

## DESIGNING AND FABRIC STRUCTURE FOR HARNESS WORK.

### GRANITE WEAVES.

These weaves are used for fabrics where broken up effects on the face are desired, the object aimed at by the designer being to produce correspondingly, small, broken up effects in the weave. The most important point to be kept in mind by the designer, when planning new weaves of this system, is to keep away from producing fancy twills, remembering that such weaves will result in many instances without any intention on his part, whereas in many cases it will be more or less impossible to drive away from these twill lines, and when then they must be well broken up affairs, omitting twill effects as much as possible. For this reason, the best plan to obtain good granite weaves is by using our satin weaves for their foundation, for the fact that the object aimed at in designing satins (see page 99, Vol. I) has been to arrange a stitching, as much as possible distributed. In some instances, twill weaves (distributed) may be used for their foundation, but as will be readily understood, considerable more care must then be exercised in the formation of the new granite weave; again granite weaves may be obtained by means of arranging certain effects after a given motive. Using satin weaves for their foundation, remains however the most important plan of constructing granite weaves, hence forms more particular the subject of the present lesson.

As will be readily understood, the repeat of the weave used at the same time indicates the repeat of the resulting granite, by what is meant, that if we use, for example, an 8 leaf satin for our foundation, the resulting granite is then an 8 by 8 harness granite; again, if we would distribute said 8 leaf satin over 16 warp threads and 16 picks, *i. e.*, use every other warp thread and every other pick only, when laying out the foundation of the granite, the resulting granite will then repeat on 16 warp threads and 16 picks.

#### Constructing Granite Weaves from Our Regular Satins.

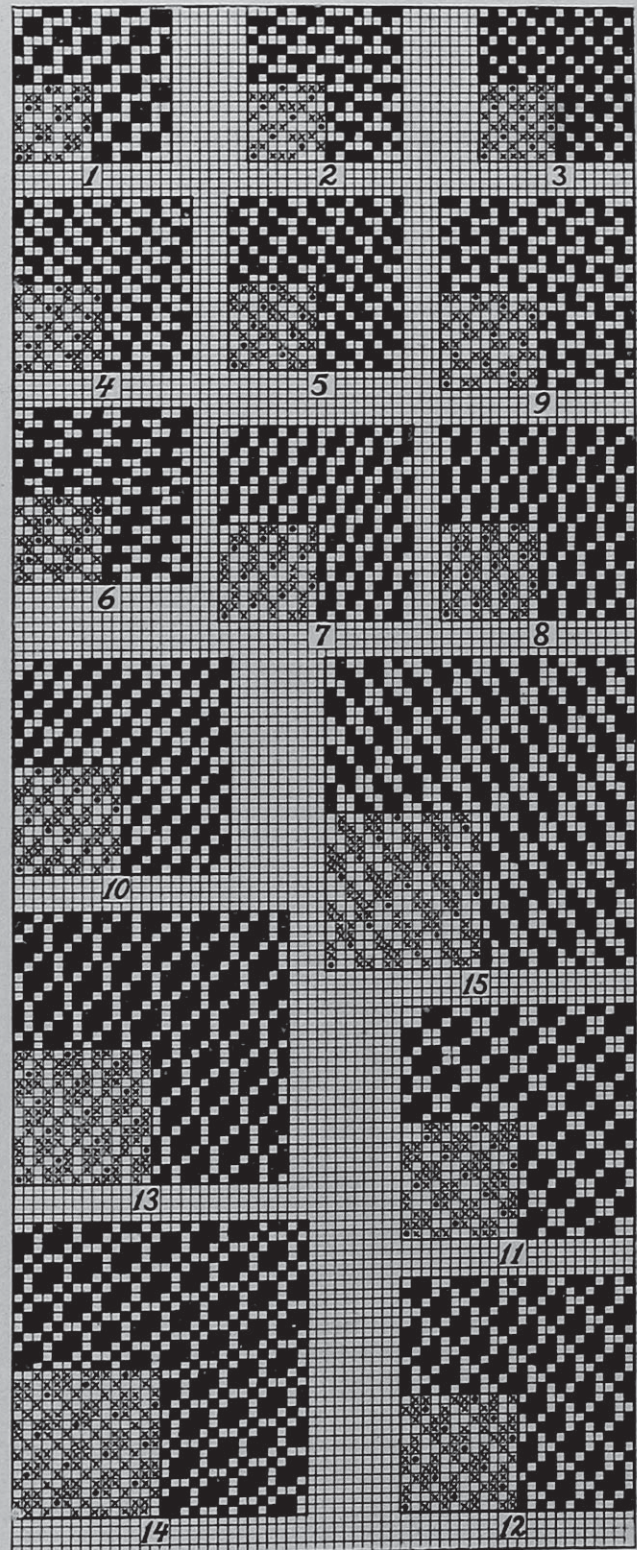
**RULE:** Place your satin, filling effect, on the point paper and then add risers on top, obliquely, at the side, or at the bottom to this foundation spot, uniformly for each spot, until a perfect granite weave is the result. Remember, that in many cases this procedure will result in an imperfect weave, by what is meant, that *not every effort* made to construct new granite weaves *will result in a perfect weave.*

Painting out with color the effect obtained, for four or more repeats, will in most instances show whether you obtained a perfect weave or not. This will show to the student that granite weaves are not as easily constructed as other systems of weaves; they require thinking and lots of patience.

