A STUDY IN WEAVE FORMATION.

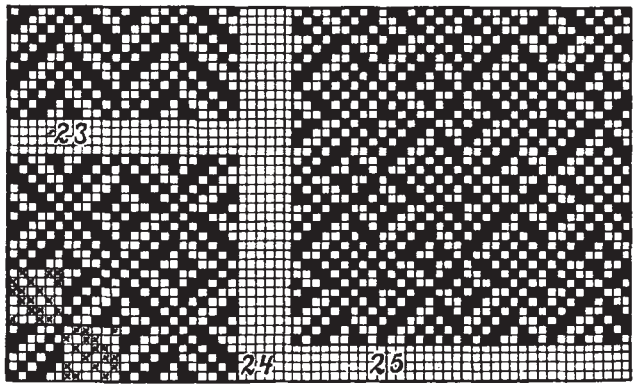
HOW BROKEN TWILLS ARE DESIGNED.

(Continued from June issue.)

NOT BALANCED EFFECTS.

Broken Warp Ways Only.

In this instance regular twills are used for the foundation weave which are even sided, but in which



the arrangement of risers and sinkers is not balanced, *i. e.*, each direction of the twill in the broken twill combination calling for its own set of harnesses. Weave Fig. 23 will readily explain the subject.

The foundation weave used is the $\frac{2}{1}\frac{1}{2}$ 6-harness twill, an even sided twill if considered by itself, but not balanced when considered in the broken twill combination (Fig. 23) where 6 ends twill running from left to right are made to run against 6 ends of the same twill, running in the reverse direction. Considering the two arrangements of this 6-harness twill shown in Fig. 23, reading both arrangements in the same direction, for instance upwards, we find that

The twill running from left to right reads: 1 *up* 2 *down*, etc., whereas the reverse twill starting reading the same with 1 *up* reads: 1 *up* 1 *down*, etc., or in other words in one of the twill effects in the broken twill the 1 *up* twill line is above the 2 *up* twill line, whereas in the other twill effect said 1 *up* twill line is below the 2 *up* twill line. This is the feature we referred to before as a "not balanced" effect, and which compels a special set of harnesses to be used for each direction of the twill line, *i. e.*, 6-harnesses for each twill × 2 twill lines used = 12 harnesses, straight draw, are required for weave Fig. 23. This number of harnesses is not increased provided we use more than one unit of the foundation twill in each twill line.

Broken Warp and Filling Ways.

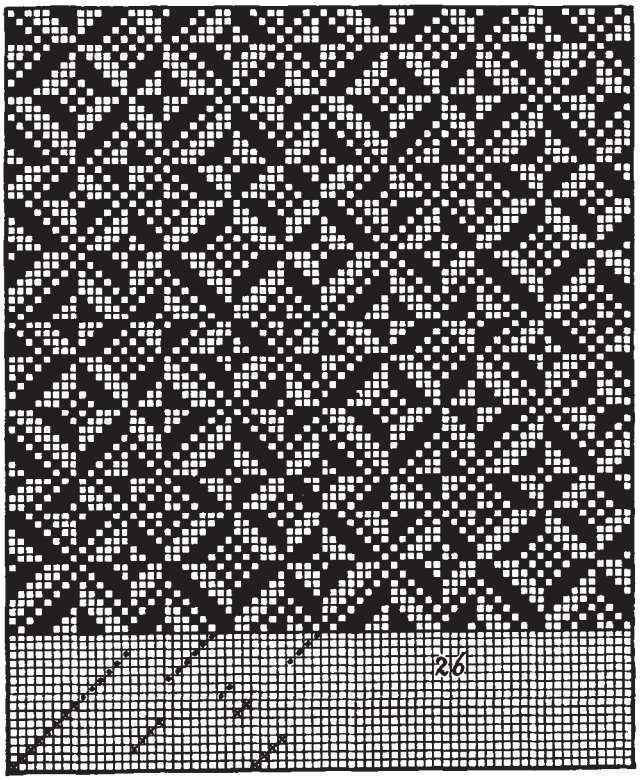
Weaves Figs. 24 to 29 are given to illustrate the subject, the break as explained in connection with weave Fig. 23 warp ways only, being in this instance carried out both warp and filling ways.

Weaves Figs. 24 and 25 have the same foundation twill as was explained when dealing with Weave Fig. 23.

In Weave Fig. 24 size and arrangement of twill lines is as follows:

6 warp-threads and picks ⟋.
6 " " " " ⟍

12 warp-threads and picks in repeat of pattern.



