

REVERSIBLES (HARNES AND JACQUARD WORK)

(Continued from December issue.)

Fancy Effects.

These are built upon the same principle of construction as the previously explained checkerboard weaves. Two examples given will readily explain how to construct any fancy design of this character.

Fig. 7 shows a specimen of such a Fancy Effect Reversible. In this diagram

a: Illustrates the effect of the fabric structure, a neat step-ladder effect as we may call it.

b: Arrangement of warp, one end dark to alternate with one end medium, uniform throughout the repeat of the weave. *Full* type = dark, *Cross* type = medium.

c: Arrangement of filling; the same as for warp.

d: Complete Weave; Repeat 16 by 16, four repeats being given.

Full and *shaded* type in weave *d* show the dark effect in the fabric sketch *a*, and *cross* and *empty* in weave *d* the medium effect in sketch *a*.

Shaded type in weave *d* = empty in value as to weave, *i. e.*, warp down, it being used to more clearly illustrate the difference of dark and medium effect in sketch *a* in the construction of the weave, *i. e.*, represents the yellow paint originally applied to the point paper when planning for the two color effect—previously to inserting the two mate double plains.

e: Shows a section of the fabric, taken on picks 6 and 7 of weave *d*, the fabric structure being cut in

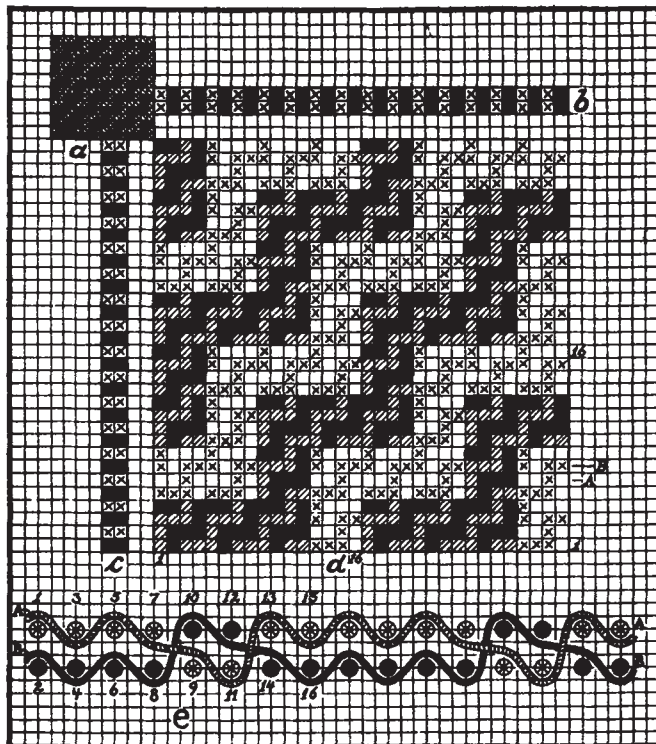


Fig. 7

the direction of these two picks and marked respectively *A* and *B* in weave and fabric section.

In the latter *A* is shown shaded = medium, *B* in full black = dark. Numerals of reference for warp-

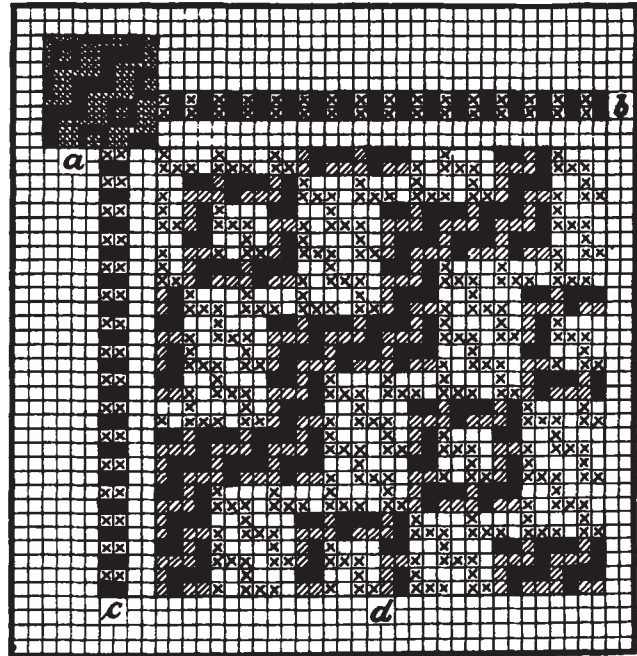


Fig. 8

threads in section and in weave are selected to correspond.

