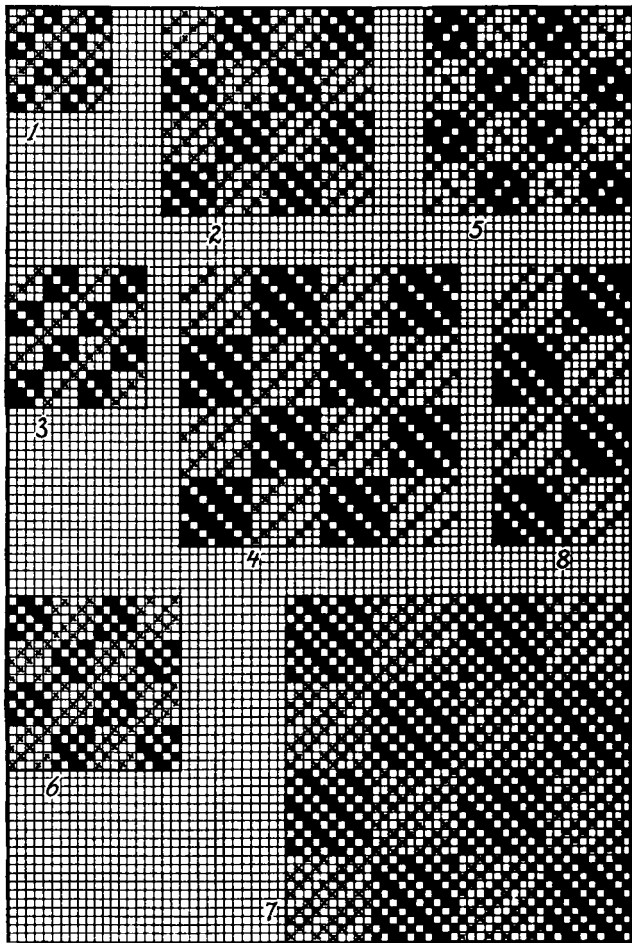


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### WEAVE FORMATION FOR WORSTED, COTTON AND SILK FABRICS.

#### Combining Warp and Filling Effect of One Twill in the Formation of Design.

The same forms a division of weaves frequently met with in the manufacture of Dress Goods, Shirtings,



Tie Silks, etc., forming the design in the fabric by means of the exchange of the warp and filling effect of the foundation twill, arranged after a given motive.

The foundation twills most frequently met with are the 3, 4 and 5-harness uneven sided twills, those repeating on 6, 7, 8 or more harnesses being less often met with.

The rule for constructing the design is to have warp and filling effect of the foundation twill produce

a perfect exchange (risers opposite sinkers) wherever ground and figure effect in the design meet.

As a rule, the motive used refers to a simple geometrical figure, like for example the plain weave, or a fancy basket weave, or some other simple motive setting.

#### Plain Weave Motive.

Weaves Figs. 1 to 8 illustrate the subject.

Weave Fig. 1 illustrates a neat, small effect, well adapted for being used in the manufacture of worsted dress goods in connection with higher counts of yarns and texture, producing what we would call in practical work a well broken-up effect, somewhat of a granite or crêpe effect, for the fact that the change between each effect, both warp and filling ways, is of the minimum size possible to use; three ends of warp-effect of the 3-harness twill exchange regularly with a corresponding number of ends of filling-effect, the repeat of the complete weave being 6 warp-threads and 6 picks.

Weave Fig. 2 shows the same foundation weave as previously used, arranged for a larger surface motive, using in this instance 6 warp-threads and 6 picks for each effect of the plain weave motive: Repeat of complete weave 12 warp-threads and 12 picks. In the same way as thus using six ends for each effect, any number more can be used, increasing correspondingly the size of the design.

Fig. 3 shows us the uneven sided 4-harness twill used for the foundation. Four ends of each effect are used for each change in the motive, resulting in a weave repeating on 12 warp-threads and 12 picks.

Weave Fig. 4 shows a corresponding enlargement of each effect of the previously given example, eight ends of each effect, both warp and filling ways, being used in this instance, resulting in a final weave, repeating on 16 warp-threads and 16 picks.

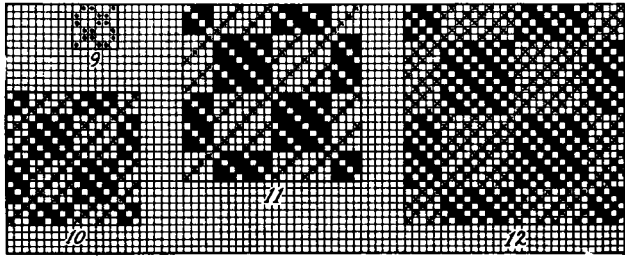
Fig. 5 shows the combination of warp and filling effect of the 4-harness broken twill, a weave excellently adapted for the manufacture of worsted dress goods. Six ends each way are used for each effect, producing a resulting weave of 12 warp-threads and 12 picks for its repeat.

