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REVERSIBLES. (Harness and Jacquard Work.)

(Continued from November issue.)

Jacquard Work.

In this instance the Jacquard cards are cut direct from the design as is executed in three colors, using motive *g* for explaining the procedure.

A 3-section tie-up is used, the Jacquard machine and the comber-board being for this purpose divided into three sections.

Diagram Fig. 39 shows such a 3-section tie-up, using for this purpose a 1200 Jacquard machine, giving us 400 needles and hooks for each section. No reference to any reserve rows is taken. The combination between Jacquard machine and the comber-board *i. e.*, the placing of the Jacquard machine upon the loom and the building of the Jacquard harness is done by the English system *i. e.*, the bottom board of the machine, with reference to its length running in the same direction as that of the comber-board.

The German system of tying up the Jacquard harness as was shown in Fig. 33 can also be used in connection with a 3-section tie-up, adding in this instance an addition section to the two sections of the machine and comber-board then shown.

Fig. 39 shows the 1200 machine divided into 3 sections, marked respectively 1, 2 and 3 using for

Section 1, needles 1 to 400

Section 2, needles 401 to 800

Section 3, needles 801 to 1200.

The comber-board is divided in its depth into 3 sections, showing in its width 2 divisions used. More divisions can be used, depending upon the width of the fabric to be made. The number of sections in the comber-board must correspond to the number of sections in the machine. The first four rows of each section are in the Jacquard machine as well as the comber-board, *i. e.*, 1, 2, 3, 4, 401, 402, 403, 404, 801, 802, 803 and 804 are shown threaded in uniform medium lines, whereas the last neckcord and leash of each section *i. e.*, 400, 800 and 1200 are shown heavy.

With reference to the building of the Jacquard harness, the threading of the machine is done from the rear towards the front and from the left towards the right. The threading of the comber-board is done correspondingly; 400 ends for each section in one division, divided by 4 rows deep each section, make 100 cross rows.

The leasing of the Jacquard harness with reference to detail illustration Fig. 40 is thus:

No. 1 from Section 1, shown white.

" 401 from Section 2, shown shaded.

" 801 from Section 3, shown black.

" 2 from Section 1, shown white.

" 402 from Section 2, shown shaded.

" 802 from Section 3, shown black.

" 3 from Section 1, shown white.

" 403 from Section 2, shown shaded.

" 803 from Section 3, shown black, and so on, until the complete harness is leased.

A and B represent the two lease strings required for leasing the harness.

How to Cut the Jacquard Cards.

This, as mentioned before, is done direct from the point paper design which is executed in two colors besides white, *i. e.*, three colors as we may call it, using for illustrating subject, diagram *g* of Fig. 38, using type to indicate colors on point paper thus:

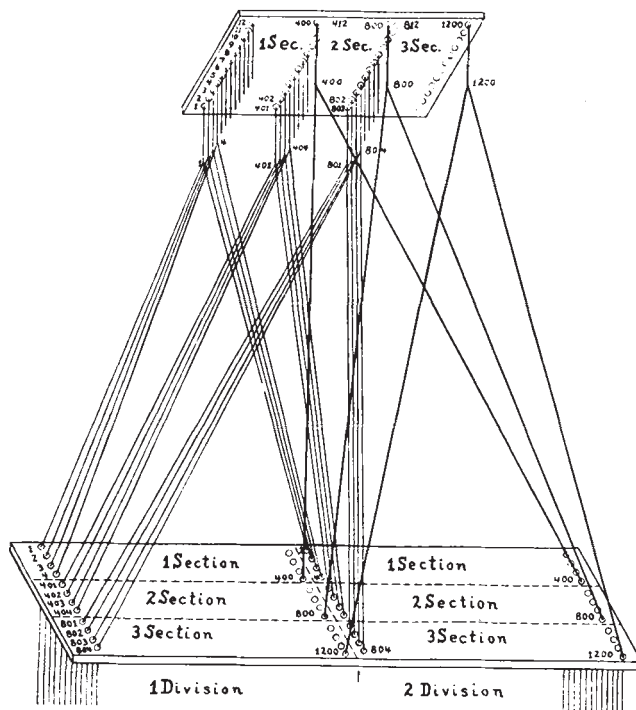


Fig. 39

Cross type = color # 1, say Red on design.
Empty type = color # 2, say White on design.
Dot type = color # 3, say Yellow on design.

