

JACQUARD DESIGNING.

SHADED EFFECTS PRODUCED BY MEANS OF THE WEAVE

Shaded effects are produced in fabrics by weaves in which a gradual exchange from light to dark, *i. e.*, from filling to warp effect, or *vice versa*, takes place.

Fig. 2 shows one spot (riser) added to the top of the riser shown in Fig. 1, *i. e.*, changing the original filling effect satin to 2 up 6 down for the interlacing

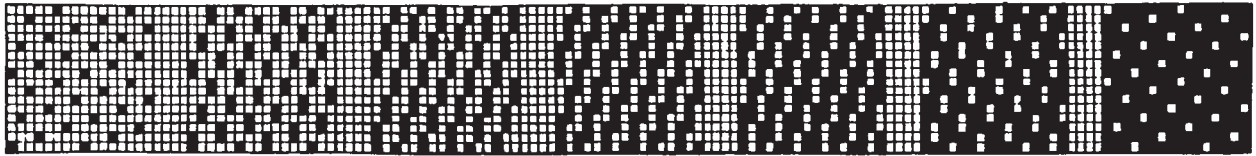


Fig. 1

Fig. 2

Fig. 3

Fig. 4

Fig. 5

Fig. 6

Fig. 7

They are extensively used in the manufacture of figured Cotton and Silk fabrics, in either case providing an unlimited scope for the designer to show his skill. Floral as well as geometrical designs may be used, the first being those most often met with.

The weaves most frequently used for foundation are the 8-harness satin and the 8-harness regular, broken, and pointed twills, on account of providing sufficient scope to produce a more pronounced as well as a more gradual shading from dark to light, compared to using weaves of a smaller repeat, like the 4-harness twill, or the 5-harness satin, which if used refer as a rule to lower textured fabrics.

As mentioned before, shaded effects produced by weaves are obtained by gradually reducing a given large float until the reverse effect is obtained. This shading of a surface may be done either warp ways or filling ways.

Adding Risers Warp Ways.

Diagrams Figs. 1 to and inclusive 7 are given to illustrate the seven changes, from dark to light, or vice versa, possible with the 8-harness satin.

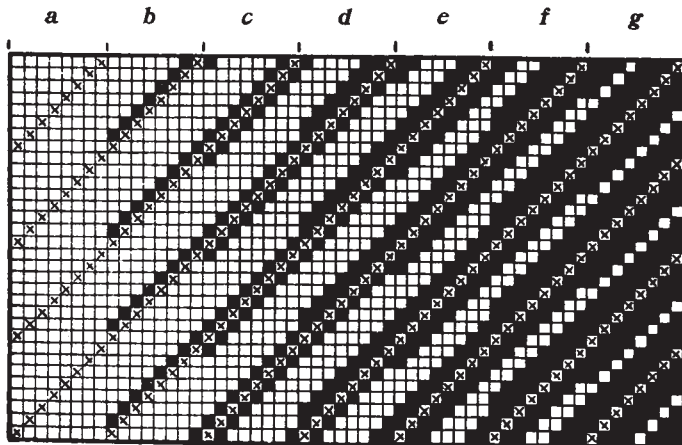


Fig. 8

Fig. 1 shows the regular 8-harness satin, technically called filling effect, interlacing 1 up 7 down, *i. e.*, showing the filling to its fullest possibility on the face of the fabric, the warp forming the back of the latter.

of the warp-threads, and to 1 up 4 down 1 up 2 down for the interlacing of the filling. The effect remains what we must call a filling effect, since the latter predominates, only not as pronounced as in Fig. 1.

Fig. 3 shows the next step for shading the 8-harness filling satin, *i. e.*, adding one more spot (riser) to

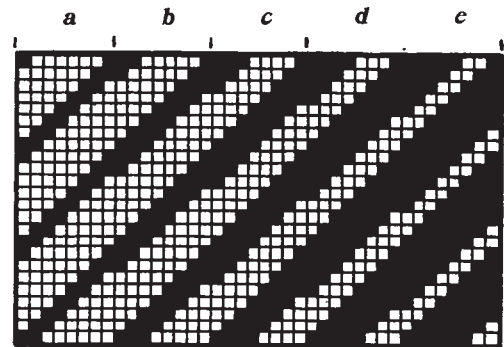


Fig. 9

the top of the two risers in Fig. 2, changing the interlacing of the warp-threads to 3 up 5 down, and that of the filling to 1 up 1 down 1 up 2 down 1 up 2 down.

