

tion, or a regular comberboard must be used, taking the complete texture of the fabric into consideration, omitting threading of the board, where said ground warp-threads for the front harnesses have to pass.

Fractions of divisions may be used with any of the tie-ups quoted to suit the proper number of ends to use to obtain a certain width of finished fabric desired.

As is well understood, the texture and width of a fabric in connection with Jacquard work must be known before tying up the loom. No changes in texture can be made after the loom is tied up except we use a movable comberboard as shown in Figs. 18 and 19, and where the first shows the comberboard expanded, *i. e.*, in normal condition, while Fig. 19 shows the comberboard contracted, providing in turn for a proportional increase in the texture above the standard texture, *i. e.*, the expanded comberboard.

HONEYCOMB WEAVES

(Continued from page 34.)

The Use of Honeycomb Weaves for Jacquard Work.

Their most extensive use in that line of work, rests with the manufacture of Bedspreads and Draperies, and where they are used in connection with twills, satins, pointed twills, etc., for figure or all-over ground effects, using the plain weave, as a rule, for small portions of ground work, since the latter permits a more distinct cut-off of ground and figure, compared to any other weave, besides imparting to the joining figure effects a somewhat raised appearance.

With reference to the tie-up of the Jacquard harness for Bedspreads, as a rule, the point tie-up is used, one complete-repeat in connection with a 1200 Jacquard machine being a specimen of a frequently used texture.

Fig. 13 shows a sketch for such a honeycomb bedspread, illustrating $\frac{1}{4}$ th of the complete fabric, which



Fig. 13.



Fig. 14

by means of a pointed tie-up and a reversing of the chain of Jacquard cards, has its design reversed in both directions.

Using a 1200 machine with point tie-up calls for 2400 warp-threads to be used, or on account of discarding the double centre thread, 2399 ends are wanted.

Using 28 ends per inch in fabric will give us $(2399 \div 28 =)$ 85.6 or practically $85\frac{1}{2}$ inches as the width of the fabric, minus selvage. Allowing $\frac{1}{4}$ inch margin for each side, interlacing on plain, or a $\frac{2}{3}$ warp rib weave if needed, will give us a total of 86 inches for the width of the complete fabric finished.

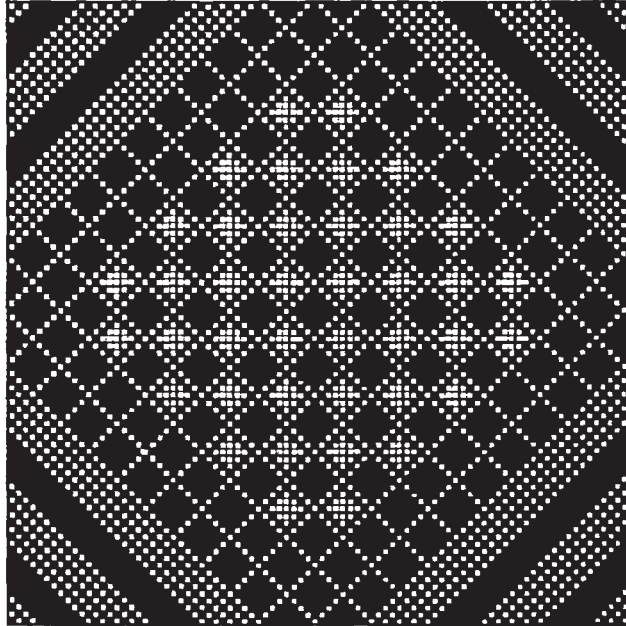


Fig. 15

Constructing the same with a balanced texture, *i. e.*, using the same number of warp-threads as picks per inch, will solve the number of Jacquard cards needed thus:

$6\frac{7}{16}$ " width of sketch = $85\frac{1}{2}$ " wide in fabric.

$6\frac{1}{4}$ " length of sketch.

$6\frac{7}{16} : 85\frac{1}{2} :: 6\frac{1}{4} : x (= 83)$.

Answer: 83 inches length of design in fabric, which $\times 28$ picks per inch calls for 2324 Jacquard cards.

On account of the point design in our sketch the chain of cards can be reversed, *i. e.*, only half the cards previously figured out, cut, *i. e.*, 1162 cards only are cut, and when after running the cards once through, the run of the cylinder and thus that of the cards is reversed. At the end of the cards for the figure part, from 30 to 40 cards are cut with the plain weave all over, and are added to the set of figure cards to provide the necessary margin for hemming the bedspread.

In sketch Fig. 13, the black painted portions indicate ground, *i. e.*, to be interlaced with the plain weave. The clear white portions are to represent por-

tions of the figure, to be executed in 8-harness filling effect satin. The honeycomb for the ground effect and in one instance, for figure (centre part of a small figure) is shown in the sketch in imitation of its peculiar cell-like appearance in the fabric. Regular and pointed twills are shown by the black lines on white backgrounds and represent filling effect weaves.

Fig. 14 shows a portion of the complete point paper design, executed on 8×8 paper, showing the interlacing of 168 warp-threads and 240 picks, taken from the centre of the bedspread, *i. e.*, the left hand lower corner piece of sketch Fig. 13 is executed on the point paper. White for risers — full squares consider warp down.

Fig. 15 shows a portion of the working design in which the common 8-harness honeycomb weave is used for the centre of a figure (see centre of only figure shown complete in sketch Fig. 13) and which shows honeycomb weave; Fig. 14 shows no honeycomb weave on point paper.

For Draperies, smaller Jacquard machines (400 and 600 machines) are used, and when a portion of the machine is used for the border on the straight-through or the point tie-up, the balance of the needles being used in sections, mostly on straight-through tie-up, sometimes on point tie-up, for filling in the body portion of the curtains.

Improvements in Processes for Dyeing with Natural Dyes.

Wool, silk, or cotton, according to J. A. Dominquez, may be dyed a variety of shades by treating the fibre with a solution containing the resin derived from white or black algarobila, and then immersing the fibre in a bath containing a salt of a metal (a salt that has no pronounced bleaching action).

By using different metals, a large variety of shades can be obtained. Thus, by treating materials which have first been treated with an extract of algarobila with

(a) Sodium chloride and carbonate, a wine red color is obtained.

(b) Copper sulphate, dark grey.

(c) Potassium bichromate, grey.

After the final treatment with the salt, the fibre is washed, and then dried in the sun.

Testing the Fastness of Dyeings.

The following have been generally approved by the best methods:

1. *To washing (yarn):* The dyed yarn is twisted up with both white woolen and white cotton yarn, and worked for half-an-hour at 60 deg. C. in a bath containing two grammes of soda and five of soap per litre, and then for the same time after lifting while the bath is boiled up. The two treatments can be extended to one hour each if a severe test is wanted.

2. *To chlorine:* The dyed goods are steeped for from thirty to sixty minutes in a bleach bath spindling, $\frac{1}{2}$ to 1 deg. B.

3. *To mercerization:* The dyed goods are steeped under tension for fifteen minutes in caustic soda lye of 30 to 40 deg. B., rinsed, soured, and rinsed again. Any change in the color is then noted.