

### Combining Two Systems of Filling with One Kind of Warp for Increasing the Bulk of the Fabric.

As seen by the above heading, two systems (or kinds) of filling are essential to the construction of these fabrics. One filling (the face filling) forms with one system of the warp the face of the fabric, while the other filling (the backing) forms, by an additional interlacing in the warp before mentioned, the back of the fabric. The latter filling is solely applied to the single cloth, as mentioned, for the purpose of increasing the thickness, and might properly be considered only as a lining. To increase the thickness of a fabric in this manner is of great advantage to the manufacturer, and is thus used very extensively in the manufacture of "heavy-weight" woollens, etc. The weave employed for the face of the fabric (interlacing the warp and the face filling) is generally of a more artistic construction than the weave used for interlacing the backing into the above-mentioned fabric.

It will readily appear that the warp-thread in these fabrics must resist to a certain extent more strain than the filling, and for this reason should be composed of a better stock, in addition to a harder twist. The backing must contain only a small amount of twist, so that the bulk of the thread (without considering its additional heavier size) will always be larger than the harder twisted face-filling or the warp. The "soft" twist in the backing will also produce a soft handling fabric. Amongst the materials for producing a proper backing, which may be used with advantage in addition to wool, are a cheaper article, such as shoddy, mungo, card waste, roving waste, etc.

In constructing weaves, we must first deal with the face weave; as it applies to any weave for single cloth.

The backing must only form an addition, separately introduced into the face-fabric and for purpose originally intended, unless a special effect, such as a "tricot," etc., is required.

The most frequently used proportions for backing to face filling are: One pick face to alternate with one pick back and two picks face to alternate with one pick back. Seldom do we find 3 picks face to alternate with one pick back; or irregularly, as 2 picks face, 1 pick back, 1 pick face, 1 pick back; 5 picks in repeat, etc., etc.

In using the arrangement "one face pick to alternate with one backing" be careful to use a size of the latter not much heavier (if any at all) than the former. If using a backing of a too heavy size, it will influence the closeness of the face filling and produce an "open face" appearance in the fabric.

As mentioned before, the backing should not be of no consideration in the construction of the single cloth, and this with respect to its weave, as well as to its texture, i. e., the same number of picks required in a single-cloth fabric must be retained for face picks if a fabric containing face and back filling is constructed. Thus, for example: A fabric on the single cloth system requiring 44 picks per inch will require, if arranged in its filling "1 pick face to alternate with 1 pick back," 88 picks per inch. Again if 2 picks face are to alternate with 1 pick back, use 66 picks per inch, etc., etc.

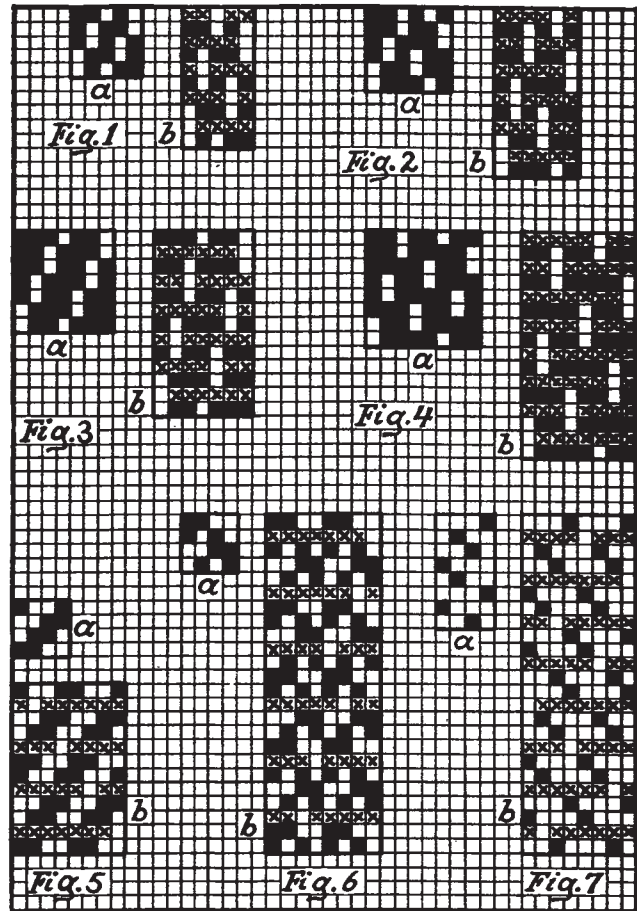
In both examples given, we suppose the size (i. e. thickness) of the warp and face filling to remain undisturbed.

