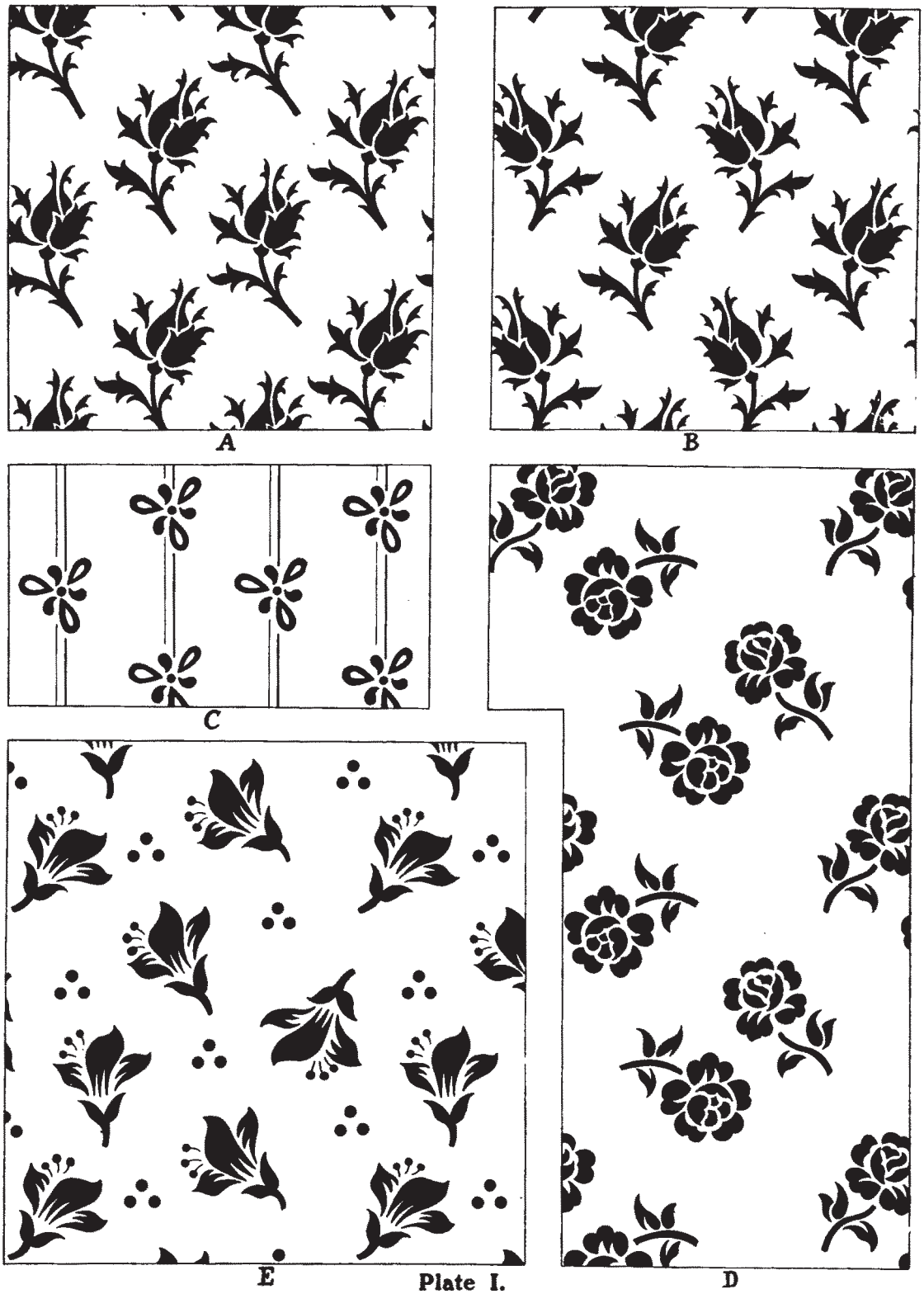
Posselt's Textile Journal

Vol. X. June, 1912. No. 6

DESIGNING AND FABRIC STRUCTURE.

VARIOUS SETTINGS FOR JACQUARD EFFECTS.



A B C D E

Plate I.

