

SPOTTING WITH EXTRA FILLING OR WARP FOR HARNESS AND JACQUARD WORK

These weaves find extensive use in the manufacture of Fancy Vesting, Figured Dress Goods, etc.

The extra filling or warp in these fabrics appears at given intervals on the face of the fabric, to form more or less elaborate figures, and when not so engaged is either floated loosely on the back of the fabric or bound to the back (not visible on the face) at regular or irregular intervals. When so bound, the structure of the cloth at these places is identical with common filling or warp-backed fabrics. Although labor-saving devices may be practised by the designer to some extent in the making of these designs on the point paper, each pick or warp-thread is indicated in the collection of weaves accompanying this article by a separate line on the design paper, in order to simplify this subject of weave formation to the reader.

Filling Effects.

Design *A*, Fig. 1, is of a diamond shape, the foundation lines being composed of the 6-harness imitation gauze weave, one repeat of which is shown at *B*, while the rest of the complete weave is interlaced with plain weave. If this design were reproduced in cloth, the outlines of the diamond would have the open appearance which is characteristic of imitation gauze weaves, whereas the centres of the diamonds would be perfectly plain woven. Design *C* illustrates the method of forming filling spots, the ground-work being formed by design *A*, which is shown in *full* type, and indicates in this case warp up. The 3rd, 4th, 14th, 15th, 19th, 20th, 30th, and 31st picks are

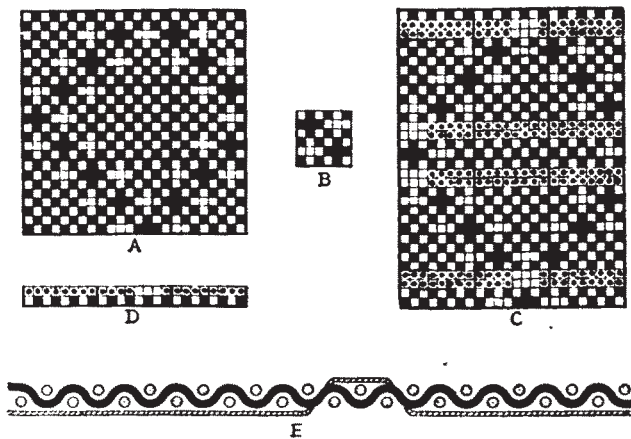
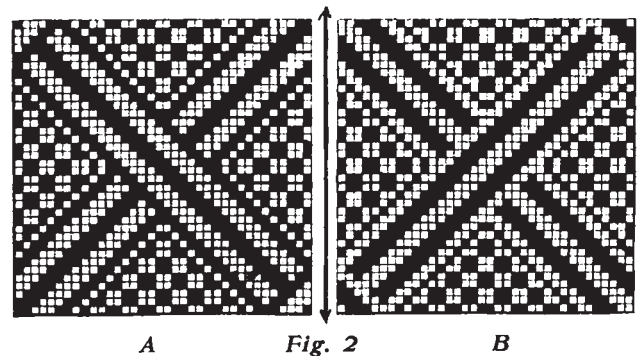


Fig 1.

the extra figuring picks, shown in *dot* type which indicates also warp up. This will explain that each of these eight figure picks will form long floats at the back. As a matter of fact they float over only three threads when on the face of the cloth and then pass to the back of the fabric, where they float, untied or unbound, between adjacent figures. This is clearly shown by section *E*, showing the interlacing of pick

2 (counted from bottom of weave plan *C*) in full black and that of the adjoining pick 3 of weave plan *C* in outlines shaded.

Diagram *D* shows picks 2 and 3, previously referred to, drawn out in detail, *i. e.*, the two picks illustrated in section *E*.



One of the great objections to these fabrics with spot effects, especially if they are dark spots formed on a white or light-colored ground, is the tendency which the figuring yarn has of showing through, and thus casting a kind of shadow or dark band across the face of the fabric. The defect is minimized when the regular warp and filling are made to interlace with a close, heavy texture, but otherwise the fault is sure to appear, in turn making the fabric unsalable.