#### Rules to be Observed in Designing these Weaves.

The weave of the back filling must be selected without disturbing the face. These back filling in its

method of interlacing must pass readily under the face pick previously interwoven, also allow the next succeeding back pick to cover any part not covered by the previously interwoven face pick.

To produce this result the warp-threads used for binding the back filling must be in the lower shed, in the face pick preceding the backing as well as the one following it.



Another point, which properly comes under the present rules, but which has been treated to ascertain extent before, is, to arrange regular transpositions of face and back picks.

If the face-weave contains a far floating filling, the binding of the backing into the warp-threads should be arranged as nearly as possible in the centre of this float.

To produce good work, and perfect cloth, every warp-thread should be used in rotation according to the weave for binding the back; because, if some warp-threads should be omitted they will get less tension through weaving, and give trouble. A bad shed will result, etc., with a possibility of spoiling the fabric. If we should be obliged to omit some of the warp-threads from the binding in the back, we must be careful to arrange those used in a regular and well distributed manner.

Among points worth considering in the manufacture of the present kind of fabrics we note: If the weave (or system) for interlacing the backing to the warp is of short repeat, that is, no large floats of the backing, we must use a soft-twisted back filling. Should we use a very hard-twisted yarn, the possibilities are that the backing will "show through" on the face.

To use a backing with the least possible twist (yet sufficiently so to avoid "tender" goods) will also be of advantage during the finishing process, as most fabrics to which the present system of weaves applies require a soft well-covered back.

Care must also be exercised in selecting the material for the backing with due consideration of the proportional amount of binding.

The heavier in size the backing is, the earlier will imperfections appear.

We will next consider a few of the most frequently used combinations of weaves for these fabrics.

Let us first consider the weave Fig. 1.

*a* shows the face weave  
*b* the arrangement to be observed in, combining face and back filling [x] is to take one of each system alternately. For the face weave (picks 1, 3, 5, 7, 9). For the back weave (picks 2, 4, 6, 8, 10). This combination shows the weave (5 by 10) to use.

Repeat of weave: 5 × 10 i. e. 5 warp-thread and 10 picks (5 Face — 5 Back — used alternately one and one).

Weave Fig. 2 shows in

*a* — the face weave; a broken steep-twill (2 down 4 up) running twill for 3 warp-threads from left to right (arrange break) and run twill for 3 warp-threads from right to left.

*b* — the proper combination of this face weave *a* with its proper combination see [x] type for its back weave — both showing the proper combination (the warpthread being down for 1 face 1 back 1 face pick — the proper arrangement for using the back filling.

Weave Fig. 3 shows in

*a* the face weave; a straight steep-twill (2 down 5 up) running from left to right.

*b* the proper combination of weave *a* with its back filling i. e. 3 sinkers — properly distributed to show a smooth fabric twill effect.

Weave Fig. 4 shows in

*a* the face weave — a smooth satin effect — interlacing on the 2 down 6 up satin principle.

*b* the proper combination of the back weave (see [x] weave) to produce a perfect face and back to the fabric it is used for.

Weave Fig. 5 shows in

*a* the face-weave — the regular 2 up 2 down — 4 harness twill, combined 2 picks Face [■] 1 pick [x] Back — continuing with this arrangement until repeat for weave is obtained — which in this instance means 12 pick. The repeat of the weave is 8 by 12. i. e. 8 warp thread and 12 picks.

Weave Fig. 6 shows in

*a* the face-weave, the regular 2 up 2 down — 4 harness broken twill, combined with an 8 harness (7 up 1 down) back weave. Arrangement of Filling: 3-picks Face to alternate with 1 pick Back; Repeat of weave: 8 warp-threads and 24 picks.

