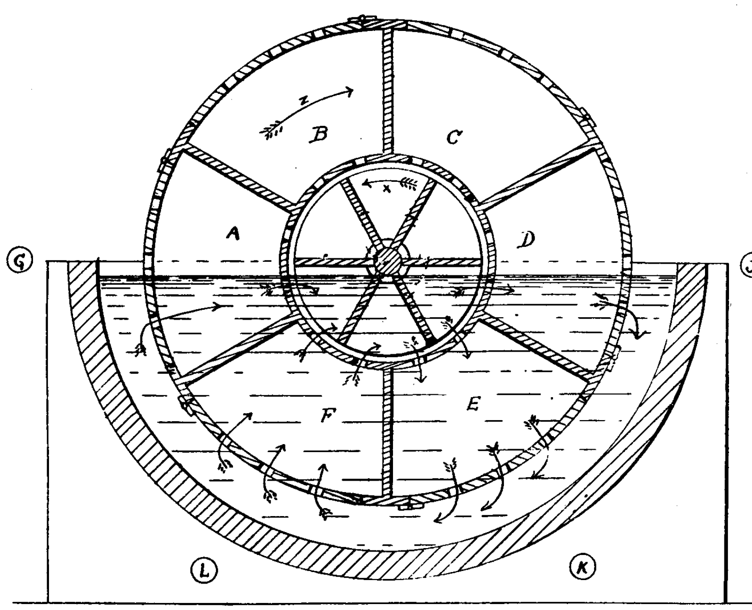
it does not form lime soap even with the hardest water; it combines with certain quantities of solutions of salts, such as magnesium-sulphate or chloride of magnesium: as a result of these properties it is claimed that the use of "Agfa soap" results in much brighter and faster colors.

A CIRCULATING DYEING MACHINE

An improvement in the method of dyeing for which a patent has recently been issued to Smith, Drum & Co., 2503 Coral St., Philadelphia, Pa., is described as follows: The process consists in agitating the dye liquor in a vat at a point near the surface and in moving the goods to be dyed in a circular path around the point of agitation, into and out of the dye liquor so as to cause the liquor to pass first in one direction through the goods and then in the reverse direction. The object is to penetrate and impregnate the goods thoroughly with the dye liquor, and without the usual knotting of the goods.

The apparatus employed consists in a vat which contains the dye liquor. The bottom of the vat is semi-circular in cross section and between this bottom and the wall of the carrier for the goods is sufficient space for free circulation of the dye liquor. The carrier comprises the outer wall and an inner concentric wall. Both of these walls are perforated and are suitably connected to circular, solid end walls and partitions. The latter divides the carrier into compartments, A, B, C, D, E and F. The end walls of the carrier are journaled on a shaft, and the carrier is rotated in the direction indicated by the arrow, Z.

Radiating from the shaft are solid blades, which with the end walls serve to circulate the liquor. The shaft and agitator are rotated in the direction indicated by the arrow, X; that is, in a direction reverse to that in which the carrier rotates.



A CIRCULATING DYEING MACHINE

The carrier and agitator are rotated as indicated by the arrows, the vat being previously filled with dye or other liquor. The goods to be dyed are compacted into the compartments, A, B, C, D, E and F, but left loose enough not to interfere with the free passage of the dye liquor. When the compartment, A, is at the zone, G, the compartments, F, E and D, are at the zones, L, K and J, respectively, and all submerged or partly so in the dye liquor. The agitators, rotating in the direction of the arrow, X, draw the dye liquor through the compartment, A, from the exterior to the center of the carrier, as indicated by arrows. From the center, the agitators draw the dye liquor through the compartment, D, to the exterior of the carrier as indicated by the arrows. The perforated walls of the compartments permit this circulation.

The agitators draw the dye liquor through the compartment, F, from the exterior of the carrier to the center of the carrier; and force the dye liquor from the center of the carrier through the compartment, E, to the exterior of the carrier. This circulation of the dye liquor by the agitator is confined to the paths indicated, by the end walls and partitions, which in the main should be solid. The circulation of the dye liquor is best when one of the partitions becomes located in the vicinity of a medial line between the zones, L and K, as shown. When so located, the partition offers an obstruction around which the dye liquor is compelled to flow, maintaining a continuous circulation of the liquor from left to right in the upper portion of the vat and from right to left along the bottom wall of the vat.

The dye liquor from the compartments, A, B, C and D, or the portions not submerged, drains into the central chamber of the carrier, except for a small portion that escapes through the exterior walls. As the carrier slowly rotates to bring the compartments, F. E, D, and C, adjacent the zones, G, L, K and J, respectively, the dye liquor circulates from the carrier exterior through the compartments, F and E, to the carrier center, and from the carrier center through the compartments, D and G, to the exterior carrier. The dye liquor in the vat between the carrier and vat bottom flows continuously in one direction from the zone, J, to the zone, G. From the zones, L and G, the dye liquor flows from the exterior of the carrier to the center, and from the center toward the zones, J and K. At certain points the line of flow will not be exactly as described and illustrated, as there will be certain eddy currents tending to break the direct flow at certain points, but in general the circulation of the dye liquor will be as stated, and the bulk of the liquor will take the paths of flow indicated.

BLEACHING LACE CURTAINS

BY HECTOR

A number of years ago I was employed in the bleaching and dressing department in a large lace curtain mill in Nottingham, Eng. It was an old style bleaching and dressing plant that had been running for a number of years. The part I was to take charge of was an addition to the old one. After running the annex for some time I learned that the old methods had certain advantages over the new. The goods were boiled in kiers, then put in bleaching tanks and then washed in dolly washers or tom-toms. They were then put in the so. . tank, lifted out and put in the dolly washer again to be washed off, soaped and washed off again. This process looked very slow to me, but the goods came out all right. For the starching and drying they had the old style frames. There were two of them made to take 300 inches in width. I found the old style dressing frames had certain advantages over the tenter frames. When it came to what is called the combination, the old frames could get the goods off straight. I made it a point to have all the goods that were difficult to manipulate on the new system made full width and dried on the old frames. The work came out right, and the mill overseer, being a very busy man, did not notice the weak points of the new system, but on the contrary was much pleased with it. I would advise anyone starting up in the bleaching of lace curtains to adopt the old method. It does not cost so much and the results are more satisfactory. It is my experience that in order to have a satisfactory layout both the old and the new methods should be employed. The old system is generally used for Lever lace, as this cannot be handled by the new process.

In tinting goods I have found it better to have a mangle set apart for this work. No matter how light the tints are, when it comes to washing, the mangle and running the risk of spoiling the first lot of white goods run after the tinting, it will be found that a special mangle is the cheapest.

I prefer the cylinder tenter. Some think this method is too slow as compared with the open tenter, but I have found that the cylinder tenter gives the help more time to straighten out the goods, after which they do not need calendering. Goods that have been weighted cannot be put into a cylinder tenter because the weighting mixture sticks to the cylinders; this must be done either on an open tenter or old style frames. Goods of low quality need some weighting. I have weighted goods in England and have no doubt but that this method will be resorted to in America. Before the goods leave the finisher's hands they are supposed to be weighted correctly.

THE DYEING OF WOOL FABRICS

BY B. F. SADLER

In the Dyer and Calico Printer

The one-dip logwood blacks, which at one time were much used, appear to have completely gone out now that so many aniline dyes are available, but logwood applied as a mordant dye still holds its own. The shades of the artificial blacks now on the market are much superior to the earlier ones which came out, where the tone was always inclined to be either green and flat, or else an

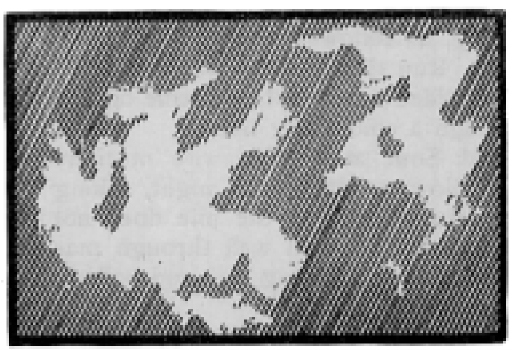


FIG. I

unpleasant red. As regards fastness many of them are much superior to logwood, but none of them feed the material, while the majority leave all burls a staring white, which is a fault common to most artificial wool dyes of the acid group.

For the dyeing of fast mode shades upon cloths for men's wear, the Salicine colors give extensive range of combinations, and with these, which require after-chroming to develop the shade, smoke and pearl greys, fawns, olives, and browns of all shades can be dyed. In the case of union cloths of cotton and wool, a number of direct cotton colors dye both fibers a uniform shade in one bath, but where the wool is composed of shoddy or mungo, these materials absorb the dye faster than new wool. In these cases the difficulty can be got over by choosing a dye with a stronger affinity for the cotton than the wool. The following are some direct colors suitable for unions, dyeing both fibers nearly the same shade in a neutral bath containing Glauber's salt, and possessing a greater affinity for the vegetable fiber: Benzo Fast Blue Scarlet 4 B S, Direct Yellow R R extra, Benzo Chrome Blue Black B, Benzo Fast Blue B, Benzo Dark Brown extra, Benzo Violet R, and Pluto Black C R, F extra.

In using a single bath for unions, the liquor must be kept in a concentrated form,

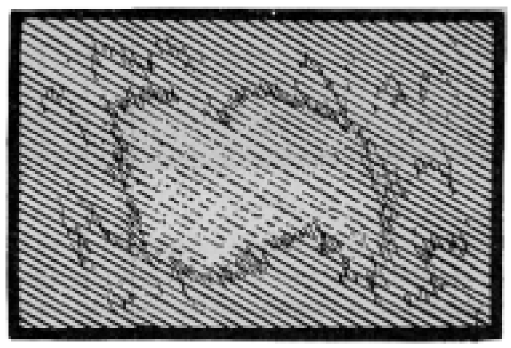


FIG. 2

and by regulating the temperature the dyeing of either cotton or wool can be accelerated. At the boil, the wool will of course absorb more dye than the cotton, and in a cooling bath the reverse takes place to some extent. In nearly all cases the cotton should be dyed a shade or two darker than the wool, as this makes the cotton much less in evidence, and the following colors dye the cotton heavier shades than the wool in a neutral bath: Chlorazol Dark Blue B extra, Chlorazol Fast Yellows, Sultan Scarlet 3 B, F, Titan Blacks and Titan Orange. For union blacks the old style of tannin and iron liquor is still in favor, as it stiffens out and feeds the cloth which the others do not.

The number of stains in finished cloth is legion—some easily accounted for, while others afford no clue whatever as to their origin; and what are termed broadly dyers' stains in 90 per cent. of cases should be labeled makers'. Fig. 1 illustrates a fault which at times develops in weighted cloths, where the filling has crystallized on the face of the material—or, as the term goes—"has candied". This is most likely to happen where a filling has been used containing a non-deliquescent salt such as Epsom or Glauber's salt, and it shows itself by white markings of irregular shape all over the fabric. It is generally seen where damping has either been omitted previous to press-

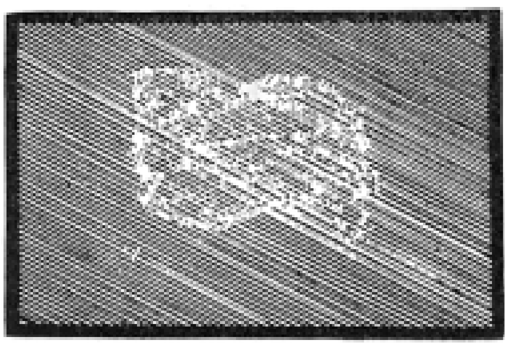


FIG. 3

ing, or where the amount of damp given has been insufficient, and if the weighting agent has been of a highly deliquescent nature damping will cause it to disappear at once. When, however, the filling contains salts which have little affinity for moisture, such as those mentioned above, the only cure is to wash the piece out again.

Fig. 2 illustrates the appearance of mildew upon a grey undyed cloth, and Fig. 3 the same cloth after dyeing. Fig. 2 represents the stain in a white cloth, where the mildewed portion is a whiter shade than the rest of the material, which is yellowish; this white portion is usually surrounded by darker markings which fade away imperceptibly at the edges. In Fig. 3 the fabric is shown dyed, and the stain is now the same shape but a grey color, many shades lighter than the bulk of the cloth, while the dark bordering marks have now disappeared. Warm weather and humid conditions always favor mildew growth, which is of course a minute form of fungi, developed from spores which are always floating about in the air, and the growth feeds upon the size or whatever impurities there are in the cloth but eventually attacks the fibers themselves. Once developed there is no cure, as the structure of the fiber is altered and its affinity for dye is much lessened, while in bad cases the parts affected are tendered. If, however, the disease is caught in the incipient stage, the mildew can be arrested without any harm to the cloth; but, unfortunately, the earlier stages of growth are hardly visible, and only become evident when the mischief is done. One sure sign of its approach is the cloth beginning to smell musty, and when this happens the best treatment is to dye it up at once—or at any rate give it a boil in a bath of water slightly acidulated.

BLEACHING COTTON GOODS

Editor Textile World Record:

I would like to make a suggestion regarding the reply to "Clayton's" (2203) inquiry which appeared in the October issue. I would suggest that "Clayton" handle his heavy goods that require either bleaching or dyeing, as follows:

1st. Run through hot water to which has been added 1 per cent. of oleine oil and then through a cold water bath;

2nd. Sour at 1° Tw. with muriatic acid and allow to stand over night, taking care that the outside of the pile does not dry. The next day wash well through machines and run into a boiling kier and boil with the following solution:

1 lb. caustic soda,
2 lbs. soda ash,
¼ lb. silicate of soda.

Boil for 12 hours if the circulation is by steam, but if a centrifugal pump is attached the time can be reduced to 8 hours. There will then be a good bottom for the bleach, and will require a very weak bleaching liquor, say as low as 1/2° Tw. Work about 3 hours. Then wash and sour at 1° Tw. with muriatic acid and wash again. "Clayton" will then have a good bleached cloth without having to boil twice. Parma.

Dye Recipes

The following recipes appear in the Dyers' Supplement, which is issued each month by the TEXTILE WORLD RECORD. The Supplement contains the colored samples, dyed according to recipes given. The selection of samples is carefully made, and it is the aim to show shades which are of especial interest to the dyer, and which the requirements of the market demand. The Dyers Supplement is a 16-page pamphlet, in convenient form for preservation. Subscription price for the Dyers' Supplement $1.00 per year.

Recipe No. 145

TAN ON WORSTED DRESS GOODS

Tan on 100 lbs. worsted dress goods. Prepare dye bath with

158 grs. Amazo Blue.
1 oz. 67 grs. Amazo Brill. Red 2 B.
3 ozs. Amazo Fast Yellow L R.
14 grs. Amazo Fast Pink Y.
(American Dyewood Company, 80 Maiden Lane, New York, N. Y.)
10 lbs. Glauber's Salt.
2 lbs. Oil Vitriol.

Enter at 120° F., bring to a boil in 20 minutes and boil one hour.

The above colors are suitable for all classes of wool dyeing because of their level dyeing properties and good fastness to light.

Recipe No. 146

GREY ON WORSTED DRESS GOODS

Grey on 100 lbs. worsted dress goods. Prepare the dye bath with

1⅗ ozs. Amazo Blue.
1 oz. 53 grs. Amazo Brill. Red 2 B.
336 grs. Amazo Fast Yellow L R.
(American Dyewood Company, 80 Maiden Lane, N. Y.)
10 lbs. Glauber's Salt.
1½ lbs. Oil of Vitriol.

Enter at 120° F., bring to a boil and boil 3/4 to one hour.

The colors used to produce this grey have excellent levelling properties and are recommended for all classes of wool dyeing.

Recipe No. 147

BROWN ON WORSTED YARN

Anthracene Chromate Brown B G on 100 lbs. worsted yarn. Prepare the dye bath with

2 lbs. Anthracene Chromate Brown B G
(Cassella Color Co., 182 Front St., New York, N. Y.)

which has been well dissolved. Bring bath to 140° F., then add

1 lb. Potassium Bichromate (previously dissolved).

Enter yarn at this temperature, raise slowly to a boil, and dye at a boil for 1 3/4 hours. For heavy dyeings which do not exhaust well, add after one hour's boiling

3 lbs. Acetic Acid.

Anthracene Chromate Brown B G may also be applied as an after-chromed and straight mordant color. It possesses excellent fastness in all respects.

Recipe No. 148

SCARLET ON COTTON YARN

Azidine Fast Scarlet E 7 B S on 100 lbs. cotton yarn. Prepare the dye bath with

3 lbs. Azidine Fast Scarlet E 7 B S.
(C. Bischoff & Co., 451 Washington St., New York, N. Y.)
25 lbs. Common Salt.

Enter at 180° F. and dye at a boil for one hour.

Azidine Fast Scarlet E 7 B S gives a brilliant red of very good fastness.

Recipe No. 149

YELLOW ON SILK

Carbozol Yellow W on 100 lbs. of silk. First mordant the boiled off silk in a bath containing

60 lbs. Alum (free from Iron).
6 lbs. Soda Crystal.
125 gals. Water.

Work in this liquor for 1/4 to 1/2 hour, then allow to steep 12 hours (over night). Then wring the silk without rinsing, work for 1/4 hour in a

1° Tw. Silicate of Soda Solution.

Thoroughly rinse and dye without drying in a bath of boiled off liquor containing

4 lbs. Carbazol Yellow W
(Badische Co., 86 Federal St., Boston, Mass.)

which has been slightly acidified with acetic acid. Raise slowly to a boil, and dye for one hour at a boil. Rinse well and if desired soap, and brighten slightly.

Carbazol Yellow W when applied on a chrome mordant will be found much faster, but at the same time duller than on an alum mordant. It may also be dyed upon unmordanted silk, but dyeings thus produced lack the brilliancy of the alum mordant.

Recipe No. 150

RED ON WORSTED YARN

Guinea Fast Red B L on 100 lbs. worsted yarn. Prepare the dye bath with

2 lbs. Guinea Fast Red B L.
(Berlin Aniline Works, 213 Water St., New York, N. Y.
20 lbs. Glauber's Salt (Crystals).
4 lbs. Sulphuric Acid.

Enter at 140° F. and dye at a boil for one hour.

Guinea Fast Red B L possesses extraordinary fastness to light, and good fastness in most other respects.

Recipe No. 151

ORANGE ON WORSTED YARN

Sulphon Orange 5 G on 100 lbs. worsted yarn. Prepare the dye bath with

2 lbs. Sulphon Orange 5 G.
(Bayer Co., 117 Hudson St., New York, N. Y.)
10 lbs. Glauber's Salt.
3 lbs. Acetic Acid.

Enter at 140° F. and dye at a boil for one hour, and exhaust if necessary by adding a little sulphuric acid.

Sulphon Orange 5 G is very fast to alkali, washing, milling, steaming and stoving. It may be used in shading chrome colors. Cotton effects in woolen pieces remain perfectly clear.

Recipe No. 152

FANCY COLORS ON COTTON PIECE GOODS

This sample contains the following colors:

	%
Light Mode:	
Thio Indigo Brown G Paste	0.20
Thio Indigo Blue 3 G N Powder	0.08
Light Pink:	
Thio Indigo Rose A N Paste	0.40
Light Blue:	
Indigo K G Paste	1.60
Grey:	
Thio Indigo Grey 2 B Paste	9.00
Thio Indigo Brown G Paste	1.80
Thio Indigo Orange R Paste	3.60
Brown:	
Thio Indigo Brown G Paste	7.20
Thio Indigo Brown 2 R Paste	3.60
Thio Indigo Blue 3 G N Powder	0.20

(Kalle & Co., 530 Canal St., New York.)

Method for Reducing the Colors

Thio Indigo Orange R Paste:
10 lbs. Dyestuff Paste.
1 lb. Caustic Soda 76° Tw.
1½ gals. Water.
1 lb. Soda Ash.
1 lb. Hydrosulphite Powder

diluted to 10 gals. Temperature: 122° to 140° F. Color of the vat: yellow olive.