There are two ways of dealing with a fabric so as to eliminate this defect:—

(a) By cutting off the long floats at the back; a process which involves the use of what is known as a *Float Shearing Machine*, leaving the yarns forming the spot insecurely held by the ground picks, in turn also reducing the weight of the fabric. The material thus removed may be sold, and thereby partly compensates for the loss in weight and cost of removal. In spite of these drawbacks the thus described method is largely practised for fabrics similar to Madras muslins, as was fully explained in the June issue, in connection with the Curtis and Marble Float Shearing Machine.

(b) By introducing the spots by swivel or lappet weaving, which are costly processes as a rule, but possessing the distinct advantage of displaying the figuring yarn practically only where it is required, and thereby preventing any undue waste of what is usually costly material, and also of securely binding the extra filling yarn to the fabric structure.

Fig. *C* illustrates, sufficiently well, the ordinary method of applying extra filling, although in many cases it is found necessary to introduce a little plain weave on both sides of each figuring spot: this secures the picks more firmly, but it usually makes the pat-

tern less distinct. In a design such as that illustrated in Fig. C, the figuring or spot picks should appear on the surface only in the gauze part; if they appeared on the plain part, and floated under the imitation

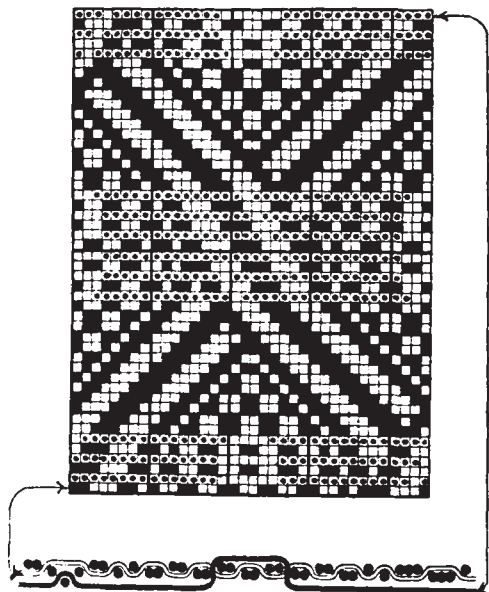


Fig. 3

gauze part, it is evident that a prominent bar-effect would result, since it would be impossible to hide the spotting picks immediately under the imitation gauze or openly woven parts of the cloth.

Two diamond designs are illustrated in Fig. 2, and if they are carefully compared, it will be found that design A is exactly the reverse of design B, *i. e.*, if the paper were doubled over along the line X-X the full squares in one design would fall on the empty squares in the other.

Many fancy vestings are made with similar weaves developed in linen, cotton, woolen, or worsted grounds, and with extra fillings of silk or similar lustrous material for spotting. Since the figuring yarn is usually much finer than the ground yarns, it is essential that the figuring floats should be comparatively long, unless special precautions are observed in the preparation of the design. To illustrate the subject weave, Fig. 3 is given, which is a filling spot pattern arranged on 36 threads and 48 picks. The ground weave of this design is identical with that of A in Fig. 2. The spot is composed of six picks, four of which float over six warp-threads, and two over four threads. The spots are placed exactly in the centres of the two diamond parts, both of which are interlaced with the 4-harness basket weave. Since *dot* type indicates the respective warp-threads in this weave raised, the *empty* squares in the figure picks indicate where these filling threads show on the face of the fabric. Although this design is similar in general principle to that in Fig. 1, it is more complete, since in addition to illustrating the introduction of a spot, it shows the method of checking the long floats between laterally adjacent spots. On the figure picks, which are represented by *dot* type, the *empty* squares of four and six side by side indicate the spot, while

the isolated *empty* squares on the same picks indicate the stitching points. It will be seen that wherever a single *empty* square appears in the horizontal direction on a figuring pick, it is the central one of three successive empty squares in the vertical direction on that warp-thread. This method of stitching is precisely in keeping with the method described in reference to designs 1, 3, 5, etc., given on page 6 of the July, 1912, issue of the Journal. While that article explains the backing with an extra filling, said backing and the present stitching are performed in exactly the same way, although for different purposes.

