

# Posselt's Textile Journal

Vol. VIII.

February, 1911.

No. 2.

## DESIGNING AND FABRIC STRUCTURE.

### COMBINING TWILLS AND SATINS IN THE FORMATION OF LARGE DESIGNS

The object of the construction of these weaves is to produce large designs, Jacquard imitation effects as we might call them, in the fabric, obtained by the combination of twills with their mate satin weaves, or vice versa, using in this way the combination of a twill and a satin which can be woven with one set of harnesses, using a straight-draw or a satin-draw for producing the two effects in the fabric. This feature will bring these combination weaves, which, as a rule, are of a large repeat, within the compass of the regular harness loom. Both weaves, the twill and its mate satin, or the satin and its mate twill, must have the same repeat, both warp and filling ways, that is, we may use an 8-harness twill with its mate satin, or a 12-harness twill with its mate satin, etc., etc.

The granite weave is obtained from the twill (harness chain) by means of a satin-draw and vice versa, the twill from the granite (harness chain) by means of the same satin-draw, the straight draw producing the respective effect of the harness chain.

Four examples of these combination weaves are given and will explain how to construct any number of these combination weaves in that manner.

Weave Fig. 1 has for its foundation  $\frac{2}{1} \frac{2}{2} \frac{3}{2}$  12-harness regular twill (see Fig. 2) used in connection with its mate granite (see Fig. 3); the exchange of these two weaves is arranged after the motive of the  $\frac{1}{2} \frac{2}{1}$  6-harness fancy basket weave, using respectively, 12 warp threads and 12 picks for every square of the motive. This will give us for the repeat of the combination weave: 6 (repeat of motive)  $\times$  12 (number of warp threads and picks, drafted for each square of the motive) = 72 warp threads and 72 picks.

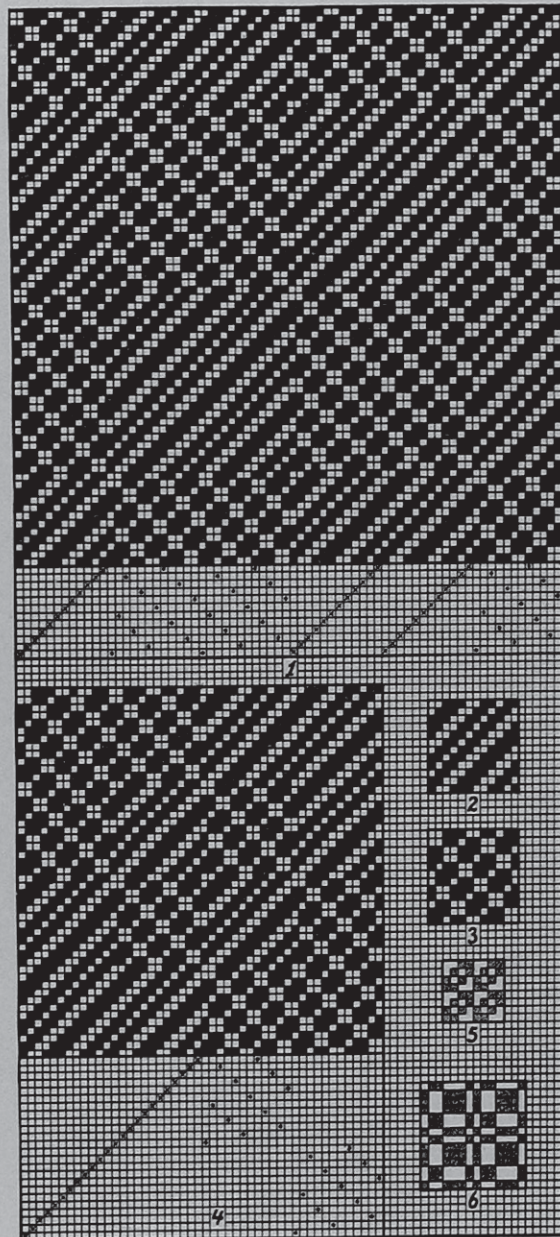
Below weave the drawing-in draft is given, the two straight-draws being shown by *cross* type, the two satin-draws by *dot* type. 12 harness shafts are required for weaving this combination weave, the same repeating on 72 warp threads and 72 picks.

