

The object aimed at in the construction of the point paper design, is to indicate boldly figure from ground, taking into consideration that the figure on one side of the fabric structure is produced by loops, *i. e.*, raised effect, whereas the reverse is the case on the other side of the fabric, and where the ground then shows loop pile, *i. e.*, raised effect, compared to the depressed effect of the regular woven figure.

With reference to the Jacquard harness, the same can be tied up in three different ways, using either a two section tie-up, a regular one section tie-up, or using a regular one section tie-up in connection with front harnesses.

USING A TWO SECTION TIE-UP.

In this instance the Jacquard harness is tied up for two sections, the machine being in the same way divided into two sections, the leasing of the Jacquard harness being done, one thread ground (or section #1) to alternate with one thread figure warp (or section #2) throughout the complete tie-up. The two sections in which the machine is divided, are kept separate and known to the designer.

After the point paper design for the proper number of warp-threads and picks for one repeat of the pattern has been made, the design is then stamped in the Jacquard cards for that part of the Jacquard machine which carries the figure warp-threads, independent by itself, the same as if a separate Jacquard machine was used for figure warp and one for the ground warp. The weave for the ground warp is then cut for that section of the Jacquard machine carrying the needles and harnesses for operating the ground warp.

It will thus be seen that if for instance it refers to a three pick ground weave, the fourth card with reference to the ground section will be the same as card No. 1, and so forth, for which reason the ground section in each card can be stamped previously on a Repeater and when all the card stamper then has to do is to stamp the design in the respective portion of the card, pick for pick in the regular way.

USING A REGULAR ONE-SECTION TIE-UP.

This will make somewhat more complicated work for the card stamper as well as the weaver. The design is prepared in the same way as previously explained, distinguishing by means of vermilion paint, the figure effect in the design from that of the ground, which was left empty, *i. e.*, not painted. In connection with this straight through tie-up, for instance every uneven numbered warp-thread, *i. e.*, leash, hook or harness cord may be used for operating either figure or ground warp, all the even numbered needles, leashes and heddles then being used for the pile warp. If by accident you have to deal with such a tie-up, possibly for the reason that this is the only loom at your disposal, then cut your ground weave, for example, for that part of the card controlled by all the uneven numbered needles, and the figure part, *i. e.*, the pile warp, according to the design considering then all the uneven numbered needles etc., only.

This, as you will readily understand, will make a somewhat complicated card stamping, made use of only if no other tie-up is at your disposal.

USING FRONT HARNESSSES.

In this instance, 2, 4, or 6 harnesses are used in front of the comberboard of the Jacquard harness for operating the ground warp, using then the Jacquard

harness tie-up in one section for operating the pile warp-threads.

Ground warp-threads and pile warp-threads are drawn 1:1, *i. e.*, one ground thread to alternate with one pile thread throughout the width of the fabric in the loom.

Using these front harnesses in connection with a Jacquard machine, as will be readily understood, doubles the capacity of the latter; the front harnesses are operated either from the reserved rows of the Jacquard Machine, or by means of a suitable cam arrangement, direct from the loom.

(To be continued.)

CONSTRUCTING GRANITES HAVING A SATIN BASIS.

Designing granite weaves having satins for their basis has been dealt with in the May and July 1914 issues of the Journal, using then single spot satin weaves for the basis of construction, whereas in the present instance we use enlarged satin-forms as a basis upon which to work, using the 5 or more harness satin for foundation.

Dealing for instance with the 5 leaf satin as a basis, we can use the same either doubled, trebled, or quadrupled, depending upon the repeat of the final granite desired. To explain the subject, Figs. 1, 2, 3, and 4 are given, and which we will deal with in detail to show the construction of these new granite weaves.

The same has for its basis the 5 leaf satin, *doubled*, as shown in Fig. 1 by *cross* type, using 2 warp-threads and 2 picks for each riser of the single 5 leaf satin filling effect, resulting in a repeat of the weave plan of ($2 \times 5 =$) 10 warp-threads and 10 picks, *i. e.*, the original 5 leaf satin being doubled in size in each direction. Provided we remove every other warp-thread and every other pick, the result will be again our simple 5-harness satin weave, the original foundation.

Fig. 2 shows a reproduction of weave Fig. 1, shown correspondingly in *cross* type, and to which we added the new effect (6 additional risers) as required for constructing the granite, placing the same as shown by means of special Diagram Fig. 3, showing the original 5 leaf satin spot doubled by *cross* type, and the additional spots added to the satin foundation, in order to produce a perfect granite weave, by means of *dot* type.

Weave Fig. 4 shows one repeat of the new granite in one kind of type, being a duplicate of construction weave Fig. 2, in order to show more plainly the general effect of the weave in the fabric.

Fig. 5 shows the construction-plan using the 7-harness satin filling effect doubled both warp and filling ways as the basis for the new granite which then will repeat on ($7 \times 2 =$) 14 warp-threads and 14 picks.

