

the plain weave as shown by *cross* type. At the stuffer picks, *i. e.*, every even number picks, all the face warp is raised, all figure or back warp being down, see *dot* type. Motive Fig. 56 is now transferred onto weave Fig. 57 (see *full* type) considering only face picks for that purpose in the latter. Repeat of weave, 24 warp-threads and 24 picks, calling for 8, 10 or better, 12 harness fancy draw for its execution on the loom.

#### ARRANGEMENT IN WARP AND FILLING 2 : 1.

Motive Fig. 58 and weave Fig. 59 are given to illustrate subject. For every effect spot in motive Fig. 58, two successively taken risers (see *full* type) are used in weave Fig. 59, which repeats on 24 warp-threads and 24 picks, and can be drawn on 7, 9, 11, 13, etc. harnesses. A great many designers permit the figure warp in addition to its float over the two face picks (previously referred to) to float over one or the other of the joining back picks, thus making a float over three picks.

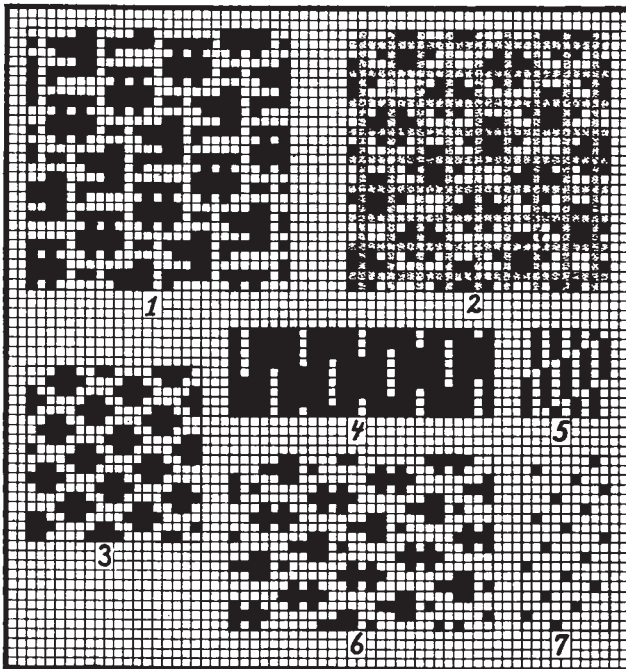
This procedure is not advisable and positively can not be used to advantage with fabrics where depressions in a straight line are called for in the design, since in such a case the binder warp would continually float above the stuffer, *i. e.*, back pick. At the same time we must remember that the cut-effect produced in the fabric will be more pronounced if the figure warp is held down by the two joining back picks.

(To be continued.)

### A STUDY IN TEXTILE DESIGN.

#### How to Analyze a Double Cloth Weave.

Double cloth weaves, when printed are in most all cases given in one color, or by the designer in his work



are indicated in one kind of marks, for the use in the weave room as well as his own future reference.

Most double cloth weaves, for the moment, are bewildering to the eye, and it will be necessary to analyze them to clearly understand their construction and at the same time be sure that no mistake has crept in. The latter is always liable to occur in connection with

any complicated double cloth weave; the compositor in the printing establishment in setting crochet type for weaves may make a mistake anytime and which mistake in many instances is never discovered since the parties connected with bringing the matter in print neither have the knowledge what it means or most likely do not care to know, and the author who furnished the original copy may never see proofs until matter is in print. Again, in copying a complicated double cloth weave, even the best designers are liable to take matters easy and as mentioned before "mistakes in complicated double cloth weaves are apt to be met with anytime," hence the advantage of its analysis, previously to using any complicated double cloth weave given.

We must have a clear understanding of the weaves used for face and back structure, their proportion used in the repeat of the weave, as well as the plan observed for their stitching, etc., in order to be able to calculate as to proper fabric structure. Again, a heavy-weight fabric may have to be reproduced in light-weight, hence the weave for the face structure only needed.

How to proceed is best explained by means of a practical example and for which reason the accompanying seven illustrations are given and of which,

Fig. 1 shows us a double cloth weave given for reproduction. We notice at once that it refers to a fabric to be constructed with two systems of warp and two systems of filling, both arranged 2 ends face : 1 end back; 27 warp-threads and 27 picks in repeat of complete weave.

