

base as equal to 8×8 , the extended design would be on 96×96 , and the stars marked in ■'s would be woven in a

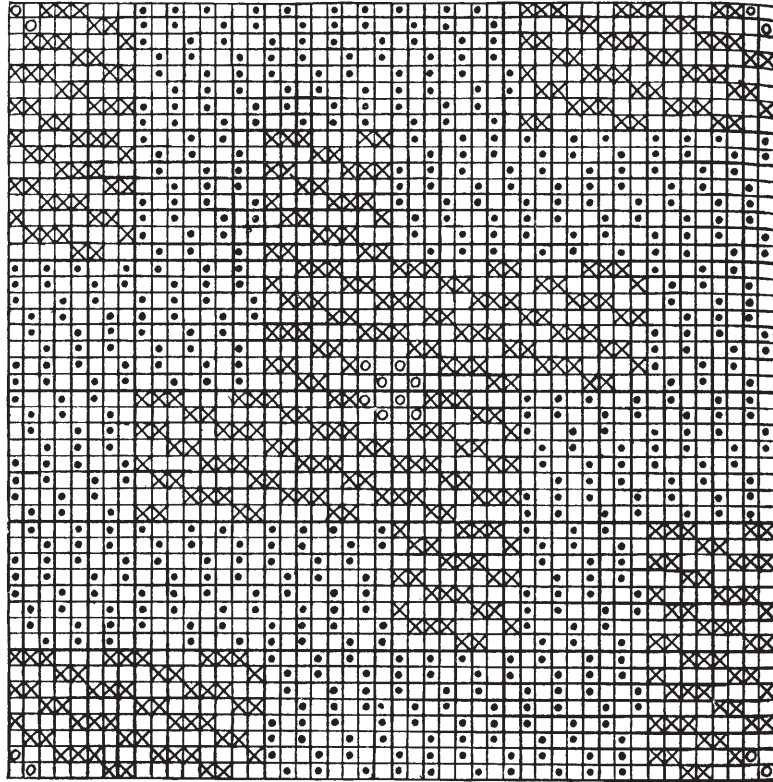


FIG. 195.—STAR CHECK—CORKSCREW WEAVES.

different plan from those marked in ⊠'s, so that the over-checking lines would appear in the pattern. To make this point clear, two practices in working out this base are as follows—

PRACTICE I

- | | | |
|-----------------------------|---|---|
| Effects in Grey in Fig. 196 | = | Cassimere. |
| „ ⊠'s | „ | = Mayo. |
| „ ■'s | „ | = Warp cord in the four centre interlacings and weft cord in the four points of the star. |

PRACTICE II

Effects in Grey in Fig. 197 — Plain.
 „ \boxtimes 's „ — Cassimere.
 „ \blacksquare 's „ — $\frac{1}{1}$ twill.

In the first of these weave arrangements, the ground would be cassimere, with the two series of stars, in \boxtimes 's and in \blacksquare 's, in Fig. 196, in mayo and warp and weft cord ; and in the second

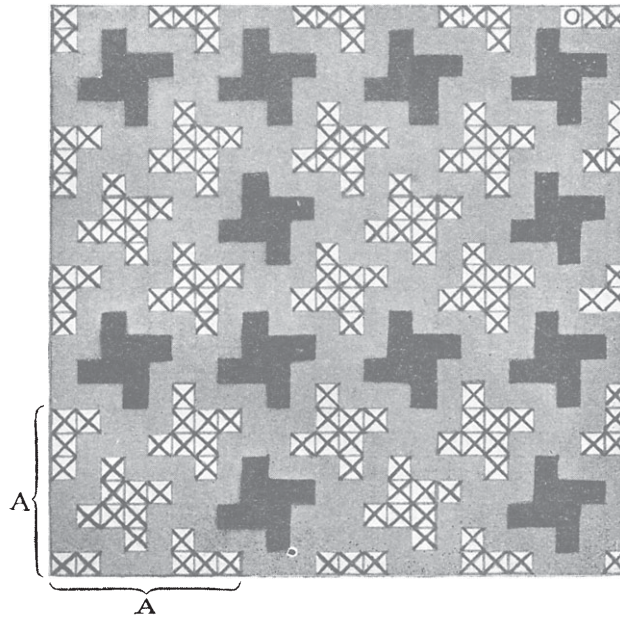


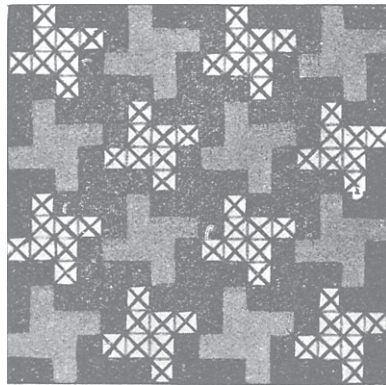
FIG. 196.—STAR CHECKINGS.