Weave Fig. 7 shows in

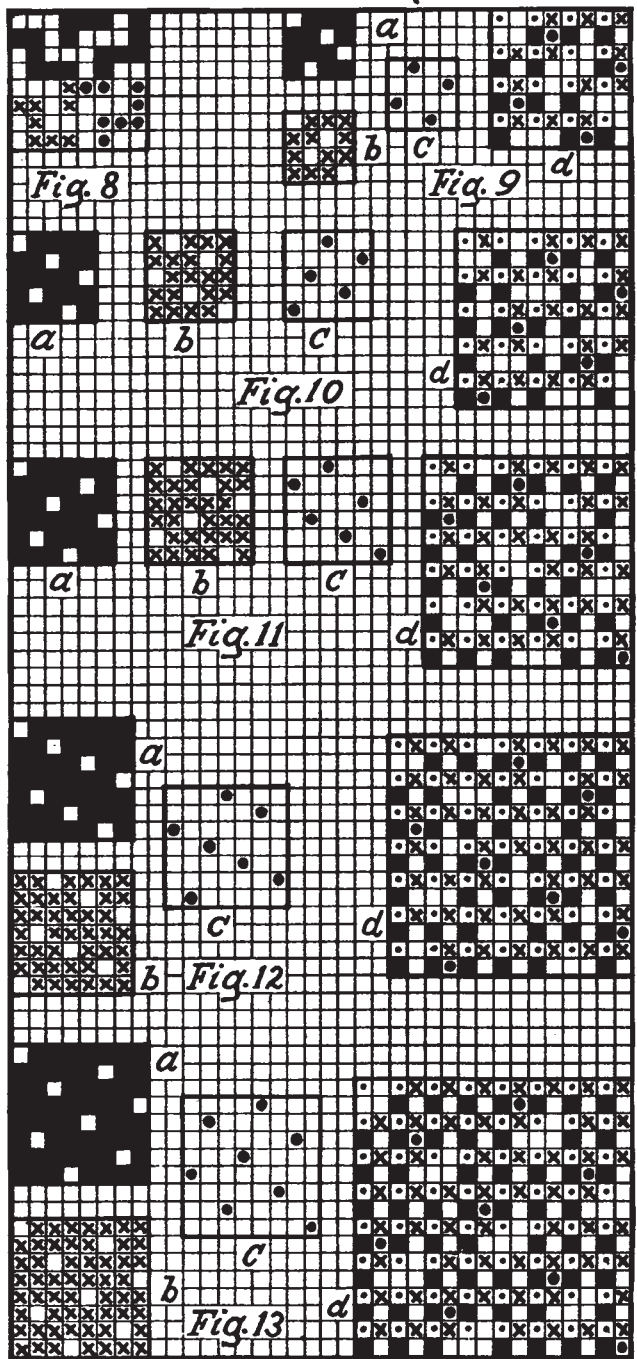
*a* the face weave used repeating on 4 warp threads and 8 pick. *b* shows by [x] type its interlacing with its back weave [x] 7 up 1 down 8 by 8.

The complete weave repeating on 8 warp threads and 24 picks, the latter being arranged 2 Face 1 Back. Repeat of weave 8 × 24.

Weave Fig. 8 shows the face and Back weave on the first 4 picks and 8 warp thread by using dot, cross, and empty type. Repeat: 8 warp-threads and 4 picks. A complete repeat of weave is shown above by white and black squares.

Weave Fig. 9 shows in *a* the face-weave *b* the back-weave and *c* the stitching of this double cloth weave repeating 8 warp threads and 8 picks.

Weave Fig. 10 shows in *a* the face weave in full type (5-leaf Satin — warp-effect) *b* its back weave in cross type, and *c* the stitching of both structures. *d* shows by proper type used by the interlacing of Face and Back Warp in connection with the Face and Back-filling. Repeat of weave: 10 × 10.



Weave Fig. 11 shows in *a* the face weave in full type (6-leaf Satin — warp effect) *b* its back weave in cross type; and *c* the stitching of both structures. *d* shows by corresponding proper type used, by the interlacing of Face and Back-warp in connection with the Face and Back-filling. Repeat of weave: 12 × 12.

Weave Fig. 12 shows in *a* the face weave in full type (7-leaf Satin — warp effect) *b* its back-weave in cross type, and the stitching of both structures is

shown in *c*. *d* shows by corresponding proper type used, the interlacing of Face and Back-warp in connection with the Face and Back-filling. Repeat of weave:  $14 \times 14$ .

Weave Fig. 13 shows in *a* the face weave in full type (8-leaf Satin—warp effect) *b* its back-weave in cross type, and the stitching of both structures is shown at *c*. *d* shows by corresponding proper type used, the interlacing of Face and Back-warp in connection with the Face and Back-filling. Repeat of weave  $16 \times 16$ .

### Expect Raw Silk Costs to Advance Sharply.

When raw silk was moved back to the record height it attained a few weeks ago, material upturns were almost instantly announced for all descriptions of silk piece goods, ribbons and for hosiery, dresses, cloaks, capes, undergarments, and in fact, everything cut and spun from silk.

