

## REVERSIBLES.

The same refer to double cloth structures used to produce either weave effects, or what is more often the case weave and color effects combined, not possible to be obtained either by single cloth, or by the regular double cloth system of interlacing warp and filling. In some few instances, when dealing with fancy Jac-

quard fabrics, 3 or 4-ply structures will be met with, but the bulk of reversibles made, refers to 2-ply structures.

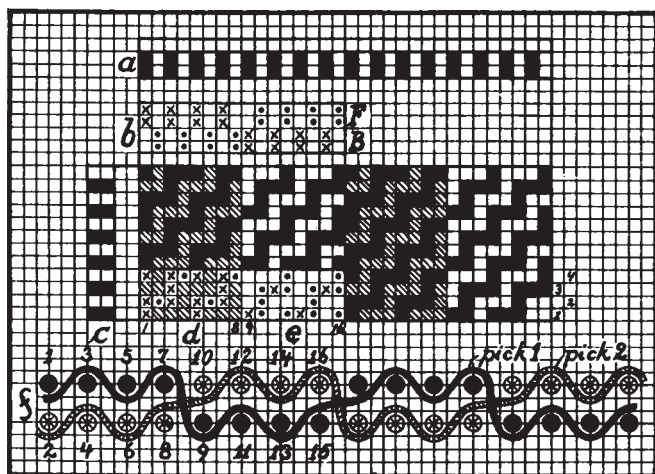


Fig. 1

Reversibles can be divided in (a) pure reversible and (b) double faced reversible fabrics.

The most important use pure reversibles are made of, is in the manufacture of fancy worsted trouserings and suitings, fancy effect cotton, worsted and silk vestings, decorative, *i. e.*, upholstery fabrics in all their varieties, etc.

Double faced reversibles are used in the woolen trade in the form of golf capes, ladies coats and costumes, for motoring coats, and for rugs.

### (a) PURE REVERSIBLES.

As a rule, the weaves used for the two plies of the fabric structure are those most often met with in our regular work, the plain weave, the 4-harness even sided twill, the 4-harness basket, etc.

The principle observed in planning these reversible fabric structures is to have each ply of a different color, or kind of yarn, or both, compared to its mate ply, exchanging these two plies after a given motive

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### Double Plain.

This is the technical expression for a 2-ply reversible in which each ply interlaces with the plain weave.

Figs. 1, 2 and 3 are given to illustrate the subject, referring to a stripe effect, 4 ends dark to alternate with 4 ends light on face and back of fabrics.

On account of the 2-ply principle of the fabric structure, in either example the 4 ends dark on the face require 4 ends light on its back to produce the reversible effect, and for the same reason the 4 ends light on the face call for 4 ends dark as its mate threads on the back of the fabric structure, hence 16 warp-threads are required for the repeat of the weave.

There are two ways at our disposal for planning the exchange of the two plies of fabric structure, *viz.*:

(A) Keep the arrangement of colors in the warp uniform 1 end dark: 1 end light, throughout the repeat of the weave, and change the arrangement of back and face, or face and back warp-threads, as the case may be, in the weave at the places where the exchange of the two plies of fabric structure is to occur. Fig. 1 explains this procedure.

(B) Keep the arrangement of face and back warp-threads uniform 1: 1 throughout the repeat of the weave, but change the dressing of the warp, placing either to 2 ends light or 2 ends dark, as the case may be, side by side when changing (reversing) the weave so as to reverse the plies. Figs. 2 and 3 are given to explain this procedure. Both methods will be in turn explained.

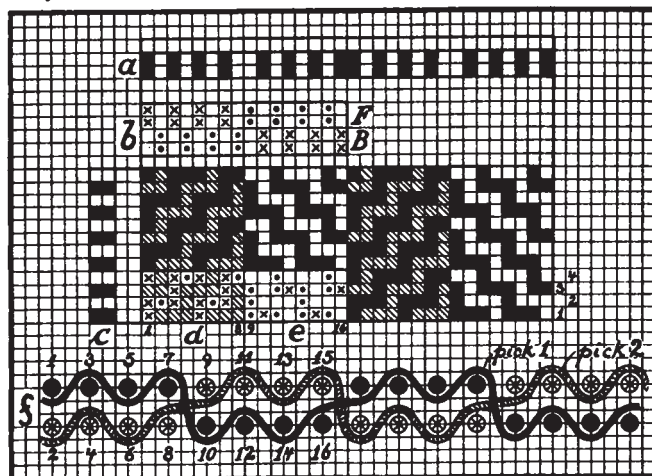


Fig. 2

(A) COLOR OF WARP-THREADS UNIFORM, FACE AND BACK WARP-THREADS CHANGED.

Fig. 1 explains the subject.

a: Arrangement of Warp, one end dark to alter-

nate with one end light, throughout the repeat of the weave.

*b*: Placing of Face and Back warp-threads, *F* = Face and *B* = Back section; *cross* type = dark warp-threads, *dot* type = light warp-threads.

*c*: Arrangement of Filling, one pick dark (see *full* type) to alternate with one pick light (see *empty* type).