Fig. 8 shows the construction of another fancy, double plain reversible, repeating on 32 warp-threads and 32 picks; only one repeat of the weave is given. In the same

a: Shows the fabric sketch,

b: The arrangement of the colors in the warp; one end light to alternate with one end dark, throughout the repeat of the weave.

c: Arrangement of colors in filling, one pick dark to alternate with one pick light, throughout the repeat of the weave.

d: Complete weave, *full* and *shaded* type showing the dark effect in sketch *a*, and *cross* and *empty* type the medium or ground effect in sketch *a*.

Shaded type in weave *d*, considered from the point of weaving, means "warp down," *i. e.*, empty.

Comparing weaves Figs. 7 and 8, we find the same foundation weaves used—the double plain exchanged after a fancy motive. The difference in the principle of constructing these two weaves is that the dark effect, in both examples, has both plain weaves (as form the double plain) start uniformly, whereas in the light effects the starting of the plain weave differs, using for the back pick in Fig. 7, one *up* one *down*, and in Fig. 8 one *down* one *up*. The step appearance of the double plain is in this way reversed, but which does not change the appearance of the woven fabric; the plan observed in designing Fig. 7 is most often met with.

Spotted Patterns.

The same are identical in construction to the Fancy Effects previously explained, only that in this instance

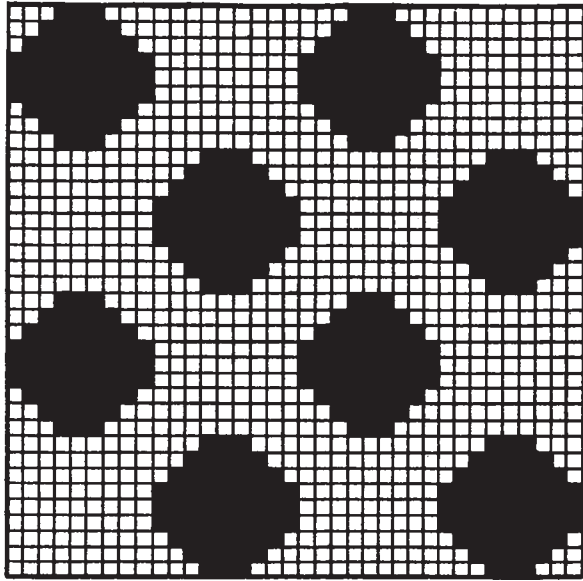


Fig. 9

one of the sets of arrangements of double plain forms ground all over the pattern, its mate set forming the figure upon said ground. Two examples are given, showing two methods of constructing these spotted reversibles. Figs. 9, 10 and 11 refer to one method, Fig. 12 by means of four diagrams illustrating the second procedure.

Fig. 9 shows us, on point paper, a spot distributed after the plain setting. The repeat of this sketch calls

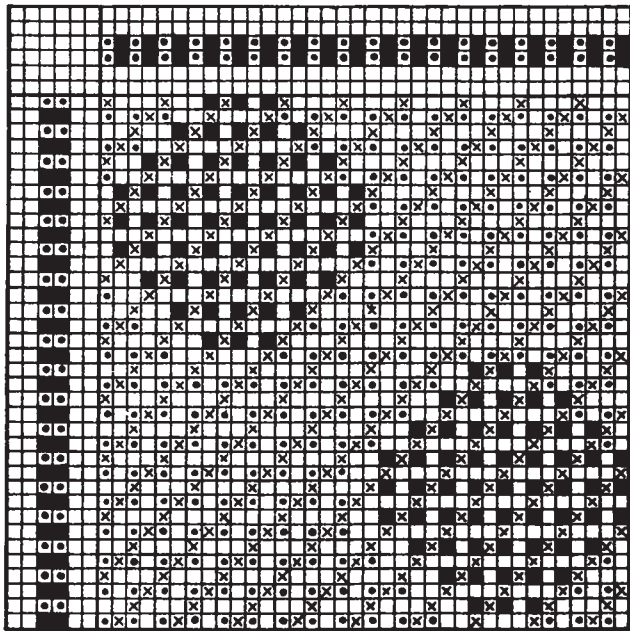


Fig. 10

for 18 squares each way, which, since it refers to a double cloth structure, calls for $(18 \times 2 =)$ 36 warp-threads and 36 picks for the repeat of the weave. Each row of squares in the sketch (considered in a vertical direction) stands for two threads, and in the same way each horizontal row of squares for two picks.