Care must be exercised with the selection of proper twill and granite to use, *i. e.*, that they connect properly where they join. This joining will be satisfactory in connection with some weaves, whereas with others, too many raisers or sinkers compared to those of the twill or satin may appear, and which for practical work, will then have to be corrected, a feature which, in some instances, may call for 2, 3 or 4 extra harnesses.

Our four examples illustrate the construction of these combination weaves, having twills and satins connect correctly.

Weave Fig. 4 shows the same foundation twill and its mate satin used, as was used in the previous example, the arrangement of their combinations, *i. e.*,

the motive by which twill and satin sections are distributed, being shown in Fig. 5. The latter repeats on four squares each way, and using one repeat of the foundation twill or the granite respectively for



each square of the motive, in turn, results in a repeat of 48 warp threads and 48 picks for combination weave Fig. 4. On account of the fancy effect of the motive, two distinct changes in it, viz:  $\frac{2}{2}$  and  $\frac{1}{1} \frac{1}{1}$  in one repeat, a 24-harness fancy draw is required on the loom, and which is shown below the weave with

warp threads from 1 to 12 straight-draw #1, warp threads 13 to 24 straight-draw #2, warp threads 25 to 36 satin-draw #2, and warp threads 37 to 48 satin-draw #1.

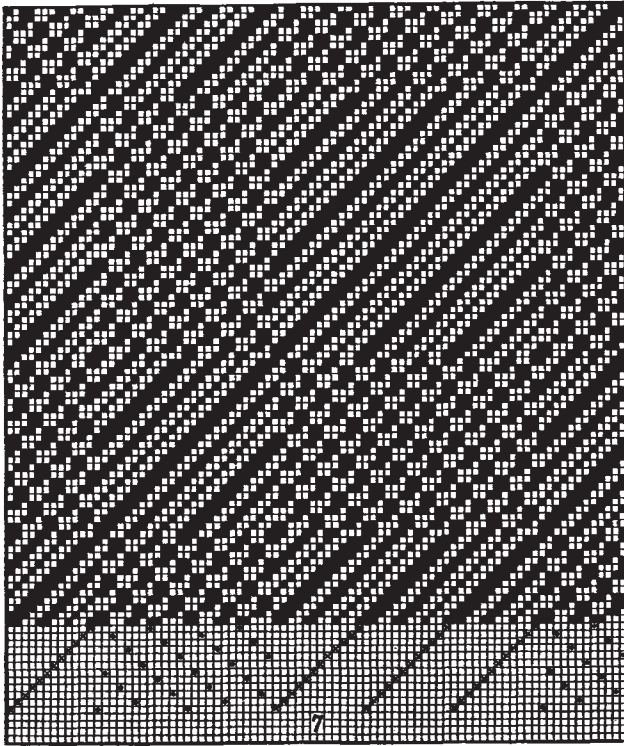


Fig. 6 shows us another motive, viz: the  $\frac{1}{2}-\frac{3}{1}$  fancy basket effect, calling for 7 squares either way for the repeat of the motive.