Weave Fig. 6 has for its foundation the 5-harness double twill effect, using five ends each way for each effect of the weave, *i. e.*, 5 warp-threads and 5 picks of filling effect to alternate warp as well as filling ways, with 5 ends and 5 picks of warp effect of the foundation weave, resulting in a weave repeating on 10 warp-

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threads and 10 picks, a weave well adapted for the manufacture of dress goods.

Fig. 7 shows an enlargement of the effects of the previously given example, using in this instance ten ends each way to each effect of the double effect 5-



harness twill. Repeat of weave 20 warp-threads and 20 picks.

Weave Fig. 8 has for its foundation the double twill effect of an 8-harness twill, combining eight ends both ways, of filling effect with that of warp-effect, resulting in a weave repeating on 16 warp-threads and 16 picks.

In the explanations thus far quoted, we used an even number of ends of warp and filling for each effect, a feature which refers to an even texture of warp and filling in the fabric. In many instances, in connection with worsted dress goods, the proportion of warp and filling texture used may vary considerable, using in many cases a good many more picks per inch than there are warp-threads in the finished fabric. In such an instance, the square, *i. e.*, the checker-board effect of the weave, compared to that of the effect in the fabric, would present a somewhat compressed appearance, becoming of a rectangular shape, and which in connection with larger effects, might become objectionable. To avoid this, add a certain number of picks to each effect to bring the final weave in proportion to the effect in the fabric desired.

**Fancy Basket Weaves for the Motive.**

This will give us the first step towards producing fancy effects in the design for the fabric. Although producing larger and more fancy effects, no additional harnesses will be required, for the fact that fancy basket effect motives work on the same principle as the plain weave motive with reference to capacity of harness required for their execution on the loom.

Fig. 9 shows us a fancy basket 1, 2, 2, 1, and which we used as a motive for weaves Figures 10, 11 and 12, using in connection with weave Fig. 10 three ends each way of the 3-harness uneven sided twill, of its respective effect, for each square in motive 9. There are six changes in the motive, consequently  $6 \times 3 = 18$  warp-threads and 18 picks, repeat of complete weave Fig. 10.

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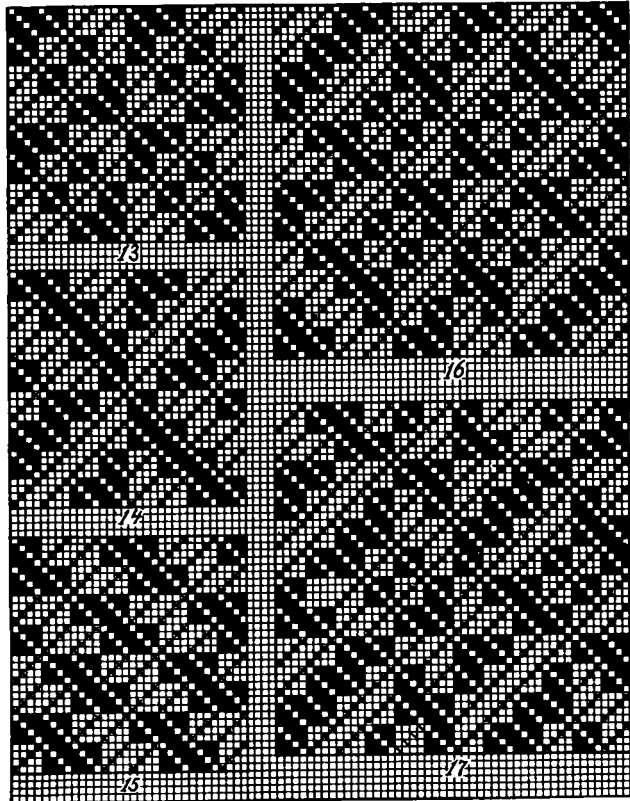
In connection with weave Fig. 11 we used the 4-harness uneven sided twill as the basis of interlacing, and which in connection with motive 9 results in a complete weave repeating on 24 ends each way.

Weave Fig. 12 shows the 5-harness double twill effects applied to motive 9, using one repeat of either effect of the 5-harness twill for each square of the motive, with the result of producing a weave repeating on 30 warp-threads and 30 picks.

**Figured Effects.**

Weaves Figs. 15 to and inclusive 17 show a collection of figured effects, having the two effects of the 4-harness uneven sided twill for their basis.

Weave Figs. 13 and 15 call for a 16-harness straight draw, whereas Figs. 14, 16 and 17 call for a 16-harness fancy draw. Examples of weaves will illustrate that care in the selection of the motive must be



exercised when dealing with the average dress goods or gingham loom, in order to obtain a repeat of the weave within compass of the dobby.

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