The most appropriate distribution of a figure in connection with the designing of Jacquard Silks for all-over repeating patterns, comprising broad and tie silks, is done either by the plain or the various satin settings.

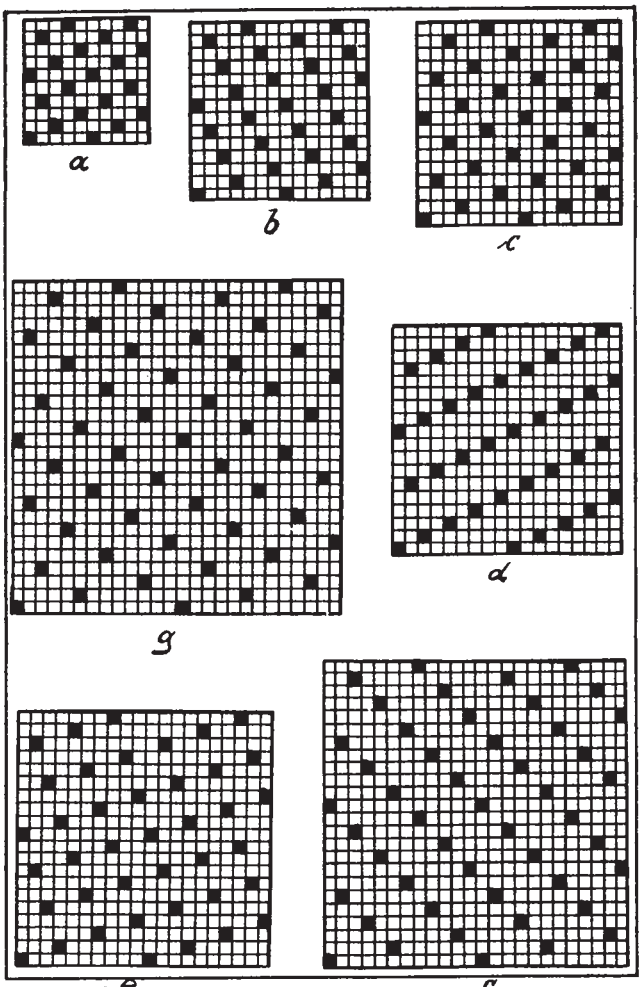


Plate II.

To illustrate the subject the accompanying two plates of fabric structures have been prepared.

Plain Settings.

As the name indicates, this distribution of figures in connection with Jacquard designs refers to the most simple arrangement, in turn permitting the use of smaller size of Jacquard machines. In some instances we meet with designs where one figure with its details covers one complete repeat of the pattern, and what is known as *setting on the square,* such arrangement as a rule giving unsatisfactory results as compared to the other plan of plain setting; this more particularly when one part of the figure is more conspicuous than other portions and when then the repeat of the pattern on the loom causes these prominent figures to form line effects either horizontally, vertical, or in an oblique direction in the fabric.

The other method of plain setting is known as the *diamond* plan, *i. e.,* showing distribution after plain setting of the two figures in one repeat of the pattern.

Fig *A,* Plate I shows us this method of distributing a figure, using for example the design of a rose bud. The figure in both instances (in the repeat of the pattern) is set in the same position. This arrangement in connection with some figures (although not showing prominently in present design) will have a tendency to show stripes in an oblique direction, a feature readily overcome by means of reversing the two figures as forming the repeat of the pattern.

Fig. *B,* Plate I, illustrates the subject, showing the same rose bud design as used in connection with Fig. *A,* once in the same position as then used, the other figure of the repeat of the pattern having the same rose bud design reversed, *i. e.,* turned over, a feature which will result in a more pleasing design all around, readily grasped by comparing Figs. *A* and *B* in Plate I.

Diagram *C* of Plate I shows us a modification plain setting can be subjected to, *viz:* overrunning figures arranged after the plain setting—diamond plan—by means of a stripe effect. The figures in this example are not set on the exact square, *i. e.,* diamond, they being kept somewhat less apart lengthways to that of widthways, the stripe effect preventing any chance of streaks showing widthways or oblique in fabric.

Satin Settings.