Thio Indigo Rose A N Paste:
10 lbs. Dyestuff Paste.
4 to 5 lbs. Caustic Soda 76° Tw.
10 to 12 gals. Water.
3 lbs. Puropol.
2 lbs. Hydrosulphite Powder.

Temperature: 140° to 160° F. Color of the vat: olive.

Thio Indigo Brown G Paste:
10 lbs. Dyestuff Paste.
2¾ lbs. Caustic Soda 76° Tw.
3½ gals. Water.
1¼ lbs. Hydrosulphite Powder

diluted to 10 gals. Temperature: 140° to 158° F. Color of the vat: brown.

Thio Indigo Brown 2 R and 5 R Paste:
10 lbs. Dyestuff Paste.
2¾ lbs. Caustic Soda 76° Tw.
5 gals. Water.
1 lb. Puropol.
1½ lbs. Hydrosulphite Powder

diluted to 10 gals. Temperature: 140° to 158° F. Color of the vat: yellow.

Indigo G K Paste:
10 lbs. Dyestuff Paste.
3½ lbs. Caustic Soda 76° Tw.
7½ gals. Water.
2 lbs. Puropol.
4 lbs. Soda Ash.
2 lbs. Hydrosulphite Powder

diluted to 10 gals. Temperature: 122° to 140° F. Color of the vat: brownish yellow.

Thio Indigo Blue 3 G N Powder:
10 lbs. Dyestuff Powder.
1 lb. Puropol.
3½ lbs. Caustic Soda 76° Tw.
3 gals. Water (104° to 122° F. Warm).
1½ lbs. Hydrosulphite Powder

diluted to 10 gals. Temperature: 104° to 122° F. Color of the vat: yellowish brown.

Thio Indigo Grey 2 B Paste:
10 lbs. Dyestuff Paste.
4 lbs. Caustic Soda 76° Tw.
5 gals. Water.
4 lbs. Puropol.
4 lbs. Hydrosulphite Powder

diluted to 10 gals. Temperature: 122° to 140° F. Color of the vat: yellowish olive.

The preparation of a dye vat of 100 gals. is as follows:

Ninety gallons of water, if possible freed from lime by the addition of soda, are run into the vat and this is sharpened by hydrosulphite powder and caustic soda, taking as a rule for light shade a greater quantity of hydrosulphite and caustic soda than is necessary for dark tones.

The additions are:
For light shades about
2½ ozs. Hydrosulphite Powder.
4 to 5 ozs. Caustic Soda 76° Tw.
For medium shades about
2 ozs. Hydrosulphite Powder.
3½ ozs. Caustic Soda 76° Tw.

For dark shades about
1½ ozs. Hydrosulphite Powder.
3 ozs. Caustic Soda 76° Tw.

After 1/4 to 1/2 hour the required quantity of reduced color is added and for deep shades before adding the color 10 to 30 lbs. Glauber's Salt Calc. are put in. The whole is stirred gently and then allowed to stand for a short time, after which the dyeing is commenced at the following temperature (Fahr):

Thio Indigo Yellow G N Paste	77°-86°
Thio Indigo Blue 3 G N Powder	77°-86°
Thio Indigo Orange R Paste	104°-140°
Thio Indigo Rose A N Paste and B N Paste	104°-140°
Thio Indigo Brown G Paste and 5 R Paste	104°-140°
Indigo K G Paste	104°-140°
Thio Indigo Grey 2 B Paste	104°-140°

When dyeing combinations of vat dyestuffs, each color is reduced separately, and in this case the temperature for dyeing is the average of the temperature as given above for the various colors. After dyeing, the goods are wrung as evenly and as well as possible. oxidized by hanging, then rinsed and soaped with about 2/5 oz. soap per gallons, boiling for 1/2 hour. The dye bath exhausts completely in dyeing pale shades.

Recipe No. 153

GREEN ON COTTON PIECE GOODS

	%
Reseda:	
Thio Indigo Yellow 3 G N Paste	2.90
Thio Indigo Blue 3 G N Powder	0.58
Cream:	
Thio Indigo Brown G Paste	0.04
Thio Indigo Blue G N Powder	0.40
Thio Indigo Yellow 3 G N Paste	2.30

(Kalle & Co., 530 Canal St., New York.)

Method for Reducing the Colors

Thio Indigo Yellow 3 G N Paste:
10 lbs. Dyestuff Paste.
4 to 5 gals. Water.
5 lbs. Caustic Soda 76° Tw.
4 lbs. Hydrosulphite Powder

diluted to 10 gals. Temperature: 68° to 86° F. Color of the vat: red.

The method for deducing the other colors mentioned will be found in Recipe No. 152. The method of dyeing will also be found in Recipe No. 152. A special sample card has been issued by Kalle & Co. about these Thio Indigo colors.

Recipe No. 154

BROWN ON COTTON YARN

Thioxine Brown 2 G R on 100 lbs. cotton yarn. Prepare the dye bath with

5 lbs. Thioxine Brown 2 G R.
(Geisenheimer & Co., 189 Front St., New York, N. Y.)
5 lbs. Sodium Sulphide Crystal.
4 lbs. Soda Ash.
20 lbs. Glauber's Salt.

Dissolve dyestuff and sodium sulphide together and add to bath already containing the Glauber's Salts and Soda Ash. Bring to a boil, and dye at a temperature just below the boil for one hour.

Thiozine Brown G R possesses very good fastness to light and washing.

Recipe No. 155

BLACK ON UNION CLOTH

Helvetian Union Black G. Prepare the dye bath with

5% Helvetian Union Black G.
(Swiss Colors Co., 15 E. 12th St., New York, N. Y.)
4% Sal Soda.

Enter at 140° F., allow goods to remain half hour, turn on steam, then add

20% Glauber's Salt,

boil half hour, shut off steam. Allow bath to cool down, steep for one hour, and rinse in three waters.

Helvetian Union Black G is of a jet cast, of excellent covering power, and is especially recommended for union goods, as it dyes cotton, wool and silk absolutely the same shade from one direct bath. Its fastness to light and watering is ideal for quick dyeing methods. One of the many uses that this product is advisable for, is in the complete covering of faded cloths, as it holds its rich, full cast indefinitely.

Recipe No. 156

GREEN ON UNION CLOTH

Helvetian Brilliant Green G on 100 lbs. union cloth. Prepare the dye bath with

2 lbs. Helvetian Brilliant Green G.
(Swiss Colours Co., 15 E. 12th St., New York, N. Y.)
2 lbs. Sal Soda.

Enter at 140 F., allow goods to remain half hour, turn on steam, then add

20% Glauber's Salt,

boil half hour, shut off steam. Allow bath to cool down, steep for one hour, and rinse in three waters.

Helvetian Brilliant Green G is especially noted for its pleasing brilliancy and level dyeing properties, also of good fastness, and covers cotton, wool and silk identically the same shade from one direct bath.

New Machinery and Processes

This department is designed to present from month to month a brief mention of new machinery, devices and processes being brought out in this country and abroad, that are of interest to the textile manufacturers. It is not a list of patents but of improvements on the market, the idea being to present to our readers a systematic monthly record of new machinery, etc., of interest to textile mill men.

Whenever possible we endeavor to make a personal investigation of the new machinery and processes described in this department. In the absence of such personal investigation we must necessarily rely upon information obtained from those who control the machines and processes.

We invite machine builders and others to send us such information for this department.

Improvement in Stripping Cotton Cards. Leon W. Campbell, of the Woonsocket Machine & Press Co., Woonsocket, R. I., has recently invented, and the company is now putting on the market, an improved attachment for stripping cotton cards. With the use of this attachment, it is only necessary to strip about one-twelfth as frequently as at present. This results in not only saving time and labor, but also makes a cleaner card-room and there is just so much less fly and dust in the atmosphere to be inhaled by the operatives. It has also been found by testing that where this device has been used on the cards, the yarn is about 5 per cent. stronger in breaking tests. This is due to the cleanliness of the stock and also to the fact that the light web which follows the stripping only occurs one-twelfth as often as in the old methods. The device may be attached to cards of any make. It has been in operation in several of the leading New England mills for a sufficient length of time to demonstrate its thorough practicability and the advantages outlined above.

Humidifying Apparatus. The G. M. Parks Co., Fitchburg, Mass., have recently placed on the market what is known as the "Turbo cluster tank," which makes it possible to have a small humidifying outfit without an expensive installation. A description appears in this issue.

Fleecing Machines for Hosiery. A. W. Buhlmann, 200 Fifth Ave., New York, is introducing to the American trade a line of raising or napping machines for hosiery and other kinds of knit goods. These machines are built by the Maschinenfabrik Arbach and are in extensive use in European mills. A description of one of them appears in this issue.

Placing Travelers on Spinning Rings. Gebruder Staeubli, Horgen, Switzerland, have placed on the market tools for setting travelers on spinning rings and for removing the travelers from the rings. It is stated that with this apparatus two girls can replace travelers on four hundred rings in six to seven minutes. A description appears in another part of this issue.

Cotton Spinning Device. The Sociedad Anonima Patentes Casablancas, Sabadell, Spain. A new method of spinning cotton yarn direct from slubbing. The intermediate and roving frames are dispensed with. A description appears in this issue.

Bleaching Apparatus. Moritz Freiberger, Charlottenburg, Germany. An apparatus for bleaching and souring piece goods in rope form by a continuous process.

Decorating Fabrics on the Shear. Severin Heusch, Tuchschermesser-Fabrik, Aachen, Germany. A cloth shear for producing stripes on plush goods.

Removing Dust from Card-Rooms. The Vakuumanlagen und Apparatebau-Gesellschaft, Frankfurt-on-Main, Bockenheim, Germany. An improved vacuum apparatus for removing dust from carding machines.

Open Width Bleaching Process. Emil Gminder, Wernerstrasse 26, Reutlingen, Germany. An improved machine for bleaching goods in the open width, for which a number of important advantages are claimed.

THE GILES DYEING MACHINE FOR SKEIN YARN

Textile manufacturers have long been familiar with automatic machines for dyeing yarn in the skein, which supplanted the laborious and unsatisfactory hand method of dyeing in open tubs and handling the skeins by hand. The advantages of the machine over hand work are so well known that it is unnecessary to state them here, but manufacturers will be interested in the new automatic machine shown in the illustration, Fig. 1, which has been designed with the object of embodying in the machine process all the improvements that have been developed by experience. This machine is the product of the John H. Giles Dyeing Machine Co., Amsterdam, N. Y., and built in the shops of the Mason Machine Works, Taunton, Mass., where a representative of this magazine recently examined a completed machine as well as a number in process of construction to fill orders.

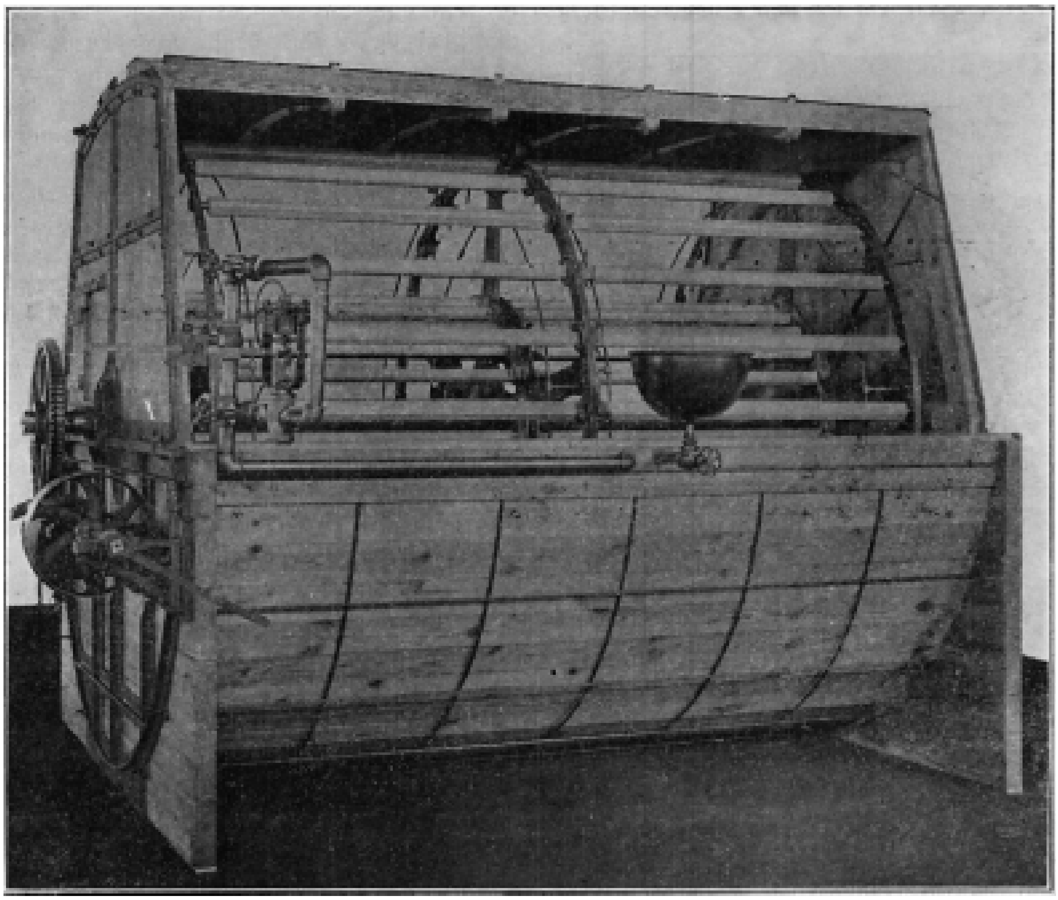


FIG. 1. THE GILES AUTOMATIC DYEING MACHINE FOR SKEIN YARN

One of the improvements claiming immediate attention is in the mounting and operation of the dye sticks. Fig. 2 is a view of one of the ratchets, which is made extra heavy and designed so that it can be moved only in one direction, an escapement preventing any reverse motion. The star wheel is pinned to the ratchet-cup instead of being screwed on, the ratchet cup having a 2 11/16 inch bearing. In the double machine the ratchet cups are set in the center, making it possible to operate both sets of sticks at one point in the center of the tub.

Special attention has been given to the tripping device. The star wheels and the tripping roller are always in line with each other, which prevents twisting the wheels and cramping on the bearings. When the machine is reversed the tripping rod automatically rides over the star wheels and falls

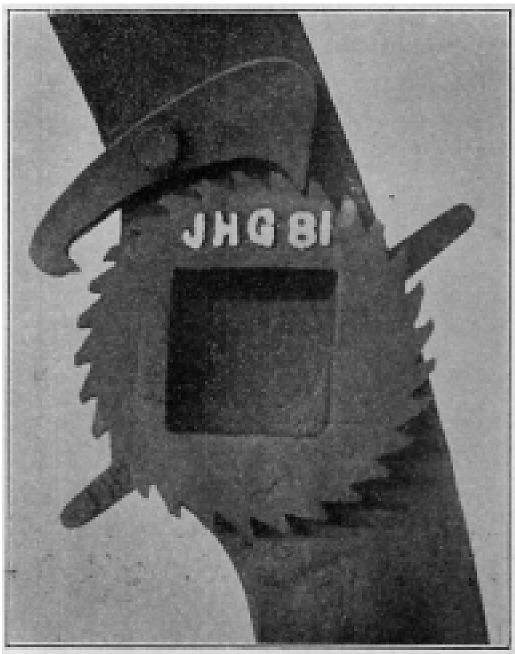


FIG. 2. A VIEW OF ONE OF THE RATCHETS IN THE GILES DYEING MACHINE

by gravity to operative position, thus making it unnecessary to adjust the mechanism before reversing.

The opposite end of the stick rests in a socket and is held firmly in place by a flat, double spring outside of the segment, which thus serves to press the stick securely into the ratchet cup. This spring of monel metal is very durable and reliable.

The sticks are adjusted to fit skeins of different lengths by means of a worm and worm gear on a shaft outside of the end spider. The worm gear connects by means of a shaft running across the machine with spur gears operating the racks inside of the ring.

The construction of the ratchet cups and the bearings at the opposite ends results in a great economy in the working space, which is 44 inches between guard rods on a stick 54 inches long. It is possible to use a stick with bearings 1 3/4 inches in diameter at the round end. To adjust the distance between the inside and outside sticks, the worm shaft is turned by a wrench, which turns all the adjusting rings simultaneously without the necessity of handling hot metal or removing any locked parts. The worm and gear serves to lock the sticks in position as the worm cannot be turned by the gear.

The inside sticks are held in place by a cover held in position by a double compression spring of monel metal, which the builders have found to be the best material for resisting acids and alkalies, while possessing the necessary strength and desirability. They claim that the new machine can be loaded as quickly as has heretofore been possible, while an important economy of time is effected in unloading.

The steam enters by a pipe at the center of the tub above the level of the dye liquor, as shown in the illustration, Fig. 1. This pipe connects with a special device by which the steam is divided equally, one-half passing to a perforated pipe at the right and the other to the left, thus giving a uniform distribution of steam across the tub, which is essential for level shades. The steam from these pipes boils the liquor behind a false back, causing a constant circulation and thorough and uniform mixing of the dyestuff as it is added to the bath.

An automatic device regulates the supply of steam, cutting it down to the amount required to maintain the bath at a boil without waste.

The machine is driven by nickel steel, hardenel transmission gears of the automobile type, giving three speeds forward and reverse. When desired gearing is supplied to reduce the speed for electric drive. In the phosphor bronze machines there is no iron on the interior. The hoops and cross rods outside are of monel metal. The outlet valve is made with a bronze seat and babbitt metal plug, which closes automatically by gravity. The outlet is 6 inches in diameter, making it possible to empty the tub in a few minutes.

The single machine for wool yarn has 25

sticks and a capacity of 250 to 375 pounds at a dyeing; the double machine with 50 sticks carrying just twice these quantities. The single machine for cotton yarn has 30 sticks and a capacity of 300 pounds; the double machine with 60 sticks, 600 pounds. The builders claim as a result of the improved construction an increase of 25 per cent. in the capacity for the same floor space, power and dye liquor, and sell the machine with a guarantee. The material and workmanship are the best, the machines being built in the shops of the Mason Machine Works, whose long experience and excellent facilities for building textile machinery are well known to the trade.

THE TURBO CLUSTER TANK SYSTEM

The growth and development of the Turbo humidifier has created a demand for smaller installation units and the G. M. Parks Co., of Fitchburg, Mass., has for some time been engaged in working out this problem. They have recently placed on the market the "Turbo" cluster tank, which makes it possible to supply a small humidifying outfit complete without an expensive installation.