weave grouping, for a lighter build of fabric, the ground would be in plain, the stars in \boxtimes 's in cassimere, and the stars in \blacksquare 's in warp twill.

With a view of producing the checking elements in contrast with each other, the plan of arrangement followed is that seen in Fig. 197. Using this as the basis of a design on 64×64 , it would be suitable for development in the plain make and a 4-shaft weave ; in 4 and 8-shaft crossings ; or in three 8-shaft weaves, such as the details in \blacksquare 's in the 8-shaft warp sateen,

the details in ☒'s in plan F, and the details in grey in Plan J, Fig. 104.

202. *Checked Patterns in Multi-weave Compounds.*—Checked patterns are, in effectiveness and in symmetry of composition, the result of textural contrasts. In the smaller and simpler, as in the broader and more complex design structures, the tone and quality of the several weave units, of which the checking lines and other features of the patterns consist, impart style



197.—STAR CHECKINGS.

definition and originality. Combining, as in Figs. 183 and 185, plain and mat and plain and inverted cord weaves, produces minute squares then two textures in the same fabric. All checked cloths are, therefore, composed of alternating rectangular portions of distinct textures, woven in two or more crossings, or woven in transposed weave plans. Elaborating the weave types employed, and the geometric order in which they are assorted one with the other, may be practised to an indefinite degree, but the process of elaboration carried out must be in absolute accord with the form of design intended, and with the manufacture of a wearable cloth.

Three illustrations in multi-weave compounds of a special order, yet in which the standard forms of check arrangement obtain, and given at Figs. 198, 199, and 200. Fig. 198 is

constructed on the plan of grouping rectangular spaces of effect of equal proportions, namely, 32×32 ends and picks for sections A, B, C, and D ; that of Fig. 199 of combining larger and lesser areas of detail and of intermediate oblong figures

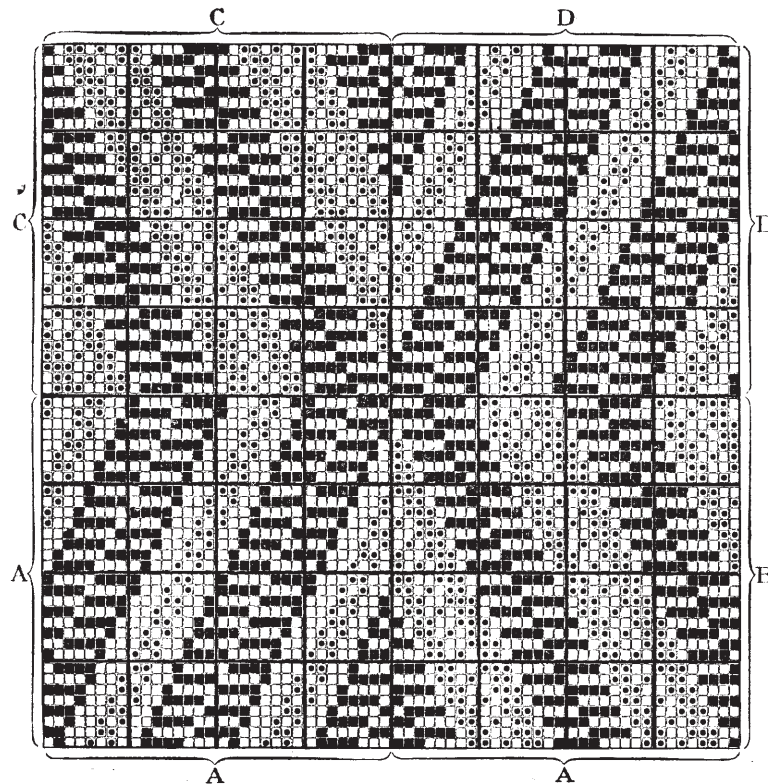


FIG. 198.—CHECKING IN DIAGONAL WEAVES.

in a third weave ; and that of Fig. 200 of forming squares of open weave structures, with a special textural unit for developing the divisional features.