The same have for their basis our common satin weaves, and are classified either as regular or irregular satin settings.

Regular satin settings are produced with 5, 7, 8, 9, 10, 12 or 13 changes of positions of the figure in repeat of pattern.

Irregular satin settings call for 4, 6, 8, 10 and 12 changes of positions of the figure in repeat of pattern.

Plate II is given to illustrate a collection of the

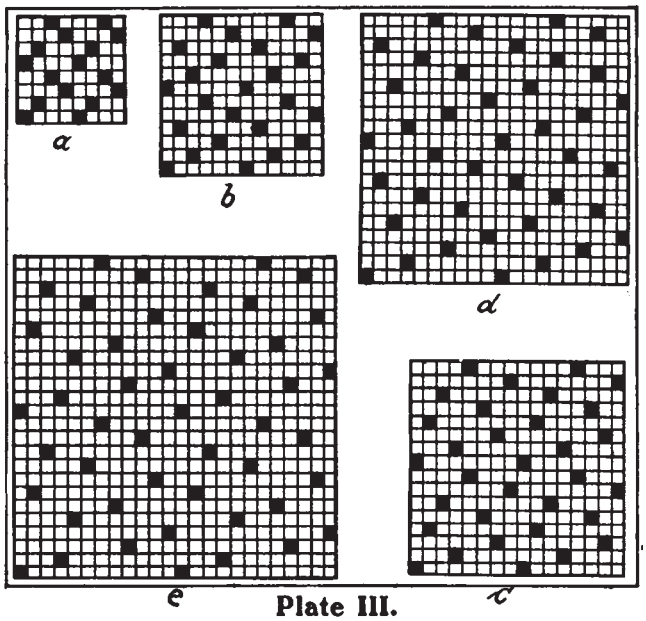


Plate III.

plans for the various regular satin settings previously referred to. In the same

Diagram *a* refers to setting by 5 changes
" *b* " " " " 7 "
" *c* " " " " 8 "
" *d* " " " " 9 "
" *e* " " " "10 "
" *f* " " " "12 "
" *g* " " " "13 "

Of these arrangements, that of 5 and 8 are the ones most often met with, the 10, 12 and 13 change setting being less frequently used on account of the high number of needles the Jacquard Machine would require for these settings. The 7 and 9 change settings are rarely met with on account of the twill effect setting of the figures produced.

Plate III is given to illustrate a collection of plans for the various irregular satin settings previously referred to. In the same