Another important factor with these small installations is that the purchaser can, with

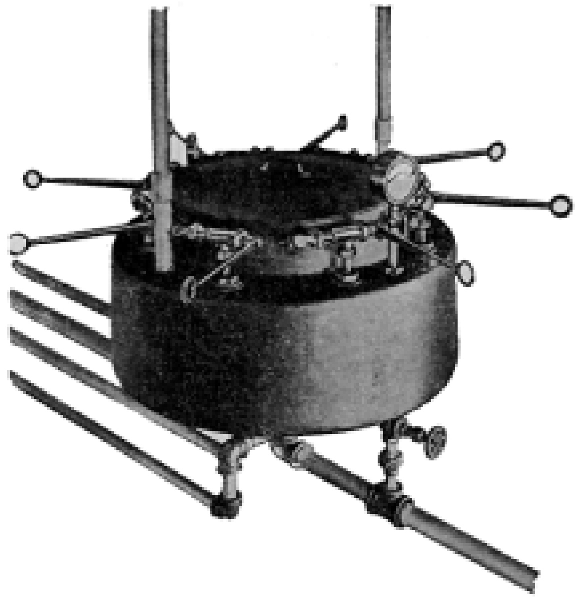


FIG. 1. THE TURBO CLUSTER TANK

the assistance of a local plumber and the drawings which are furnished, install the outfit with a comparatively small outlay for pipe, fittings and labor, eliminating the heavier expense that is involved in carfare,

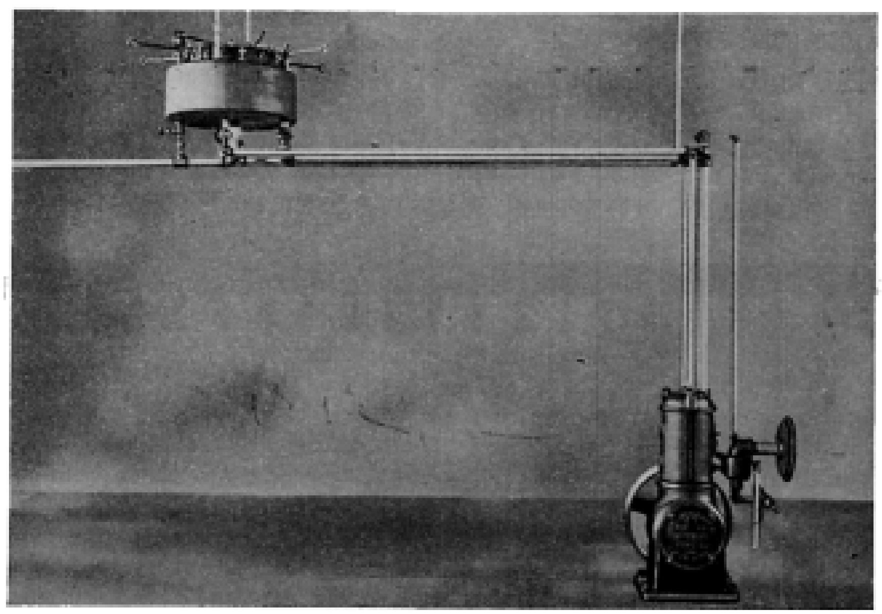


FIG 2. ONE OF THE MANY DIFFERENT ARRANGEMENTS OF THE TANK AND AIR COMPRESSOR

board, freight on tools, etc., when fitters and erectors are sent from the home plant.

Fig. 1 shows the cluster tank. Fig. 2 shows one of many different arrangements with the tank and air compressor. The tank consists of two sections. There is a ring of compressed air, piped up with the air compressor; inside of this is a tank of water with an automatic ball float valve, which is connected to any convenient water supply. This water tank also acts as a circulating reservoir to circulate water around the air compressor cylinder and keep it cool. The air container also acts as a cooler for the compressed air, thus eliminating the moisture and oil, which is essential.

The cluster tank contains a maximum of eight Turbo heads of the usual type, each of which may be operated independently, according to the degree of humidity required.

For small installations, where one room or department only needs to be humidified, a single cluster tank may be sufficient, but different units may be added to the system as desired.

THE IMPROVED CHAPMAN ELECTRIC NEUTRALIZER

The Chapman Electric Neutralizer Co., of Portland, Me., manufacturers of the Chapman process for neutralizing frictional electricity in textiles during the various stages of manufacture, have recently incorporated a number of improvements in the apparatus, particularly in the style of inductor used on cotton cards and on woolen breaker cards. One of these inductors which the Chapman Company term their type "R. T.", and shown at Fig. 1, is made of kiln dried hard wood with hard rubber teeth suitably spaced to project between the doffer comb struts when the inductor is attached to the card in its working position. This style of inductor is now made to fit any American or English card and a number of European machines, including several Belgian wool cards.

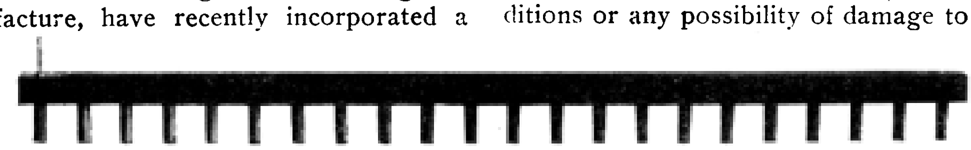


FIG I. THE "R. T." INDUCTOR

The improved inductor, besides reaching down closer to the work, possesses the advantage of being very light compared with the familiar type, "U" inductor which on account of its weight was somewhat difficult to protect from the excessive vibration sometimes met with on old cards with badly worn comb mechanism, as the inductors are attached to cards by brackets fastened to the comb journal boxes.

The Chapman process, which is used by many representative cotton and woolen mills and by most of the large printing and publishing houses in the country, is an interesting application of electricity and was originated by William H. Chapman, an electrical engineer and inventor of Portland, Me., to overcome the bad effects of static or frictional electricity on the quantity and quality of production in the manufacture of textiles, paper, rubberized fabrics and in printing.

A high relative degree of humidity is a means commonly used to minimize the effects of frictional electricity, which is of course most noticeable in cold or very dry weather.

The superior advantages claimed for the Chapman method are that it is direct, acts forcefully, positively and quickly and without entailing any change in the atmospheric conditions or any possibility of damage to cards or card clothing through rusting, caused by condensation of moisture on the metal.

It does not require any preliminary operation before the machinery is started in the morning, for the results are instantaneous when the switch is turned on and no regulation or fine adjustment is required to get the desired result. It consists of the application of a high tension, alternating charge of electricity, minute in volume and harmless, applied where the frictional electricity is developed, and which it neutralizes. The neutralization takes place by natural selection and is due to the attraction any charge of electricity, large or small, and whether positive or negative, has for an equal charge of the opposite kind.

Frictional electricity gets in its work on a cotton card the moment the cotton is

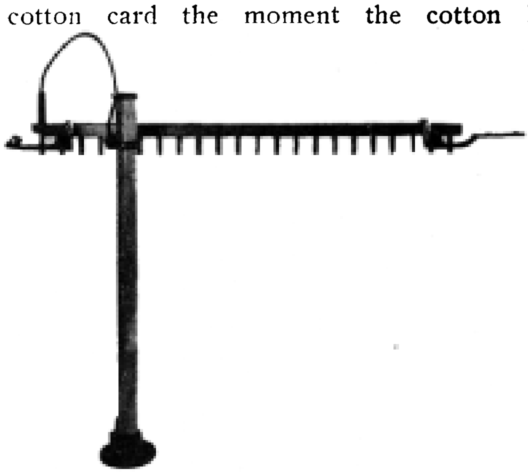


FIG 2. AN INDUCTOR FOR THE CHAPMAN NEUTRALIZER

stripped from the doffer by the comb. The mutual repulsion of the fibers caused by their electrified condition tends to disrupt the web, many of the fibers are pushed out as "fly", and some will be found in the sliver with their ends sticking out. The fibers are attracted by conducting metallic surfaces, as for instance the curved guides below each end of the comb blade. This attraction at these points retards the cotton and rolls it under, making it extremely difficult to start the card on a frosty morning.

If this card were to be equipped with the Chapman system; a type "R. T" inductor would be held directly over the comb just back of the blade by hinged holders supported by brackets attached to the comb boxes. Fig. 2 shows an inductor as it would be so held. The teeth would be projecting between the struts just back of the comb blade and within a few inches of the web of cotton leaving the doffer.

Fig. 3 shows the inductor tilted back on its hinged supports out of the way for stripping and grinding. The upright tube shown contains the cable from the high tension line which connects the various cards with the one or more special transformers, a cut of which is shown. These transformers taking a very small amount of energy from the light or power mains, feed a heavily insulated steel wire running around to, under or over the cards, with an alternating charge at about 10,000 volts. The volume of current each transformer can by any possibility deliver, however, is only a few thousandths of an ampere and is entirely harmless, but would give a rather startling shock if received accidentally. For this reason the connection to the inductor is not direct. The cable running up into the floor tube is dead ended there and covered by a heavy rubber hose. Over this hose is a small metal sleeve

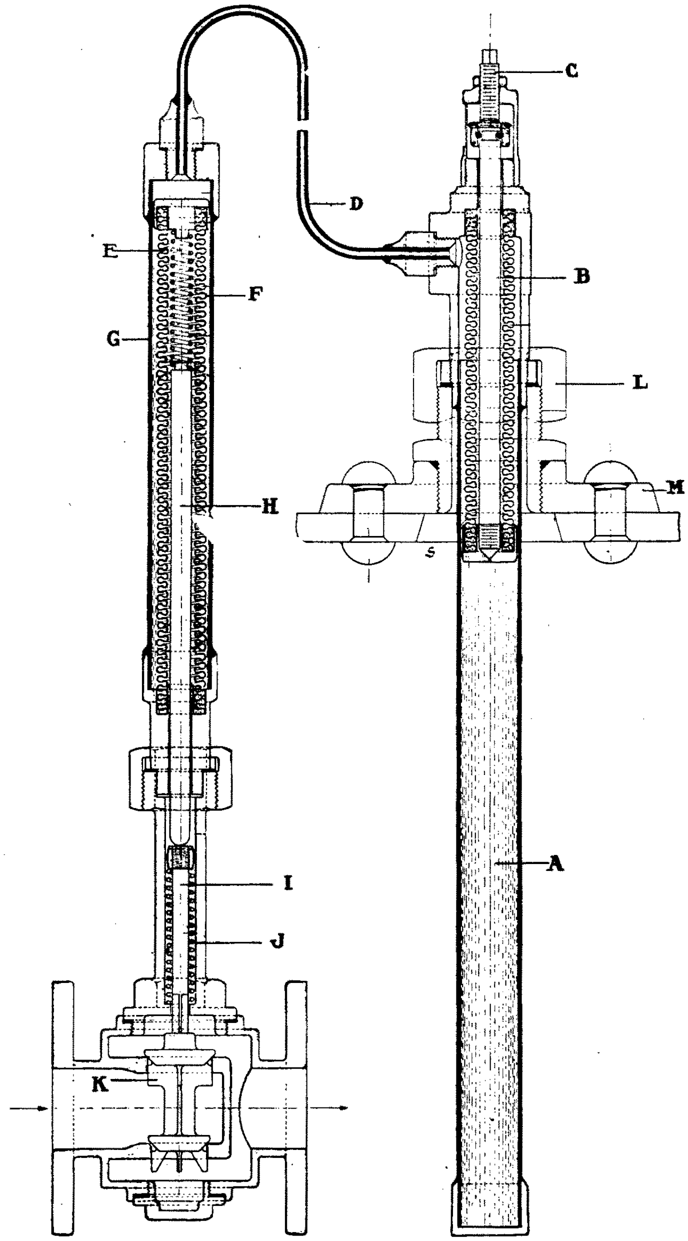
FIG. 3. THE INDUCTOR TILTED BACK FOR STRIPPING AND GRINDING

which gets an induced secondary charge which is delivered to the inductor by another cable carried to the inductor and connected to it by a removable socket.

While the inductor is highly active and capable of instantly neutralizing the static electricity in the cotton below it, scarcely any sensation can be felt when the points are handled with moistened fingers. By removing the induction feature from the inductor proper, as is done with the "R. T" and similar type as distinguished from the type, "U", formerly used by the Chapman Company for cotton mill work, the insulation of the inductor becomes of secondary importance. The complete smashing of a type "R T" inductor would not interfere in the least with the operation of the system, which is entirely automatic and is handled by merely turning a switch same as a circuit of electric lights.

THE "SARCO" WATER TEMPERATURE REGULATOR

The apparatus shown in the accompanying illustration, for regulating the temperature of water, is manufactured by the Sarco Engineering Co., 116 Broad St., New York. The Sarco water temperature regulator is based on the same thermostatic principle as the well known Sarco steam trap, using as its actuating motive power the expansion of a sensitive liquid hermetically sealed within a chamber into which is inserted a flexible corrugated tube. It is substantially made and is not liable to get out of order. It is compact, simple and wholly self-contained, requiring no exterior operating means such as compressed air. It also avoids the use of rubber or leather diaphragms and of metal disc diaphragms.



SECTION OF THE "SARCO" WATER TEMPERATURE REGULATOR

The Sarco regulator is easily installed and can be arranged to regulate the temperature of water or any other liquid where a supply of steam or hot water is used to obtain the desired temperature within any given container. The apparatus is provided with an adjustable regulating device by which any desired temperature within given limits can be maintained constantly.

In installing the apparatus the thermostat is inserted in the tank or container, the temperature of which is to be regulated and the valve is connected in the steam or hot water pipe, opening up or closing according to the temperature in the tank.

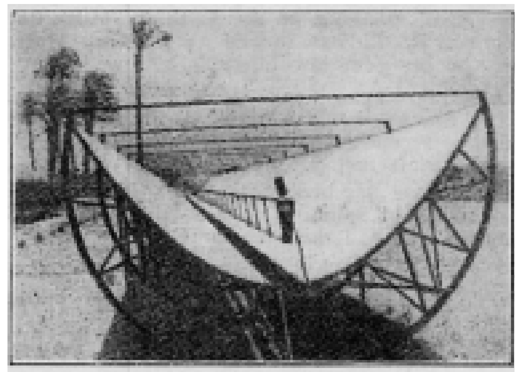
The Sarco regulator is made of three principal parts: A, the thermostat element which is inserted in the boiler or tank, C, the controller element and K, the valve. The thermostat, A, is a tubular receptacle containing a heavy hydro-carbon oil into which is inserted a piece of corrugated copper tubing the length of which is extended or reduced by turning the regulator head, C. From this thermostat a piece of fine copper tubing, D, passes to the controller, G, which also contains a piece of corrugated tubing capable of compression when an increase of temperature causes the surrounding liquid to expand. The thermostat, A, the connecting copper tube, D, and the controller, G, form one hermetically closed chamber. When the temperature increases in A, the pressure increases and is transmitted to the controller, G, causing a compression of the copper tube, F, which forces out the piston, I, and tends to close the valve. Spiral springs, E and J, operating in the opposite direction tend to keep the valve open.

The regulator is remarkably simple and is capable of fine adjustment, this being achieved, as stated, by increasing or reducing the space in which the expandable fluid is confined by turning a screw on the thermostat which extends or contracts the corrugated tube.

The manufacturers believe that it would be suitable for the automatic regulation of the temperature of dye baths and have already received an order for this purpose from a textile mill.

MAKING THE SUN WORK

One of the first problems that await solution in the development of the Sudan is the problem of sources of power. There has been considerable exploration in search of oil, but so far it has not met with any very great success. Now that the Sudan is in full working order coal, of course, can be brought within reach of the railways at a price which, although not low, is not too high to be prohibitive. Taking energy to the Sudan is really, however, carrying coals to Newcastle, for the immense solar energy



A SUN BOILER ON THE SUDAN

of the African sun is a source of power, which, if it could be tapped, is probably greater than all the coalfields in the north of England. There is at present working successfully in Egypt a sun boiler which, if it fulfils the promises of the experimental plant, will render unnecessary the pumping of oil or the shipping of coal. The boiler, which is the invention of Frank Schumann, consists of a double line of mirrors arranged to form a long shallow trough, with a thin flat boiler carried down the middle of the trough in the focus of the mirrors. The mirrors reflect the heat of the sun and focus it on to the boiler. At Cairo, where the experimental plant is at work, the temperature of the sun during the summer months is 140° in the open. The mirrors concentrate the heat in the proportion of 5 to 1, and therefore they get a temperature equal to about 550° or 600° F. The inventor believes that the plant will be useful in all countries within 20° north or south of the equator.—Manchester Guardian.

Personals

Melvin B. Horton has been elected treasurer of the Merchants Manufacturing Co., Fall River, Mass. He is a native of Fall River and was educated in the public schools there. After leaving school he entered the office of the Union Manufacturing Co., where he remained for seven years. He then entered the brokerage firm of the late George H. Hawes, founder of the firm of George H. Hawes & Co. He afterwards, with a partner, established the firm of Andrews & Horton, cotton brokers of that city.

James Callahan, for the past twenty-five years overseer of weaving at the Carolina Mills Co., Carolina, R. I., has moved to Boston, Mass., where he has gone into business.

Robert F. Logan, formerly overseer of weaving at the Shetucket Co., Norwich, Conn., has resigned to accept a similar position with the Manhasset Manufacturing Co., Putnam, Conn.

Edwin Kyle has been promoted to the position of overseer of spinning at the H. H. Wood & Company's Mill, Lakeport, N. H.

Frances Carroll has accepted the position of overseer of spinning at the Tilton Mills, Tilton, N. H. He was formerly employed at the H. H. Wood & Company's Mill, Lakeport, N. H.

E. F. Moore, overseer of spinning at the Bound Brook Woolen Mills, Bound Brook, N. J., has severed his connection with that company.

F. D. Toof has accepted the position of overseer of spinning at the New England Cotton Yarn Co., Departments 9 and 10, New Bedford, Mass.

Benjamin Sprowson has accepted the position of overseer of carding at the Baltic Mills Co., Baltic, Conn. He was formerly employed at the Globe Yarn Mill, Fall River, Mass.

Harold W. Carpenter has been appointed designer at the Warren Cotton Mills of the Thorndike Co., West Warren, Mass. He was formerly employed at the Shetucket Co., Norwich, Conn.

George Campbell, superintendent of the Renfrew Manufacturing Co., Adams, Mass. has severed his connection with that company.

William Hall, for the past five years overseer of finishing at the Merrimack Woolen Co., Dracut, Mass., has resigned his position with that company.

Charles O'Brien has accepted the position of overseer of finishing at the Merrimack Woolen Co., Dracut, Mass. He was formerly employed at the Bay State Mill, Lowell, Mass.

Leon E. Allard has accepted the position of assistant designer at the Manton Mill, American Woolen Co., Manton, R. I. He comes from the Aetna Mill, Watertown, Mass.

J. F. Thompson has accepted the position of overseer of spinning and winding at the Chinnabee Mills, Talladega, Ala. He comes from Bon Air, Ala.

R. S. Scarboro has accepted the position of overseer of spinning at the new mill of the Dan River Mills, Danville, Va. He comes from Concord, N. C.

A. W. Roper has accepted the position of overseer of carding at the Cherryville Manufacturing Co., Cherryville, N. C. He comes from Bessemer City, N. C.

J. I. Whitaker has been promoted from second hand to overseer of weaving at the Washington Mills, Fries, Va.

G. C. Pruitt has accepted the position of overseer of weaving at the Eva Jane Mills, Sylacauga, Ala. He was formerly employed at the Washington Mills, Fries, Va.

W. H. Johnson has accepted the position of overseer of weaving at the Morgan & Hamilton Co., Nashville, Tenn. He comes from Fries, Va.

George H. Riddle has accepted the position of overseer of spooling, warping and slashing at the Inverness Mills, Winston-Salem, N. C. He was formerly employed at the Aragon Mills, Aragon, Ga.

Frank Beavers, assistant dyer at the Ayer Mill, American Woolen Co., Lawrence, Mass., has resigned to accept a similar position with the Lawrence Dye Works, Lawrence, Mass.

Benjamin F. Fahey, overseer of carding at the Sanford Spinning Mill, New England Cotton Yarn Mill, Fall River, Mass., has severed his connection with that company and will retire from active service.

C. E. Briggs has been appointed superintendent of the Davenport Mill, operated by Myers, Jolesch & Co., New York, N. Y. He comes from Jamestown, N. Y.

Joseph Schardt has accepted the position of overseer of carding at the W. E. Hayward & Company's Mill, East Douglas, Mass. He comes from Carolina, R. I.

John Collier has been appointed superintendent of the Royalston Mill, American Woolen Co., South Royalston, Mass., succeeding E. B. Hanson. Mr. Collier was formerly employed at the Crawford Woolen Co., Martinsburg, West Va.

Joseph Janero has been appointed overseer of weaving at the French River Textile Co., Mechanicsville, Conn., succeeding Paul Wetstein. He was formerly employed as second hand of weaving at this mill.

Robert S. Dodds, overseer of weaving at the Lebanon Mills, American Woolen Co., Lebanon, N. H., has severed his connection with that company.

A. Illingsworth has accepted the position of overseer of dyeing at the Allentown Eiderdown Co., Allentown, Pa., succeeding the late Arthur Fenton.

George E. Walls, overseer of carding at the Newmarket Manufacturing Co., Newmarket, N. H., has severed his connection with that company.

Arthur Butterworth, overseer of finishing at the Lebanon Mills, American Woolen Co., Lebanon, N. H., has severed his connection with that company.

Albert Simpson, who has been night superintendent at the Priscilla Worsted Mill, Providence, R. I., has been appointed general superintendent of this plant to succeed Irving Ward.

