NOVELTY IN MEN'S WEAR FROM ABROAD.
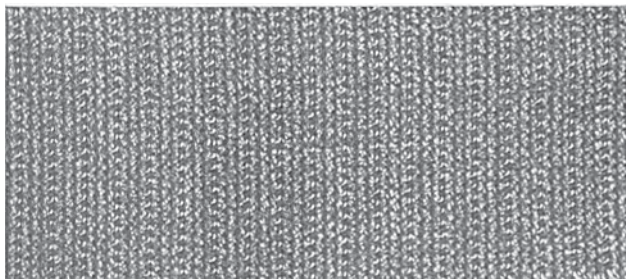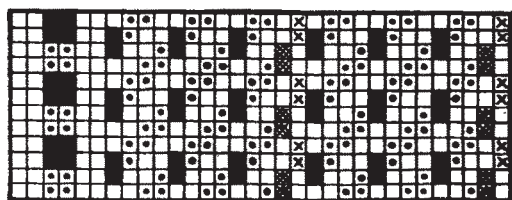### WORSTED SUITING.

Warp: 4420 ends.

ACTUAL REPRODUCTION OF FABRIC
from which details of fabric structure given, are taken.

Dress: 10 Sections, each containing 34 patterns @ 13 ends, or 442 ends total.

⊠ = Spun Silk   ☐ = Lt. and Med. Gray twist
▨ = Brown   ■ = Black

Weave: $\frac{2}{2}$ 4-harness twill, with a break thread for the spun silk end. Repeat of complete weave 13 warp-threads and 4 picks; draw on 13-harness straight drawing-in draft.

Arrangement of Warp:
1 end 2/42's worst. black.
3 ends 2/48's worst. lt. and med. gray tw.
1 end 2/42's worst. black.
3 ends 2/48's worst. lt. and med. gray tw.
1 end 2/42's worst. black.
2 ends 2/48's worst. lt. and med. gray tw.
1 end 2/48's worst. brown.
1 end 100/2 spun silk, bleached.
———
13 ends in repeat of pattern.

Reed: 16¾ with 4 ends per dent = 66" width of fabric in reed, exclusive of selvage.

Filling: 63 picks per inch, arranged thus:
2 picks 2/42's worst. black.
2 " 2/48's worst. lt. and med. gray tw.
———
4 picks in repeat of pattern.

Finish: Worsted finish; scour well, clear face, 56" finished width.

HONEYCOMB WEAVES
Their Construction and
Use for Harness and Jacquard Work.

Honeycomb weaves are extensively used in the manufacture of towels, bedspreads and in many other ways for the decoration of fabrics. A few of the most simple weaves are sometimes, by fashion, in connection with harness work used in the construction of specialties in woolen goods, like cloakings, etc.

When used in the manufacture of towels it also refers to simple weaves used in connection with harness work only; honeycomb weaves by their peculiar weave-formation present a large surface area for absorption, besides a rather rough surface as compared to a plain or twill woven towel, forming in this way somewhat of a medium between the latter and turkish, *i. e.*, loop-pile towelings.

When used in connection with bedspreads, and where these weaves find most of their use, as a rule, it refers to Jacquard work, and this to low textured fabrics, produced with heavy counts of 2, 3 or more ply cotton yarn. They are also used in connection with harness and Jacquard work in the manufacture of draperies and trimmings.

In connection with figured harness work, and more particularly with Jacquard work, honeycomb weaves are used in connection with other systems of weaves in the formation of design, most any of our foundation weaves being used for this purpose; the plain weave, pronounced uneven sided, regular as well as pointed twills, satin weaves, etc., warp or filling effect in either case, being extensively used in the formation of an endless variety of effects in Jacquard fabrics.

Construction of Honeycomb Weaves.
In their construction, alternate sets of threads, both warp and filling ways, are made to interlace totally different, *i. e.*, one set of threads interlaces very closely (most often the plain weave) the other set interlacing far apart (once in 6, 8, 10 or more threads). This contrast in the interlacing, both warp and filling ways, results in the characteristic raised and depressed effects in the fabric structure, producing its cell-like appearance, technically known as honeycomb effects.

This raised and depressed effect in the fabric structure thus referred to, is increased (made more pronounced either way) by the contraction of the threads, more particularly in connection with fulling when dealing with woolen goods, which explains the use of these weaves in connection with woolen fabrics to produce honeycomb imitation effects in such fabrics, as cloakings, etc.