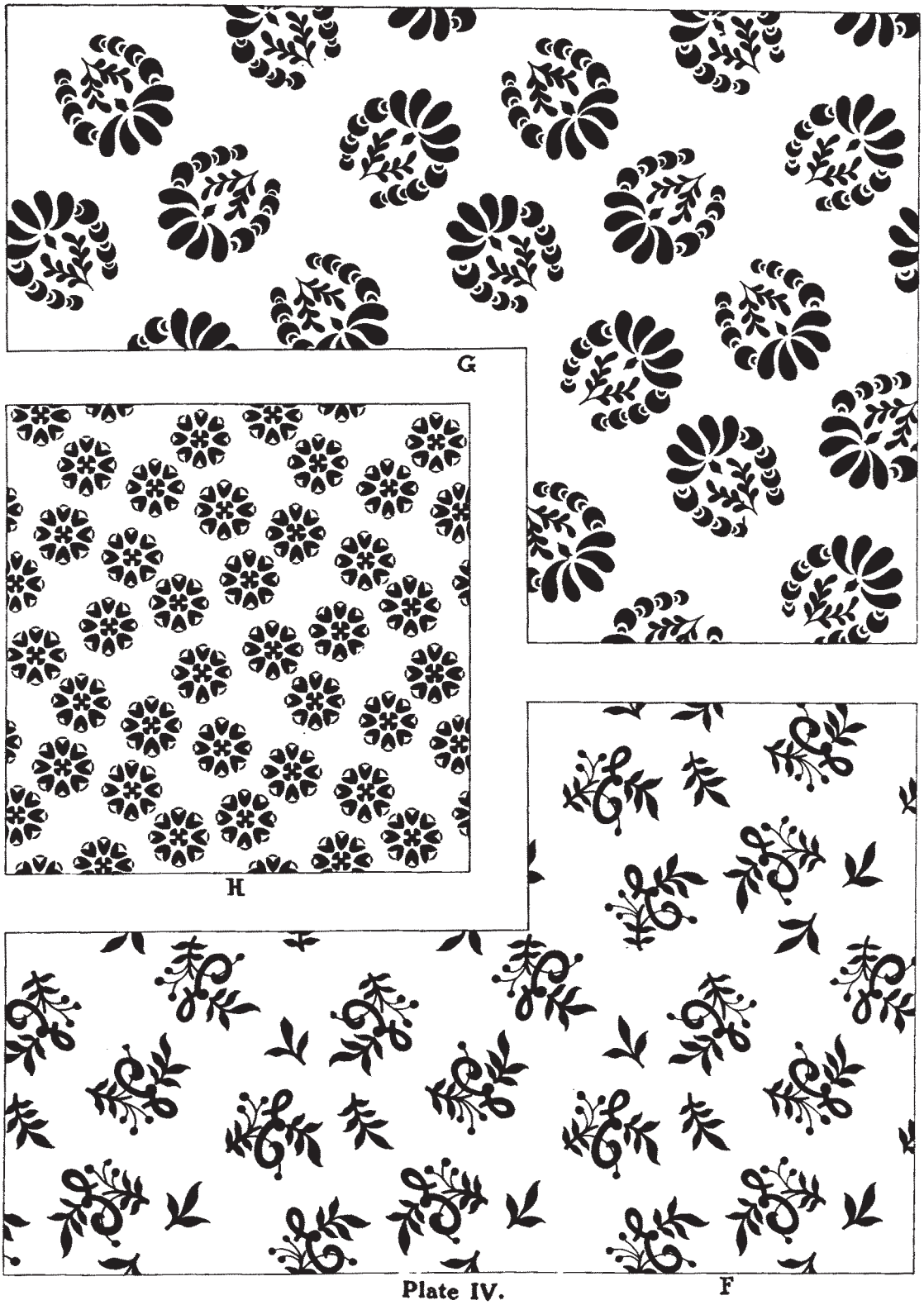


Plate IV.

Diagram *a* refers to setting by 4 changes (also called 4-harness broken twill.)

Diagram *b* refers to setting by 6 changes (also called crow-foot twill setting.)

Diagram *c* refers to setting by 8 changes (also called 8-harness irregular satin setting.)

Diagram *d* refers to setting by 10 changes (also called 10-harness irregular satin setting.)

Diagram *e* refers to setting by 12 changes (also called 12-harness irregular satin setting.)

Examining these various satin settings thus illustrated, more particularly our best distributions like the 4, 6 and 10 change irregular satin settings and the 5 and 8 change regular satin setting, it will be found that in connection with these arrangements of distributing figures, the following advantages are gained.

(1) An even distribution of the primary masses, *i. e.*, figures, is more readily obtained.

(2) The design itself will appear more pleasing to the eye, for the fact that we can turn each figure in the repeat of the pattern, thus avoiding stiffness as well as sameness of appearance in the complete design.

The disadvantage in connection with satin settings as compared to the plain settings previously explained, considering one size of the Jacquard Machine in both cases at our disposal is, that in connection with satin settings we must use small figures on account of more of them having to go in the repeat of the pattern, *i. e.*, the compass of the Jacquard Machine.

For example, in connection with a design repeating on 2 inches widthways in the fabric, with plain settings, only two figures come under consideration, whereas in connection with (for example) an eight change satin setting, eight of these figures will have to be taken into consideration in the same repeat of two inches, and which naturally will compel us, as mentioned before, to use smaller figures in connection with satin settings than compared to the figures we can use for the same size of Jacquard Machine and texture of fabric, in connection with plain setting.

When regular satin settings are used, it is important that the individual figures are placed at approximately uniform distance apart, and for which reason the 5 and 8 (also 10 and 13 if such should ever have to be used) change settings are the best to use, for the fact that in these settings the twill line of the interlacings of warp and filling in the weave, and which correspond to the placing of the figures in the sketch in the Jacquard design, if considered in one direction is crossed at the same time by another line of said figures about equally as prominent.