203. *Development of Diamond Outlines in Checking.*—Each design is distinctive in type and in structural elements. Examining Fig. 198, it will be seen that a 16-shaft diagonal has been selected for part A and inverted for parts B, C, and D on the dice scheme of checking. The diagonal weave in this

illustration, gives a lozenge form to the checked composition. Had the details in ■'s been of an ordinary twilled kind, this characteristic would not have been acquired. When the weaves are of the repp description, and run in a twill, the

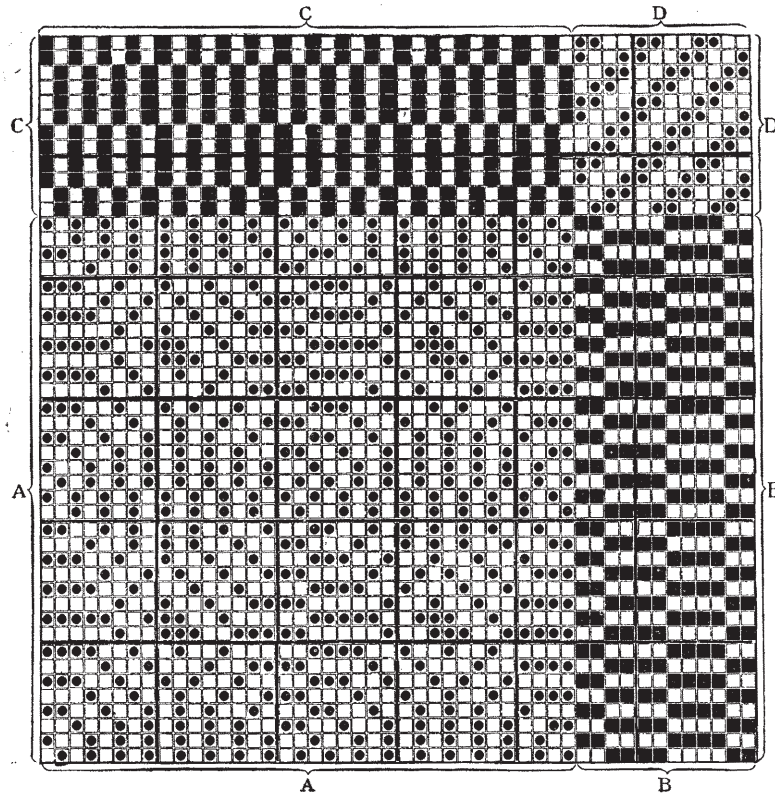


FIG. 199.—FANCY CHECKING IN CORD AND TWILL WEAVES.

process of reversing them tends to show a waved line; hence the duplicated transposition of such effects produce, as seen in the example, either a diamond or a lozenge figure. This class of compound check and lozenge basis of design is also obtainable in diagonal plans in which the order of transposition results in corresponding lines of effect in the series of warp as in the series of weft intersections. Included in the plans given

