

FABRIC ANALYSIS.

(Continued from March issue.)

1 System Warp 2 Systems Filling.

Fabrics thus constructed, are picked-out in the same manner as single cloth samples, picking always the filling out of the warp. Close attention must be paid during picking-out, to the serial succession of the two systems of fillings.

If, in the picking-out of such a pattern it should happen that the back pick has been recorded and drawn out of the sample before the proper face pick had been taken out, the result, if not noticed, then will be a wrong weave-plan, and which, before being used for practical work, must be corrected. As soon as you see such an error, during picking-out the sample, correct it at once, or better, start picking-out over again. If you fail to record a pick in its proper place, and such a pick is pulled out before you noticed it, the same as with a single cloth sample, leave a horizontal row of squares on your design paper empty, and insert interlacing by theory after you have obtained the repeat of weaves for the sample.

The fundamental rules of weave-formation, to be observed in the construction of this system of weaves, will greatly assist you here in overcoming difficulties, and when by knowing and adhering to these rules it is very easy to correct a stitching or misplacement of picks, which has been marked incorrectly, a feature readily explained in connection with diagrams Figs. 7 and 8, and of which Fig. 7 shows an arrangement in which a back pick has been taken out before the proper face pick, and was so recorded on the point paper, whereas in diagram Fig. 8 the picks are taken out in proper rotation.

In the construction of weaves of this kind, the following rules must be always observed: "Stitch your back filling to your face structure with a warp-thread which is down in the face pick preceding and following this backing pick; at the same time distribute this stitching, as good as possible, over all the warp-threads in the repeat of the weave, *i. e.*, use them as uniformly as possible for stitching said back filling."

Weave Fig. 8, in order to give the face of the fabric a close texture, shows the ratio of the face to the back picks to be as 2 : 1, and which is the arrangement most frequently met with in connection with these fabric structures.

Rules and explanations given will at the same time show how to proceed if dealing with a sample, the arrangement of the filling of which is 1 pick face to alternate with 1 pick back.

2 Systems Warp 2 Systems Filling.

This fabric structure is technically known as *double cloth*, and comprises some of the hardest sample to pick-out. It can only be mastered after being thoroughly familiar with the analysis of fabric structures dealt with so far, since it comprises all rules and explanations thus far given.

The experienced designer will, as a rule, handle these fabrics minus picking-out, or at the most, take from one end of the fabric, its back ply away, ascertain proportion of face and back for warp and filling, ascertain face weave, and in turn construct the double cloth weave required, by experience.

Again, there may be samples met with, where he as well as the less experienced designer will have to resort to picking-out the sample after the single cloth procedure. In that case, be careful to notice how the combining of the two cloths is done, *i. e.*, whether the back warp stitches into the face filling or the face warp into the back filling. This information will guide you in your work. How in turn to again analyze such a pick-out as to the weave for its face and back ply, texture and stitching of the two plies, will be dealt with later on in a special chapter when referring to diagrams given collectively in Fig. 12.

In some instances, it may be found of advantage to remove one of the systems of back threads, the warp or the filling, which ever easier and more advantageously removed, and proceed according to explanations given previously when dealing with arrangements 2 : 1 or 1 : 2.

Having mastered the analysis of double cloth, you will have little difficulty to master special subjects, like additional binder warps, binder picks, stuffer warps, stuffer picks, 3-ply cloth, etc., hence no reference necessary; again, they may come up in such a variety that an explanation would only bewilder—they belong only within reach of the experienced designer.

How to Pick Out Pile Fabrics.

By pile fabrics, in this instance, we refer in the woolen industry to overcoatings or cloakings, also known as Montagnacs, Floconés, etc., presenting either a wool, alpaca or fine camel's hair face, *i. e.*, pile picks; the body and the backing picks to be wool, the warp to be either wool (rather hard twisted) or merino or cotton yarn. The stuffer filling, if

such is used to increase the bulk and warmth of fabric, is, as a rule, a woolen yarn, carrying any amount of shoddy.

The picking-out of these fabrics is generally commenced with singeing or shaving off the fuzz on the back of the sample so as to be able to ascertain that weave. Next ascertain texture for warp and filling. After this remove carefully back warp and back filling, ascertaining at the same time also their counts. Provided the fabric contains a stuffer pick the same will then rest loosely before your eyes. Ascertain also its texture as well as its count.