As a rule, warp-threads have more turns of twist per inch than is given to filling, for which reason the

former contract less, with the result that the depressions in the fabric structure are produced by placing alternately prominent floating threads in warp and filling in the weave plan.

Honeycomb weaves are best divided into:

(a) Ordinary Honeycomb weaves,
(b) Brighton Honeycomb weaves,
(c) Fancy Honeycomb weaves, comprising Check, Checkerboard, Star and Rectangular effects.

Ordinary Honeycomb Weaves.

The same give a similar effect on both sides of the fabric. The accompanying plate of weaves Figs. 1,
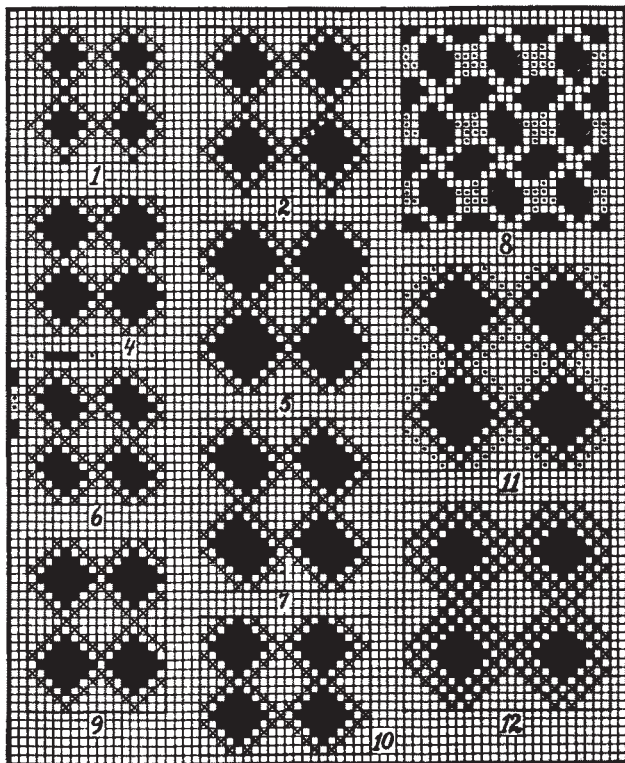
2, and 4 to 12 inclusive, as well as fabric sketch Fig. 3, are given to illustrate the formation of these ordinary (sometimes called regular) honeycomb weaves. Only small effects of each variation of construction are shown, weaves of a larger repeat (for high textured fabrics) can be readily constructed from it, those given, comprising the most popular honeycomb weaves met with.

As a rule, most of these ordinary honeycomb weaves have pointed draws for their foundation, in turn reducing the number of harnesses required to less one half of the repeat of the weave plus one (point thread); hence:

Repeat of weave $8 = (8 \div 2 = 4 + 1 =)$ 5-harness point draw.

Repeat of weave $12 = (12 \div 2 = 6 + 1 =)$ 7-harness point draw.

All weaves on the accompanying collection of weaves previously referred to, with the exception of weaves Figs. 6 and 7, are constructed by this procedure; a special mention of the advantages and disadvantages of the latter two weaves over the others

will be made at the time when explaining the construction of the weaves.

Fig. 1 shows the 8-harness ordinary honeycomb weave; repeat 8×8; two repeats each way, i. e., four repeats in all are given. Considering the four shaded points of type, the same form the respective outside points of an imaginary square (= repeat of the weave) inside which the characteristic depression of the honeycomb effect must occur. For this reason, the four lines as forming the imaginary square must form the raised edges of the honeycomb effect; raisers, or warp up, for the two vertical lines, and sinkers for the two horizontal lines, completing the square, i. e., raised edge of the honeycomb. The joining floats on either side of these four main floats (two produced by the warp, two by the filling) are less prominently raised, a feature kept up, according to repeat of weave under consideration, with every successive thread floating less, until said floats change to 3 by 3 threads, interlacing afterwards with the plain weave, in turn forming the characteristic depression, i. e., the cell of the honeycomb.

Fig. 2 shows the 10-harness honeycomb weave, being nothing more than an enlargement (in every direction) of Fig. 1. Extreme warp floats are charged from 5 to 7, and that of the filling from 7 to 9. Where in Fig. 1 three warp-threads form the wall of each square of the honeycomb, there are five warp-threads forming the similar effect in weave Fig. 2; in the same way this has changed filling ways from 5 picks to 7 picks to the comb.

From explanations given, it will be an easy matter to design similar weaves but of a larger repeat—more prominent effects on the point paper, hence the easier to construct.