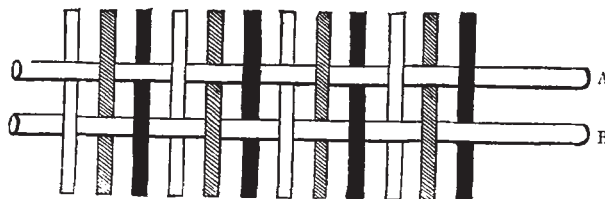


Fig. 40

Conforming with this data
Section 1 of Jacquard machine and Comber-board = Red,
Section 2 of Jacquard machine and Comber-board = White, and
Section 3 of Jacquard machine and Comber-board = Yellow.

1ST LINE OF DESIGN.

Pick 1^a, Red pick: 1st Section $\frac{1}{2}$ plain weave
(Cross type) 2nd " White
3rd " White and Yellow.
Pick 1^b, White pick: 1st Section Red and Yellow
(Empty type) 2nd " $\frac{1}{2}$ plain weave
3rd " Yellow.

Pick 1^c, *Yellow pick*: 1st Section Red
(*Dot type*) 2nd " White and Red
3rd " $\frac{1}{2}$ plain weave.

2ND LINE OF DESIGN.

Pick 2^a, *Red pick*: 1st Section $\frac{1}{2}$ plain weave
(*Cross type*) 2nd " White
3rd " White and Yellow.
Pick 2^b, *White pick*: 1st Section Red and Yellow
(*Empty type*) 2nd " $\frac{1}{2}$ plain weave
3rd " Yellow.
Pick 2^c, *Yellow pick*: 1st Section Red
(*Dot type*) 2nd " White and Red
3rd " $\frac{1}{2}$ plain weave.

WARP:	FILLING:	RESULT:
Yellow with	Yellow =	(1) <i>Yellow</i>
Red "	Red =	(2) <i>Red</i>
Blue "	Blue =	(3) <i>Blue</i>
Yellow "	Red =	(4) <i>Orange</i>
Red "	Blue =	(5) <i>Violet</i>
Blue "	Yellow =	(6) <i>Green</i> .

Continue in this manner, always cutting three cards for each line of your design, reading the same line three times over. Remember to change the plain weave, cutting $\frac{1}{2}$ for all uneven lines and $\frac{1}{2}$ for all even lines of your design in the section of the card where plain weave is called for. This indicates that the design must have an even number of lines to cut cards by, so that the plain weave will repeat evenly.

As mentioned before, besides the three pure colors now explained three additional mixes can be obtained, by transposing the unit of the 3-ply plain weave to six different starting points, considering warp and filling in unison, a feature readily explained by an example, using for this purpose *Yellow*, *Red* and *Blue*.