Fig. 10 shows the plan of construction, how warp and filling interlace with each other in the reversible fabric structure. Different characters of type have been used in building up this weave-plan so as to explain subject more clearly to the reader.

On top and at the left of this plan the color scheme of the two systems of warp and filling are indicated respectively by *full* and *dot* type.

Full type in weave Fig. 10 equals *full* type, i. e., figure up, in sketch of Fig. 9.

Dot type in weave Fig. 10 equals *empty* type, i. e., ground up, in sketch Fig. 9.

RULE FOR CONSTRUCTING DOUBLE CLOTH REVERSIBLES.

(1). Insert the four harness, one *up* three *down* twill all over the weave-plan (see *cross* type in Fig. 10); start this weave on a square calling for the same

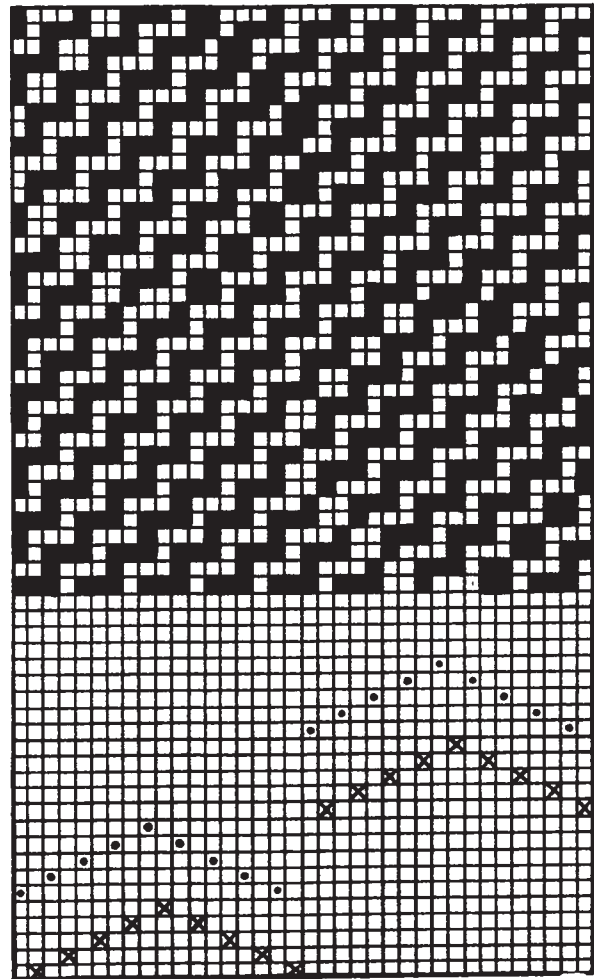


Fig. 11

system of warp and filling. By this we mean that we can start this twill in connection with our weave-plan on the first pick either with warp-thread 2, 4, 6 or 8. We used warp-thread 2, or the first one of our possible chances for starting the twill.

(2). Transfer ground effect (*empty* type) from design Fig. 9 upon weave-plan Fig. 10, taking only the ground warp-threads in the latter (every uneven number of warp-threads in the weave-plan) into consideration (see *dot* type). Draft in this way every horizontal row of squares in your design, successively taken, onto every other pick of your weave-plan (see every uneven number pick).

(3). Transfer figure effect (*full squares*) from design Fig. 9 upon weave-plan Fig. 10, taking in this instance only the figure warp-threads in the latter (every even number of warp-threads in the weave-plan) into consideration (see *full squares*). Draft in this way every horizontal row of squares in your design, successively taken, onto every other pick of your weave-plan not considered in rule 2 (see every even number pick).

Rules 2 and 3 can be reversed, *i. e.*, draft figure effect first and then ground effect, without changing result of weave-plan in the fabric.

Fig. 11 shows the weave-plan Fig. 10 in one kind (*full*) type; the repeat, 36 warp-threads and 36 picks, by means of "double point section draw" given below the weave, calling for 20 harnesses on the loom.

The same procedure can be used in planning to construct weave *d* in Fig. 7 previously given, as well as weave *d* in Fig. 13, illustrated next.

(To be continued.)