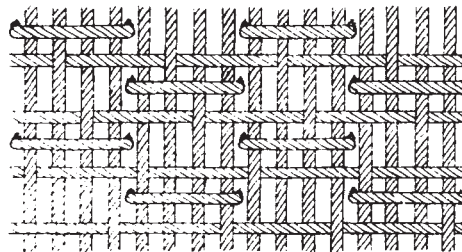


Fig. 9

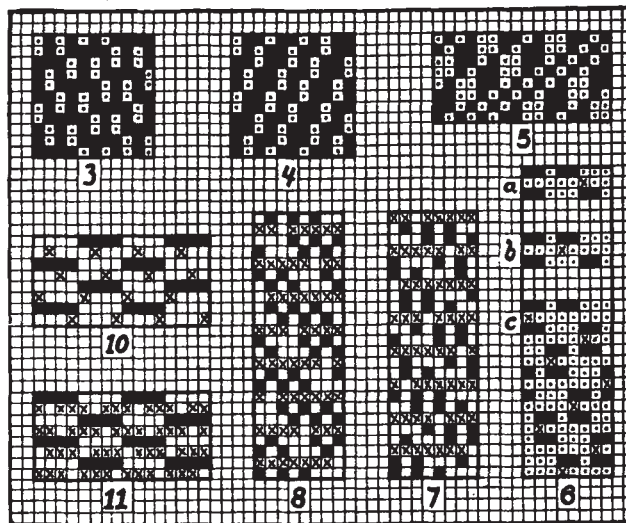
We now have a new structure for the fabric. Singe, or shave the same and begin picking-out the face structure; pick-out carefully. No great trouble will be experienced, but it will be advisable to proceed with care and judgment.

In Fig. 9 a back view (enlarged) of a stripped Floconé is given, as it appears after the backing structure and stuffer picks have been removed. The remaining threads of the face structure have been shown with excessively large perforations between the threads, in order to make matters clear.

In Fig. 10 the weave for fabric structure Fig. 9 is given on designing paper, taking into consideration that the latter illustrates the back view of the fabric.

For practical work on the loom we now must reverse diagram Fig. 10, *i. e.*, exchange risers for sinkers, in turn obtaining diagram Fig. 11.

Fig. 9 explains the construction of the fabric. We can in this illustration clearly distinguish the ground picks from the pile picks, also the places where the latter have been torn or broken on the gig and the ends thus produced changed into flakes, *i. e.*, loose pile ends.



When dissecting the face structure, ascertain the nature of the raw materials used, counts of yarns employed, as well as texture of warp and filling. Next ascertain, by comparison of textures for face and back structure, the arrangement, *i. e.*, proportion of face to back in warp and filling.

The most important point to make sure of is the pile pick, its counts, its proportional arrangement to the ground pick, also whether it refers to a single, two or more-fold pick, and whether the latter have been entered single or coming from one bobbin.

We now must add the back structure to diagram Fig. 11, guided by data gained when liberating the same before from the original sample.

How to Analyze a Double Cloth Weave.

Provided we picked out a complete double cloth weave after the principle of dealing with single cloth, as previously

referred to, we then must analyze said double cloth weave so as to be sure that the pick-out is correct, also to know the interlacing of face and back weave, their proportion used, as well as the method of stitching employed, all of which are

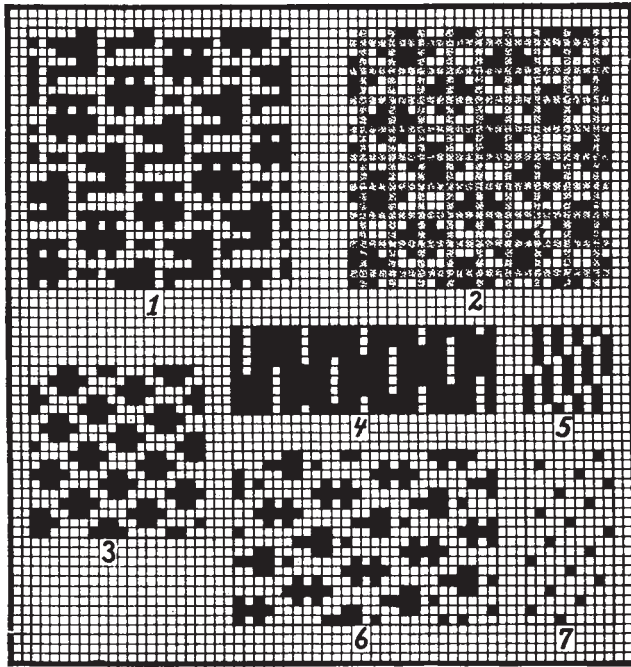


Fig. 12

items of value to be known by the designer to plan for a correct duplication or improvement in the construction of the fabric under consideration.