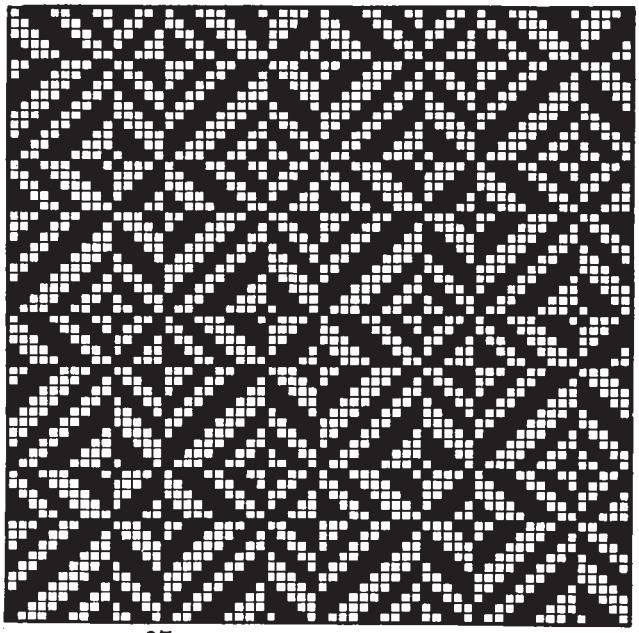
In the lower left hand corner the construction of one repeat of the broken twill is shown in two kinds

of type, *viz:*

Full type = ⁄ twill line.
Cross type = \ twill line.

In Weave Fig. 25, size and arrangement of twill lines is 6⁄3\. Using only half the unit of the foundation weave for the twill from right to left compels us to use two drafts in order to obtain the repeat of the weave (6 + 3 = 9 × 2 =) 18 warp-threads and 18 picks.

Weave Fig. 26. Foundation: $\frac{3}{1}\frac{1}{3}$ 8-harness twill, drafting warp and filling ways 8⁄6\4⁄8\6⁄4\: repeat of weave 36 warp-threads and picks.



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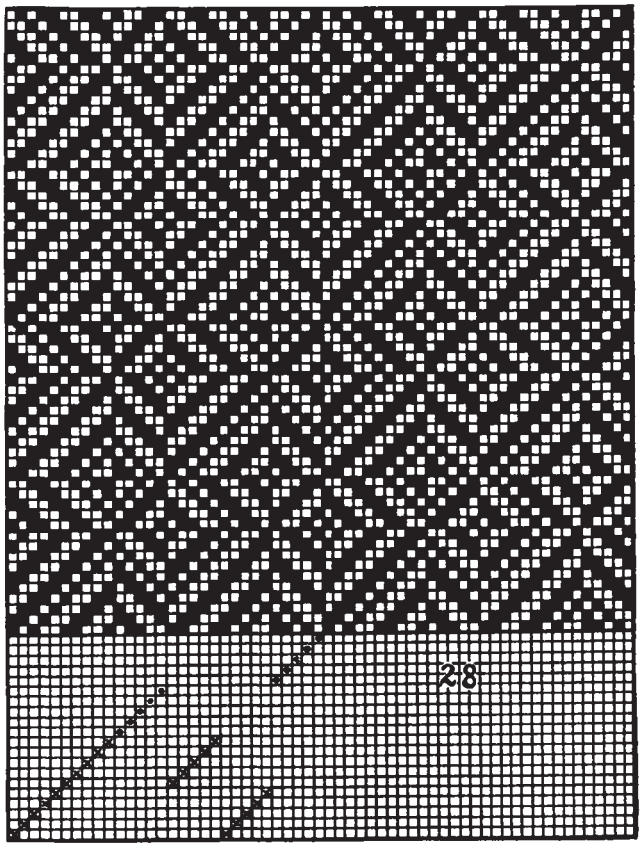
Below weave the drawing-in draft is given, using two kinds of type for indicating the drafting of the two arrangements of twills used in the broken twill weave, viz: *cross* type for the first 8 harnesses, *dot* type for the last 8 harnesses.



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Weave Fig. 27. Foundation: $\frac{3}{2}\frac{2}{3}$ 10-harness twill, drafting warp and filling ways 10⁄5\ twice over; repeat of weave 30 warp-threads and 30 picks.

Weave Fig. 28 has for its foundation the $\frac{2}{2}\frac{2}{2}\frac{1}{1}$ 10-harness even sided twill, using the same drafting as in the previously given example. Since this weave shows a more broken up effect compared to the former, we have given drawing-in draft (for 20 harnesses) below the weave, and which is the same draft as is necessary for the drafting of weave Fig. 27.

Weave Fig. 29 has for its foundation the $\frac{2}{1}\frac{1}{1}\frac{1}{2}\frac{2}{2}$ 12-harness even sided twill, the weave showing a somewhat more broken up effect than any one of the examples heretofore given, for the fact that no complete unit of the foundation twill has been drafted consecutively in one instance, the drafting used being six warp-threads of one effect of the twill to alternate with four

(*Continued on page xxi.*)