THE MANUFACTURE OF RIBBONS, TRIMMINGS, ETC.

(Continued from December issue.)

The Influence of the Twist in the Yarn upon the Fabric.

Threads in which you take out twist provided you twist them with your hand towards the left, and to which you add twist provided you twist them towards the right, are technically known as *right hand twist*, whereas such threads which untwist provided you twist them towards the right and to which twist is added provided they are twisted to the left are known as *left hand twist*.

Fig. 106^a shows right hand twist, warp yarn;

Fig. 106^b shows right hand twist, filling yarn;

Fig. 107^a is a left hand twist, warp yarn, and

Fig. 107^b is a left hand twist, filling yarn.

Provided we use in a fabric, warp and filling spun with a hard twist, it will then be advisable to use the



Fig. 106^a



Fig. 106^b



Fig. 107^a



Fig. 107^b

same direction of twist for both systems of threads, since in this way the spirals of the twist of warp and filling will cross, in turn slightly raising the warp threads in the fabric.

Provided we use for the warp a different twist than that used for the filling, the spirals of the twist of both will then more or less interlock with each other, giving in turn a flat appearance to the fabric.

Besides the twist in the yarn, you must also take into consideration the direction of the twill in the weave.

Fig. 108 shows us the 4-harness even sided twill, with its twill line running from left to right, *i. e.*, a right hand twill as we call it; used in connection with a right hand twist warp yarn. The twist of the yarn in this instance runs the proper way, *i. e.*, against the direction of the twill in the weave. Using the other direction of twist for the warp yarn, *i. e.*, a warp yarn twisted to the left, in connection with the same direction twill in the weave would then have the

direction of the twist in the warp yarn run in the same direction as the twill in the weave, a combination you will have to omit wherever possible.

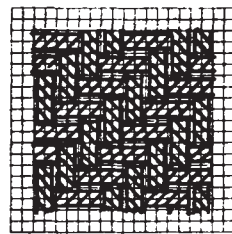


Fig. 108

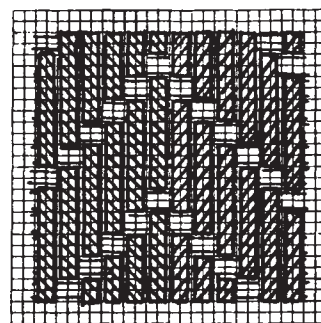


Fig. 109

For the filling we have used right hand twist yarn, so that the spirals of the twist in the filling run against the spirals of the twist in the warp yarn.

Fig. 109 shows us a pointed twill constructed with proper selection of twist for the warp yarn, *i. e.*, we changed the direction of the twist used for the warp yarn with the change in direction of the twill in the weave. This will explain that in order to properly bring up these pointed twill effects, *i. e.*, one direction of twill as prominent as the other, both kinds of twist (right and left hand twist yarn) must be used for the warp-threads, according to the direction of the twill.

Of the greatest of importance in the manufacture of ribbons having pearl edges (loop effects produced by floating the filling outside the edges of the ribbon) is the direction of the twist of the filling. These pearl edges, to suit the pattern desired, are produced either on one or on both sides of the ribbon by inserting horse hair threads, or steel or brass wires next to the warp-threads of the ribbon, in the reed. These wires or horse hair threads are secured at their rear ends to the rear framing of the loom, and are drawn into a heddle eye of the harness, and then passed through the reed, close to the side of the fabric, the wire extending close to the breast beam, after which it then pulls itself (during the progress of weaving) automatically out of the loops of the woven fabric. These wires or horse hairs are raised or lowered by the respective harnesses they are threaded to, to suit the desired shape, number and length of loops in the fabric, etc. The filling is caught during weaving by these horse hairs or wires. The take-up of the loom draws the fabric, as mentioned before, out of the respective horse hairs or wires, in turn forming the characteristic loops to the fabric.

Two kinds of these loops are produced: (a) such as form an open eye, and (b) such where the eye twists itself. As a rule, the first mentioned loops are those desired.

Using a right hand twist filling, and wanting to produce an open loop, have these the wires producing said loop, on both sides of the ribbon in the upper portion of the shed when the shuttle enters from the right hand side, since then the position of the filling around the wires equals untwisting of the latter. If you want to produce with right hand filling a twisted loop, have then your wires which form the loop, on both sides of the ribbon in the upper shed when the shuttle enters from the left hand side. Position of the filling around the wire then equals additional twist to