Irving Ward has been appointed superintendent of the worsted yarn department at the Lymansville Co., Lymansville, R. I.

George Lambert, who had charge of the worsted spinning at the National & Providence Worsted Mill, American Woolen Co., Providence, R. I., has been appointed night superintendent of the Priscilla Worsted Mill, same city.

John Gibson has accepted the position of second hand in the ring spinning department at the Grosvenordale Co., Grosvenordale, Conn.

T. A. Sullivan has accepted the position of second hand in the spinning room at the Farwell Mills, Lisbon, Me. He comes from Claremont, N. H.

Benjamin A. Fahey, overseer of the carding department at the Sanford Spinning Co., Fall River, Mass., has severed his connection with that company.

Allan L. Hatch, overseer of carding at the Tremont & Suffolk Mills, Lowell, Mass., for a period of over eleven years, has severed his connection with that company. In 1902 he came to the Tremont & Suffolk Mill from a mill in Taunton, Mass.

Harry Peabody, for over fourteen years employed as second hand in the carding department at the Lancaster Mill, Clinton, Mass., has resigned to accept a position as overseer in a large mill in Providence, R. I.

Walter J. Bickford, superintendent of the shoddy department at the Beaver Brook Mill, American Woolen Co., Collinsville, Mass., and Miss Winfield Carrick of Collinsville, were united in marriage on October 28.

Robert S. Wallace has succeeded his father, Herbert I. Wallace, as treasurer of the Fitchburg Yarn Co., Fitchburg, Mass. He has also been made a director of the company.

W. P. Sanders has accepted the position of overseer of carding at the Willingham Cotton Mill, Macon, Ga. He was formerly employed at the Bibb Manufacturing Co., Mill No. 1, same city.

N. W. Garner has accepted the position of overseer of weaving at the Fulton Bag & Cotton Mills, Atlanta, Ga. He was formerly employed at the Gainesville Cotton Mill, Gainesville, Ga.

E. L. Sheridan has accepted the position of overseer of spinning at the Harmony Grove Mills, Commerce, Ga. He comes from Jefferson, Ga.

E. E. Smith has accepted the position of superintendent at the Lydia Mill, Clinton, S. C. He was formerly employed at the Highland Park Mill No. 3, Charlotte, N. C.

J. R. Bean has been appointed manager of the Gaston Manufacturing Co., Cherryville, N. C., succeeding T. C. Farrie.

C. R. Dix has accepted the position of overseer of carding in the cotton department at the Atlanta Woolen Mills, Atlanta, Ga.

W. W. Gregg has accepted the position of superintendent of the Ida Yarn Mills, Laurel Hill, N. C. He comes from Kinston, N. C.

L. H. Roberts has accepted the position of overseer of spinning at the Jefferson Cotton Mills, Jefferson, Ga. He comes from Winder, Ga.

J. A. Parker has accepted the position of overseer of carding at the Carolina Mills, Greenville, S. C. He was formerly employed at the Eureka Mills, Chester, S. C.

M. C. Dawkins has accepted the position of overseer of carding at the Eureka Mill, Chester, S. C. He comes from Rock Hill, S. C.

J. M. Waddleton has accepted the position of overseer of weaving at the Highland Park Mill No. 1, Charlotte, N. C. He was formerly employed at Fayetteville, N. C.

George A. Weldon, overseer of weaving at the Edwards Manufacturing Co., Augusta, Me., has severed his connection with that company to accept a similar position with the Drayton Manufacturing Co., Spartanburg, S. C. He was presented with an elegant traveling bag, military brushes, silk umbrella, pocket book and a $10 gold piece by the help employed in his department, the presentation being made by Daniel O'Brien, overseer of the cloth department.

Other Personals and mill news will be found on pages 161 to 223.

DEATHS.

Eben Blake Page died at his home in Winchester, Mass. Mr. Page was born in Hebron, Conn., seventy-six years ago and was president and director of the Blodgett & Orswell Co., of Pawtucket, R. I., treasurer and director of the Bridgeport Elastic Web Co., of Bridgeport, Conn., and director of the Cotton and Woolen Manufacturers' Mutual Insurance Co. He is survived by a widow and one son.

William Kelly, superintendent of the velvet department at the Pacific Mill, Cocheco Dept., Dover, N. H., died in a physician's office in Lowell, Mass., where he went for treatment. He was 47 years of age and came from England several years ago, when he took charge of the velvet department. He is survived by four sons and three daughters.

Paul Stursberg, superintendent of the worsted department at the Germania Mill, Holyoke, Mass., died at his home in that city after an illness of about six months. He is survived by his widow, his mother, Mrs. Herman Stursberg, and a sister, Mrs. Herman Myer.

Josiah L. Parker, for sixty years connected with the Globe Woolen Co., of Utica, N. Y., as wool buyer, died at his home in that city at the age of 86 years. He was one of the oldest wool buyers in this country. Mr. Parker was born at Brookfield, Madison County, N. Y.

Edmund Corcoran, for a number of years superintendent of the Shackamaxon Mills, Philadelphia, Pa., who was president and treasurer of the Rockville Worsted Co., Rockville, Conn., died in Philadelphia, November 3. Mr. Corcoran was for a number of years superintendent of the Hockanum Mills Co., of Rockville, Conn., and later with the American Woolen Company's mill as superintendent.

Charles Emmett, for a number of years overseer of the dyeing department at the Peace Dale Manufacturing Co., Peace Dale, R. I., died in that town at the age of 69 years. Mr. Emmett was born in Leeds, Eng., and is survived by three daughters and one son.

Arthur Fenton, for a number of years overseer of dyeing at the Allentown Eiderdown Co., Allentown, Pa., died at his home in that city. He is survived by a wife and four children.

John S. W. LeBlanc, 62 years of age, died at his home in Salem, Mass. For a number of years he had been employed as an overseer at the Naumkeag Steam Cotton Mill at Salem, but retired from active mill life some years ago.

Charles W. Amory died at his home in Boston, Mass., of heart failure. He was educated at the Boston Latin School previous to his entering Harvard College, from which institution he graduated. Mr. Amory was born in Boston seventy-one years ago. He enlisted in the Second Massachusetts Cavalry in 1863 and was afterwards promoted to First Lieutenant of his Company. After the war he made a trip to Europe and on his return became identified with a Boston dry goods firm. In 1880 he was elected treasurer of the Amory Manufacturing Co., at Manchester, N. H., and two years later was elected treasurer of the Landon Manufacturing Co. Afterwards he was elected president of the Amoskeag Manufacturing Co., which position he resigned in 1905. His wife, two sons and one daughter survive him.

The many friends of Harry W. Butterworth, president of the H. W. Butterworth & Sons Co., Philadelphia, are deeply grieved to learn of the death of Mrs. Butterworth, which occurred November 9th at their home in Germantown. Mrs. Butterworth had been critically ill for several months at their summer place near the Delaware Water Gap. At the time of the Atlantic City Convention she had improved to such an extent that Mr. Butterworth was able to leave her for the first time in several months to attend the Convention, but a relapse followed. Mrs. Butterworth often accompanied her husband to the Conventions of the Manufacturers and she will be greatly missed by many who will retain most pleasant recollections of her cordial and kindly character.

Benjamin F. Scholfield died at his home in Montville, Conn., in the Oakdale section, at the age of 91 years. Mr. Scholfield was born in Stonington, Conn., the son of Joseph and Mercy (Newbury) Scholfield. A number of years ago he operated the mill known as the C. F. Scholfield Mill, but retired from active business several years ago. He is survived by a wife and two children.

Thomas F. Burke, superintendent of the Tingue Manufacturing Co., Seymour, Conn., died at his home in Seymour, November 18. Mr. Burke had been in failing health for some time but was confined to his bed only three weeks. Death was due to cirrhosis of the liver. Mr. Burke was born in Norwalk, Conn., Aug. 23, 1862. For a number of years he was superintendent of the Hawthorn Mill at Glenville, Conn., and later was with the Westerly Woolen Co., Westerly, R. I., also the Chambersburg Woolen Mill, Chambersburg, Pa. He is survived by his wife and five daughters.

William E. Sharples, who was for a number of years superintendent of the Troy Cotton & Woolen Manufacturing Co., Fall River, Mass., died at his home in that city at the age of 79 years. About a year ago he retired from active business with a record of sixty-nine continuous years of mill service. He is survived by his wife, four sons and two daughters.

Benjamin C. Brainerd died at his home in South Hadley Falls, Mass., at the age of 71 years. For a number of years he was agent of the Glasgo Mills, a position which he resigned later to become agent of the Washington Mill, Gloucester City, N. J. He afterwards returned to South Hadley Falls, Mass., and was employed at the Mechanics' Saving Bank. Several years ago he retired from that position on account of ill health.

Louis Anderson died at his home in Skowhegan, Me., November 10 at the age of 74 years. Mr. Anderson was born in Scotland. When a young man he came to this country and became interested years afterward in the Anderson Mill of Skowhegan, Me. Several years ago the American Woolen Co. bought his interest in this mill. He is survived by a son and one daughter.

William T. Booth, for twenty-one years overseer of the dyeing department at the Pacific Mill, Lawrence, Mass., died at his home in that city at the age of 67 years.

Henry Parker died at his home in Providence, R. I., at the age of 52 years. For a number of years he was overseer of the worsted yarn department at the Pocasset Worsted Co., at Providence.

Francis L. Senior, 64 years of age, who was for the past thirty years chemist at the Sanford Mills, Sanford, Me., died in that town recently. Mr. Sanford was found dead sitting in a chair in his laboratory at the mill on Sunday, November 16. He is survived by two sons and a daughter. In the death of Mr. Senior, the town of Sanford loses one of their highly respected and esteemed citizens.

New Publications

Any work noticed under this heading can be obtained, postage or express charges free, by sending the price listed to Lord & Nagle Company, 144 Congress St., Boston, Mass.

The Manufacture of Woolen and Worsted Yarns; by J. W. Radcliffe, head of the spinning department, Technical School, Dewsbury, Eng.; 341 pages, 4 3/4 by 7 1/2; Emmott & Co., 65 King St., Manchester, Eng. Price $2.

This useful book has been compiled in order to give both students and operatives a concise but comprehensive account of the machinery and processes required for the manufacture of carded woolen or worsted yarn. The work is freely illustrated, the descriptions are clear and the volume forms a very valuable addition to the literature dealing with this branch of the textile industry. It would have been improved, however, by adding a chapter on the Heilmann comb. Following is an abstract of the table of contents: The Selection and Sorting of Wools; Comparisons in Woolen and Worsted Yarn Manufacture: Wool Scouring; Wool Drying; The Preparation and Blending of Wools; Worsted Carding; Setting and Speeding Arrangements; Card Grinding; Wool Carding; Back-Washing; Preparing and Drafting; Oils and Oiling; Wool Combing; Blending and Regulating Delivery in Top Making Machinery; Testing Tops for Uniformity and Condition; Drawing Operations; Cone-Drawing; Calculations in Cone-Drawing; French Drawing; Comparisons of Spinning Machinery; The Self-Acting Mule for Worsted and Woolen Spinning; Observations in Mule Spinning; Twists for Various Types of Yarns; Types of Fancy Twist Yarns; Further Comparisons of Spinning Machinery; Twisting and Reëling.

The Future of the Working Classes; by Roger W. Babson; 76 pages, 5 by 7 1/2; Babson's Statistical Organization, 6 Congress St., Boston, Mass.

The contents of this little volume consists of lectures delivered by the author in London and Paris in March and April, 1913. The first section is devoted to an answer to the question, "Can the working Classes Ever Become Prosperous?" The second chapter deals with the basis of England's power, while the concluding section takes up the defects in the English system of education and makes the prediction as to how boys will be educated in 1963 and suggestions for the improvement of the present education.

Selling Forces; prepared by Richard J. Walsh; 282 pages, 5 1/2 by 9; The Curtis Publishing Co., Metropolitan Tower, New York. Price $2.

This work has been prepared by Mr. Walsh under the direction of the advertising department of the Curtis Publishing Co., and consequently it gives the ideas of that experienced organization regarding national advertising. It is written for the benefit of those who are not experienced in the art or science of advertising and the subject is considered under the following heads: Advertising Today, The Development of Advertising, The Efficacy of Advertising, The Advertising Agent, Advertising and the Consumer, Advertising and the Retailer, Advertising and the Jobber, The Results of Advertising, "Reasons" for Not Advertising, Getting the Facts at First Hand, The Future of Advertising, Ten Million Dollars a Year, Advertising to Women, Advertising to Business Men, Advertising to Farmers, A Monument to Advertising.

Textiles, A Handbook for the Student and Consumer; by Mary Schenck Woolman, B. S., and Ellen Beers McGowan, B. S.; 428 pages, 5 by 7 1/2; The Macmillan Company, New York. Price $2.00.

The authors of this book state that it has been published to meet a need growing out of "the growing emphasis upon textile study in college departments, the movements to regulate conditions in the textile and clothing industries and to secure standardization and honest labeling of textile products as is being done for food products by the 'pure food laws.'" That there is need of books for the instruction of the general public regarding textiles is beyond question, but the present volume falls far short of what is required. This attractive volume testifies to the industry, patience and earnestness of the two authors. It contains much useful information about textiles, arranged in a systematic form, but its prevailing defect arises from the fact that it is based on second hand and in many cases imperfectly understood information, and written by those who, lacking the knowledge that comes only by years of practical experience in the mill, have had that shortcoming aggravated by the habit of speaking with authority, which is acquired by years spent in the classroom. A few extracts will illustrate this inherent defect. We are informed that "worsted manufacturers use noils" and that the sizes of worsted yarn are "estimated" by the count. In dealing with the cotton industry the book states that "Fall River is the largest cotton manufacturing town in the world, having four million spindles at work," and that "Birmingham, England, is said to be second to Fall River as a cotton manufacturing town." The inhabitants of Birmingham, the great metal working center, will be surprised to read that statement. As for Fall River, the mills in that city have 4,000,000 spindles, but the mills of Oldham, England, have about 12,000,000. In the chapter on the microscopic study of textile fibers we find this: "The microscope will occasionally reveal wool fibers with a tendency to twist. This is due to the fact that the wool has at some time been subjected to overheating." Referring to shoddy the book contains this positive assertion: "These kinds of fibers, collectively called shoddy, can be conclusively determined under the microscope with care and practice." Having reached that conclusion, it is not surprising to find the authors writing about the "honest labeling of textile products as is being done for food products by the pure food laws."

These extracts show how the book is calculated to mislead instead of inform. It is to be regretted that one of the authors was not a practical textile man or woman, so that literary ability, industry and talent for giving instruction might be combined with exact knowledge of what is and what is not.

Dockham's Glove and Mitten Manufacturers; Dockham Publishing Co., Boston, Mass. Price $1.00.

The 1913 edition of this useful publication has appeared and gives lists of glove and mitten manufacturers in the United States and Canada. The kind of gloves and mittens manufactured, whether cloth, leather or knit is indicated and the work gives evidence of careful preparation.

BUSINESS LITERATURE

Ball Bearings; 27 E. Erie Ave., Philadelphia, Pa.

This is an interesting discussion of ball bearings and their application to axle generators. It is illustrated with a number of views and diagrams of different types of the Hess-Bright ball bearings which have a high reputation gained by use under the most severe conditions.

The Year-Book for Colorists and Dyers; by Herman A. Metz, New York.

The contents of this, the fifteenth volume of the series, presents much information of value. The contents of the work are classified as follows: Reference Tables; Papers Read at the Eighth International Congress of Applied Chemistry; Patents for the Year 1912; Notes on Processes, New Colors, etc.; Educational; List of Dyestuffs, Makers and Methods; Miscellaneous Notes; Index.

Cloth and Yarn Testers; Henry L. Scott & Co., 223 Eddy St., Providence, R. I.

This firm has recently issued two booklets, one describing their yarn testing machine and the other the cloth tester, which have been extensively adopted in the textile trade. The description of the yarn testing machine includes a table of the breaking strength of cotton yarn, also a worsted table giving the weight of one hank for different counts. There is also a useful table for woolen yarn. The yarn tester has been adopted by the United States government and half-tone reproductions of checks from the Treasury Department are shown, being in payment for the testing apparatus. There is a long list of users in both the yarn and cloth testers, indicating conclusively the merits of the machines.

Mill Construction; W. E. S. Dyer, constructing engineer, Land Title Bldg., Philadelphia, Pa.

A folder, giving a partial list of the 400 factories, mills and power plants which Mr. Dyer has designed, constructed and superintended in Philadelphia and vicinity in the last ten years. This is his specialty and the work enumerated includes some of the most important new mill construction in that neighborhood.

Lunkenheimer Regrinding Valves; The Lunkenheimer Co., Cincinnati, O.

A 23-page booklet illustrating and describing the Lunkenheimer regrinding valves for steam pipes. It also contains a complete price list of the regrinding horizontal, angle, vertical and swing check valves. This booklet will be sent on application to anyone interested.

J-M Asbestos Roofing and Waterproofing Specifications; H. W. Johns-Manville Co., Cleveland, O.

This 56-page booklet deals with the latest and most successful methods for the application of the J-M asbestos roofing and waterproofing specifications to all types of buildings, and also gives for the first time specifications for the permanent waterproofing of construction work of every description and laying of mastic flooring. There are many excellent illustrations of buildings all over the country that are covered with the J-M asbestos roofing.

Steam Traps; Unions for Steam Pipes; Feeding Graphite for Lubricating Purposes; The Joseph Dixon Crucible Co., Jersey City, N. J.

Engineers who keep a file of books for reference will be interested to know that the Joseph Dixon Crucible Company still have a limited number of booklets dealing with the above subjects, which will be sent free as long as the supply lasts to anyone interested. These treatises were prepared by the well known engineer, W. H. Wakeman, who has written many articles on practical engineering problems. Numerous illustrations are used to make each subject easily understood.

Mesta Gas Engines; Mesta Machine Co., Pittsburgh, Pa.

An 8-page booklet describing and illustrating the Mesta gas engines. This company build gas engines for any class of service and for any fuel gas, such as producer gas, blast furnace gas, coke oven gas or natural gas, in sizes from 350 b. h. p. upwards.

Drawing and Roving Frames.

The Woonsocket Machine & Press Co. have issued a very attractive catalogue describing their drawing and roving frames, which contains as well valuable tables of production, tables for numbering roving and other data. Designed and printed by the Puritan Publishing Co.

CALENDARS

Draper Co., Hopedale, Mass., have issued their daily calendar for 1914 consisting of large date sheet for every day in the week, and intended as a wall calendar to be seen across a large office.

The Cabarrus Cotton Mills, Kannapolis, N. C., will add twenty 20 h. p. special four-frame motors and switches to their equipment for electric drive, and have ordered them from the General Electric Company.

Industrial Notes

CAUTION

Some months ago the trade was cautioned against a man, representing himself to be William J. Butterworth, Jr., who endeavored to give the impression that he was connected with the H. W. Butterworth & Sons Co., of Philadelphia, and who frequently asked for a loan or advance. This person has again appeared in a Massachusetts mill and the trade are again cautioned to be on their guard against this individual.

STOOLS AND CHAIRS FOR OPERATIVES

The new labor law in Pennsylvania makes it necessary for employers to furnish seats for women employes at a ratio of one seat or stool for every three women, placed in accessible locations and with reasonable opportunity for using them.

It will therefore be necessary for many manufacturers to provide themselves with a substantial, durable and economical equipment of this character, which does not take up much room.

The Angle Steel Stool Co., of Otsego, Mich., has for some years made a specialty of steel stools, chairs, tables and benches for factory use and they have a variety of designs to suit various requirements.

HEATING, VENTILATING AND AIR MOISTENING

The Lord & Taylor Department Store Bldg., in New York City, now under construction, is to be equipped with Buffalo heating and ventilating apparatus and the Carrier air washers and humidifiers. This equipment constitutes one of the largest contracts of its kind placed in 1913. There are to be 64 fans, all driven by direct connected motors. The sizes and speeds selected with special reference to noiseless operation. Twenty-five of these fans are to be of the conoidal multiblade type, and the remainder, cone fans and propeller wheels. Eleven Carrier air washers will clean and humidify the incoming air, each washer being equipped with the Carrier system of automatic humidity control.