Fig. 4 shows the next step for shading the 8-harness satin, showing the centre, *i. e.*, balanced effect between filling and warp effect, produced by adding one more spot (riser) to the top of the three risers in Fig. 3, in turn changing the interlacing of each warp-thread to 4 up 4 down, and that of the filling to 2 up, 1 down, 1 up, 2 down, 1 up, 1 down.

Adding one more riser to the top of the four risers of weave Fig. 4 produces effect Fig. 5, or the first step for the warp to predominate, *i. e.*, the reverse effect to that shown in Fig. 3, the warp-threads now interlacing 5 up 3 down.

Continuing in this manner to add one riser to the top of previously obtained set of risers in turn produces weave Fig. 6, interlacing 6 up 2 down or the reverse of weave Fig. 2, and finally weave Fig. 7 interlacing 7 up 1 down. The latter is the 8-harness

warp effect satin, *i. e.*, the extreme or mate effect to weave Fig. 1. . . .

Shading with the 8-harness satin thus will have effects 1 and 7 as its respective extremes *i. e.*, light

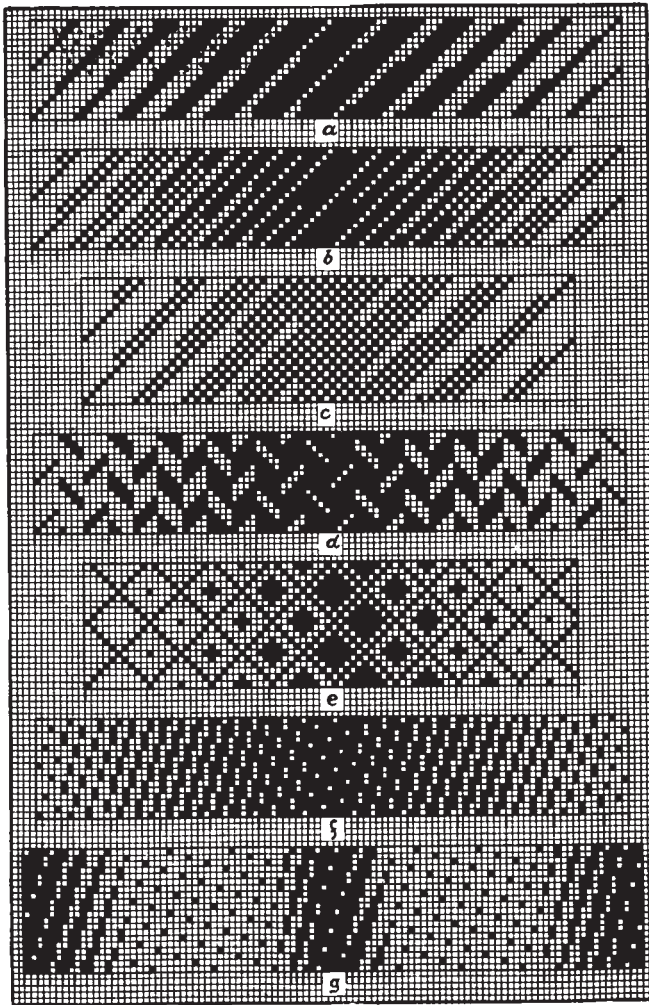


Fig. 10

and dark effects in the design, the other five effects being at the disposal of the designer to make gradual exchanges as the design in question may require. The more abrupt he is to make the change, the fewer of these five possible changes he is to use.

Shading Twills.

If the shading in a fabric is required to have the appearance of rays, we must in place of satin use twills.

Fig. 8 illustrates the subject, showing the shading of the 8-harness uneven sided twill, from its filling effect to its warp effect, *i. e.*, from $1-7$ to $7-1$ showing again seven intermediate changes to accomplish the subject. Eight warp-threads are used for each charge. The foundation twill, *i. e.*, the 8-harness twill, filling effect, is shown in *cross* type throughout the entire design.

(a) shows pure filling effect (foundation).

(b) shows adding one riser to the top (2nd filling effect).

(c) shows adding one riser to the top and bottom (3rd filling effect).

(d) shows adding one more riser to the top (warp and filling balanced).

(e) shows adding one more riser to the bottom (first warp effect).

(f) shows adding one more riser to the top (second warp effect), and

(g) shows adding one more riser to the bottom, obtaining in turn the pure warp effect of our 8-harness uneven sided twill.

As mentioned before, in some instances every possible change of a weave from filling to warp effect may not be required to be used.

Fig. 9 explains the subject, showing only five changes of the possible seven changes of the 8-harness twill used for shading, the two extreme effects being omitted, using:

- | | |
|----------------------------|--------------------|
| (a) 2 up 6 down | } Filling effects. |
| (b) 3 up 5 down | |
| (c) 4 up 4 down (balanced) | } Warp effects. |
| (d) 5 up 3 down | |
| (e) 6 up 2 down | |

Shading Weaves in Both Directions.