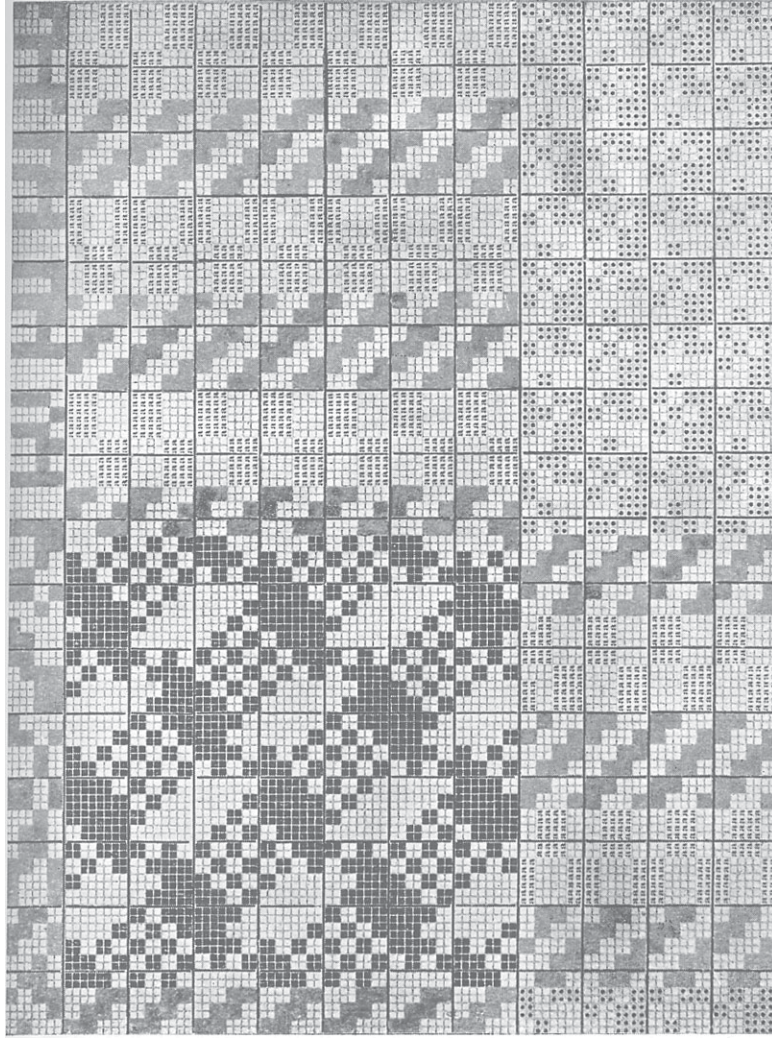


FIG. 200.—CHECKING IN OPEN-WEAVE STRUCTURES. (Section only.)

in the standard shaft-mountings, the following may be selected for the construction of similar varieties of pattern to that reproduced at Fig. 198—

Twilled Type.	Plans.	Sectional parts in which the designs should be made.	Heddle Mountings in which the designs are weavable.
7-shaft	D & E, Fig. 103	14 × 14 21 × 21, etc.	14 shafts.
8-shaft	C ² & D ² „ 77	16 × 16, 24 × 24 „	16 „
10-shaft	J & N „ 106	20 × 20, 30 × 30 „	20 „
12-shaft	H & O „ 108	24 × 24, 36 × 36 „	24 „

204. *Weaves Applicable in Modifying Diamond Outlines.*—

For developing the checked outline, but for modifying the diamond features observed in the repeats of the design in the fabric in Fig. 198, such plans as are specified below may be employed—

Twilled Type.	Plans.	Sectional parts in which the designs should be made.	Heddle Mountings in which the designs are weavable.
6-shaft	N, O & P, Fig. 102	12 × 12, 18 × 18, etc.	12 shafts.
7-shaft	A, B, C & D „ 103	14 × 14, 21 × 21 „	14 „
8-shaft	B, C & F „ 104	16 × 16, 24 × 24 „	16 „
9-shaft	A, B & C „ 105	18 × 18, 27 × 27 „	18 „
10-shaft	H & L „ 106	20 × 20, 30 × 30 „	20 „
12-shaft	M & P „ 108	24 × 24, 36 × 36 „	24 „

These weaves are indicative of the varieties of crossings usable, but are not to be taken as covering the many kinds of twills—elongated in the warp or weft according to the description of pattern intended—and other types of fancy twills running at an angle of 45°, which are, in addition, adapted for this style of checking. When, however, more decorative textural effects are desired, and in fine fabrics, specially-constructed weaves are applied. Should, in these instances, the details of the crossings, as in the diagonal make in Fig. 198, give prominence to both the warp and weft intersections (see the warp and weft transposed elements in sections A and B) it is essential that the weft, as well as the warp yarn, should be

of a suitable count and quality for expressing such effects clearly and smartly in the woven cloth.

205. *Special Weave Structures and Checked Styles.*—Fig. 199 belongs to another category of checking as regards weave composition. Here the system of inverting and transposing given plans of interlacing is not practised either in parts A or D; and in parts B and C one weave is an irregular warp, and the other an irregular weft cord. The textural plan in part A is of a varied formation, having some resemblance, in the interlacing details, to the filament contexture of a spider's web. That this has been rendered feasible is due to the practice in combining and planning the warp and weft intersections, which are formed in fine twill, weft elements, plain weave, and in warp and weft repp systematically diversified in length of float. Section A of the check is a complete and effective blouse plan either in piece-dyed fabrics, or in variously-coloured fancies. It is shown here as the principal weave scheme of a checked pattern on 48 threads and picks, and in combination with weaves that develop its definite structural features. Plans B and C result in neat areas of warp and weft repp, while the 12 ends and picks of twill form a corner feature which also harmonizes with and accentuates the details in parts A, B, and C; and, at the same time, gives a special tone to the design composition.