*d*: Construction of the dark effect stripe, warp-threads 1-8, picks 1-4; repeat 8 by 4. *Cross* type=face warp, dark; *dot* type=back warp, light. Repeat of weave 4 by 4, two repeats width ways are called for. It will be noticed that the dark filling (every uneven number pick) enters when only one dark warp-thread in the repeat of the weave is up, the remaining three warp-threads being down, the matter being reversed when inserting the light picks and when one light

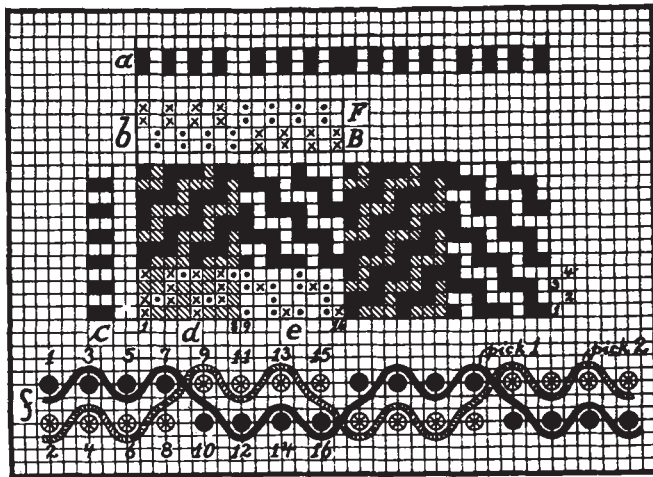


Fig. 3

warp-thread in the repeat of four threads is down, the remaining three warp-threads forming the top shed. *Shaded* type in effect means *empty* squares in value (considered from the point of a weave) being indicated that way to clearly show the formation of dark and light effects (stripes in this instance) in the weave and the fabric.

*e*: Construction of the light stripe. Repeat of weave 4 by 4, using again two repeats widthways. In this instance the dark warp (see *cross* type) becomes back warp, and the light warp-threads (see *dot* type) in turn face warp-threads; the same change takes place with the filling, *i. e.*, every pick after interlacing for 8 warp-threads as face pick, then interlaces for the joining 8 warp-threads (considered in either direction) as back pick; this change is uniformly repeated with every pick throughout the width of the warp, every 8 warp-threads. Repeat of complete weave 16 by 4.

As will be readily understood, double plain is constructed in connection with the two effects (dark and light stripes) in every instance one independent from the other, face and back in warp and filling being in either effect of a different color.

With reference to the construction of either effect this may be well to refer back to the principles, *i. e.*, rules, for double cloth, *viz*:

(1) Indicates which are face and back warp-threads, also which are face and back picks on your point paper; see *b* and *c* in our example.

(2) Insert face weave where face warp-threads and face picks meet; see *cross* type on picks 1 and 3 in effect *d*, and *dot* type on picks 2 and 4 in effect *e*.

(3) Raise all the face warp-threads on every back pick; see *cross* type on picks 2 and 4 in effect *d*, and *dot* type on picks 1 and 3 in effect *e*.

(4) Insert back weave, considering back warp-threads and back picks only; see *dot* type on picks 2 and 4 in effect *d*, and *cross* type on picks 1 and 3 in effect *e*.

No stitching of the two plies is done, neither is it needed, the continual changing of each pick every eight warp-threads, from face to back ply and vice versa again, being all that is needed; later on, when dealing with larger open surfaces, stitching will be done, the same being identical with that of regular double cloth.

Diagram *f* shows the interlacing of each pick in both plies, being a section of the fabric, cut in the direction of the filling, showing the interlacing of picks 1 and 2 in connection with two repeats of warp-threads. Pick 1, a dark pick in the weave (see *c*) is shown in *black*, whereas pick 2, a light pick, in the weave (see *c*) is shown *shaded* in the fabric section. In the same way the sections of the dark warp-threads shown by *full* type in diagram *a* are shown in diagram *f* by *black* circles, and those of the light warp-threads shown by *empty* type in diagram *a*, by *shaded* circles in diagram *f*.

Examining diagram *f* clearly illustrates the rule for obtaining the stripe effect in the fabric previously referred to, *viz*: black (*i. e.*, dark) warp-threads are covered on the face by black (*i. e.*, dark) picks, and in the same way shaded (*i. e.*, light) warp-threads by shaded (*i. e.*, light) picks. The same is the case if considering the fabric section back for face, *i. e.*, where black (or dark) on the face, shaded (or light) form the back, and vice versa where shaded (or light) on the face, black (or dark) forms the back. This is the feature which gives these weaves and the fabrics made by it, the name of *reversibles*.

#### COLOR ARRANGEMENT OF WARP-THREADS CHANGED, FACE AND BACK WARP-THREADS UNIFORM.

Figs. 2 and 3 explain subject. These two plates of diagrams are carried out in the same way as Fig. 1, using crochet type for weave and letters of reference correspondingly, hence details given before in connection with Fig. 1 also refer to Figs. 2 and 3.

We will now refer to the differences between fabric structures shown in Figs. 2 and 3.

In both, face and back warp-threads change alternately—uniformly throughout the repeat of the weave, hence the reversible effect calls for 2 ends of the same color in the dressing, *i. e.*, color scheme (*a*) of the warp and where the filling then has to travel from one ply into the other, one of these threads of one color interlacing in one ply, the other threads in the other ply, in turn ending and starting the connection of the two plies.

The difference between fabric structures Fig. 2 and Fig. 3 is that in Fig. 3 we changed the starting of the light effect *e* from 1 up 1 down (see *dot* type in pick 2) on the first face pick in Fig. 2 to 1 down 1 up in weave Fig. 3. The result of this change produced in the fabric is readily seen by comparing fabric sections *f* in both figures. Fig. 2 shows a somewhat clearer cut (1 up 1 down in either change) whereas Fig. 3 illustrates any dispute between what is advisable to use (whether 1 up 1 down or 1 down 1 up) for starting the plain weave in the second effect, after the first effect has been constructed.

(To be continued.)