Fig. 3 is an actual reproduction of a fabric interlaced with the 12 by 12 honeycomb weave of this system of fabric structure. Largest warp float: over 9 picks, and that of the filling: over 11 warp-threads.

Weaves thus far referred to show on the point paper a shorter float for the warp-threads than used for the filling, whereas our next two examples of honeycomb weaves show the subject reversed, i. e., longer warp than filling floats. Weaves Figs. 9 and 10, to be referred to afterwards, show warp and filling floats balanced; which plan to follow depends upon the texture of the fabric structure (warp-threads and picks per inch in fabric) under consideration.

Fig. 4, repeat 8 by 8; Fig. 5, repeat 10 by 10. In the same manner weaves of a larger repeat can be constructed.

The take-up of the warp-threads in connection with weaves thus far explained varies considerably, for instance, in weave Fig. 1 the first warp-thread interlaces $1_{\overline{7}}$ in repeat of weave, whereas the third warp-thread calls for $1_{\overline{1}}1_{\overline{1}}1_{\overline{3}}$ in repeat of weave, and naturally takes up more in weaving, with the result of the chance of the first warp-thread becoming slack during weaving. In most instances, on account of the low texture of these fabrics as well as the low count of yarn used in their construction, this will make little if any trouble at the weaving (no trouble whatever in the woven,

i. e., finished fabric) but it may occur that this first warp-thread (and every eight's the same) interlaces too closely, *i. e.*, hangs slack in the shed, apt to throw the shuttle. In this case, construction of honeycomb weaves given in Figs. 6 and 7 will overcome this slack thread, said weaves repeating respectively on 8 × 8 and 10 × 10; warp and filling floats, in this instance, are of uniform length. A firmer cloth will result, with scarcely any difference in design in the woven fabric. Both weaves require a straight drawing-in draft, 8 and 10-harness respectively.

Fig. 8 shows the plan how warp and filling floats form the raised edges of the honeycomb effect, in connection with weave Fig. 6 to which it refers. *Full* type in Fig. 8 shows the two ends (warp and filling) floating for 5 threads respectively; *shaded* type shows the joining end towards either side, floating for 3 threads only, hence less prominently compared to the first. The 4 by 4 empty squares illustrate the depressed portion of the honeycomb effect, interlaced (not shown in sketch) with plain weave. One repeat of weave Fig. 6 has been indicated for one repeat (the upper left hand picks one) correspondingly to type used in connection with plan Fig. 8, *viz:* warp-threads on top, and picks at the left hand side.

Diagram Fig. 8 in connection with weave Fig. 6, also shows the idea how honeycomb weaves can be adopted for color effects.

(*a*) The large floating threads of the warp and filling can be of a different color than the rest of the threads. Either two or three color effects can be produced.

In the first instance, color scheme for warp and filling (see Fig. 8) then is:

2 threads color *A* (see *full* type)
6   "   " *B* (consider *shaded* and *empty* type as one)

―

8 threads in repeat of color scheme of warp and filling.

For a three color scheme consider:

2 threads color *A* (*full* type)
1 thread color *B* (*shaded* type)
4 threads color *C* (*empty* type)
1 thread color *B* (*shaded* type)

―

8 threads in repeat of color scheme of warp and filling.

In either case, whether referring to a two or three color effect, the fancy colors follow the ridges of the honeycomb, and show very distinctly on the surface of the fabric in the form of a small check.

(*b*) In this instance the colors are only brought on the surface when the fancy threads interlace with the plain weave. In connection with weave Fig. 6, this would mean warp-threads 1 and 8 counted in the regular way from left to right, and picks 4 and 5, counted from bottom to top, in one repeat of weave in position given in diagram Fig. 6. A small spot, a star effect, in a different color will then form itself at

the bottom of the cell. This effect is shown in *dot* type in diagram Fig. 8.

Any one, or any two of the three color effects referred to may be made use of; again, if so desired, all three may be used in one pattern.

The principle of coloring honeycomb weaves explained in connection with weave Fig. 6 and diagram Fig. 8, is applicable to any honeycomb weave given in connection with this article.