This will indicate to the student that it will be well for him to lay out the foundation satin for more than one repeat (say two repeats each way, is a good plan) and then carry out the rule given before throughout these four repeats.

Always add one spot at a time to each foundation spot of the satin, do not be too hasty, and it will prevent risers from running into risers belonging to

another foundation spot, which might be the case provided you would add several spots at a time to the foundation spot of the satin.



Go to work slowly and carefully, and after a little patience you will be astonished at the nice variety of new weaves you will obtain.

This unavoidable trouble in connection with the construction of granite weaves thus referred to, will at the same time indicate to you that it will be well for you to keep a record of any good granite weave which you will design or come across, and for which reason in connection with the present lesson, we illustrated some of the most frequently met with granites, all being practical weaves which will produce the result aimed at—well broken up effects on the face of the fabric. At the same time, when consulting our "Dictionary of Weaves," appearing regularly every month, the student will notice that we have kept a record of all good granites which came to our notice during the last 35 years of practical work, and which will readily demonstrate to the practical man the importance of this Dictionary, and where he will find thousands and thousands of good weaves at his command, by preserving the files of this Journal.

We will now explain the plate of weaves accompanying this article, *i. e.*, granite weaves Figs. 1 to 15 inclusive, and when, by studying these examples, the student will be able to construct any number of new granite weaves, as the case may require in practical work.

In connection with these fifteen examples of granite weaves shown, we indicated in the left hand lower corner the foundation and the construction of the weave by means of different kinds of crochet type used, the other three repeats of each weave given, being all shown in one type, *viz.*:

*Dot* type shows the foundation satin (filling effect) for one repeat.

*Cross* type shows all the spots added to the spot of the foundation satin.

*Black square* type shows three repeats of the resulting granite weave executed in one type.

*Dot*, *cross* and *black square* type are for risers, *empty squares* indicate sinkers.

Weave Fig. 1 has for its foundation the 8-harness satin (see *dot* type), to each of which spots we added additional spots on top, to the right, and oblique up to the right. The repeat of the granite is 8 warp threads and 8 picks.

Weaves Figs. 2 and 3 show two other granite weaves having the 8 harness satin for their foundation, and which from explanations given in connection with weave Fig. 1 as well as the different kinds of type used, will explain themselves.

Weaves Figs. 4, 5 and 6 illustrate three 9-harness granites, obtained in a similar way as previously explained, having the 9-harness satin filling effect for their foundation.

Weaves Figs. 7, 8 and 9 have for their foundation the 10-harness satin.

Weave Fig. 10 has for its foundation the 11-harness satin.

Weaves Figs. 11 and 12 have for their foundation the 12-harness satin.

Weave Fig. 13 has for its foundation the 14-harness satin.

Weave Fig. 14 has for its foundation the 15-harness satin.

Weave Fig. 15 has for its foundation the 16-harness satin.

Examining our plate of weaves, or if constructing new weaves, it will be noticed that weaves of an even repeat, as for example, 8, 10 and 12, will result in better effects, *i. e.*, well broken up effects being easier obtained in weaves repeating on an even number of harnesses than those of an uneven number, a feature readily explained by the fact that if considering the foundation satin used in connection with the repeats of granites quoted, it will be noticed that they present a better broken up arrangement of their spots of interlacing than satin weaves of an uneven repeat of harnesses, and when naturally what holds good for the foundation, will hold good at the same time for the resulting new weave.

#### Question:

Construct one additional new satin for 8, 10, 11 and 12 harnesses.

(To be continued.)

### STRENGTH, ELASTICITY, TWIST, CONTRACTION BY TWIST.

It is well known that *face* and *feel* of a fabric may be varied indefinitely by varying the amount of the twist in the yarn used in its construction. For instance, let us consider two extreme cases: Most any kind of yarn, whether single, two or more-ply, can be made to handle harsh or wiry by an excess of twist imparted to it, a feature which in some few instances may be the object aimed at, whereas in most cases, it would result in an unsalable article; again, most any weaver will know the result of a warp without sufficient twist to permit perfect weaving, besides the finished fabric then presenting not the desired *feel* to the hand, again, the fabric may be lacking in strength.

#### THE OLD FASHIONED PROCEDURE.

The general plan observed for testing yarns for its strength, *i. e.* its breaking strain or the elasticity of the thread, is by stretching or pulling the thread as held between the thumb and forefinger of each hand, and noticing the amount of strain required to break it. In some instances, a certain length of thread is guessed at and the procedure carried on by holding the thread against the edge of a bench or table, the length of stretch given to the thread before it broke being guessed at, neither considering that possibly the hand had moved an inch or more or less than what he thought it had.

In the same way the twist is counted. The person examining the thread submitted for duplicating or testing, thinks he has for example 6 inches of thread between the fingers of the hand that holds one end and the fingers of the other hand, that in this instance does the untwisting of the thread; he may also think that he turned that thread just 48 times; he knows that 48 divided by 6 gives him 8 turns per inch, but he does not know, nor never will, whether he has 6 or 10 turns per inch in sample of yarn thus tested.

#### THE PROPER PROCEDURE.

However, we are glad to notice that his old fashioned style of testing yarns as to strength and twist,