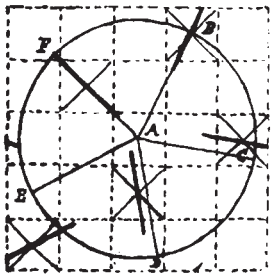
This feature is not the case if examining our 7, 9 and 12 change interlacings of the regular satin settings, and where the placing of the figures in the repeat of the Jacquard design forms a distinct diagonal line in one direction only, a feature which will show in the fabric, and usually is not wanted, except in special cases when for example, the figure is longer in one direction than in the other, or, when there is a good difference between the width and length of the repeat in the pattern, and when then such satin settings might be found advisable to use in order to produce a uniform distribution of such figures over the face of the fabric.

We will now consider the more prominent satin settings previously referred to, in connection with fabric designs.

Fig. *D*, Plate I shows us the design of a rose, distributed by four changes of irregular satin setting, a distribution of figures frequently spoken of as set by the 4-harness broken twill, the principle of which was illustrated and referred to in connection with Fig. *a* Plate III.

Besides distributing the rose design in four different places, in every one of these the design itself has been placed in a different position so as to present a well distribution of the figures in the woven fabric.

Fig. *E*, Plate I illustrates a conventionalization of the fuchsia, distributed by setting by five changes of the regular satin setting, or as frequently referred to, distributed after the 5-leaf satin filling effect. It will be noticed that the design has been turned in every change in the repeat of the pattern in a different position, *i. e.*, the figure is represented in five different positions in the repeat of the pattern, a feature which must be adhered to provided a well balanced design is desired.



The accompanying diagram shows a geometrical method of placing each figure in five different positions, each at a different angle, in a given repeat; its construction will explain itself thus:

Divide the space of your complete repeat of the design in five equal parts, warp and filling ways, in turn dividing said repeat into twenty-five squares (see dotted lines in diagram). Next ascertain the centre of each of the five squares, as is hit by the five-leaf satin spotting, by drawing the two diagonals in each of these small squares. Draw from the centre of the middle square a circle. Divide this circle into five equal parts by means of the lines *B A*, *C A*, *D A*, *E A* and *F A*, and place the spot figures on these lines, having said line always bisecting the figures at the same place. Thus these figures will have each a different direction in the repeat of the design. However, be careful not to place one of these figures on an exactly horizontal position, since this would spoil the whole design.

Besides the design of the conventionalized fuchsia, three dots, triangularly arranged, have been distributed also after the 5-leaf satin setting in one repeat of the design, in order to fill up excessive empty spaces.

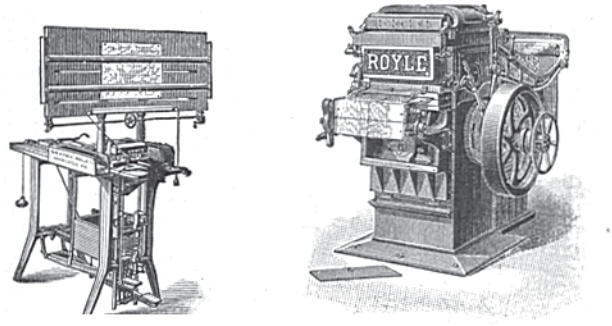
Fig. *F*, Plate IV illustrates setting a convention-

alized pepper berry vine after the crow-foot twill arrangement, or what is the same, the 6 change irregular satin setting.

In addition to the six changes of the pepper berry design, in order to fill up open spaces in the repeat of the design, four additional pieces of vines have been used, one large and three small ones.

Fig. *G*, Plate IV shows us a conventionalized floral design distributed after the 8 change regular satin setting, and which is a setting more conveniently used, not only on account of the even distribution of the figures by means of this satin setting, but also on account of the handy way in which the design can be reproduced, a feature which will be readily seen by examining fabric sketch *G* more in detail, showing that if the repeat be bisected in both directions, the figure in opposite corners will correspond, *i. e.*, be exactly the same, consequently the other figures in the repeat of the pattern will correspond in the same manner, the design thus resolving itself to nothing more but the same figure set in four different positions in connection with the regular 8-leaf satin plan of setting.