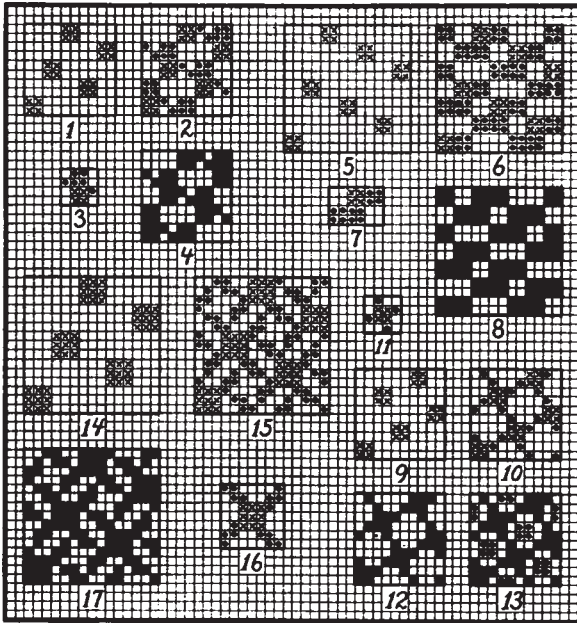
Fig. 6 shows the same satin planning as explained in connection with weave Fig. 5, using similar type, showing the additional spots used for the construction of the new granite weave by adding 12 spots (shown in diagram 7) added to the original doubled satin spot by means of *dot* type.

Fig. 8 is again weave Fig. 6, shown in this instance in one style of type in order to represent the weave effect of the fabric on the point paper.

Fig. 9 shows again the doubled 5 leaf satin planning, similar to the one shown in Fig. 1, but using in this instance a different placing of the additional spots so as to produce a different granite compared to the one given in Figs. 2 and 4, using as shown in Fig. 10

by *dot* type four spots added to the original doubled satin.

Fig. 11 shows one repeat of one spot of the doubled satin, showing also by *dot* type the four additional spots desired in this instance for the construction of the new granite, and which is shown in Fig. 12 in one type, corresponding to construction design Fig. 10.



Weave Fig. 13 shows by means of *dot* type, another 5 leaf doubled satin added to weave shown in Fig. 12, resulting in a closer interlacing granite, provided weave Fig. 12 was too loose a weave to use.

In a similar way all satins produced by this system of designing can be made to interlace more or less by adding risers, or changing risers met with into sinkers.

Fig. 14 shows the 5 leaf triple satin, *i. e.*, 3 warp-threads and 3 picks used for every riser of the 5 leaf satin filling effect, resulting in a weave plan repeating on ($5 \times 3 =$) 15 warp-threads and 15 picks.

Weave Fig. 15 shows a duplicate of weave Fig. 14, using similar *cross* type, adding two ends 4-harness twill taken warp or filling ways, in four positions, added to the foundation satin plan.

Diagram 16 shows one of the satin spots with its additional twill spots, and Fig. 17 shows construction weave Fig. 15 executed in one color in order to show the interlacing of the new granite.

Explanations and illustrations given in these four examples will readily indicate the immense variety of new weaves of this class at the disposal of the designer; it refers to a class of designs never mentioned before in any treatise, and consequently must be of interest to our designers, more particularly those connected with worsted mills.

A New Bleaching Process.

In bleaching with peroxides it has been the usual custom to gradually raise the temperature to a maximum. It is now claimed for a new process that when using alkali peroxides with catalysts to render them stable, *i. e.*, stannic acid, dextrine, colophony, gelatine, sodium silicate and magnesium chloride, etc., the best results are obtained by maintaining a maximum temperature from the commencement of bleaching.

LOGWOOD

HOW TO PREPARE AND USE IT.

APPLICATION OF LOGWOOD TO COTTON.

(Continued from September issue.)

Logwood Black on Cotton by One Bath.

For 100 pounds of cotton material make up the bath as follow:

2½ pounds of copper sulphate, 1½ pounds of soda ash, 10 to 30 pounds of logwood extract. Enter the goods at 160 deg. F., bring the bath to a boil, and boil for one hour. Then add to the bath 1 pound of copper sulphate, 2 pounds of soda ash. Re-enter the material, work 30 minutes at 190 deg. F., wash, soap and dry.

Chrome Black on Cotton.

There are various methods of obtaining chrome blacks on cotton; perhaps the fastest is that obtained by three baths. The first bath contains a strong decoction of logwood, equal to about 500 pounds of logwood for 100 pounds of cotton. Of course the bath is kept for subsequent lots, a small quantity being required afterwards. The cotton is boiled in this bath for about an hour, taken out and exposed to the air for some time and worked in a cold solution of 6 to 8 per cent of potassium bichromate and 5 per cent of copper sulphate for three-quarters to one and a half hours. The cotton is then washed and again entered into a logwood bath containing about 100 per cent of logwood. In this bath the cotton is introduced cold and the liquid gradually raised to the boiling point.

Logwood Grays on Cotton.

Logwood grays are generally produced on cotton by the stuffing and saddening method. The cotton is worked in a weak solution of logwood (1 to 5 per cent) then in a separate bath containing a weak solution of ferrous sulphate, and washed. The shade of gray may be modified by adding to the logwood bath a small proportion of fustic and other dyewoods.

Logwood Purples.

The same are obtained by mordanting the cotton in a weak solution of tin crystals, then washing and dyeing in a separate bath of logwood. The color is fairly fast to soap, but is not fast to light.

Logwood blues are seldom produced on cotton, owing to their fugitiveness.

APPLICATION OF LOGWOOD TO SILK.

Logwood is used extensively for the production of blacks on silk. Owing to the large amount of iron that can be fixed on the fibre, silk is not only dyed black with logwood because of the fast and beautiful color obtained, but because the silk can be weighted at the same time.

The production of blacks on silk consists in altering treatments with iron mordant and tannin matter with or without a Prussian blue bottom.

The following will serve to illustrate how it can be accomplished:

The silk is first impregnated at 105 to 110 deg. F. with a solution of tannic acid, generally in the form of chestnut extract; a quantity of extract standing at 15 deg. Tw., equal to the weight of the silk, is used.

After the silk has been saturated with tannic acid