Despite the fact that costs are a great deal higher at present than they were a month ago, no new complaints are registered by middle west jobbing concerns that manufacturers and wholesalers had advanced prices unnecessarily high. Practically sellers and users of silks in quantities throughout the country are making efforts to place orders in New York for the coming spring; many continue to seek additional supplies for the fall just ahead.

It is openly predicted by the mill owners and New York wholesalers that broad silks and ribbons, likewise merchandise made therefrom, have not reached the top from a standpoint of costs. Some dealers are not backward in making declarations to the effect that some stocks will become from 50 to 100 per cent more expensive within six months. When pressed for their reasons they explained that the finished products delivered for next spring will be manufactured from raw silk costing the mills \$16.50 or more a pound before it is prepared for the looms; labor is constantly demanding more pay or shorter hours, and with demands for goods so far outreaching factory outputs that the law of supply and demand will send charges soaring beyond all marks recorded by the unprecedented working material and record production and other overhead charges.

Ribbons are in good demand. The millinery trade is taking quantities of medium to wide goods and real narrow stock is inquired for by the undergarment and confectionery trades.

For spring there is such a call for georgettes, crepes and other real thin materials that the mills are advising wholesalers to ward off business, as they will not be in a position to turn out the goods in the excessive quantities wanted. Foulards will be used next spring and taffetas will find a position close to the top from a standpoint of demand.

#### Pennsylvania Silk Manufacture Grows.

Increases in the silk manufacturing capacity of Pennsylvania towns are of almost daily occurrence, one of the latest being the announcement that George E. Day, of Paterson, N. J., has purchased a \$20,000 property at Lee Park, near Wilkes-Barre, and would spend about \$60,000 for remodeling and the machinery necessary to convert it into a silk-throwing plant which will employ about 100 hands.

### Cotton Cost and Profits.

**Southerner Says Producers Suffer Heavy Losses.**  
*Editor of Posselt's Textile Journal:*

Please permit me to extend congratulations upon the editorial in your issue of the 17th inst., headed "*Cotton Producers Should Organize.*"

This, together with several other editorials appearing recently in your very strong paper, bearing upon the same subject, shows an understanding of the subject, and a fairness which will appeal strongly to those who know whereof you speak. As a considerable user of cotton, and one who produces none, I feel that my views are not prejudiced, and I wish to say that I consider that you have more clearly perceived and related the true conditions than has any other paper in your section, so far as I have been privileged to see them. It is, indeed, most refreshing to see in your valued paper such an intelligent and humane exposition of the facts.

For some 20 years I have been a frequent visitor to your city. Am asked frequently the cost of producing cotton; usually, I evade the question, not wishing to be laughed at. I have found very nearly all my northern friends inclined to view my opinion as biased; they have seemed to think I was trying to deceive them. No impression seemed to be made by my statement that cotton would cost far above the prices then quoted were labor paid sufficiently to be only fairly well fed and clothed. Figures have failed to make any impression upon the large majority.

I have lived all my days in the cotton section—in the Carolinians—and know the situation, and I assert that the present price of 34 cents is absolutely insufficient to decently feed and clothe the average farmer. According to the Government, there are 2,000,000 cotton farmers.

Let us say that the crop is (far above the Government's estimate) 12,000,000 bales; this means six bales for each family. Suppose we take the present price of 34 cents with five cents added for the value of the seed, we have 39 cents, at 500 pounds per bale, making \$195 per bale, or \$1,170 for the six bales. Divide this by an average of five members to each family, and the gross income for each is \$234 annually. This would be small enough as a net return, but fertilizers, live stock, ginning, and various other expenses will reduce this by fully 50 per cent.

As a resident of this section, poverty stricken for 55 years, I congratulate you for your fairness.

#### Revival in Nottingham Hosiery Trade.

Large orders have recently been placed at remunerative prices for practically all kinds of hosiery, more especially woolen and cotton hose and half hose and fancy goods. The increased demands appear to come chiefly from the colonial and Scandinavian markets. Considerable difficulty is being experienced in obtaining raw materials, the demand for fine cross-bred and merino qualities being far in excess of the normal production and consumption.

It is probably a little unfortunate that the present boom in this industry should come at the same time as the inauguration of the shorter working week; but despite this fact, practically all the hosiery manufacturers are in a good position to take advantage of the boom. This is largely due to their having reorganized their factories from a war basis to a civilian basis following the signing of the armistice.