The section of two picks, given at the bottom of the weave, shows the interweaving of the threads with the ground filling, as well as the method of floating and of stitching. All the warp-threads in the design are represented in the section given below the weave plan, but only the first and the last pick of the weave are shown in the section, the first pick in outlines, the last in black. The warp-threads are shown in full black circles. The stitching point is over the fourth warp-thread, and the figuring float over the six middle warp-threads.

Fig. 4 is a photographic reproduction of the face of a cloth which has been woven from the design in Fig. 3; the spots show up prominently in their respective positions. Fig. 5 is the back of the cloth, the dark patches being the (floating) dark figure picks. The point where the dark filling passes to the face of the cloth to form the spot, may very easily be seen; another feature noticeable is the stitching of the floating picks. There are six stitching points in every group, but some show clearer than others.

Each of the spot floats in Fig. 3 and in the woven samples in Figs. 4 and 5 is longer than the longest filling float of the ground weave, and when this is the case the figuring picks are certain to appear distinctly on the face of the fabric. If, however, some of the spot floats were short, and the ground weave were in-

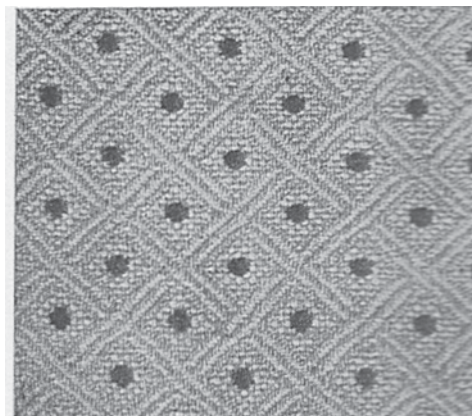


Fig. 4

produced in its entirety as in the figure, there would be some danger of the fine figuring picks being covered by the comparatively heavy ground picks. It is in such cases that special provision must be made to insure the proper development of the spot or spots. Little fault can be found with the appearance of the

spots in Fig. 4, but it is possible to produce an even sharper outline, by modifying that part of the ground weave which is immediately under the spot.

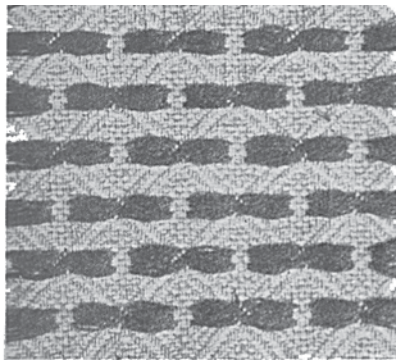


Fig. 5

Although recourse to this treatment has been found unnecessary in the example before mentioned, some modification becomes absolutely essential in certain particular cases. Take, for example, the patterns of cloth illustrated in Figs. 6 and 7. Three-fourths of pattern Fig. 6 from the bottom upwards shows the weave effect which would be produced in the fabric by using design *B*, Fig. 2, as the foundation. The diamond parts in the figure are developed entirely in the 4-thread basket weave, as indicated in the design, but it will be noticed that five small blocks in each diamond are dark, while the others are light.