Weaves Figs. 9 and 10 are re-arrangements of weave Fig. 4, providing in this instance a uniform size (7 : 7) of warp and filling float, whereas weave Fig. 4 the combination used was 7 : 5 respectively. This results in a difference of repeat, warp and filling ways, for the two new weaves, the same repeating on 8 × 10 and 10 × 8 respectively, to be drawn on 5 or 6-harness, point draw, if so desired.
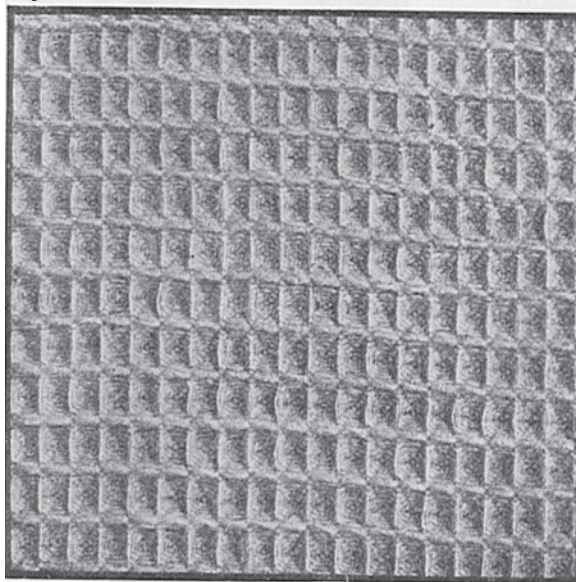

Fig. 4

Large honeycomb weaves when constructed as thus far explained, are liable to be loose in structure, and when, in order to secure firmness of texture a double row of pointed foundation twills is inserted. Weaves Figs. 11 and 12 are given to illustrate subject.

Weave Fig. 11 by means of *full* and *cross* type for risers, shows us the ordinary 12 by 12 honeycomb weave, *i. e.*, the next step of a possible enlargement of weave Fig. 2, being the weave used for interlacing fabric shown in Fig. 3, and previously referred to. If weave thus far referred to produces too loose a fabric, adding a pointed twill, as shown by *dot* type, will strengthen the fabric considerably. This will neither change the repeat of the weave, nor its point draw for 7-harness.
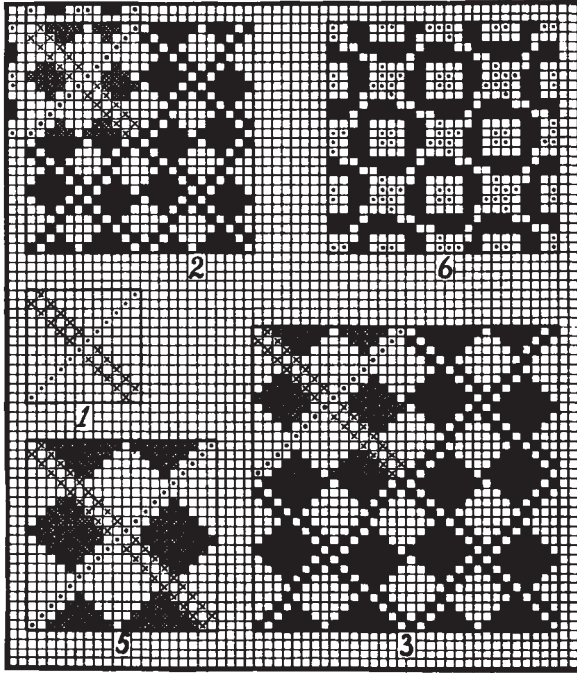
Fig. 12 shows a double line of pointed twill for its foundation ($\frac{1}{1}\frac{1}{1}$ in place of $\frac{1}{1}$) in turn imparting more compactness to the fabric, also making the cells of the honeycomb effect more conspicuous. Repeat of weave 12 by 12, calling for a 7-harness point draw, provided such reduction is desired.

In the same manner as treating weaves Figs. 11 and 12 for 12-harness, either principle may be extended for honeycomb weaves of a larger repeat, 14,

16, etc., harnesses without departing from the principle of construction, we selecting the lowest possible combinations in order to bring selection of weaves to the lowest space possible for our plate of weaves, using at the same time the most often met with weaves in practical work.

Brighton Honeycomb Weaves.

The same are of a somewhat different construction from the ordinary honeycomb weaves thus far ex-

plained, and can be woven with straight draws only; the number of threads in their repeat must be a multiple of 4. Twelve is the lowest repeat of practical use; hence 12, 16 and 20 are the various repeats of Brighton honeycomb weaves met with.

The accompanying plate of four weaves and one color effect, also one fabric sketch Fig. 4, are given to illustrate the construction of these Brighton honeycomb weaves.