206. *Open Weave Structures and Checked Compounds.*—Fig. 200 is typical of the technical and weaving ingenuity which may be displayed in the construction of checked patterns in which the plans combined are open in structure. In the example the method of assorting the weaves, as well as the practice, in selecting the types of weave employed are suggestive. It is, in such styles, a question of producing new and effective textural contrasts and of acquiring an appropriate build of fabric, with the weaves so grouped as to give a pronounced checking. There are, in Fig. 200, first, the warp and weft floated features marked in ■'s; second, the intersection plans marked in □'s; third, the special twilled lines

in grey; and fourth, the elongated mat or hopsack details printed in [a]s. The effects of each plan are quite visible in the photographic reproduction at Fig. 200A. The intersection value of each weave unit is here observed, but the details, due to the respective crossings, are better defined in the woven specimen than in the illustration. Designs of this originality in weave combination, and also those described

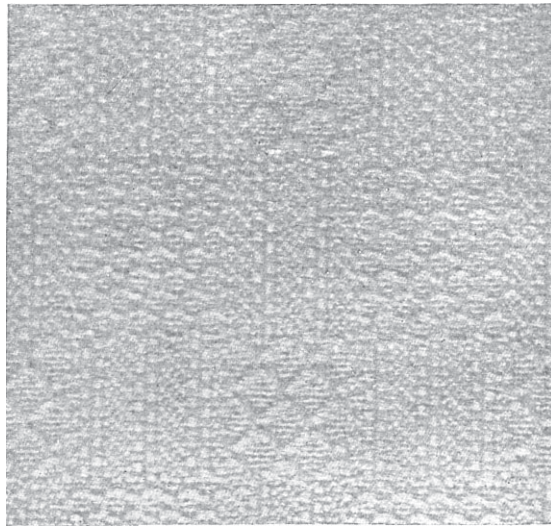


FIG. 200A.—TEXTURAL EFFECT OF THE DESIGN IN FIG. 200.

under Figs. 198 and 199, are, in the loom-setting practice, adaptable to silk, cotton, and linen manufactures, and likewise to union dress cloths. This open-make pattern is, for example, weavable in a silk and linen union, using 2/60's linen warp, crossed with 20's silk, and having approximately 102 threads and 96 picks per inch in the loom.

207. *Rhomboidal Base*.—The term "rhomboidal" has been applied: (1) to twilled patterns in which the twill lines are worked into parallelogram forms, with the figures in a transposed relation; and (2) to compound and fancy twilled

features blended into rectangular figures, set across each other in the repetition of the design. But the term is, in a sense, descriptive of all types of pattern consisting of such geometric figuring, should the figured forms be symmetrically inverted and disposed at right angles to each other in the composition of the style. The first variety was treated of in dealing with the principles in originating weaves on a transposition base—the plans, illustrated at Figs 95, A, B, etc., being suggestive of the rhomboidal base as applied in weave construction. The scheme there presented is adapted to extended and decorative treatment with the weave elements selected, and with variations in the number of threads and picks the designs occupy.

Fig. 201 is a design type formulated on this basis. First the broad lines in weft twill marked in ■'s are exactly transposed, starting at the points *a* and *a'* on the 1st pick and thread, and on the 25th pick and 48th thread of the example. Next there have been added, on each side of these details, the lines in plain in □'s, and also of the varied weave features in ◻'s; followed by serially transposing the several groups of pattern elements worked out in relation to the initial lines *a*, and in corresponding sequence and relation to the initial line *b*.

Such a plan of design gives geometric forms of a different quality and structure with the movement of the twilled type employed. Using, as in Fig. 202, a twill moving 2 picks for 1 thread, divides the area of the design into the parallelograms A and B, intersecting each other at right angles, the intermediate spaces being of a lozenge shape, and filled in with $\frac{2}{2}$ twill checked. In the sketch at Fig. 203, another principle of arrangement is shown with figures C and D and E and F formed into stripes, but C set across F, and D across E. One portion of this sketch transferred on to point paper, is seen at Fig. 203A developed in 4-shaft twills, which twills are sufficiently dissimilar from each other in effect, to impart a suitable degree of emphasis to the different sections of the pattern.