To obtain the face weave cover every third end warp and filling ways, *i. e.*, every back warp-thread and back pick with a different color, as shown in Fig. 2, and where *stenciled* type shows this color as painted onto certain warp-threads and picks of weave Fig. 1. This then brings us the face weave prominently before us (see *full* type in diagram Fig. 2) and which we then copy, omitting every stenciled square, warp and filling ways. Weave Fig. 3 is the result, repeating on  $(27 \div 3 = 9 \times 2 =)$  18 warp-threads and 18 picks; a granite weave obtained from the 18-leaf satin, filling effect, for its foundation, by adding seven additional spots to every foundation spot.

In order to obtain the weave for the back structure and the stitching of the two fabric structures into one, copy every third pick, *i. e.* every back pick of weave Fig. 1 for a new diagram, obtaining in turn Fig. 4. In the same every third thread (2, 5, 8, 11, 14, 17, 20, 23 and 26) refers to the interlacing of the back structure, *i. e.*, 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 these nine threads quoted before, from diagram Fig. 4, gives us weave Fig. 5, the 9-harness corkscrew, for the weave of the back structure.

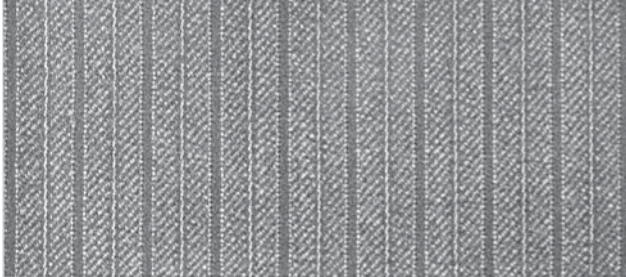
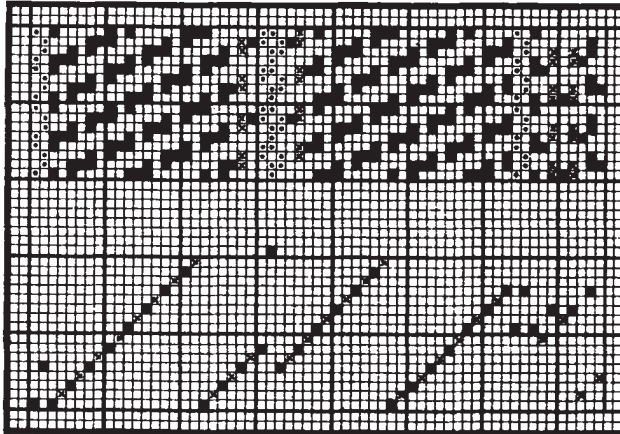
Subtracting diagram Fig. 4 from weave Fig. 1 gives us diagram Fig. 6, which shows us the face weave plus the places of stitching the back warp into the face filling, in order to unite the two structures into one fabric, technically known: the stitching used.

Separating in turn these back warp threads from diagram Fig. 6 and combining them by itself, results in weave Fig. 7, a displaced satin filling effect, repeating on 9 warp-threads and 18 picks and which is the stitching used in double cloth weave Fig. 1.

**Fancy Worsted Trousering.***(Silk Stripe Effect.)*

WARP: 9272 ends.

WEAVE: Repeat 61 warp-threads and 8 picks; to be drawn on 17-harness fancy draw, as shown below the weave, full type in this drawing-in draft refer-

ACTUAL REPRODUCTION OF FABRIC  
from which details of fabric structure given, are taken.ring to the face warp-threads and *cross* type to the harnesses carrying the back warp-threads.REED:  $17\frac{1}{2}$  with 8 ends per dent;  $66\frac{1}{4}$  inches wide in reed.DRESS: 19 Sections, each containing 8 patterns =  $(8 \times 61)$  488 threads.

WEAVE AND DRAWING-IN DRAFT.