CANADIAN BRANCH

The Toronto branch of The Canadian H. W. Johns-Manville Co., Ltd., announces its removal to more spacious quarters at No. 19 Front St., East. This new store and warehouse has a floor area of approximately 35,000 sq. ft. and is situated in the heart of the wholesale district. In their new quarters this firm will be able to carry a larger stock and have ample space for the display of their complete line of J-M Asbestos roofings, packings, pipe coverings, building materials, electrical and railroad supplies, automobile and plumbing specialties, etc. The entire building will be lighted by the Frink and J-M Linolite systems of lighting and one room will be used for exhibiting these systems.

DESIGN REGISTRATION CONVENTION

About 240 manufacturers, merchants, importers, designers and delegates from trade associations attended the design registration convention held at the Hotel Astor on Nov. 21. The meeting was called to order by S. M. Weatherly, secretary of the National Registration League. C. R. Clifford was elected Temporary Chairman and made the first address. Robt. W. Nelson was afterwards elected Permanent Chairman and J. Clyde Oswald, Vice Chairman. The meeting was called by the National Registration League for the purpose of drafting a bill to recommend to Congress to prevent the piracy of designs so common at the present time. The Kahn was denounced in no uncertain terms, and the demand was general that it be amended. The following other gentlemen addressed the convention: E. W. Bradford, Pres. Patent Law Asso. "The Need of a Design Registration Law"; Wm. A. Marble, Pres. of Merchants' Asso. of N. Y.; Wm. H. Ingersoll, Pres. of Ad Men's League of N. Y.; John S. Holbrook, V. P. Gorham Mfg. Co.; Chas. Cheney of Cheney Bros., Pres. Silk Asso. of Am. on the Piracy Curse in the Silk Industry; W. Houston Kenyon on The Kahn Law; Frank Alvah Parsons, Pres. N. Y. School of Art, on the skill and ability required to produce designs; Howard N. Heston, What Designs Mean to the wall paper industry; Richard H. Waldo, Pres. of the Union Club on the value of designs in advertising.

A TAG HOLDER FOR KNITTING CONES

A patent has recently been issued to D. F Byrnes, of Delavan, Wis., for a tag holder, which is a simple device formed of wire in proper shape to be inserted in the hole of the yarn cone or neck of a large "bottle neck" bobbin holder. This clip or holder securely holds the tag or ticket indicating the kind of yarn on the bobbin or cone. It has been used in several mills with success.

BALTIMORE BRANCH OF THE H. W. JOHNS-MANVILLE CO.

In order to take care of the increase of business, the Baltimore branch of the H. W. Johns-Manville Co., has been compelled to seek larger quarters. The new home of the company is a modern six-story building with floors measuring 47 by 187 feet, located at 207-13 E. Saratoga St., which is within two blocks of the post office and in the heart of the business section. It will include an attractive store and up-to-date offices, in addition to large warehouse accommodations. To facilitate the handling of incoming and outgoing shipments there will be a railroad switch running into the building.

The Garner Print Works and Bleachery, West Haverstraw, N. Y., will install 100 h. p. and 150 h. p. motors ordered from the General Electric Co.

THE GOULDS MFG. CO.

C. L. Newcomb, Jr., has been appointed to succeed G. B. Turner as western representative of The Goulds Mfg. Co., Seneca Falls, N. Y. Mr. Newcomb's headquarters will be at 12 Chamber of Commerce, Denver, Colo. and he will look after the company's interest in the Rocky Mountains and Northwestern territories. Previous to this connection Mr. Newcomb has had several years' experience in the pump business and he is well known to the trade in the territory he will travel.

ELEVATOR SAFEGUARDS

The recent changes in liability and workmen's compensation insurance regulations and laws has led to much greater demand for elevator safeguards and devices tending to reduce accidents from this source of danger.

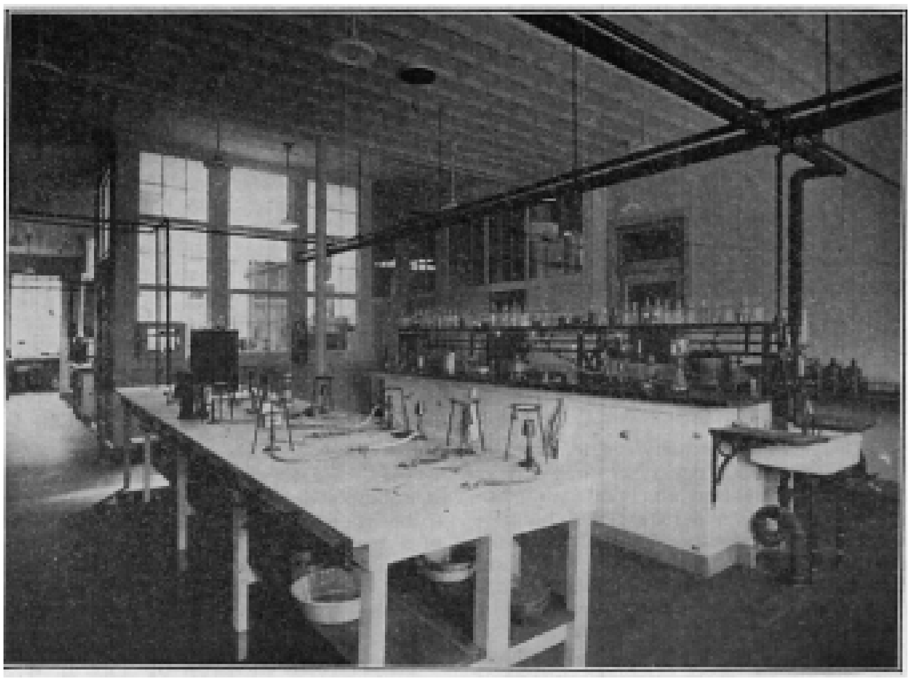
The Salem Elevator Works, Salem, Mass., which has always made a specialty of mill elevators, is now making a specialty of attaching to elevators already in use automatic folding hatch doors, semi and full automatic gates, automatic locking and stopping devices, automatic car safety attachments, etc.

They apply these not only to elevators of their own make, but to others and are doing a great deal of work in this line.

They have had a busy summer and report that the elevator business still continues to be excellent. They are installing many direct connected electric machines in textile mills. One big order, which has just been finished, is the entire elevator equipment for the new Pacific Print Works at Lawrence, also for the new woolen department of the same concern.

THE EMERSON LABORATORY

The importance of scientific testing of the materials and supplies used in manufacturing is now generally recognized by textile manufacturers. The necessity for such tests arises at every stage of manufacturing, and upon the care and accuracy with which the tests are made depend in large measure the cost of the finished product and, consequently, the profits of the business. The Emerson Laboratory, cor. Chestnut and Winter Sts., Springfield, Mass., is organized with a trained force of experts and a modern equipment to test materials for manufacturers.



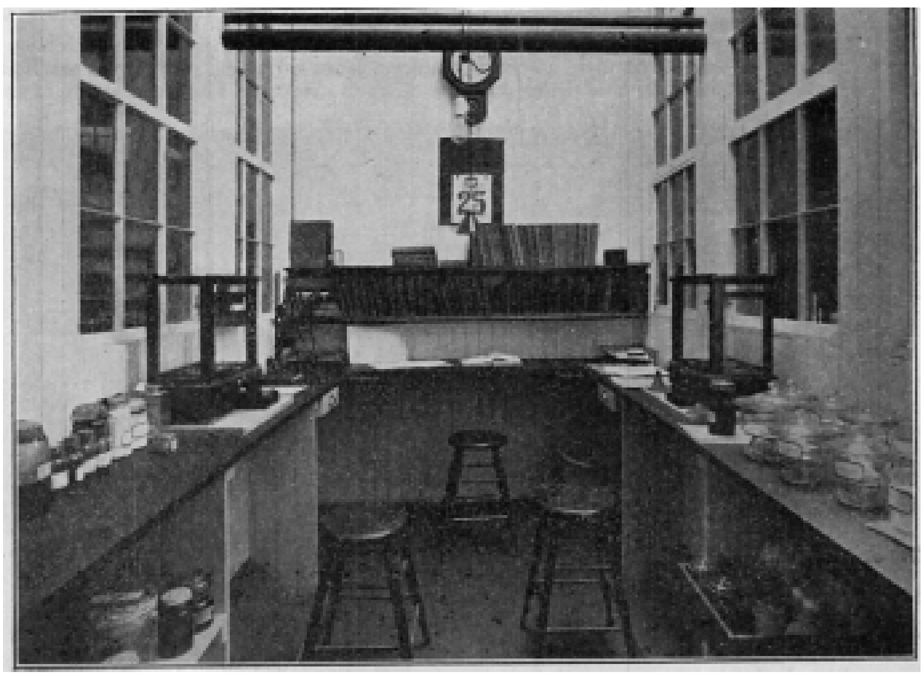
A VIEW OF THE EMERSON LABORATORY

The illustrations show two views of the interior of the laboratory. There is a special room for making tests of water, a coal testing room, a bacteriological department, an iron and steel testing room, and a separate department for tests of textile and other materials, including those used in paper mills. Special attention is given to textile tests, this department being equipped with the latest apparatus. Among the tests that are of special interest to textile manufacturers are those to determine the value of coal, the purity of water, strength of dyestuffs, moisture in textile materials, the strength of yarn and fabrics and the value of finishing materials, sizes, soaps, greases and oils.

Every effort has been made to make the laboratory as efficient and systematic as possible. All plumbing is visible, and each pipe is painted a different color that there may be no mistake in turning on the desired article, be it gas, water, steam or compressed air. There are a number of supply rooms and a large supply of all the constantly used materials is always kept on hand.

The Emerson laboratory was established in 1899, and the present members of the laboratory staff and the departments over which they have charge are as follows: H. C. Emerson, director, bacteriological and medical tests; F. W. Farrell, chief chemist, paper, food and glue; G. L. Clark, fuel, oils and metals; W. H. Wooffindale, textiles; C. R. Cressy, cement; E. A. Treadwell, assistant.

Mr. Wooffindale, who is in charge of the textile department, has had twenty years' experience in textile mills, being both a practical mill man and a chemist. He is thoroughly posted regarding dyestuffs and chemicals, dyeing processes, bleaching, finishing and printing and is prepared to give advice on all branches of textile work. The Emerson laboratory invites correspondence from manufacturers and are prepared to give prompt reports on all cases submitted to them.



ANOTHER VIEW OF THE EMERSON LABORATORY

The Sterling Mills, Lowell, Mass., will install a 100 k. w. alternating current generator with 5 k. w. exciter and switchboard which will be furnished by the General Electric Company.

CARD STAMPING

Walter Hodgson, successor to Hodgson & Beatty, 315 W. Lehigh Ave., Philadelphia, is sending out to the textile trade a wall calendar. This calendar in addition to containing Mr. Hodgson's name and address and the business in which he is engaged, that of card stamping and repeating for all textile fabrics and repeating for throw overs for fine French index, is printed in black, red and white, the figures being large enough to be easily seen in any part of a large room or office. Mr. Hodgson will send a copy of the calendar on application.

BRANCH HOUSES

The Cleveland (Sixth City) branch of the H. W. Johns-Manville Co. has recently been obliged to provide larger quarters for several of its subsidiary offices. The Columbus office and contract department are now located on the ground floor of the new seven-story fireproof Peters power building, 45 W. Long St., with large warehouse facilities half a block distant. The Toledo office and warehouse have been moved to 213 Water St. This office has just completed a pipe covering, stack lining and cork tiling job in the Second National Bank building, Toledo, which possesses many unique features. Other Cleveland branch sub-offices are located in Akron (717 Second National Bank building), Dayton (259 Fourth St. arcade), and Youngstown (502 Stambaugh building).

Resident representatives are stationed at Lima. Massillon, Greenville and other points in Ohio. also at Huntington and Parkersburg, W. Va. Their work is supplemented by a large corps of traveling men. Last, but not least, the Cleveland branch has just closed on a long-term lease for another larger warehouse on Front St. which, when remodeled, will give the branch larger and better storage and shipping facilities than ever.

FARBENFABRIKEN SUES THE AMERICAN SURETY CO.

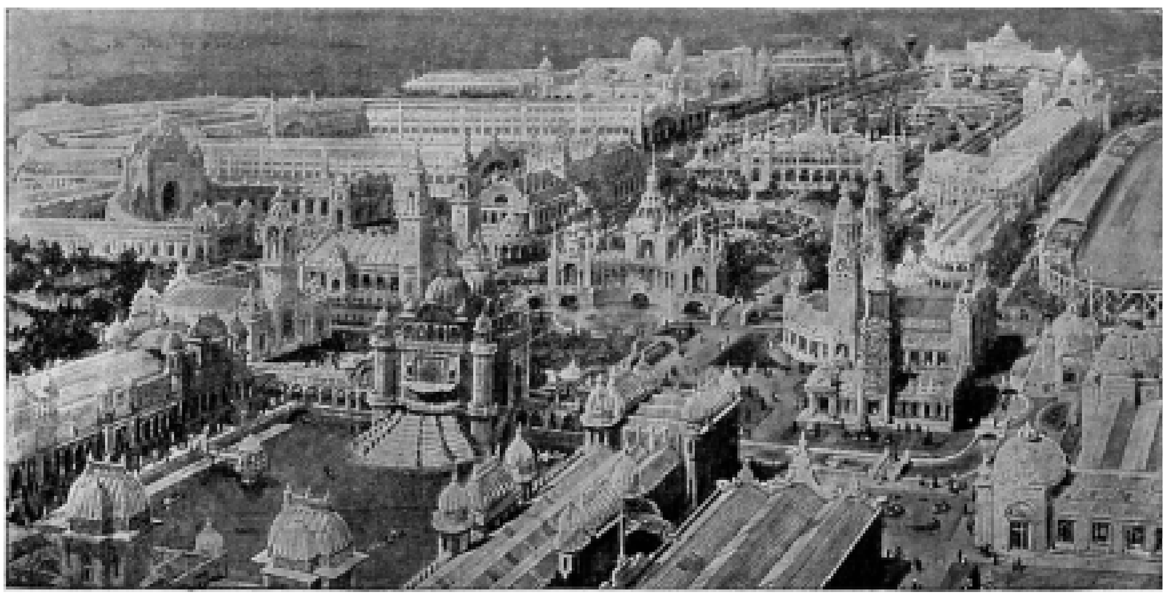
The American Surety Co. was made defendant in a suit filed on Saturday in the Supreme Court for $5,652 by Alvin V. Hupfer, as assignee of a claim of the Farbenfabriken Vormals Friedrich Bayer & Co., Elberfeld, large dyers, arising out of a suit for $1,200,000, in which the dye works was named as defendant last summer and John & James Dobson, manufacturers of cloths, carpets, woolens, etc., were the plaintiffs.

Through his attorney, Anthony Gref, the plaintiff alleges that on June 12, 1913, James Dobson, as surviving partner of the firm of John & James Dobson, brought an action against the German dye works for $1,200,000 and applied to one of the judges of the United States District Court for a warrant of attachment. In conformity with the law, the complaint states, the plaintiff in that action and the American Surety Co. filed a joint bond for $25,000 that they would be responsible for any sum up to that figure the dye works might suffer through the levying of the attachment. On July 18, 1913, the warrant of attachment was vacated, it is stated, but by reason of its issuance the dye works had been damaged to the extent of $5,652. This amount has been demanded of James Dobson, it is stated, but payment has been refused, so suit against the surety company was begun.

The action in which John & James Dobson and other plaintiffs sued the dye works alleged it was a combination in restraint of trade and charged the defendant maintained a trust and monopoly in Europe which they had extended to this country by organizing companies and agencies over which they exercised absolute control. The operators of the "trust," it was alleged, created an unjust, unlawful and damaging monopoly in the whole textile industry and that prices of all dyestuffs necessary to the textile business had been boosted in consequence.—Daily Trade Record.

THE ANGLO-AMERICAN EXPOSITION OF 1914

The year 1914 marks the completion of one hundred years of peace between Great Britain and the United States. This centennial anniversary will be celebrated at London next year by an exposition beginning in May and closing in October. Seldom if ever has there been an occasion that appeals so strongly to English speaking people at this celebration of a century of peaceful relations between the two great English speaking nations. The exhibition will not only be of great importance in its broad aspects to the people of both countries, but it will also prove a valuable means of developing the commercial and trade relations of the two nations.

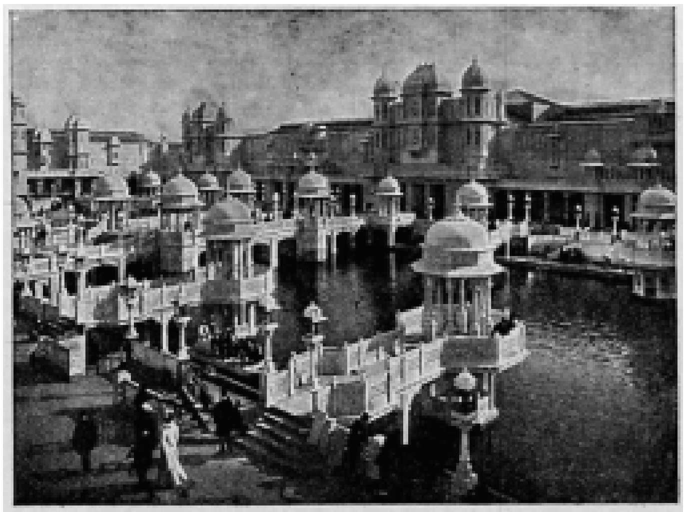


AVIATOR'S VIEW OF ANGLO-AMERICAN EXPOSITION GROUNDS

The accompanying aviator's view of the exposition grounds shows that the exposition is to be on a scale commensurate with the occasion. The textile building, shown in the illustration, is to be devoted exclusively to the textile industry. Textile manufacturers and machine builders will thus have unsurpassed facilities for bringing their products to the attention of the vast number who will be in attendance. Elaborate plans are well underway to make the various exhibits as comprehensive as possible, and a great advantage is the fact that the buildings, all of fireproof construction throughout, are complete and actually ready for occupancy. This makes impossible the delay and inconvenience sometimes caused by the inability to finish construction work on time.

The undertaking is popular in origin and the promotion of the project has enlisted the cooperation of hundreds of men foremost in the affairs of England and this country. Organized under the auspices of H. R. H. The Duke of Connaught as patron, and H. R. H. The Duke of Teck, as Honorary President, the list of vice-presidents includes some of the most prominent members of the American Society in London, and influential Americans in Great Britain.

The American office of the Anglo-American Exposition are in the Woolworth Bldg., New York City, where full information can be obtained from Albert E. Kiralfy, Commissioner-General, regarding space and other arrangements.



COURT OF HONOR AND AMERICAN TEXTILE BUILDING

STEPHEN C. LOWE DENIES REPORT

There was recently published in another textile paper a report that Stephen C. Lowe would relinquish the agency of John Hetherington & Sons, Ltd., Manchester, Eng., in the spring. When this came to the atention of the firm, they imediately cabled Mr. Lowe to make a denial of the rumor, which he has done.

ROPE DRIVE

The Merrimac Woolen Company, Lowell, Mass., has given the Dodge Manufacturing Company, Boston, an order for a 100 h. p. Dodge rope drive. This transmission will cover 48 and 40-inch sheaves, and 1,100 feet of Dodge Firmus Manila rope will be used.

NATIONAL ASSOCIATION OF WOOLEN AND WORSTED OVERSEERS

The thirty-first annual meeting of the National Association of Woolen and Worsted Overseers was held at the American House, Boston, Mass., Saturday, November 15. about three hundred members being present. The meeting was called to order by the president at 11 A. M. There were several applications for membership and the records show a steady increase in the total number.

An invitation was received from the Textile Exhibitors' Association to hold the next meeting of the Overseers' Assocation at Mechanics Building during the textile exhibition. It was voted to hold a special meeting and report later.