**A STUDY IN WEAVE FORMATION.
FANCY EFFECT DIAGONALS.**

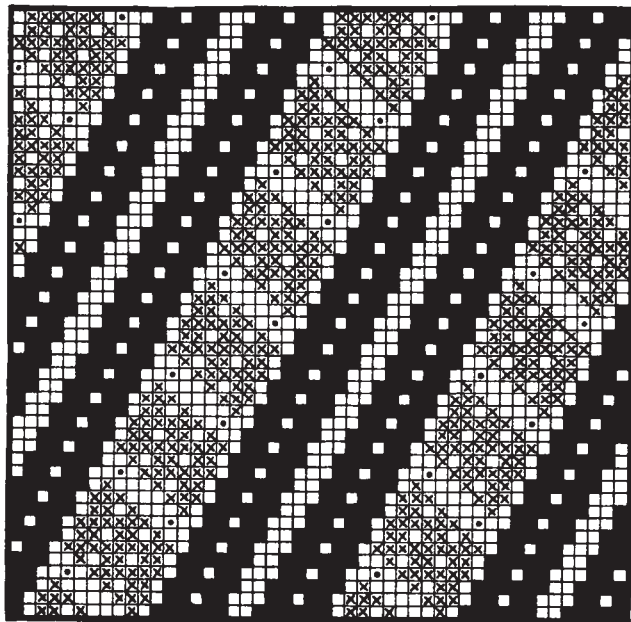


Fig. 1

The basis of construction of these fancy weaves is a 63 deg. steep twill, or diagonal, as often called; in some instances a 70 deg. steep twill may be used.

RULE FOR CONSTRUCTING THESE WEAVES.

- (1) Select a steep twill showing a prominent filling effect twill line, *i. e.*, more sinkers than would be permissible, provided we would use the steep twill direct.
- (2) Construct two repeats of this steep twill side by side.
- (3) Insert your fancy effect (risers) in the open space left for this purpose in the plan of the foundation steep twill.

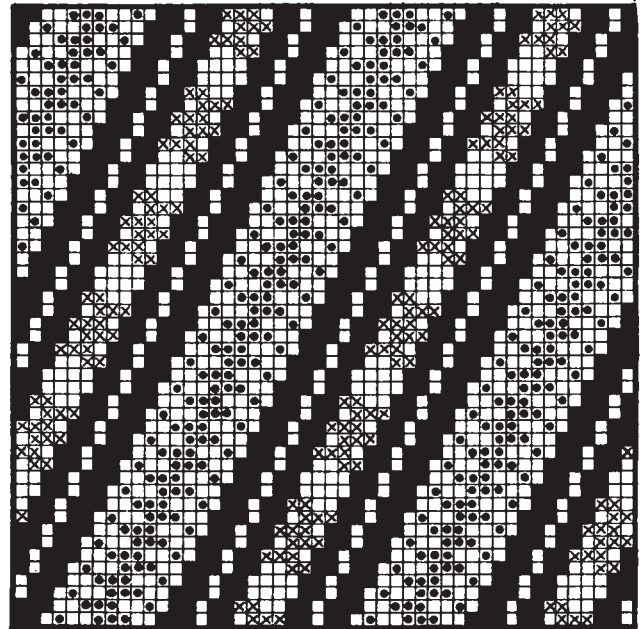


Fig. 2

The construction of these fancy effect diagonals will be fully explained by describing the construction of the accompanying three weaves, every one of which repeats on 24-harness straight draw, and 48 picks. Two repeats, side by side, of each weave are shown, to better explain their construction and their effect in the fabric.

Weave Fig 1 has for its foundation the $\frac{5}{1} \frac{5}{5} \frac{5}{1} \frac{5}{2}$ 24 by 48 steep twill, as shown by *full type*. The fancy effect is then inserted into the 21 sinkers, *i. e.*, then empty squares, see *cross type*. *Dot type* is used to bind down a filling float otherwise flushing over four warp-threads. In inserting the diamond shaped fancy effect and which is interlaced with the 3-harness warp-effect twill constructed with a back pick, we placed the heavy pick of the fancy effect on the light pick of the steep twill, and *vice versa* the light pick of the fancy effect on line with the heavy pick of the steep twill.

Weave Fig. 2 has for its foundation the $\frac{5}{2} \frac{4}{8} \frac{4}{2} \frac{5}{1}$ 24 by 48 steep twill, as shown by *full type*. The 8 sinkers in turn are interlaced with the fancy effect shown by *cross type*, inserting another 63 deg. steep twill (see *dot type*) in the 18 down float.

Weave Fig. 3 has for its foundation the $\frac{9}{2} \frac{1}{2}$ 24 by 48 steep twill as shown by *full type*. The 42 sinkers are taken care of by inserting what we call a curved twill shown by *cross* and *dot type*.

CONSTRUCTING FANCY EFFECTS BY MEANS OF SINKERS.

In the same way as we thus inserted risers into sinkers of the steep twill provided for this purpose,