Again, a double cloth, *i. e.*, heavy-weight structure may have to be produced in light-weights, or with 2 systems of warp and 1 system filling, or 2 systems filling and 1 system warp, hence the single cloth weave for the face structure must be known in either one of the three cases quoted, to have in the last two instances an extra warp or filling added to it by the designer, by theory.

The collection of the seven diagrams shown in Fig. 12 is given to explain how to proceed to analyze a double cloth weave obtained by means of picking out.

Diagram 1 shows such a pick-out of a double cloth weave, repeating on 27 warp-threads and 27 picks. Examining this weave closely shows us the arrangement of face and back used, to be 2 : 1, both for warp and filling.

To obtain the face weave from this pick-out, cover every third end of it, warp and filling ways, *i. e.*, every back warp-thread and back pick (starting and ending the procedure with one end face) with a different color, as shown in diagram 2, and where stenciled type shows this color as painted onto the back warp-threads and back picks of pick-out shown in diagram 1. This then brings us the face weave prominently before us (see full type in diagram 2) and which we then copy, omitting every stenciled square, warp and filling ways. The result (face weave) is shown in diagram 3, a granite weave repeating on $(27 \div 3 = 9 \times 2 =)$ 18 by 18.

To obtain the weave for the back structure and the stitching for the two plies, copy every third pick, *i. e.*, every back pick of weave diagram 1 for a new plan, obtaining in turn diagram 4. In the same every third thread (2, 5, 8, 11, 14, 17, 20, 23 and 26) refers to the interlacing of the back-ply, *i. e.*, to those places in which the back warp is raised and where all the face warp-threads have been raised at the same time so as not to interlace with the back picks.

Separating the nine threads quoted before, from diagram 4, gives us diagram 5, *i. e.*, the 9-harness corkscrew, for the weave of the back ply.

Subtracting diagram 4 from weave 1 gives diagram 6, which shows the face weave plus the places of stitching the back warp into the face filling so as to unite the two plies into one structure, and which is technically known as the stitching.

Separating these back warp-threads from diagram 6, and combining them by themselves, results in diagram 7, it being a displaced satin, filling effect, repeating on 9 warp-threads and 18 picks and which is the stitching used in the double cloth weave shown in diagram 1, originally picked out.

DIRECTORY OF TRADE MARKS RELATING TO THE TEXTILE INDUSTRY.

Registered April, 1915.

- 1, 4, 5. Hosiery.—Joseph P. Voorhees, New York.
2. Silk, Cotton, and Artificial-Silk Thread and Yarn and Thread and Yarn Made of a Combination of Two or More of Those Fibers.—H. E. Verran Co., Inc., New York.
3. Hosiery.—Holeproof Hosiery Co., Milwaukee, Wis.
6. Athletic Knit Goods.—Hygienic Fleeced Underwear Co., Philadelphia.
- 7 and 8. Silk Piece Goods.—Wechsler-Barber Silk Co., Paterson, N. J.
- 9 and 11. Plushes in the Piece.—The Hind & Harrison Plush Co., New York and Clark Mills, N. Y.
10. Braids, Shoe-Laces, Galloons, and Corset-Laces.—The United Lace & Braid Mfg. Co., Auburn, R. I.
12. Silk Dress Goods.—Haas Brothers, New York.
13. Waterproofed Fabric.—British American Mfg. Co., Springdale, Conn.
14. Wool Tops.—Middlebrook Wool Combing Co., East Boston, Mass.
15. Cotton Piece Goods.—M. M. V. Co., Huntsville, Ala.
16. Velvets and Plushes in the Piece.—The Salt's Textile Mfg. Co., Bridgeport, Conn., and New York.

17. Lining Fabrics.—S. M. Hexter & Co., Cleveland, O.
18. Cotton Piece Goods.—The Carl Co., Schenectady, N. Y.