Should, for instance, the style be woven in a light shade of warp and a medium tone of weft, the respective parts of the figure would be clearly developed in the fabric, for those in ■'s

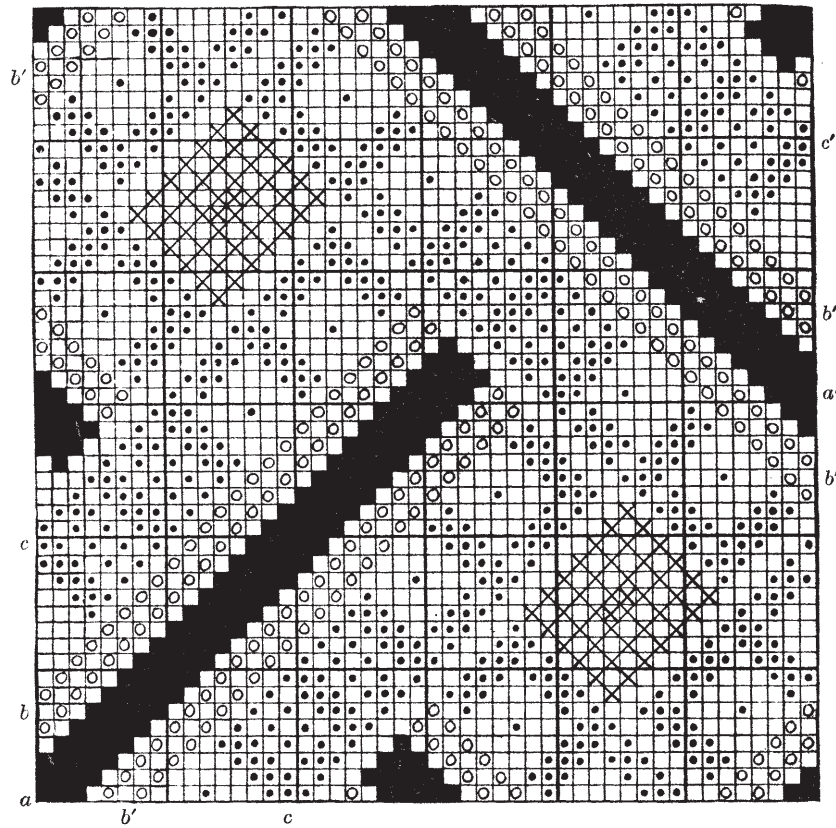


FIG. 201.—RHOMBOIDAL BASE.

would be in the medium tone, those in □'s in the light tone, and those in ⊠'s in the two tones equally blended.

208. *Rhomboidal and Transposition Basis.*—The rhomboidal is to be distinguished from the pure transposition base of design. The latter generally consists in selecting a simple or decorative type, and systematically inverting its integral

parts, but the former comprises also the construction of the figure by the class of weave structures combined, and the regular transposition of these in completing the pattern.

The rhomboidal character in Fig. 203 is, however, elemental in the plan of figuring. Here, and also in Fig. 204, the basal scheme is rhomboidal, in so far as quadrilateral figures are

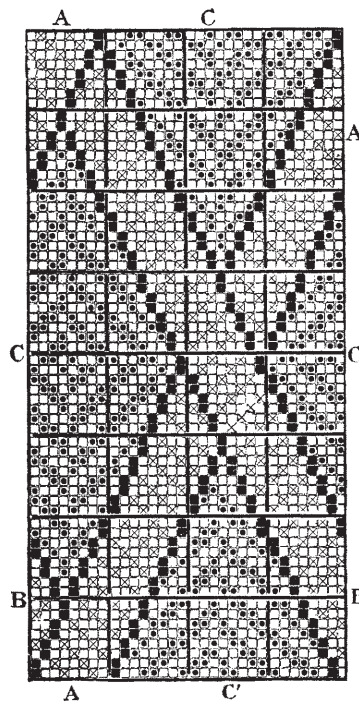


FIG. 202.—ELONGATED RHOMBOIDAL PATTERN.

employed whose angles are not right angles. The different forms in the latter—woven in $\frac{3}{1}$ twill in the ground—are determined by the lines in flushes of weft yarn, consisting of step twill and of sateen. They show the applicability of the rhomboidal principle of pattern design to other than twilled units, and arranged as in Fig. 95 A to E, and also as in Figs. 201 and 202. The types of form blending, derived from the modification of the Grecian key pattern, may also be utilized by

producing the divisional lines in warp or in weft crossings, and by filling in the intermediate and geometric areas with plans of the reverse construction, or with plans of a distinctive character. The demarcation features A, A and B, B (Fig. 204) are weavable in 2, 3, 4, and 5 threads and picks, according to the value it is intended they should have in the definition of the style.