These five blocks (which are of the same size as all the other blocks in the diamond part, and which would appear in white if the pattern were woven as a single cloth from design *B*, Fig. 2) are developed in Fig. 6 by extra filling; hence the floats of the figure filling in this example are no longer than, but just the same length as, those immediately surrounding the spots, and yet they are quite well defined. If an at-

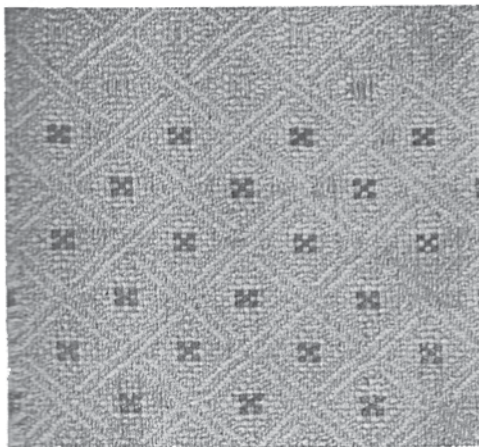


Fig. 6

tempt had been made to produce this small spot effect upon ground weave *B*, Fig. 2, without any alteration of the ground weave, the result would have been a distinct failure. The ground weave must be modified

in order to secure the desired effect; the top part of Fig. 6 shows the woven result of the modified ground weave with the figuring picks removed. This upper part of the pattern shows that some threads are floating for a considerable distance; indeed, four of them in each diamond float over ten picks, while the remaining two float over six picks. The scheme observed is: All threads within the area of the spot, which would have been dropped in an ordinary single or simple cloth weave, are here raised for the ground picks, but are dropped on the following extra filling or figure picks. In short, the dark figure picks supplant white picks at each of the five small blocks in each diamond, that is, in the above mentioned area.

Fig. 7 is the opposite side (the back) of fabric shown in Fig. 6; the large spaces between the groups of dark filling show that the ground filling does not interweave with the warp-threads, but simply floats on the back, considering *empty* for risers, and *full* and *cross* type for sinkers. The order of stitching is the same as in Fig. 5. The complete working design for the cloth reproduced in Fig. 6 is illustrated in

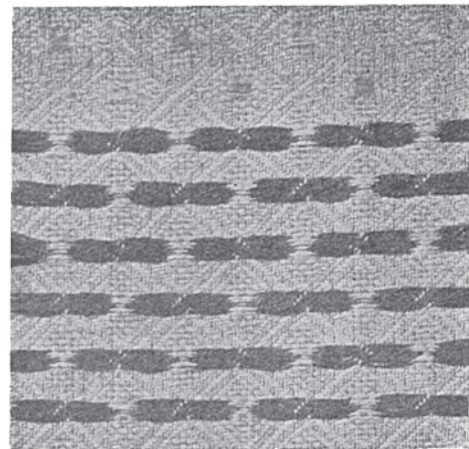


Fig. 7

point paper design Fig. 8 complete. The ground weave in this example is that shown at *B* Fig. 2, but arranged to commence on the 19th thread of the latter weave so as to show up a complete diamond in Fig. 8.

Fig. 9 shows another photographic reproduction of a vesting, constructed with an extra system of filling in addition to a complete single cloth structure, *i. e.*, using one system of warp and two systems of filling in the construction of the fabric.

The spot is shown distributed after the *plain setting*, and produced in two colorings by having sets of picks of one color (see white spots) alternate with sets of picks of another color (see joining spots shown in gray).

Fig. 10 shows the weave required for producing the fabric structure, repeating on 48 warp-threads and 70 picks. This shows us that it refers to Jacquard work; a 400 machine, straight through tie-up, using 48 rows of the machine, *i. e.*, 384 needles.

In card stamping, cut the weave Fig. 10, repeating on 48 warp-threads, 8 times over ($48 \times 8 = 384$).