The following officers were elected for the coming year: President, Richard J. Hill; first vice-president, Edgar N. Taft; second vice-president, James Wilson; third vice-president, Joseph H. Driscoll; secretary, Walter Pickford; treasurer, Thomas Buchan. William E. Davison was elected secretary, and Thomas Buchan, treasurer of the beneficiary department.

After the election of officers the next business was the reading of papers which were submitted for prizes, three members of the Association reading very interesting articles.

"Essential Attention to Details," read by J. W. Williamson.

"Duties of the Overseer of Weaving," by Edward P. Dempsey.

"The Problem of Perfect Cloth," by J. B. Robinson.

The following is a list of those present:

CALIFORNIA

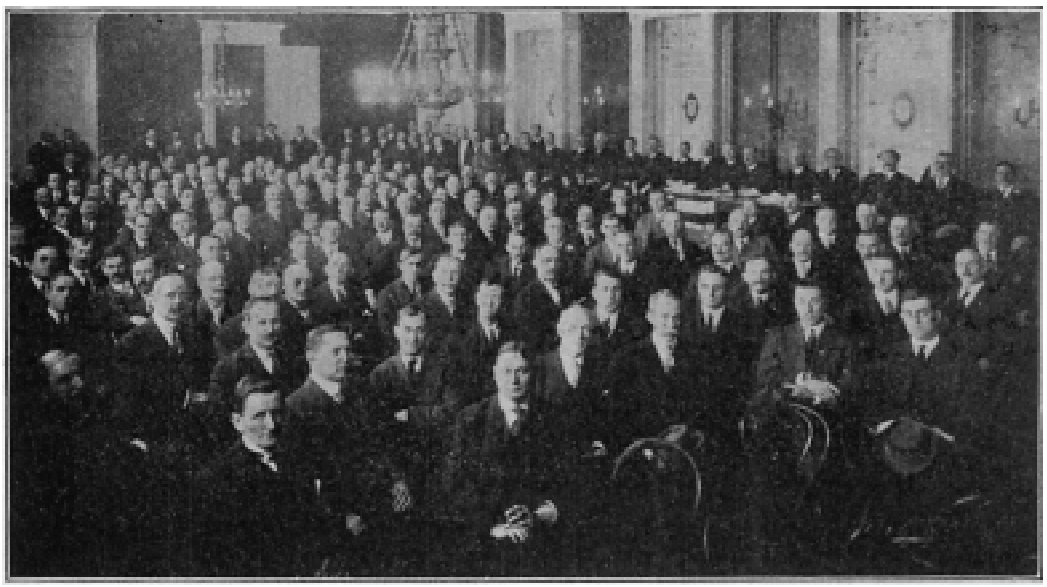
Albert Ainsley, Long Beach.

CONNECTICUT

Thomas Brooks, East Glastonbury.
John J. Burns, Moosup.
R. E. Bailey, Rockville.
John F. Carey, E. Glastonbury.
W. E. Davison, Putnam.
Charles J. Henault, Norwich.
Fred Hollingsworth, Norwich.
W. G. Jowett, Central Village.
John J. Lyons, Moosup.
Henry J. Maloney, Hartford.
W. H. Nettleton, Central Village.
Thos. Richmond, Putnam.
Albert E. Riley, Rockville.
S. S. Stiles, Middletown.
W. E. Thorp, Norwich.
James Walsh, Moosup.

MAINE

G. A. Mabbett, Newport.
R. A. O'Donnell, Bridgeton.
C. S. Garner, Holliston.
Andrew Gibson, No. Andover.
J. F. Geb, Franklin.
Benjamin Horsfall, Lowell.
Edward Heine, Uxbridge.
Herbert Ellis, Franklin.
M. J. Fagan, Concord Junction.
Fred Hough, Franklin.
Daniel J. Holland, So Groveland.
O. F. Ireland, Somerville.
John Ingham, No. Billerica.
E B. Flanagan, No Bellingham.
Herman S. Morey, Methuen.
J. H. Lawlor, Lawrence.
John P. Leary, Northboro.
Frederick J. McEvoy, Fitchburg.
George R. Howarth, Careyville.
James A. Lapraik, No. Billerica.
Herbert Midgley, Worcester.
William Jowett, Southbridge.
Joseph N. LaRose, Cherry Valley.
James H. Hillings, Lowell.
Robert J. Harrington, Dalton.
William McKinnon, Farnumsville.
Walter Pickford, Clinton.
Theo. N. Parent, No. Adams.
Thos. Prendergast, Newton Lower Falls.
C. A. Partelo, Cordaville.
C. H. Philbrick, Worcester.
Ben Oldfield, Methuen.
D. G. Byars, Farnumsville.
J. W. Bullard, Rochdale.
Albert Birch, Somerville.
J. J. Barrett, So. Hadley.
Louis M. Allison, Worcester.
John Archer, Franklin.
John J. Morgan, Lowell.
Joseph E. Truesdell, Jefferson.
Peter Stitt, Maynard.
Frank Norris, Pittsfield.
Richard J. Ownes, Fitchburg.
E. F. McGlone, Uxbridge.
Chas. McCarthy, Lowell.
Walter Nieber, Holden.
A. C. Neff, Millbury.
Thomas Buchan, Hyde Park.
T. W. Biddles, Holyoke.
F. L. Babcock, Boston.



A GROUP OF WOOLEN AND WORSTED OVERSEERS

Archibald Ormiston, Bridgeton.
George Ormiston, Oakland.
John E. Ormiston, Old Town.
F. W. Phelps, Old Town.
Charles H. Spek, Fairfield.
C. A. Williamson, Foxcroft.

MASSACHUSETTS

A. F. Carmichael, Lawrence.
W. E. Chamberlain, Franklin.
John H. Crowley, Hyde Park.
M. J. Coughlin, Lowell.
James H. Cobb, Careyville.
Robert S. Dodds, Boston.
Vincent J. Degnan, Quinnapoxet.
Jos. T. Daley, Worcester.
John Dobbs, Lowell.
Thomas Doole, Lowell.
C. T. Donlevy, Boston.
Everett S. Eddy, Worcester.
George Farnsworth, No. Billerica.
James J. Faron, Worcester.
Charles H. Francis, Lowell.
Charles Fralich, No. Bellingham.
Thomas Goddard, Caryville.
A. W. Greenback, Uxbridge.
P. H. Gouet, Lester.
Asa Garth, Fitchburg.
C. S. Gove, Uxbridge.
John E. Graham, Lowell.
E. W. Keough, Middleboro.
Chas. A. Kennedu, Pittsfield.
F. S. Klebart, Dorchester.
C. M. Klebart, Uxbridge.
Frederick W. Kennedy, Lawrence.
J G. Leith, Chelmsford.
John Lawton, Maynard.
E. G. Tainter, Wamesit.
R. D. Robinson, Lowell.
Ernest Rhodes, Lawrence.
F. J. Harney, Webster.
W. H. Hassett, Holyoke.
Arthur J. Hicks, Lawrence.
R. J. Hackett, Lowell.
James J. Morgan, Maynard.
F. L. McCarthy, Fitchburg.
Wm. McBride, No. Billerica.
John T. McCormack, Hyde Park.
Frank Manock, Lawrence.
D. P. Scribner, Waltham.
John C. Marley, Lawrence.
N. A. Moulton, Jamaica Plain.
W. R. McConachie, Uxbridge.
Joseph E. Army, Millbury.
Ernest Ainsley, Clinton.
Andrew Archer, Franklin.
James J. Rae, Worcester.
Fred Ransehausen, No. Andover.
J. H. Rile, No. Billerica.
A. G. Rodger, Saugus.
Ivar S. Borg, Chelmsford.
B. Southane, Lowell.
Thomas Southane, Lowell.
Thomas B. Smith, Worcester.
Henry Shaw, Leominster.
F. L. St. George, West Medway.
Arthur Slater, No. Andover.
Wm. M. Taylor, Northboro.
J. S. Turner, Lowell.
George H. Underwood, Lowell.
Hugh E. Wyer, Rochdale.
Wm. E. Wilson, Cambridge.
K. J. Whalen, Huntington.
R. G. West, Worcester.
Wm. F. Wicks, Haverhill.
J. W. Whitehead, Lowell.

NEW HAMPSHIRE

Frank W. Nash, Keene.
J T. Patterson, Hillsboro.
Charles V. Browne, Pennacook.
W. A. Booth, E. Rochester.
Thomas Mullen, Franklin.
T. E. Moore, Hillsboro.
R. G. McBride, Hillsboro.
George Moore, Somersworth.
D. E. Lancaster, Somersworth.
Charles W. Lynch, Pennacook.
James Hirst, Peterboro.
F. J. Leibold, Pennacook.

A. E. Jones, Hillsboro.
Chas. E. Johnson, Newport.

NEW JERSEY

F. F. Hamlin, Somerville.
Chas. Whitehead, Newark.

NEW YORK

Martin H. Welch, Auburn.
E. F. Moore, New York.

OREGON

J. F. Doyle, Packwood.

PENNSYLVANIA

John F. Bolger, Philadelphia.
Charles North, Philadelphia.

RHODE ISLAND

H. S. Ringland, Providence.
Metrick Riendeau, Woonsocket.
F. E. Perkins, Woonsocket.
F. E. Petterson, Bridgeton.
Michael F. Quinn, Pascoag.
Martin O'Toole, Woonsocket.
Thomas J. Ryan, Pascoag.
R. W. Ringland, Oakland.
James O. Reynolds, Woonsocket.
J. H. Pickford, Carolina.
Patrick Purcell, Johnston.
M. Nelligan, Lafayette.
J. B. Bennett, Providence.
Ulrich Burke, Carolina.
Thomas H. O'Neil, Oakland.
George H. Bottomley, Esmond.
Chas. H. Attridge, Providence.
Frank W. Austin, Bristol.
Wm. Waterhouse, Providence.
Tom Parkin, Providence.
H. J. Metcalfe, Providence.
James Wilson, Providence.
J. G. Barnes, Providence.
Herbert Thompson, Lymansville.
Edward Tetley, Washington.
James A. Toop, Washington.
I. Ward, Providence.
Edgar M. Taft, Bridgeton.
R. C. Schortman, Providence.
Ernest A. Sutcliffe, Providence.
Henry L. Stewart, Lafayette.
Richard Thomas, Thornton.
Patrick J. Malone, Bridgeton.
John H. Gormley, Pawtucket.
Alfonse Gibson, Woonsocket.
Julian J. Guerin, Woonsocket.
Albert Gill, Providence.
Walter Gledhill, Providence.
F. P. Gallagher, Providence.
John Guerin, Woonsocket.
R. E. Greene, Mapleville.
T. H. Fraser, Glendale.
A. P. Foster, Potter Hill.
George F. Egan, Woonsocket.
Joseph T. Doland, Harrisville.
J. H. Driscoll, Manton.
Walter Devine, Providence.
Lewis H. Dicks, Woonsocket.
P. F. Doyle, Pascoag.
R. E. Chase, Washington.
D. F. Coe, Providence.
James C. Carmack, Providence.
Fred Carter, Pascoag.
Herman Ambach, Lymansville.
Henry Hogskiss, Providence.
Louis Carmack, Providence.
W. Rigney, Jr., Lafayette.
John F. Moore, Centreville.
S. J. Mellor, Lafayette.
H. B. Hazen, Davisville.
Wm. F. Hines, Pawtucket.
Richard J. Hill, Woonsocket.
Harry H. Hadgeman, Nasonville.
J. F. Lancaster, Pawtucket.
John J. Lenahan, Providence.
Thomas R. McClure, Woonsocket.
C. B. Jennings, Woonsocket.
James E. Leach, Lafayette.
C. M. Hurst, Providence.
Jacob J. Jones, Mapleville.
John Hetherman, Oakland.
John L. Jones, Centreville.
P. L. McBride, Woonsocket.
Chas. I. Keegan, Pascoag.
John T. Hardman, Pascoag.

VERMONT

John E. Gilroy, Winooski.
J. R. MacGregor, Bridgewater.

TREASURY DECISIONS UNDER THE CUSTOMS LAW

Following is a list of the decisions by the Treasury Department, the Board of General Appraisers and the Court of Custom Appeals in matters relating to the new tariff bill:

T. D. 33823. Directions for finding the number of yarn in cotton cloth to which are amended reference tables. The introduction of the tables states an allowance of 7 per cent. should be added to the dry weight of cotton as an allowance for moisture.

T. D. 33821. Schedule K, Tariff Act of 1913 construed. The department construes paragraph 310 to mean that only the articles and manufactures of wool provided for in paragraphs 286 to 309 of the present tariff act shall be subject to duty under the provisions of schedule K of the tariff act of August 5, 1909, until January 1, 1914, and not that all articles and manufactures of wool, which were classified under schedule K of the act of August 5, 1909, shall continue to be classified under the said schedule until January 1, 1914.

It follows from the foregoing that, in the opinion of the department, articles embraced in Schedule K of the former act, but which are not provided for in schedules other than Schedule K of the present act, are not covered by the provision in paragraph 310, and as paragraph 422 is in the free list of the present act, this paragraph became operative on October 4, 1913, and, therefore, press cloths composed of camel's hair, imported expressly for oil milling purposes and marked so as to indicate that they are for such purposes, and cut into lengths not to exceed 72 inches and woven in widths not under 10 inches nor to exceed 15 inches, and weighing not less than one-half pound per square foot, are entitled to entry free of duty.

T. D. 33865. Drawback on cotton, linen, silk and woolen fabrics. A drawback to J. Sachs & Co., of New York, is allowed under Paragraph O of section 4 of the tariff act of October 3, 1913, and the drawback regulations (T. D. 31695 of June 16, 1911), on textile fabrics of various materials, including cotton, linen, silk, wool, and fabrics containing a mixture of such materials imported in the piece and in a raw or unfinished condition and bleached, dyed, and finished for their account by M. Desaye & Co., of Passaic, N. J.

T. D. 33869. Standard samples of wool to be preserved. In view of the provisions in paragraphs 650 and 651 of the tariff act of October 3, 1913, for the free entry of wool of the sheep, hair of the camel and other like animals, the wool wastes, the standard samples for use in the appraisement and classification of wools embodied in T. D. 22681 will not be of special value after the 1st of December, 1913.

The collection of these samples, however, involved the expenditure of much time, labor and money, and as they are of great value to those interested in the subject of the production of wools you are hereby directed to preserve the cabinet of samples at your port.

T. D. 33907. Jacquard-figured manufactures of cotton. It would appear that there are several kinds of woven figured cotton cloth other than jacquard figured, viz., dobby, leno, swivel needle attachments (for lappert), (sic), etc., which in the opinion of the department are properly dutiable under paragraph 252 of the tariff act, and, while the provisions of paragraph 252 for woven cotton cloth by itself would cover the jacquard cottons under consideration, the department concurs in the views expressed by you that all jacquard goods are properly dutiable under paragraph 258. The first part of the paragraph enumerates "tapestries, and other jacquard-figured upholstery goods," while the latter part of the paragraph covers "all other jacquard-figured manufactures of cotton or of which cotton is the component material of chief value."

Recent Textile Patents

CLOTH LAYING Machine. 1,078,302. Simon Moritz, St. Louis, Mo.

COTTON for Dyeing and Bleaching, Preparing. 1,077,263. Albert J. Dronsfield, Providence.

DOFFING MECHANISM. 1,079,270. Sugden Shackleton, Keighley, England

DRYING and Treating Fabrics and Other Materials. 1,076,976. William M. Grosvenor, Grantwood, N. J.

DYEING MACHINE. 1,077,762. Robert J. Smith, Philadelphia, Pa.

DYEING MACHINE. 1,079,247. Joseph Hussong, Camden, N. J.

KNITTING MACHINE, Circular. 1,078,677. Harry A. Houseman, Philadelphia, Pa.

KNITTING MACHINE, Double Rib Warp. 1,078,914. Otto Gaebel, Apolda, Germany.

KNITTING MACHINE Needle. 1,077,600. George C. Egly, Philadelphia, Pa.

KNITTING MACHINE, Needle Picker for Circular. 1,078,676. Harold E. Houseman, Philadelphia.

KNITTING MACHINE, Stop-motion for Circular. 1,078,678. Harry A. Houseman, Philadelphia.

KNITTING MACHINES, Vertical-striping Attachment for Circular. 1,077,304. Frank W. Robinson, Reading, Pa.

LOOM SHUTTLE GUARD. 1,077,553. T. O. Pope, Columbus, Ga.

LOOM SHUTTLE-BOX Selecting Mechanism. 1,077,904. Walter A. Clark, Brantford, Ontario.

LOOMS, Electromechanical Warp Stop-motion for. 1,079,116. John F. Dustin, Fulton, N. Y.

LOOMS, Beam-lock for. 1,077,385. Carl E. Bailey, Manchester, N. H.

LOOM SHEDDING Mechanism. 1,077,757. Eppa H. Ryon, Waltham, Mass.

LOOMS, Pile-cutting Mechanism for Tuft-fabric. 1,077,242. Joseph T. Cyr, Worcester, Mass.

LOOM Thread-parter. 1,078,210. Jonas Northrop, Hopedale, Mass.

LOOMS, Automatic Stopping Device for Lace. 1,076,798. Thomas Thompson, Pawtucket, R. I.

LOOM, Pile or Tuft Fabric. 1,077,241. John A. Clarke, Worcester, Mass.

LOOM STOP Motion. 1,078,406. William H. Baker, Montreal, Canada.

LOOM HEDDLE-FRAME. 1,077,719. Jacob Kaufmann, Philadelphia, Pa.

LOOMS, Let-back for Take-up Mechanism of. 1,079,296. Simeon S. Jackson, Boston, Mass.

SHUTTLE, Hand-threading. 1,076,935. Robert N. Allen, Methuen, Mass.

SPINNING or Twisting Machines, Thread-guide for. 1,070,036. Lewis T. Houghton, Worcester, Mass.

SPINNING APPARATUS, Yarn. 1,070,180. Alonzo E. Rhoades, Hopedale, Mass.

WARP-END Supporting Means. 1,069,082. Howard D. Colman, Rockford, Ill.

WARP UNITING Machine. 1,069,081. Howard D. Colman, Rockford, Ill.

THREAD CUTTING Machine. 1,072,503. Edward Riley, Spokane, Wash.

TEXTILE MACHINE. 1,071,069. Carl Marx, Lambrecht, Germany.

THREADS, Bands and Filaments, Manufacturing Artificial Lustrous. 1,073,891. Friedrich Dietler, Kelsterbach-on-the-Main, Germany.

TUBULAR FABRICS, Machine for Making. 1,072,984. Anker Petersen, Boston, Mass.

WARP THREADS, Apparatus for Applying Stop Motion Detectors to. 1,072,103. John F. Dustin, Lawrence, Mass.

WEAVING FRAME. 1,071,277. Frank Thomason, Dimiao, Philippine Islands.

WINDING MACHINE. 1,072,157. Marinus Pepling, Newark, N. J.

WINDING MACHINE. 1,071,248. John Mackie, Willimantic, Conn.

WINDING MACHINE, Fabric. 1,073,946. David Bain, Passaic, N. J.

WOVEN FABRIC. 1,071,143. Arthur J. Cumnock, Rye, N. Y.

YARN RESIDUES from Bobbins, Spools and the Like, Means for Removing. 1,072,468. Paul Jeanmaire, Kollnau, Germany.

RECENT TEXTILE TRADE-MARKS REGISTERED

70,879. Handkerchiefs. Mark: No. 79. Owner. Heller & Long, New York.

70,883. Mercerized Thread and Spool Cotton. Mark: O.K. Owner: Sea Island Thread Co., New York.

71,104. Silk crape. Mark: Crepe Georgette. Owner: Haas Bros., New York.

72,008. Underwear. Mark: Knitsook. Owner: Lawrence Mfg. Co., Lowell, Mass.

72,593. Textile rugs, carpets, etc. Mark: Walk On. Owner: D. H. Coplon & Co., Buffalo, N. Y.

72,673. Flannel and woolen piece goods. Mark: Lamsdown. Owner: Daniel W. Farnsworth, Montclair, N. J.