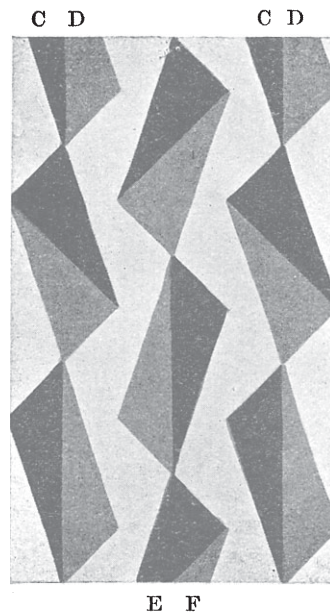


FIG. 203.—MODIFIED RHOMBOIDAL BASE.

209. *Transposed Base in a Single and Compound Build of Fabric.*—Both these examples (Figs. 203 and 204) differ from that of the ordinary transposition base which is illustrated in Fig. 205, a design composed of the regular figure at A, transposed in every detail at B, and texturally developed by weaving the cloth in a 2-ply structure in the figuring, and in a single structure in the ground.

In sections A and B, every third thread in the warp, and every third pick in the weft, floats on the face of the cloth.

making plain intersections of an open order, but securely knitted into the cloth foundation. These threads, by reason of their separatedness, produce a kind of leno or gauze effect on a firm woven surface ; but as the cloth to which they are stitched is quite firm in build, there is not here that thinness of structure which characterizes the leno fabric. Strictly, the

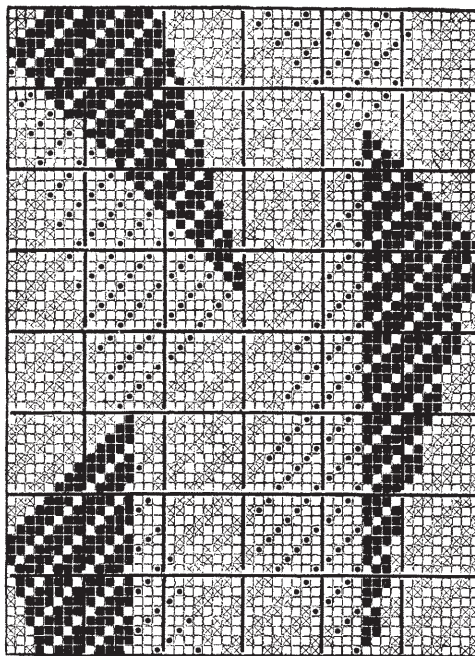


FIG. 203A.

figured sections, in this class of design, consist of two weaves, working independently of each other, and each forming a special texture ; thus, while the threads and picks f give the canvas effect, the cloth proper is formed by the threads and picks g . In the ground of the pattern, these two sets of threads are amalgamated in the single twilled weave. In order to clearly develop the pattern style, the threads f should be of a different quality from threads g , as for example 2/60's