Weave Fig. 10 is shown, the same as was Fig. 8, face down, *i. e.*, "cut empty squares or white" on your

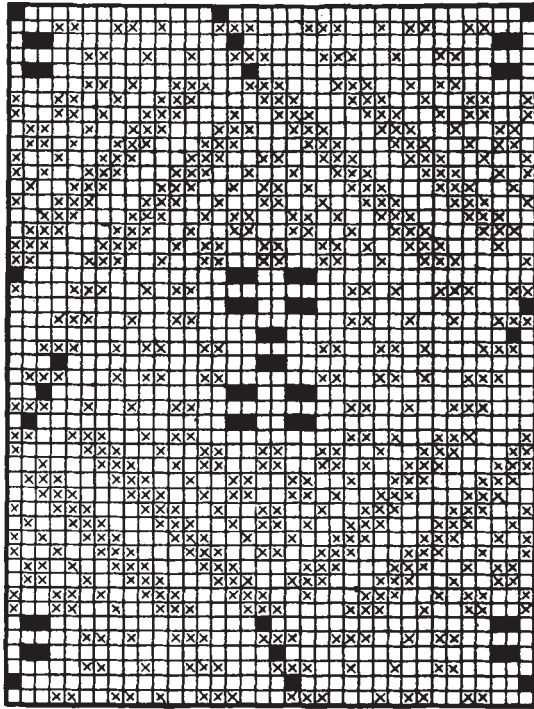


Fig. 8

Royle Piano Machine, all others missed. The arrangement of showing weave *Face Down*, has been made use of in this weave plan, as well as in Fig. 8, to show spotting effect as produced on the face of the fabric more distinctly to the reader than if painting the reverse, as done in weave Fig. 1^c and Fig. 3.

A good lay out for fabric shown in Fig. 9 is this:

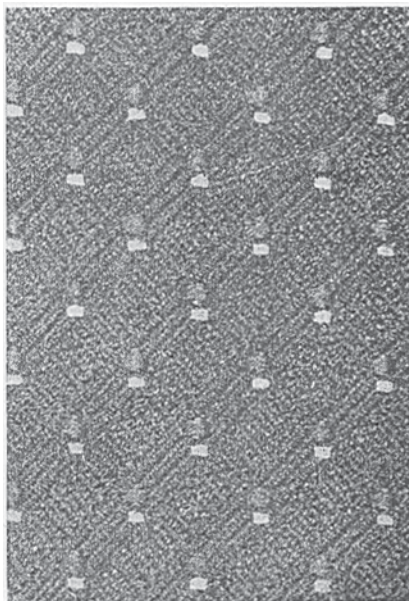


Fig. 9

Warp: 78 ends per inch in finished fabric. 2/30's worsted black.

Filling: 72 ground picks (2/30's worsted black) per inch finished fabric; fancy picks additional.

ARRANGEMENT OF YARNS AND COLORS FOR THE FILLING:

- 1 end 2 fold 30/2 spun silk, blue } ×2
- 1 " 2/30's worsted, black
- 1 end 2 fold 30/2 spun silk, blue
- 3 ends 2/30's worsted, black
- 1 end 2 fold 2/60's black mercerized cotton } ×7
- 1 " 2/30's worsted, black
- 1 end 2 fold 2/60's black mercerized cotton
- 12 ends 2/30's worsted, black

—
35 ends in repeat of pattern, with two patterns *i. e.*, 70 picks to the repeat of the design.