Another advantage of this 8-leaf satin setting, is that the boundary lines of the repeat can be drawn in such positions that the figure is cut in the same way at the top and bottom and at the sides, and for which reason the design can be made to appear uniform, no matter from which side seen, whether viewed from top or bottom. This feature, in connection with 8-leaf satin setting, is frequently made use of by the designer in order to shorten his work by half, or only having to produce half of the complete repeat, the other half being then obtained from it on the *Royle Card Stamping Machine*, either by cutting the design in two, and reversing the parts, or by turning the design around; the first method referred to is used when the figure is turned in two or four directions, the latter system being resorted to when one figure is turned in four directions. Another advantage in connection with the latter method is, that in case of full-up patterns, or when needles are cast



"ROYLE" CARD STAMPER "ROYLE" REPEATER
Built by John Royle & Sons, Paterson, N. J.

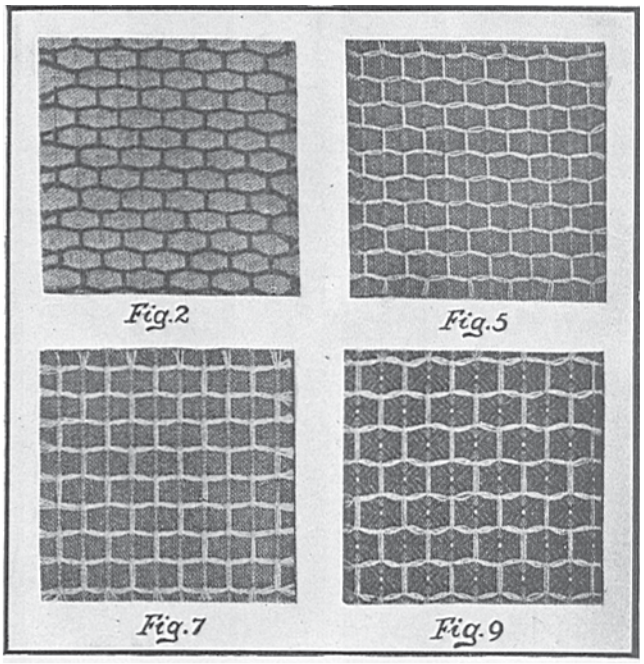
out equally on either end of the machine, then the second half of the set of cards can be produced direct on the *Royle Repeater* from the first half.

Fig. *H*, Plate IV shows a geometrical design, a circle, distributed after the 10 change irregular satin setting which presents one of the best arrangements for distributing a figure.

SPIDER WEAVES.

The object in designing these weaves is to have floating warp and filling threads in the fabric form a sort of net work on top of an otherwise regularly interlaced fabric.

The rule for constructing these weaves is: Have at certain intervals two or more warp-threads float on the face of the fabric for two or more picks more than half the repeat of the design. These floating threads are arranged in two sets, one set to float on the face while the other set floats on the back of the fabric structure, the difference in length of the two sizes of floats to be balanced, *i. e.*, one set of face floats to overlap its mate set of face floats. Where these face floats overlap, two or more picks of filling are permitted to float on the face of the fabric, being bound down by the floating sets of warp-



threads, *i. e.*, where the latter change from interlacing from face to back or vice versa. The balance of the repeat of the weave is, as a rule, filled up with plain weave; in some instances, in connection with fancy effects, broken twills may be used.

Interlacing the two or more floating filling threads as thus explained, will in turn deflect these threads on the face of the fabric, from a straight line, giving them a wavy direction, in turn producing the honeycomb spider effect as shown in fabric samples accompanying article.

Weave Fig. 1 shows us two floating warp-threads in a set to alternate with 10 warp-threads interlacing with the plain weave; using two changes of the sets of floating threads for one repeat of the weave, gives us 24 warp-threads for the same. Filling ways, 12 picks interlacing with the plain weave alternate with two picks floating, and which combination on account of the distribution of the change of interlacing the two sets of warp floating threads brings repeat of the weave filling ways to be 28 picks; repeat of complete weave 24 x 28. As will be readily understood, the