## ARRANGEMENT OF WARP:

- 2 ends  $75/2$  spun silk, light pearl.
- 1 end  $2/56$ 's worsted, dk. and lt. gray tw.
- 1 " " , black and white tw.
- 18 ends " " , dk. and lt. gray tw.
- 1 end  $2/32$ 's worsted, black, reverse hard tw.
- 1 "  $2/56$ 's worsted, black.
- 3 ends  $75/2$  spun silk, light pearl.
- 1 end  $2/56$ 's worsted, black.
- 1 "  $2/32$ 's worsted, black, reverse hard tw.
- 20 ends  $2/56$ 's worsted, dk. and lt. gray tw.
- 1 end  $2/32$ 's worsted, black and white tw.
- 1 "  $2/56$ 's worsted, dk. and lt. gray tw.
- 2 ends  $75/2$  spun silk, light pearl.
- 2 "  $2/56$ 's worsted, black.
- 1 end  $2/32$ 's worsted, black, reverse hard tw.
- 1 "  $2/56$ 's worsted, black.
- 1 "  $2/32$ 's worsted, black, reverse hard tw.
- 3 ends  $2/56$ 's worsted, black.

61 ends in repeat of pattern.

Spun Silk threads are shown in weave by dot type.

Reverse Hard Twist threads are shown in weave by cross type.

FILLING: 65 picks per inch, all  $2/56$ 's worsted, black.

FINISH: Worsted finish, clear face; 56 inches finished width.

**SOME OF BRADFORD'S CLOTH TERMS.**

In the last issue of "The Textile Manufacturer," Eber Midgley, M. Tex. Inst., Chief Lecturer in Cloth Structure, Analysis and Finishing, Bradford Technical College, gives some interesting data regarding the construction of the various standard fabrics made in Bradford, which must be of interest to our Manufacturers and Commission Houses:

**Alaska Dress Fabric.**

Warp: 2, 80's bleached cotton; 40's reed with one end per dent.

Filling: Composed of 70% mohair and 30% ramie mix, 38 picks per inch (grey cloth).

Plain Weave, 49 inches in reed,  $48\frac{1}{2}$  inches from loom, 44 inches finished width.

The fabric being piece-dyed blue for the animal (mohair) fibres, results in mixture effects similar to that of a mélange, as the vegetable fibres (cotton and ramie) retain their original white appearance.

The various types of Alpaca Fabrics made in Bradford may be divided into two classes, viz: *Dress Goods* and *Linings*, and of which the texture of the standard constructions are quoted:

**ALPACA DRESS GOODS.****Brilliantine.**Warp:  $2/120$ 's black cotton, 70 threads per inch; plain weave.

Filling: 68 picks per inch, 28's alpaca (grey cloth).

Brilliantine's vary in construction from 52 ends per inch upwards, and contain filling from 24's alpaca and upwards in counts.

**Sicilian.**

Warp: 2, 80's black cotton, 40's reed with one end in a dent; plain weave.

Filling: 48 picks per inch, 12's alpaca (grey cloth).

**Lorrain.**Warp:  $2/80$ 's black cotton, 80 threads per inch.

Filling: 58 picks per inch, 12's alpaca (grey cloth).

Weave:  $\frac{3}{2}$  5-harness skip twill, take 2 and skip, turned 45 deg., *i. e.*, warp for filling, thus weave repeating on 10 warp-threads and 5 picks.

**Granada.**

Warp: 2, 80's black cotton, 78 threads per inch.

Filling: 52 picks per inch, 12's alpaca (grey cloth).

Weave: 5-harness Corkscrew  $\frac{3}{2}$  turned 45 deg., *i. e.*, warp for filling.

**Venetian.**

Warp: 2, 100's black cotton, 64 double threads per inch.

Filling: 75 picks per inch, 18's alpaca (grey cloth).

Weave:  $\frac{3}{2}$  5-harness twill.**Florentine.**Warp:  $2/100$ 's black cotton, 74 double threads per inch.

Filling: 55 picks per inch, 16's alpaca (grey cloth).

Weave:  $\frac{3}{2}$  63 deg. twill, repeat  $9 \times 9$ , turned 45 deg., *i. e.*, warp for filling.

**Figured.**Warp:  $2/100$ 's black cotton, 32's reed, 2 ends per dent.

Filling: 70 picks per inch, 32's alpaca (grey cloth).

This referred to Jacquard Work.