Plate Fig. 10 shows a collection of seven weaves shaded respectively from *light : dark : light*, viz:

(a) Twill shading in stripes, using the 8-harness uneven sided twill for foundation, with 8 warp-threads for each possible change of the twill.

Rule: In laying out this weave or any other shaded weave, insert first its foundation, filling effect, all over the repeat of the weave-plan. Next add the risers to produce the desired change from light to dark or vice versa; every eight warp-threads in our example. Below the weave we indicated the place where these changes from one effect to the other was made.

(b) has the same foundation twill as the previous example, but the spotting, to produce the other effects, is done differently, the same being arranged wherever possible to do so after the plain weave principle, producing in turn a more distributed shading. Every

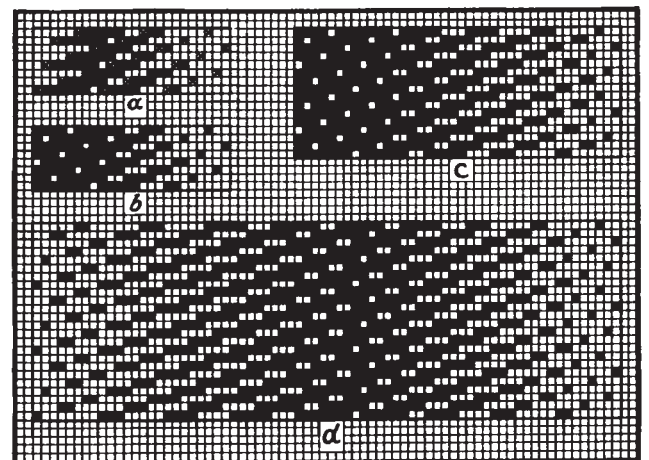


Fig. 11

change possible, from one extreme effect to the other, is used.

(c) shows twill shading in stripes, using the 10-harness (filling effect) twill for foundation; 10 warp-

threads are used for each effect. The additional risers are added throughout the repeat of the weave after the plain weave principle, thus permitting only five changes to be made.

(d) shows twill shading in stripes, using the 8-harness broken twill for basis, in connection with seven changes, each extending for 8 warp-threads.

(e) shows twill shading in stripes, using the 10-harness pointed twill for the basis of the new weave, using 10 warp-threads for each effect.

(f) shows shading with the 8-harness satin, using the combinations explained in connection with diagrams Figs. 1 to 7, for 8 warp-threads for each effect.

(g) shows shading with the 10-harness satin, using for the warp effect stripe shown at the beginning and ending of the complete repeat of the weave 2 warp-threads for each effect, whereas for the warp effect stripe shown in the middle of the design one thread only is used. In either stripe, four warp-threads are used for interlacing with the 10-harness satin (pure) warp effect; the ground between the stripes interlaces with 10-harness satin (pure) filling effect.

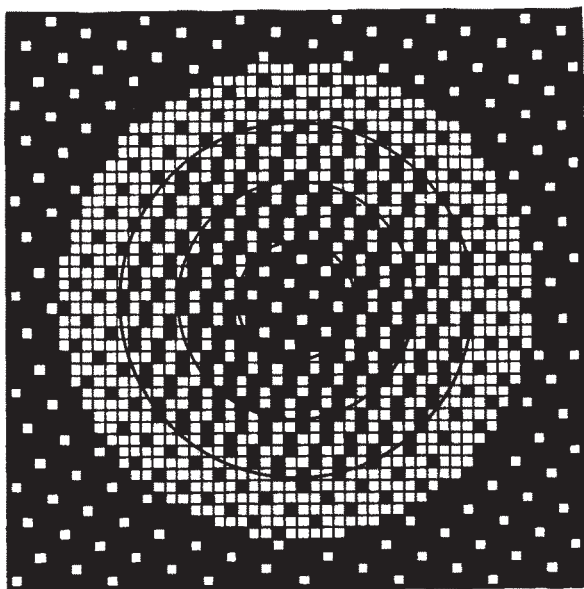


Fig. 12

Adding Risers Filling Ways.

Satin weaves can also be shaded by adding risers for the warp-threads either to the right or left of the original risers of the foundation satin.

Fig. 11 shows a collection of weaves thus constructed, having the 8-harness satin for their foundation.