Fig. 1 shows the foundation for the 12-harness Brighton honeycomb weave, showing a diamond base, made by inserting a single twill line (see *dot* type) from left to right over the entire repeat of the weave to be constructed, crossing the same in its centre by a double twill line (see *cross* type).

Fig. 2 shows Fig. 1 transposed in its upper left hand corner. Taking *dot* and *cross* type to indicate warp up; marks are then added to the double rows, so as to form a small warp effect diamond in the right and left hand corners of each diamond space, as shown by *shaded* type in Fig. 2; a similar filling effect diamond is thus left in the upper and lower corners. The length of float of the centre thread of each small spot (warp and filling effects) is one thread less than half the number of threads in the repeat. Thus in Fig. 2 each centre float passes over (12 ÷ 2 = 6 — 1 =) 5 threads.

Besides the one repeat, showing the construction of the 12 by 12 Brighton honeycomb weave, there are three additional repeats of this honeycomb weave given

in Fig. 2, shown in one type (*full* squares) only.

Fig. 3 shows the construction and three additional repeats of the 16 by 16 Brighton honeycomb weave. Type is selected to correspond to the previously given example, hence explanation then given refers also to the present weave, only that the latter would refer to a somewhat looser constructed fabric provided the same texture of warp and filling was employed, since it refers to a higher textured fabric.

This explains that the larger the repeat of the honeycomb weave, the longer the floating of warp and filling ends are; hence the higher the texture of the fabric the larger the weave used must be; again, the counts of the yarn used will indicate which repeat of a honeycomb weave to use.

Fig. 4 shows a photographic reproduction of a honeycomb fabric interlaced with weave Fig. 3.

Fig. 5 gives details, executed in corresponding type to weaves Figs. 2 and 3, of the construction of the 20 by 20 Brighton honeycomb weave, and to which explanations of construction of weaves previously given also refer.

In the same manner as in ordinary honeycomb weaves, the long centre floats of warp and filling form vertical and horizontal ridges, but in the Brighton weaves two sizes of recesses are formed, a large hollow at each place where the double line of marks cross the single line, and a small hollow in the centre of each diamond space. There is also the difference that in an ordinary honeycomb weave each repeat only forms one cell, whereas a Brighton weave has two large and two small cells in its repeat.

Fabrics made with Brighton weaves are sometimes made with two different counts of yarns, both for warp and filling, inserting in either instance the heavy
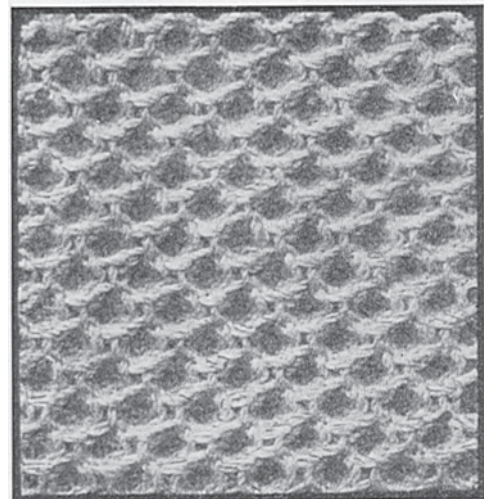

Fig. 4

threads where the longest floats occur, and when the arrangement for weave

Fig. 2 would be 2 heavy : 1 light
" 3 " " 2 heavy : 2 light and
" 5 " " 2 heavy : 3 light.

In the same way, as was explained when dealing with ordinary honeycomb weaves, there are two places

where colored threads may be effectively introduced, *viz:*

First, where the long floats are formed on the surface of the fabric by warp and filling, and where the colors follow the ridges and show very distinctly on the surface in the form of a small check, and—

Second, when the colors are brought to the surface where warp and filling interlaces with the plain weave, each set of threads, in the repeat of the pattern, at other places being covered, *i. e.*, hidden from showing on the surface, by the long floats of its respective set of mate threads, with the result that small colored spots are formed at the bottom of the cells.

Diagram Fig. 6 is given to explain subject in connection with weave Fig. 2 where in the former *full* type shows the first kind of effect, *i. e.*, the small checks formed by warp and filling floats. *Dot* type shows two small spots produced, *i. e.*, the second kind of effect previously referred to.

Either effect may be used by itself; again, both effects combined may be used in one fabric structure.

(To be continued.)

CRÊPE WEAVES.
(Continued from page 145.)
Dovetailing Twills or Satins.