72,779. Yarns and threads. Mark: Dyconett. Owner: Dexter Yarn Co., Pawtucket, R. I.

67,853. Spool silk and mercerized thread. Mark: Bull Moose. Owner: Peerless Spool Silk Co., New York.

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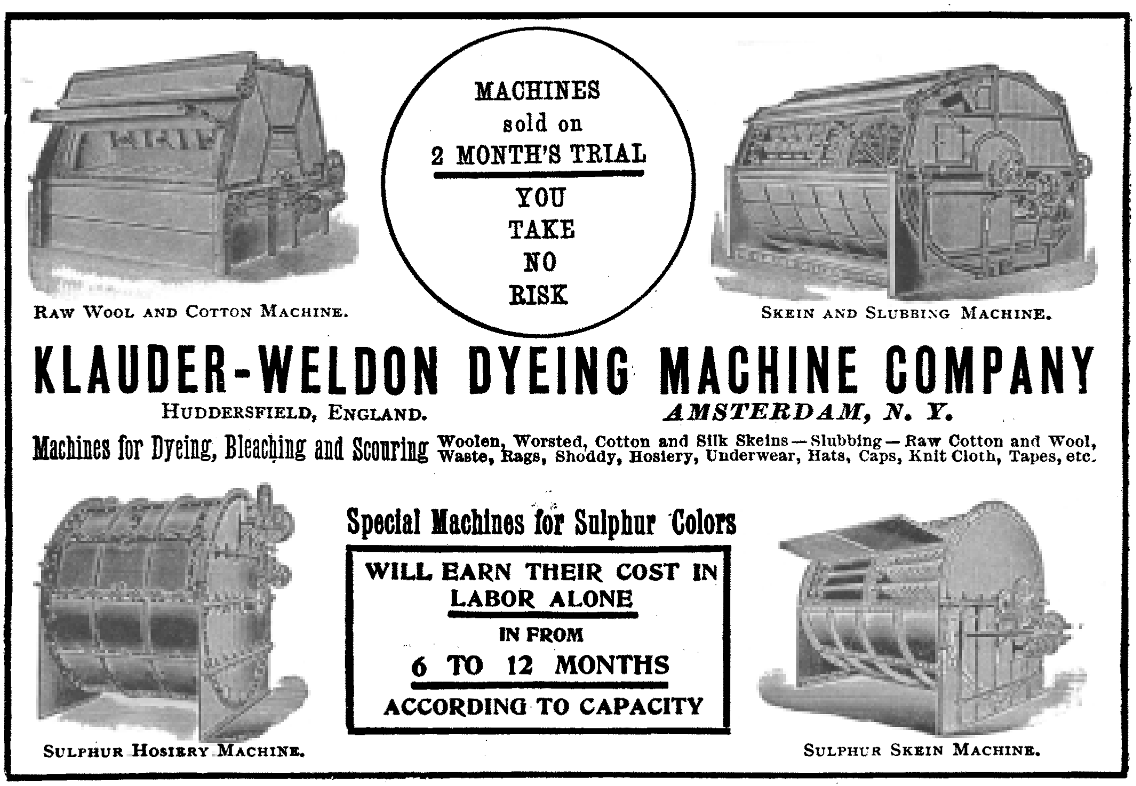

Buyers' Index

This department is conducted for the benefit of our subscribers. The addresses of builders of mill machinery and dealers in mill supplies, whose names appear in the following classified index, may be found upon referring to their advertisements. The Alphabetical Index to advertisers follows this classified list. Buyers who are unable to find in the classification here given such machinery or supplies as they desire, are invited to communicate with the publishers, who can, in all probability, refer them to proper sources. Advertisers whose names do not appear under headings to which they are entitled will please notify the publishers.

Accountants and Systematizers.
Gunn, Richards & Co.

Air Moistening System.
——See Humidifying Apparatus.

Architects and Mill Engineers.
Cramer, Stuart W.
Dyer, W. E. S.
Ferguson, John W.
Main, Chas. T.
Myrick, J. W. H.
Weston, Robert Spurr.

Asbestos Products.
Johns-Manville Co., H. W.

Asphalt Tanks.
Graver Tank Works, Wm.
Scaife, W. B., & Sons.

Automatic Feeds for Cotton and Wool.
Harwood, Geo. S., & Son.
Leigh & Butler.
Philadelphia Drying Machinery Co.
Philadelphia Textile Machinery Co.
Saco-Lowell Shops.
Sargent's, C. G., Sons.
Schofield, Wm., Co.
Woonsocket Machine & Press Co.

Balances.
Torsion balance Co.

Baling Presses.
Boomer & Boschert Press Co.
Philadelphia Drying Mchy. Co.

Ball Bearings.
Hess Bright Mfg. Co.
New Departure Mfg. Co.
S. K. F. Ball Bearing Co.

Bandings.
Lambeth Rope Corporation.
Sternberg, Fred, & Co.

Bands, Labels and Tickets.
Acme Print Co.

Baskets.
Lane, W. T., & Bro.

Beams (Steel).
Mossberg, Frank, Co.

Beamers.
Crompton & Knowles Loom Works.

Belting.
Bond, Chas., Co.
Gandy Belting Co.
Graton & Knight Mfg. Co.
Hood, R. H., Co.
——See also Mill Supplies.

Belt Cement.
Graton & Knight Mfg. Co.

Belt Dressing.
Cling-Surface Co.
Dixon, Jos., Crucible Co.
Graton & Knight Mfg. Co.
Stephenson Mfg. Co.

Belt Tighteners.
American Tool & Machine Co.
Dodge Mfg. Co.
Hunter, James, Machine Co.

Bindings.
——See Tapes and Braids.

Bleaching Kiers.
Arlington Mch. Wks.
Birch Bros. (Albert Birch, prop.).
Buhlmann, A. W.
Lockwood Manufacturing Co., The.
Philadelphia Drying Machinery Co.
Stearns Lumber Co., A. T.
Textile-Finishing Machinery Co.

Bleaching Materials.
Bosson & Lane.
Electro Bleaching Gas Co.
Marston, John P.
Roessler & Hasslacher Chemical Co.
Seydel Mfg. Co., The.
Worden Chemical Co.

Blowers and Blower Systems.
Autoforce Ventilating System.
Carrier Air Conditioning Co.
Philadelphia Drying Machnery Co.
Sturtevant, B. F., Co.

Bobbins, Spools, Shuttles, Etc.
American Supply Co.
American Textile Specialty Mchy. Co.
Leigh & Butler.
Mossberg, Frank, Co.
Tebbets, E. L., & Co.

Bobbin Winders.
Altemus, J. K.
Lever, Oswald, Co.
Universal Winding Co.

Boilers.
——See Steam Boilers.

Boxes, Box Shooks, Etc.
Pearson, J. T.

Box Tops.
Acme Print Co.

Braiding Machinery.
New England Butt Co.
Textile Machine Works.

Braids.
——See Tapes, Braids and Edgings.

Brass Hinges.
Root, C. J., Co.

Bridges.
Scaife, W. B., & Sons.

Burlers, Speckers, Menders.
Providence Mending Co.

Brushers.
——See Napping Machines.

Brushes.
Cocker, M., & Co.
Felton, S. A., & Son Co.
Mason Brush Works.
Parks & Woolson Machine Co.

Brushing Machines.
Buhlmann, A. W.
Parks & Woolson Machine Co.

Burr Pickers.
Curtis & Marble Machine Co.
Sargent's, C. G., Sons.
Smith & Furbush Machine Co.

Button-Hole Machines.
Reece Button-Hole Machine Co.

Button Sewing Machines.
Union Button Sewing Machine Co.

Calico Printers' Machinery and Supplies.
Arlington Mch. Wks.
Birch Bros., Somerville Machine Wks.
Buhlmann, A. W.
Butterworth, H. W., & Sons Co.
Lockwood Manufacturing Co., The.
Schwartz, L. H. A., & Co.
Somerville Mach. Wks. (Albert Birch, prop.).
Taunton-New Bedford Copper Co.
Textile-Finishing Machinery Co.
——See also Dyeing, Drying, Bleaching, Machinery, etc.

Canvas Baskets.
Lane, W. T., & Bro.

Cap Spindles.
American Textile Specialty Mchy. Co.

Carbonizing Machinery.
Birch Bros., Somerville Machine Wks.
Buhlmann, A. W.
Lockwood Manufacturing Co., The.
Philadelphia Drying Machinery Co.
Philadelphia Textile Machinery Co.
Sargent's, C. G., Sons.
Schwartz, L. H. A., & Co.
Somerville Mach. Wks. (Albert Birch, prop.).
Textile-Finishing Machinery Co.
Tolhurst Machine Works.

Card Clothing.
Ashworth Bros.
Buhlmann, A. W.
Firth, William, Co.
H. & B. American Machine Co.
Leigh & Butler.
Richards, Atkinson & Haserick.
Riley, C. E., Company.
Schwartz, L. H. A., & Co.

Card Feeds.
——See Automatic Feeds.

Card Grinding Machinery.
Buhlmann, A. W.
Dronsfield Bros.
Entwistle, T. C., Co.
Firth, William, Co.
Leigh & Butler.
Richards, Atkinson & Haserick.
Riley, C. E., Company.
Smith & Furbush Machine Co.

Carpet Machinery.
Altemus, Jacob K.
Crompton & Knowles Loom Works.
Curtis & Marble Machine Co.
Parks & Woolson Machine Co.
Philadelphia Textile Machinery Co.
Smith & Furbush Machine Co.
Textile-Finishing Machinery Co.

Castings.
Dodge Mfg. Co.
Hunter, James, Machine Co.
Lunkenheimer Co., The.
Schofield, Wm., Co.

Caustic Soda.
Wing & Evans.

Cell Driers.
Cell Drier Machine Co.

Cement Pans.
Scaife, W. B., & Sons.

Chain Belts.
Morse Chain Co.
Peerless V Belt Co.

Chemists.
Emerson Laboratory.
Little, Arthur D., Inc.
The Lunkenheimer Co.

Chenille Machinery.
Eppler's, John, Machine Works.

Cling Surface.
Cling-Surface Co.

Clocks.
Pettes & Randall Co.
Watchman's Clock & Supply Co.

Cloth Boards.
Chaffee Bros.
Pearson, J. T.
Richardson Brothers.
Textile-Finishing Machinery Co.

Cloth Cutting Machines.
Firth, William, Co.
Oswego Machine Works.

Cloth Dryers.
——See Drying Machinery.

Cloth Expanders.
American Finishing Machinery Co.
Arlington Mch. Wks.
Birch Bros. Somerville Machine Wks. (Albert Birch, prop.).
Leyland, Thomas, & Co.
Lockwood Manufacturing Co., The.
Somerville Mach. Wks. (Albert Birch, prop.).

Cloth Shrinking Machinery.
Reliance Machine Works.

Cloth Testers.
Firth, William, Co.
Perkins, B. F., & Son, Inc.
Shuttle Machine Co.
Suter, Alfred.

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Alphabetical Index to Advertisers, with page numbers, follows this list.

Electrical Construction.
Allis-Chalmers Mfg. Co.
General Electric Co.
Sturtevant, B. F., Co.
Westinghouse Electric & Mfg. Co.

Electrical Heating Devices.
General Electric Co.

Electrical Supplies.
Johns-Manville Co., H. W.

Electric Driven Pumps.
Allis-Chalmers Mfg. Co.
Dean Bros. Steam Pump Works.
General Electric Co.

Electric Fans.
Allis-Chalmers Mfg. Co.
General Electric Co.
Philadelphia Drying Machinery Co.
Philadelphia Textile Machinery Co.
Sturtevant, B. F., Co.
Westinghouse Electric & Mfg. Co.

Electric Hoists.
Allis-Chalmers Mfg. Co.
General Electric Co.

Electric Lighting.
Allis-Chalmers Mfg. Co.
Cooper Hewitt Electric Co.
General Electric Co.
Hinsdill Electric Co.
Johns-Manville Co., H. W.
Sturtevant, B. F., Co.
Westinghouse Electric & Mfg. Co.

Electric Motors.
Allis-Chalmers Mfg. Co.
Day, E. B.
General Electric Co.
Sturtevant, B. F., Co.
Westinghouse Electric & Mfg. Co.

Electric Neutralizers.
Chapman Electric Neutralizer Co.

Electrolyzer.
National Laundry Machinery Co.

Elevators.
Craig Ridgway & Sons Co.
Economy Engineering Co.
N. Y. Revolving Portable Elevator Co.
Salem Elevator Works.

Employes' Time Recorders.
Pettes & Randall Co.

Engines.
—See Steam and Oil Engines.

Exhaust Heads.
Sturtevant, B. F., Co.
Power Specialty Co.

Exhibits.
Textile Exhibitors' Ass'n, Inc.

Fans—Exhaust and Ventilating.
—See Ventilating Apparatus.

Feed Water Heaters.
Scaife, W. B., & Sons.

Feed Water Pumps.
Dean Bros. Steam Pump Works.
Goulds Mfg. Co.

Feed Water Purifiers.
American Water Softener Co.
Scaife, W. B., & Sons.

Feeds.
—See Automatic Feeds.

Felt Hardeners.
Farrel Foundry and Machine Co.

Felt Rotary Washers.
Hunt, Rodney, Machine Co.

Felting Machinery.
Farrel Foundry and Machine Co.
Hunt, Rodney, Machine Co.

Fender Boards.
Case Bros.

Filters.
American Water Softener Co.
Graver Tank Works, Wm.
Hungerford & Terry.
Norwood Engineering Co.
Scaife, W. B., & Sons.

Finishing Compounds.
—See Sizings.

Finishing Machinery.
—See Dyeing, Drying, Bleaching and Finishing.

Fire Brick.
Borgner, Cyrus, Co.
Johns-Manville Co., H. W.

Fire Extinguishers.
Badger, E. B., & Sons Co.
Johns-Manville Co., H. W.

Fire Hose.
Eureka Fire Hose Co.

Fire Hydrants.
Norwood Engineering Co.

Fire Insurance.
Home Insurance Co.

Fire Proof Doors and Windows.
Badger, E. B., & Sons Co.

Flax, Tow, Hemp and Jute Machinery.
Fairbairn-Lawson-Combe-Barbour, Ltd.

Fluted Rolls.
Firth, William, Co.
Hood, R. H., Company.
H. & B. American Machine Co.
Leigh & Butler.
Metallic Drawing Roll Co.
Riley, C. E., Company.
Thurston, A. G., & Son.

Flyers.
Bodden, Wm., & Son, Ltd.
Firth, William, Co.
H. & B. American Machine Co.
Leigh & Butler.
Textile Machinery Co.

Folding Machines.
Shuttle Machine Co.

Forges.
Sturtevant, B. F., Co.

Friction Clutches.
—See Clutches.

Friction Cones.
Evans Friction Cone Co.

Fuel Economizers.
Sturtevant, B. F., Co.

Fulling Mills for Woolen Goods.
Hunt, Rodney, Mach. Co.
Hunter, James, Mach. Co.
Kenyon, D. R., & Son.

Furnace Bars.
Mellor Furnace Engineering Co.

Furnaces (Automatic Smokeless).
Murphy Iron Works.

Garnetts.
Hunter, James, Machine Co.
Leigh & Butler.
Smith & Furbush Machine Co.

Garnetted Stock.
Graves, Frank B.

Gas Blowers and Exhausters.
Sturtevant, B. F., Co.

Gas Engines.
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Gaskets (Superheated Steam).
Johns-Manville Co., H. W.
Power Specialty Co.

Gauges.
Lunkenheimer Co., The.
Sarco Engineering Co.

Gears.
New Process Gear Corporation.

Gear Cutting Machine.
Whiton, The D. E., Co.

Generating Sets.
Allis-Chalmers Mfg. Co.
General Electric Co.
Sturtevant, B. F., Co.

Geyser Water Heater.
Sargent's Sons, C. G., Corp.

Gold Transfer Stamps.
Meyercord Company, Inc.

Greases.
Borne, Scrymser Co.
N. Y. & N. J. Lubricant Co.
Royersford Foundry & Machine Co.

Hangers.
—See Power Transmision Machinery.

Harness Twine.
Moore, C., & Co.

Harness and Frames.
Garland Mfg. Co.
Steel Heddle Mfg. Co.

Heating.
—See Ventilating Apparatus.

Heddles.
American Supply Co.
Firth, William, Co.
Richards, Atkinson & Haserick.
Steel Heddle Mfg. Co.

Hoists.
—See Engines, Hoisting.

Hoisting Apparatus.
Economy Engineering Co.
Hunt, Rodney, Machine Co.
N. Y. Revolving Portable Elevator Co.

Hosiery Boards.
Pearson, J. T.
Philadelphia Drying Machinery Co.

Hosiery Labels.
Kaumagraph Co.
Meyercord Company, Inc.
Palm Fechteler & Co.

Humidifying Apparatus.
American Moistening Co.
Carrier Air Conditioning Co. of America.
Cramer, Stuart W.
International Moistening Co.
Parks, G. M., Co.

Humidity Controller.
American Moistening Co.
Cramer, Stuart W.

Humidity Gauge.
Johns-Manville Co., H. W.

Hydraulic Rams.
Power Specialty Co.

Hydro Extractors.
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Riley, C. E., Co.
Richards, Atkinson & Haserick.
Schaum & Uhlinger, Inc.
Schwartz, L. H. A., & Co.
Tolhurst Machine Works.

Insulating and Braiding Silks.
Sauquoit Silk Mfg. Co.

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Halton's, Thomas, Sons.

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Case Bros., Inc.

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Burr & Son, John T.

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Scott & Williams.
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Ainslie Knitting Machine Co.
Ames Knitting Machine Co., A. N.
Boss Knitting Machine Co.
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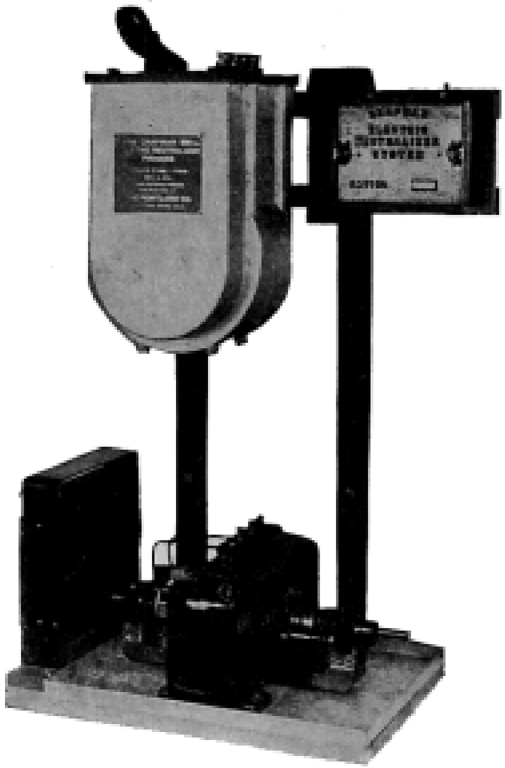

Leighton Machine Co.
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Mindlin & Rosenman.
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Publisher's Page

"Principles of the House"

When recently adding another member to the selling staff of the Lord & Nagle organization, it was of course necessary to instruct him as to the policy of the concern and what he could and could not do in his dealings with customers. It occurred to us that this might be of some interest to our customers, and at the risk of intruding our own affairs, we publish the instructions herewith.

. . .

You must believe thoroughly in the worth and value of our publications and the service you are selling or you won't very well be able to convince others. If you don't believe in them, you had better not begin.

The concern will not countenance any misrepresentation of circulation or anything else.

Don't submit offers at reduced rates to the home office. Your mere willingness to do so implies that you think such an offer might possibly be accepted. It won't and you are authorized to say so.

Remember you are selling something of value, not asking for a donation. You are offering a splendid opportunity to talk in a convincing way to thousands of mill buyers. It is worth all we ask for it and more.

Remember we consider it more important to retain the respect and good-will of our customers than temporarily to retain their business at the cost of either. We are in business for a long pull. This is not a "get-rich-quick" concern.

You are working for a concern that is trying to the best of its ability to give good service, and whenever you can help a customer in any legitimate way, it is part of your duty to do so.