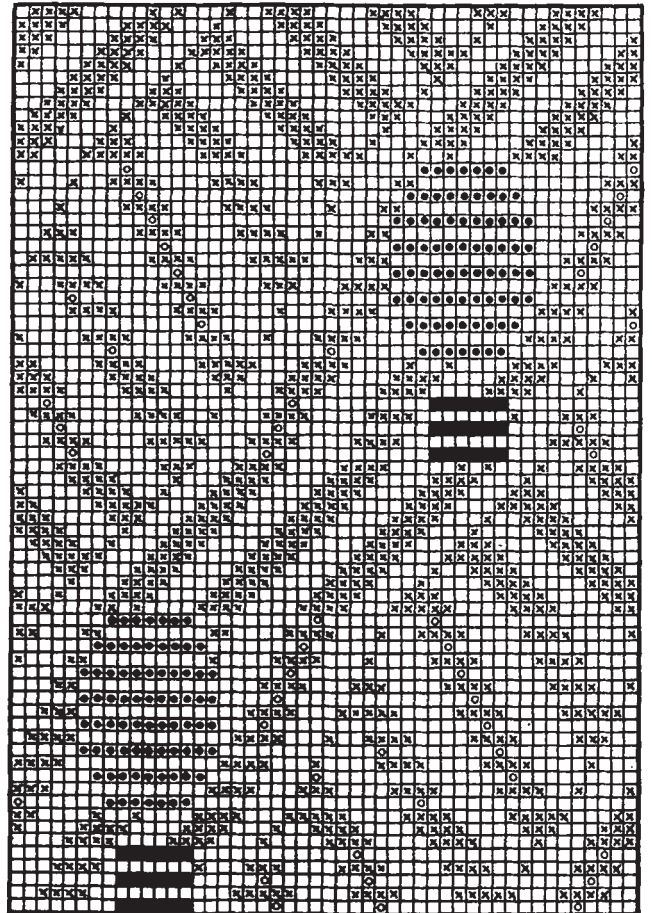


Fig. 10

Cross type in Fig. 10 refers to the weave, *i. e.*, interlacing of the single cloth structure, being a fancy twill repeating on 48 warp-threads and 48 picks.

Full type indicates the floating of the blue spun silk on the face of the fabric.

Dot type indicates the floating of the black mercerized cotton on the face of the fabric.

Circle type shows the stitching of the silk as well as the mercerized cotton, figure picks (not visible on the face, *i. e.*, stitching between two sinkers).

In place of the blue spun silk and the black mercerized cotton, any other fancy yarns or colors may be used. In connection with the woven fabric sketch Fig. 9 and explanations given, take into consideration that blue takes white in photographing.

All ordinary filling spots, where the spots depend upon extra filling, are made more or less on the principle which we have just demonstrated. We need hardly point out, however, that any kind of weave—plain, twill or fancy, may be used for these fabrics; that the floats of the figuring filling may be of any length provided that special precautions are taken to display them satisfactorily; and that the stitching points need not be in regular order.

(To be continued.)

HONEYCOMB WEAVES

(Continued from page 5.)

Fancy Honeycomb Weaves Comprising Check, Checkerboard, Star and Rectangular Effects.

The accompanying three plates of weaves are given to illustrate some of the best specimens of honeycomb weaves suitable for practical use, a careful study of which will explain how similar combinations may be constructed by it.

Fig. 1 shows a novel Checkerboard Effect, 8×8 ends filling twill alternating in an oblique direction with 8×8 ends warp twill; the two twills run in opposite directions and exchange in both directions with 8×8 ends plain weave, for forming the depressed portion of the honeycomb. Repeat of weave: 16 by 16.