The interlacing of the foundation is shown in diagram *a* by means of *cross* type. The additional risers are added thus: Take three satin points from right to left and add to every one 6 additional risers towards the right. In the same way add to each of the next three original satin points, 5 additional risers, to the next three 4 additional risers, to the next three 3 additional risers, to the next three 2 additional risers and finally to the next three 1 additional riser, obtaining

in this way diagram *a*. The same, in this state, is of no value, since the shading at the left hand side of the diagram has no proper ending—it looks ragged. To overcome this, after leaving the joining square to each foundation riser (see *cross* type) empty, change to risers every remaining square as situated to the left

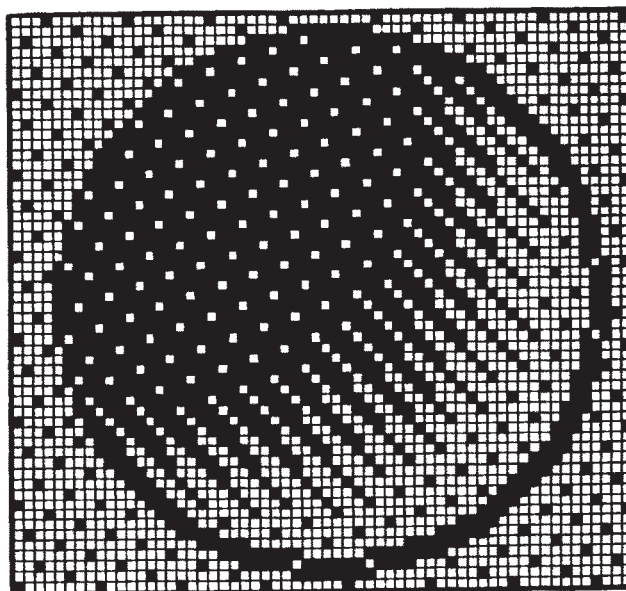


Fig. 13

of the foundation riser. The result is shown in diagram *b*, representing a practical combination of a shaded satin weave.

Diagram *c* Fig. 11 has been constructed in the same way as diagram *b*, the difference being that in a width of pattern of 40 threads we drafted twice the number

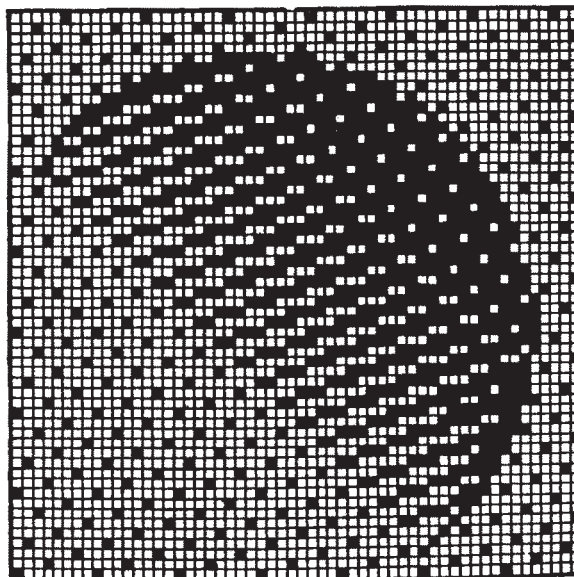


Fig. 14

of original satin points, previously to changing the number of risers to be added.

Diagram *d* Fig. 11 corresponds in its construction to diagram *c*, the shading (additional risers) being in this instance arranged both ways. The rule for constructing these effects is: Take a certain foundation

riser (filling effect satin) and add to them, in sets of a certain number of warp-threads, as guided by the shading desired, the required number of additional risers.

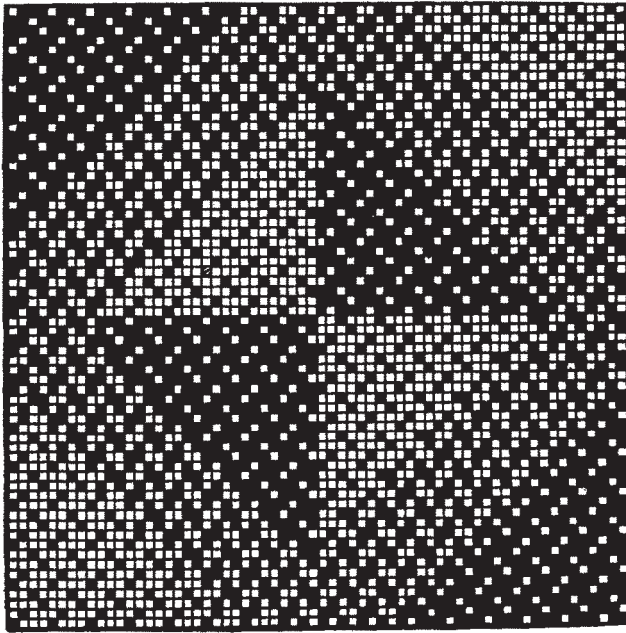


Fig. 15

An explanation of how design *d* Fig. 11 was produced, will readily explain the subject:

Paint 8-harness satin all over the repeat of the weave-plan (3 repeats high of the weave being given in our example to show the effect of the shading) 72 warp-threads and 24 picks.