Don't try to get advertising except you believe we can give good service.

Don't promise "free puffs," "write-ups," etc. No advertising will be accepted with any such stipulation or expectations. We do not sell our reading pages or our editorial opinions. Anything in the line of new machinery coming on the market or of a news nature is of course always welcome whether it comes from advertisers or others.

No derogatory statements about a concern will be permitted nor any pressure brought to bear through the reading columns for the purpose of inducing anyone to advertise. Such methods are contemptible and a disgrace to trade journalism. If we can't get a man's business legitimately, we don't want it; we can always deserve his respect.

Don't "knock" your competitors. There are enough good points about our own publications to talk about. If you have to speak about competition at all, say a good word for those who deserve it and nothing about the others.

Remember you are working for a concern that has nothing to conceal about its methods or its publications, a concern that does not want you to make a statement or a promise to any present or prospective customer unless you know it will be backed up in every particular.

Remember that we have found by many years of experience that the principles expressed above are workable in practice and that we not only expect you to live up to these principles, but to get business while living up to them.

Who Do You Pay For?

There's been many explanations as to who pays for the advertising. Here's another one, and it holds water:

The statement:

Advertising is paid for by competitors who do not advertise.—A. W. Ellis.

Monthly Circulation Statement

Of this edition 6,250 copies are printed and all are needed.

Money-Saving, Money-Making Opportunities

WANTS, FOR SALE, ETC.

This is a special department for those who wish to buy or sell second-hand machinery, mills or mill sites, patents, etc., and for such advertisements as "Help" or "Situations Wanted." A special low rate is charged, viz., $1.00 for one-half inch, single column; $2.00 for one inch, single column, and in the same proportion for larger space. By measuring these advertisements and counting the words you will see what space is needed for your announcement. No advertisement accepted for less than $1.00. Remittance should accompany the order. No extra charge for forwarding replies sent in care of the Textile World Record.

Address: Want-Ad Dept., Textile World Record, 144 Congress Street, Boston, Mass.

Situations Wanted

Manufacturers who are in need of Superintendents or Overseers for any department of mill work may learn of suitable men upon application by mail or telephone to C. T. DONLEVY, care Textile World Record, 144 Congress Street, Boston., who will give prompt attention to their requirements without charge.

Overseer of Bleaching, mercerizing or aniline black dyer in bleachery; has worked on all kinds of cotton piece goods, lime and caustic bleaching, also colors and wash dress goods; familiar with all kinds of bleaching, mercerizing and dyeing machinery; 40 years of age; good reference.
6031, Textile World Record, Boston, Mass.

Overseer of Knitting, sewing machine fixer, or superintendent in small plant; has worked on all kinds of ribbed goods, ladies' and men's; fancy knit goods, sweaters, etc.; familiar with most all makes of circular ribbed machines such as Nye & Tredick, Scott & Williams, Wildman and Snyder & Fisher; 39 years of age, married; will not go to Me., N. H., or Vt.; good reference.
5099, Textile World Record, Boston, Mass.

Superintendent of Knitting Mill, or would accept position as overseer of knitting; has worked on everything in the sweater and shawl line; familiar with Donner, Baschel, Dubied, Grosser, Claes & Flentje, Seyforth, hand and full automatic machines; any kind of finishing and sewing machines; 40 years of age, married; good reference.
4927, Textile World Record, Boston, Mass.

Second Hand of Spinning in cotton mill; has worked on cotton yarn 1s to 80s and two ply; familiar with Dobson & Barlow, also Howard & Bullough machines; 27 years of age; good reference.
6059, Textile World Record, Boston, Mass.

Second Hand of Carding in woolen mill; has worked on blankets, fancy woolens, men's wear, dress goods, carriage cloths, kerseys, cassimeres and mohair goods; familiar with Davis & Furber, Lombard and Smith cards; 25 years of age; good reference.
6060, Textile World Record, Boston, Mass.

Overseer of Dyeing in woolen mill, or assistant dyer in large mill; has worked on cotton and worsted yarns, fancy dress goods, serges, raw wool, slubbing and carpet yarns; familiar with all kinds of dye kettles and vats; 24 years of age, married; will not go West, South or to Canada; good reference.
6061, Textile World Record, Boston, Mass.

Loom Fixer or small boss weaving position in woolen mill; has worked on woolen and worsted goods; familiar with Crompton & Knowles looms; 40 years of age; will not go to Mass., West, South, or Canada; good reference.
6062, Textile World Record, Boston, Mass.

Grinder or Second Hand of cotton card room; has worked on American cotton; familiar with Dobson & Barlow machines; 23 years of age; will not go to N. H., Vt., Pa., N. J., West, South or to Canada; good reference.
6063, Textile World Record, Boston, Mass.

Superintendent, Overseer of Finishing or sewing machine adjuster; has worked on light and heavy weight underwear, very fine spring needle, in fact, all kinds; familiar with Union Special, Merrow, Singer, Industrial, Wheeler & Wilson, Willcox & Gibbs, Standard, Arnold machines, most every style and class; 24 years of age, married; good reference.
6064, Textile World Record, Boston, Mass.

Superintendent of Shoddy Plant; would consider position as superintendent of woolen yarn mill, or traveling salesman; has made yarns and shoddies, also about everything in woolen line; good knowledge of woolen manufacturing, also knitting; familiar with all kinds of machinery; 47 years of age, married; will not go West, South or to Canada; good reference.
6068, Textile World Record, Boston, Mass.

Overseer of Carding or second hand in cotton mill; has worked on all kinds of goods; familiar with all makes of modern machinery; 31 years of age, married; good reference.
6065, Textile World Record, Boston, Mass.

Overseer of Weaving or good fixing position; has worked on woolens, worsteds and shoe cloth; familiar with Crompton & Knowles, Crompton & Thayer, also Knowles side cam looms; 34 years of age, married; good reference.
6066, Textile World Record, Boston, Mass.

Overseer of Knitting in underwear or hosiery mill; has worked on both heavy and light goods; 20 years of experience on both spring and latch needle; familiar with most all makes of machinery; 40 years of age, married; prefers Canada or Southern States; good reference.
6067, Textile World Record, Boston, Mass.

Overseer of Finishing in knitting mill or sewing machine fixer; has worked on men's, ladies' and boys' union suits; has made some shirts and drawers; familiar with Union Special, Singer, Union, Metropolitan, Merrow, National, Button-Hole and Standard machines; 27 years of age, married; good reference.
6075, Textile World Record, Boston, Mass.

Overseer of Finishing in woolen mill; has worked on all classes of woolen and worsted goods; 40 years of age; will not go to Pa., South or Canada; good reference.
6076, Textile World Record, Boston, Mass.

General Manager of Hosiery Mill; has worked on misses' ribbed mercerized hosiery; familiar with Brinton & Wildman ribbers; Excelsior, Hemphill and Banner knitters; 50 years of age, married; will not go to Canada; good reference.
6077, Textile World Record, Boston, Mass.

Overseer of Knitting or fixer; has worked on fine cotton, wool, mercerized and silk underwear; familiar with Cooper spring needle circular and Scott & Williams machines; 24 years of age, married; good reference.
6078, Textile World Record, Boston, Mass.

Overseer of woolen or worsted finishing; has worked on kerseys, broadcloths, venetians, meltons, carriage cloths, cheviots, thibets, chinchillas, beavers, double face goods and worsteds; familiar with all kinds of finishing machinery; 42 years of age, married; will not go to Canada; good reference.
6079, Textile World Record, Boston, Mass.

Overseer of Cotton Carding, second hand or comber man; has worked on Peeler, Sea Island and Egyptian cotton; familiar with both carding and combing machinery; 34 years of age; will go to Massachusetts, Connecticut and Vermont; good reference.
6080, Textile World Record, Boston, Mass.

Superintendent of Cotton Mill, or superintendent of weaving; has worked on all kinds of fancies, corduroys, lenos, moleskins, cam work, etc.; familiar with the Crompton & Knowles gem looms; Crompton dobby and Whitin looms; also Saco & Pettee looms; 43 years of age; will not go to Maine; good reference.
6081, Textile World Record, Boston, Mass.

Overseer or second hand of dyeing in cotton mill; would also consider position of assistant chemist; has worked on ginghams, indigo goods, developed and direct colors, Bedford cords, drills, ducks, etc.; familiar with round tub vacuum machines, jig and padding machines; 24 years of age; good reference.
6082, Textile World Record, Boston, Mass.

Overseer of Dyeing in woolen or worsted mill; has worked on worsted, woolen, merino and cotton yarns; worsted and cotton shoddy, silk, rags, raw stock, also wool; worsted, union and cotton piece goods; familiar with Klauder & Weldon skein dyeing machines and Chattanooga vacuum dyeing machine for raw stock and skein dyeing; 39 years of age, married; prefers New England States; good reference.
6083, Textile World Record, Boston, Mass.

Boss Grinder, card setter or second hand in cotton mill; has worked on everything from waste to combed yarn; familiar with English and American machinery; 28 years of age, married; would like to go to Western States; good reference.
6084, Textile World Record, Boston, Mass.

Overseer of Weaving in woolen or worsted mill; has worked on all kinds of woolens, worsteds and fancy mixed worsteds; familiar with Knowles & Crompton looms; 37 years of age, married; will not go West or to Canada; good reference.
6069, Textile World Record, Boston, Mass.

Overseer of Knitting; has worked on all grades of half hose from 108-needle to 240-needle goods; familiar with Banner & Jencks knitting machines; Wildman & Huse cuff machines, also Hepworth and German looping machines; 41 years of age, married; will not go to Pa., West, South or Canada; good reference.
6070, Textile World Record, Boston, Mass.

Overseer of Dyeing in woolen mill; has worked on piece dyeing—wool, cotton, unions and silk; stock dyeing—wool and cotton; fast colors; familiar with all kinds of machinery; 28 years of age; good reference.
6071, Textile World Record, Boston, Mass.

Overseer of Burling and Sewing in woolen mill; has worked on all classes of goods; 36 years of age; will not go West, South or to Canada; good reference.
6072, Textile World Record, Boston, Mass.

Agent, Manager or Superintendent in woolen mill; has worked on all kinds of worsteds and woolens in men's wear, dress goods and overcoatings; familiar with all worsted and woolen machinery; 47 years of age; will not go West, South or to Canada; good reference.
6073, Textile World Record, Boston, Mass.

Overseer of worsted spinning, twisting, warping, winding, reeling, etc., in worsted mill; has worked on worsted single yarns up to 60s counts; has run yarns right through to warping; familiar with spinning, twisting, winding and warping machinery; 24 years of age; good reference.
6074, Textile World Record, Boston, Mass.

Overseer of Weaving in woolen mill; has worked on flannels, cassimeres, dress goods, worsteds and blankets; familiar with Crompton & Knowles and Crompton & Thayer looms; 36 years of age, married; good reference.
5985, Textile World Record, Boston, Mass.

Overseer of dyeing, dyeing and finishing or finishing of mohair linings; has worked on yarns, raw stock, piece dyes, knit goods, hosiery, woolen and cotton goods; familiar with all kinds of machinery; 49 years of age, married; good reference.
5986, Textile World Record, Boston, Mass.

Designer or assistant designer in woolen mill; has worked on men's wear, woolens and worsteds, cheviots, saxonies, overcoatings, vestings and checkbacks; 29 years of age; good reference.
5987, Textile World Record, Boston, Mass.

Overseer of Dressing, spooling, twisting or skein winding in woolen mill; has worked on all kinds of woolens and dress goods; familiar with Davis & Furber and Cleveland machines; 46 years of age, married; will not go West, South or to Canada; good reference.
6042, Textile World Record, Boston, Mass.

Overseer of Finishing in woolen mill; has worked on all grades of woolens and worsteds; familiar with all kinds of machinery; 38 years of age, married; good reference; will not go to Me., Pa., N. Y., N. J., West, South or to Canada.
6043, Textile World Record, Boston, Mass.

Comber Man in cotton mill, second hand or fixing job on speeders; has worked on all kinds of cotton goods; familiar with Woonsocket speeders and Nasmith combers; 24 years of age, married; will not go to Pa., N. J., West, South or to Canada; good reference.
5971, Textile World Record, Boston, Mass.

Overseer of Knitting, or superintendent of small plant; has worked on cotton, worsted, silk and lisle underwear; thoroughly familiar with Cooper, Tompkins, Campbell & Clute fine gauge work and Cooper rib top machines; 33 years of age, married; will not go to Pa.; good reference.
5972, Textile World Record, Boston, Mass.

Overseer of Weaving in woolen mill; has worked on woolen and worsted dress goods, men's wear, rain cloths, shoe tap cloth and novelties; familiar with Knowles broad and narrow looms, Crompton & Thayer, Clipper looms and English looms; 28 years of age; good reference..
5973, Textile World Record, Boston, Mass.

Overseer of Weaving or second hand in cotton mill, or would accept position of assistant superintendent; has worked on cotton damasks, corduroy, crochet, marseilles and satin quilts; towels (cotton, crash or pile), fancy dress goods, shirtings, narrow fabrics, both silk and cotton, bagging and duck; familiar with Crompton & Knowles, Draper, Stafford, Whitin, Mason, Wood and others; 26 years of age, married; good reference.
6025, Textile World Record, Boston, Mass.

Woolen or Worsted Designer, superintendent, or designer and superintendent; has worked on men's wear in woolens and worsteds, also all classes of ladies' dress goods; familiar with Crompton & Knowles, Hattersley, jacquard and all makes in fast looms; has had 17 years' experience as head designer; 37 years of age, married; good reference.
6011, Textile World Record, Boston, Mass.

Designer in Worsted Mill; has worked on all kinds of woolen and worsted fabrics; familiar with all kinds of woolen and worsted cloth machinery; 21 years of age; good reference.
6010, Textile World Record, Boston, Mass.

Overseer of Cotton Carding, cotton sampler or boss picker; is familiar with all kinds of cotton carding machinery; 29 years of age, married; prefers Rhode Island; good reference.
6023, Textile World Record, Boston, Mass.

Overseer of Carding on wool, cotton waste of all kinds or shoddy; has worked on sail yarn on cotton and wool, dress goods, suitings, and knitting yarns of all kinds; familiar with all makes of cards; 40 years of age, married; will not go South; good reference.
6009, Textile World Record, Boston, Mass.

Assistant Designer in woolen mill; has worked on gents' vests, overcoatings, suitings, woolen goods, ladies' dress goods, worsted goods and men's wear; familiar with the Knowles, Crompton, Thayer and English looms; 22 years of age; will not go West, South or to Canada; good reference.
6008, Textile World Record, Boston, Mass.

Overseer of Dyeing in woolen mill; has worked on raw stock, worsted yarns, piece dyes, woolens, worsteds and union piece dyes; familiar with all makes of dyeing machinery; 30 years of age, married; will not go South; good reference.
6026, Textile World Record, Boston, Mass.

Superintendent or designer of woolen mill; has worked on high and low grade woolens, fancy worsteds, piece dyes, manipulated cloths and union dyes; 34 years of age, married; good reference.
6024, Textile World Record, Boston, Mass.

Designer of artistic and original designs for textile and printed fabrics; has worked on cotton, wool and silk embroidery; 42 years of age; good reference.
5975, Textile World Record, Boston, Mass.

Fixer in Hosiery Mill; has worked on cotton and mercerized hosiery; familiar with George D. Mayo and Invincible knitters; Beattie, Hepworth and German loopers, also Merrow welters; 35 years of age; good reference.
5976, Textile World Record, Boston, Mass.

THE EFFECT OF FREE WOOL

From the Market Letter of the First National Bank, Boston

Wool and wool wastes become free of duty on December 1, and the lower duties on woolen goods and on tops and yarns will take effect one month later.

The approaching removal of the wool duties has caused a restriction of entries thus far this year to about half the volume for the corresponding period a year ago, while foreign wools held in bond have accumulated to a total approximately equivalent to the amount entered.

The initial effect of the new tariff arrangements may be looked for in the releasing of a considerable part of this bonded wool. Further wool trade developments under the new law will depend in the main upon the success of our mills in withstanding foreign competition in the finished goods. Under the circumstances, the wool dealers have been cautious about commitments, and this attitude is likely to continue for some time. A factor in the situation is the unusual quantity of wool held on consignment, the growers having been unwilling thus far, in many cases, to accept the conservative offers made them.

Some pressure of competition is expected, especially in the finer goods, but it is generally felt that American mills will be able to withstand reasonably well any probable foreign rivalry in the great mass of medium-priced goods with which they are mainly concerned.

Whether the removal of the wool duties will mean an increasing proportion of foreign wools in domestic manufacture is a question to be decided in the main, aparently, by American sheep-growers. The mills will not be in a hurry to substitute foreign wools for those of domestic growth which they have been accustomed to use, but dissatisfaction with prices among the sheep-growers may cause an increasing tendency toward the selling of mutton rather than wool, and to such extent, at least, increased importation will be invited. Little inducement exists at the moment for any forcing of foreign wool on American users, the market here being on a lower range than abroad. The tendency, in fact, is in a contrary direction, for a few small lots of domestic wools have recently been sold for export.

An effort is in evidence on the part of foreign manufacturers to take advantage of the lower duty on tops, or combed wool, and the free admission of noils and wastes. Foreign top makers rely upon a difference in manufacturing cost sufficient to permit effective competition under an 8 per cent. duty. Whether this anticipation is well founded, however, remains to be seen, as some domestic manufacturers believe that they can make tops as cheaply as those abroad. Increased rivalry is likely also on yarns, especially of the finer grades.

The situation today in the wool trade is reminiscent of nineteen years ago, when wool became free under the Gorman-Wilson law. Business conditions now are much better than in the earlier period, both at home and abroad. On the other hand, the trade has had a shorter period to prepare for the change, for in the earlier instance twenty-two months elapsed between the election of a low-tariff government and the removal of the wool duties, while in this case the period intervening will have been only thirteen months. Another point of difference is the shorter period allowed between the effective date of free wool and that of the lower duties on manufactured goods—one month this time against four months in 1894.

For more than a year previous to the actual placing of wool on the free list, late in August of 1894, both receipts and sales in the Boston wool market reflected the state of uncertainty. Foreign receipts, especially, were sharply restricted during the greater part of this period. The taking effect of the new law was followed by a substantial increase in the foreign receipts, with not much immediate effect on the handlings of domestic wool. This condition predominated, in fact, until well toward 1896, that year witnessing a decided falling off in the handlings both of foreign and domestic.

It is of interest to note that the most pronounced effect of the Gorman-Wilson law in promoting importations of wool was not seen until shortly before the restoring of the duty under the Dingley law, in late July of 1897. During the earlier part of 1897 large quantities of foreign wool were brought in, free of duty, the importers securing substantial profits after the duty had taken effect. In the month of April foreign receipts reached the phenomenal total of 164,364 bales and bags, while in August, the month after the duty had taken effect, they were practically nil.

Subsequent figures, it may be added, indicate that the mills had become considerably overstocked in this period, for in 1898 both the foreign and domestic handlings were remarkably small. For some years afterward the foreign receipts showed only a gradual increase, and they have never since equalled the 1897 figure, while receipts of domestic wool have more than doubled the total of that year.

ORDER FOR ROPE DRIVE

The Dodge Manufacturing Company, Misha waka, Ind., has secured an order from the Wilts Veneer Company, Plymouth, N. C., for a 150 h. p. American system rope drive. This drive will run from main lineshaft to a dryer room and has 68 foot centers. The driving wheel will be 48 inches in diameter and the driven wheel 40 inches. Seventeen hundred feet of Dodge Firmus transmission rope, one inch in diameter, will be used in ten wraps. Dodge also furnishes the necessary equipment to go with the wheels.

The Glendale Elastic Fabrics Co., Easthampton, Mass., will augment its power plant equipment by the installation of one 75 kv-a. and two 125 kv-a. alternating current generators with switchboard panels recently contracted for with the General Electric Company.

The Cabot Mfg. Co., Brunswick, Me., will add to the electrical equipment in its power plant a 600 kv-a. alternating current generator with switchboard panel, and has ordered the unit from the General Electric Company.