Another way of obtaining crêpe weaves is by dovetailing, *i. e.*, intermixing, two weaves. The best results are obtained by combining two weaves of one system, like for example, a twill with a twill, a satin with a satin, etc., although some of these crêpe weaves may have the combination of two systems of weaves, like for example, a twill and a granite, etc., for their foundation.

Rule: In constructing these crêpe weaves, draft alternately one or more warp-threads from one of the foundation weaves, and then one or more warp-threads from the other foundation weave; continue this drafting until both foundation weaves are at the same time used up, and when the repeat of the new crêpe weave is obtained.

Drafting in this manner two 8-harness foundation weaves 1 : 1 will result in a crêpe weave repeating on 16-harness; drafting two 8-harness weaves 2 : 1 will result in a crêpe weave repeating on 24-harness, since one of the foundation weaves will have to be used over twice, before its mate is used up once, etc.

A few practical examples will readily explain the subject.

Combining Two Twills.
#### Using the Same Foundation Weave Starting Each Differently.

To simplify matters, each of the two foundation weaves, in every one of our examples is shown in a different type, and this corresponding to the type used in the drafting scheme given in every instance above the respectively resultant crêpe weave.

Fig. 1, one repeat of the $\frac{3}{1}\frac{1}{1}$ 5-harness twill; shown in *full* type.

Fig. 2, the same 5-harness twill as Fig. 1, only started with a different warp-thread; shown in *cross* type.

Fig. 3 is the crêpe weave obtained from weaves Figs. 1 and 2, drafting 2 warp-threads taken in rotation from weave Fig. 1 alternately with 2 warp-threads taken from weave Fig. 2, as indicated in draft scheme given above the crêpe weave. Both foundation weaves are uniformly used up by being drawn over once, hence $2 \times 6 = 12$, repeat of draw of crêpe weave.

In connection with this drafting it will be noticed, that the last two ends of weave Fig. 1 (warp-threads 9 and 10 of the crêpe weave) are the same as the first 2 ends of weave Fig. 2 (warp-threads 3 and 4 of the crêpe weave) and as both weaves are twills, running in the same direction, each successive warp-thread interlacing the same, only starting one pick
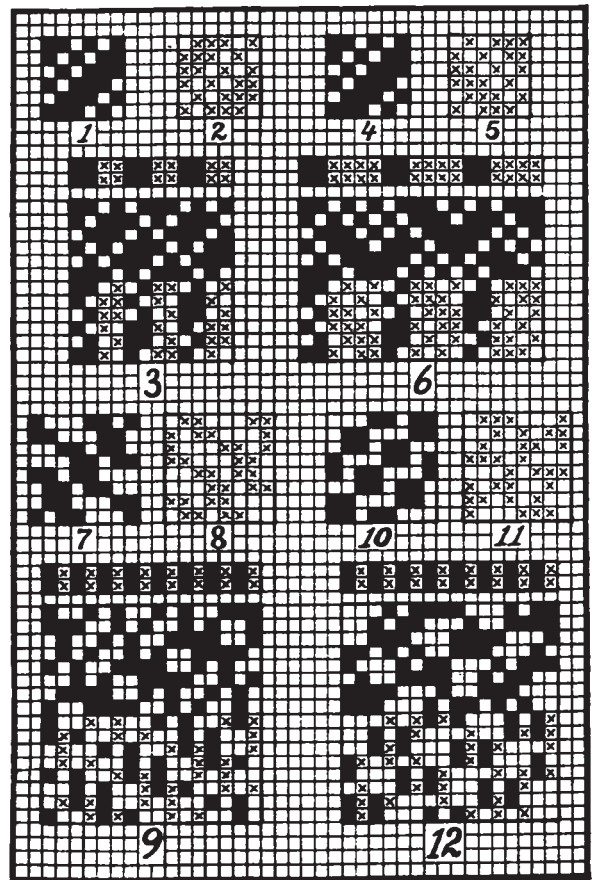
higher—it follows, that in this instance warp-threads 3, 4, 5, 6, 7 and 8 of the crêpe weave (since 9 and 10 = 3 and 4 as above mentioned) form its repeat; hence 6 warp-threads and 6 picks the repeat of crêpe weave Fig. 3.

Drafting weaves Fig. 1 and 2 in position given 1 : 1, will produce an excellent crêpe weave, repeating on 12 warp-threads. The same will be the case if we retain drafting 2 : 2 but change position of starting of weave Fig. 2, for example change its first warp-thread to be the last, and when then the resulting crêpe weave will also repeat on 12 warp-threads.