Heavy lines below weave show the number of warp-threads planned for each tone of the shading, using:

- 2 ends pure filling effect,
- 6 " one riser added,
- 6 " two risers added,
- 6 " three risers added,
- 6 " four risers added,
- 6 " five risers added,
- 3 " six risers added,
- 6 " five risers added,
- 6 " four risers added,
- 6 " three risers added,
- 6 " two risers added,
- 6 " one riser added,
- 7 " pure filling effect, in order to connect.

72 ends, *Proof*. The shading in this instance presents a somewhat diagonal like appearance.

Shading Circles.

Fig. 12 illustrates the subject. In its construction 5-harness satin, filling effect, was painted in a circle of 40 ends diameter. Shading from filling to warp effect was done with 5 ends for each of the four effects characteristic to the 5-harness satin. Circle lines were drawn to indicate where one effect has to stop and a new one to start.

In the first circle, the 5-harness satin, filling effect, was left untouched; in the second circle one additional riser was added to every original one; in the third circle two additional risers were added to every original one, and in the fourth, or innermost circle (of 10 ends diameter) three additional risers were added to every original one, making the weave then a pure 5-harness satin, warp effect. The ground outside the four circles is shown interlaced with the 8-harness satin warp effect, so as to prominently contrast from the joining filling effect.

Fig. 13 shows another style of shading a circle; 8-harness warp effect satin, running into twill effect, and in turn into filling effect satin, being used. The latter, for about one half the circle is outlined by a circle-line, produced by floating warp-threads, in order to separate the circle from the ground portion of the design, which carries the same weave.

Fig. 14 shows a half circle, resembling somewhat a crescent, shaded with the 8-harness satin.

Shading Geometrical Figures.

Fig. 15 shows shading with the 4-harness broken twill. The latter is capable of three effects, viz: 1 up 3 down; 2 up 2 down; and 3 up 1 down, all three of which are used in the weave in the formation of geometrical figures resembling squares and triangles.

Shading Floral Designs.

This is where the shading of weaves is of most

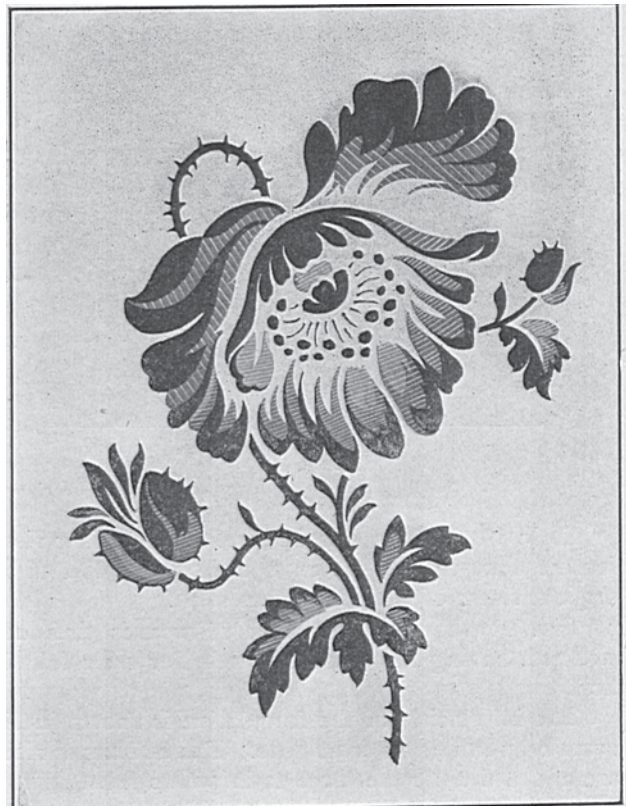


Fig. 16

importance, permitting the textile designer to properly bring out the various details of flowers, leaves, etc. Most careful work in treating each portion of a flower, leaf, etc., is required so as to reproduce them in a good

imitation of the original. A good shaded floral design may be considered as one of the hardest tests for the

Fig. 16 shows a sketch of a poppy, and Fig. 17 shows the same reproduced by means of



Fig. 17

ability of a Jacquard designer. Figs. 16 and 17 are shaded weaves on point paper. The design calls for 264 warp-threads and 336 picks. given to illustrate the subject.