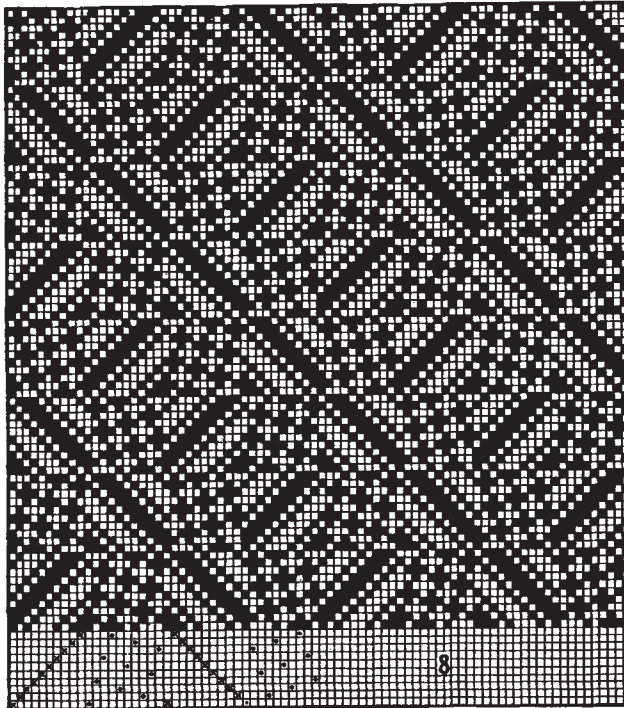


Fig. 7 shows us motive previously referred to, used in connection with the  $\frac{3}{2}-\frac{1}{2}-\frac{2}{2}$  12-harness twill and its mate granite. The repeat of the motive is seven squares, and using one repeat of the twill or granite, respectively, for each square of the motive, will give

us 84 warp threads and 84 picks, as the repeat of the combination weave Fig. 7. A perfect cut-off between twill and granite is produced.

Examples thus far given refer to twill and satin draws, running in one direction. In some instances, the reversing of the satin-draw and the twill will produce new effects. To explain the subject, weave Fig. 8 has been given. The same repeats on 40 warp threads and 40 picks. The foundation twill is the  $\frac{3}{1}-\frac{1}{3}-\frac{1}{1}$  10-harness regular twill and its mate granite. The motive for exchanging twill and granite is after the plain setting, using either one repeat of the twill or satin for each square of the motive. Below weave, the drawing-in draft is given, calling for 10 harnesses; the draw clearly shows how twill as well as satin are reversed in order to produce the fancy combination in the new weave aimed at.

#### PERSIAN RUG MAKING.

Every district in Persia has its own style and design of rugs; yet the mere name is no guide to quality, as good and bad rugs are turned out in all districts. It is not easy to distinguish one rug from another by word description, but a feature of the Shiraz, Koordistan, Jaff, Kulyahi, etc., is that they are woven wholly of wool, while the Hamadan, Sina, Sultanabad, and Ferahan are made partly of cotton. The dominant color of all Shiraz rugs and carpets is red, while the Bijars are blue and marine.

The choicest rugs are woven in silk and wool, and come largely from Kerman, Persia. Many ancient patterns, products of early Mohammedan days, as well as conventional flower designs, are seen. The color blendings are exquisite. These silk rugs are usually about  $4\frac{1}{2}$  by 7 feet, and are measured by the native *zar*, a square measure of 20 by 40 inches. Sixteen stitches per inch are usually woven in the manufacture of rugs and carpets for export, though Persian rug fanciers insist on a finer weave. About 1,000 looms are operated by hand in Kerman, where the price for the better quality of carpets is nearly \$5 a *zar*. The estimated annual output of woollen rugs in Kerman is \$200,000. The silk carpets of Kerman sell locally for about three times the price of woollen carpets, and in Cairo one silk rug from Kerman has been known to bring \$500.

Small boys, working two or three at a time under a master weaver, turn out these valuable rugs. The master reads the pattern aloud to them, which they recite or repeat after him as they work. These formulæ contain many words now obsolete.

Garnetting or pulling silk thread waste is performed in the dry state, the material not being previously wetted. It is afterwards worked sometimes on cards, but more frequently on a garnett machine, the card clothing on the latter being of a somewhat finer count for pulling silk thread waste than is the case when dealing with woollen or worsted waste. The white silk thread waste is higher in price than the tussah thread waste. Waste yarns are used in the manufacture of sponge or cleaning cloths for machinery, the advantages of such cloths being that they are noninflammable, absorbent, and economical, as the grease can readily be removed time after time by washing.