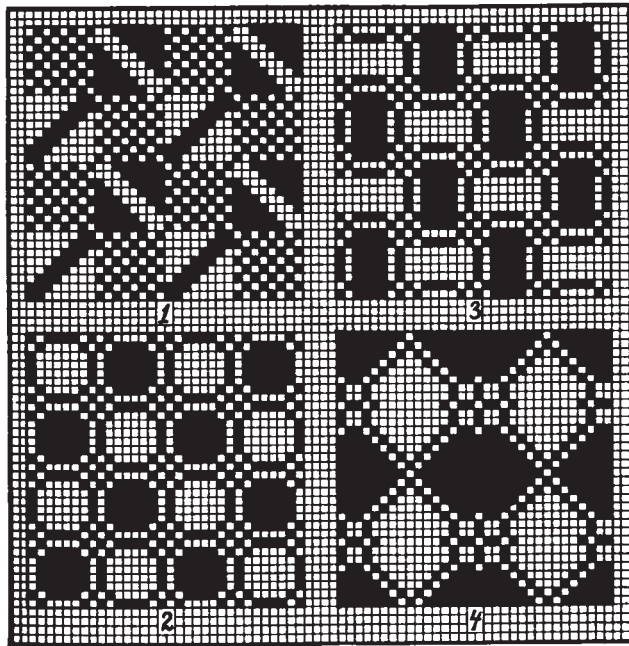


Fig. 2 shows a Check Effect produced by eight warp floats to alternate with eight filling floats, to produce the raised effect, a square of 4×4 ends interlacing with the plain weave forming the cell, *i. e.*, depressed portion of the honeycomb; repeat of weave 16 by 16.

Fig. 3 shows another Check Effect produced by floating 4 warp-threads for 8 picks, against 4 picks floating over 8 warp-threads. In either instance a

float over 4 is used on either side of the main floats previously referred to. The cell of the comb is again formed by interlacing 4 warp-threads and 4 picks with the plain weave. Repeat of weave 12 warp-threads and 12 picks.

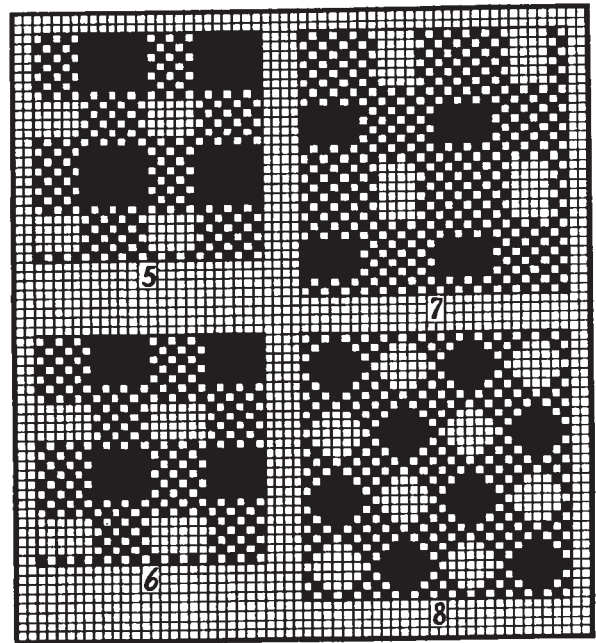


Fig. 4 shows a Diamond Effect, produced by warp and filling effect floats, distributed by the plain motive setting, the cell effect of the comb being in this instance produced by the $\frac{1}{2}$ - $\frac{3}{4}$ 3-harness basket weave. Repeat of weave 16 warp-threads and 16 picks.

Fig. 5 shows a Check Effect, in which the warp effect predominates if used with a balanced texture. Seven ends warp floating over seven picks are used against four picks of filling floating above five warp-threads, the cells of the comb being produced alternately by 5×8 and 7×4 . Repeat of weave 12 warp-threads and 12 picks.

Fig. 6 shows a somewhat similar Check Effect, six ends of warp floating alternately over seven and five picks, forming a check with four picks floating over seven warp-threads; the cell of the comb is alternately formed by 6×5 and 6×8 ends, interlacing with the plain weave. Repeat of weave 12 warp-threads and 12 picks.

Fig. 7 shows a Honeycomb Check prominently on plain ground, producing what we might call a honeycomb on a low grade fabric sold in the piece only, for cheap bedspreads or similar fabrics. Repeat of weave 14 warp-threads and 14 picks.

Fig. 8 shows a small Diamond Effect arranged for a honeycomb weave, the cells of the comb being produced by 4×4 plain weave, set on the diamond the same as the two systems of floats. Repeat of weave 12 warp-threads and 12 picks.

Fig. 9 shows a pronounced Diamond Effect, forming the cells of the comb with 3×5 ends plain weave. The warp floats will impart to the general appearance