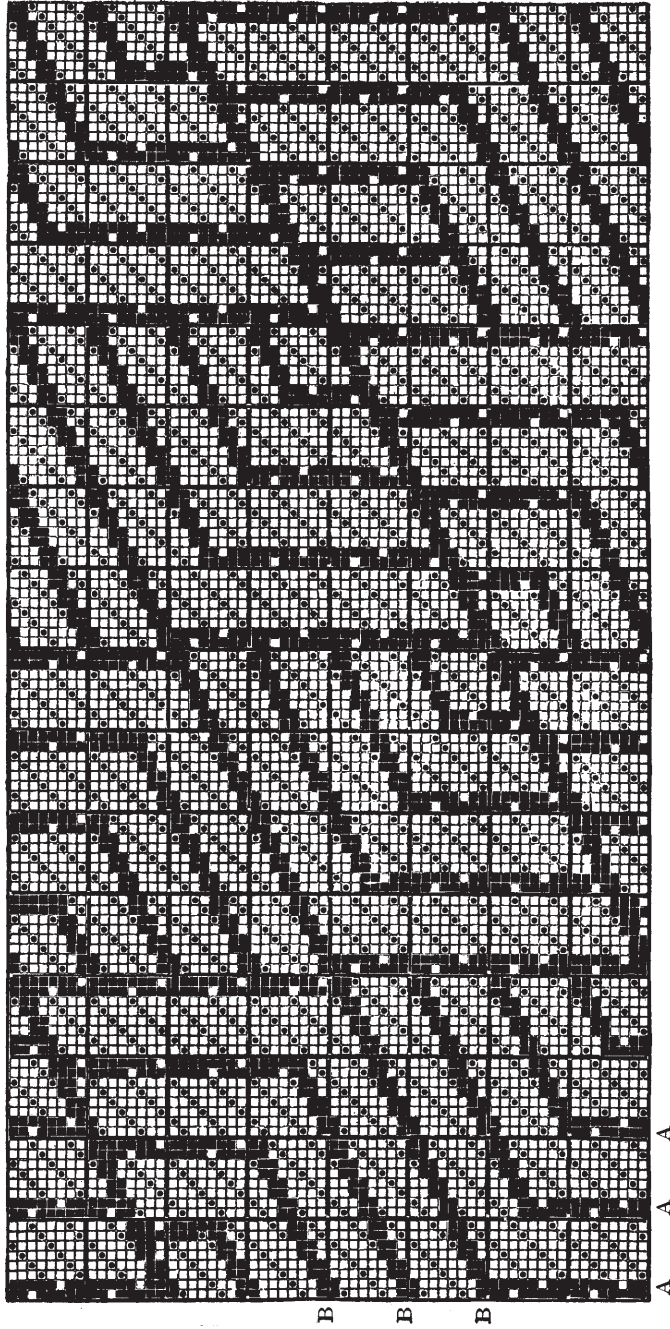


FIG. 204.—EXTENDED RHOMBOIDAL TYPE.

cotton warp for the latter, and either 2/30's mercerised cotton or silk for the former. The figuring threads or picks spot or check the single weave ground of the fabric in addition to developing the design features.

210. *Interlacing Figuring*.—One of the basic geometric

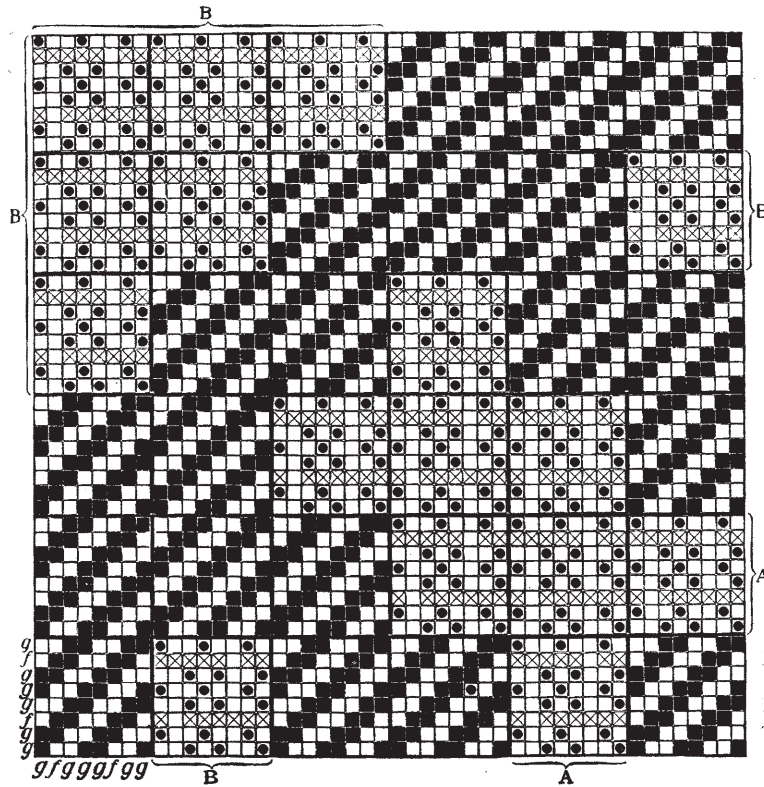


FIG. 205.
TRANSPOSED BASE: SINGLE AND COMPOUND WEAVE STRUCTURES.

pattern forms is that synonymous of the masonic craft. It is obtained by inverting and intercrossing triangular figures, which, whether executed in straight or curved lines (concave or convex), are the co-efficient of each other. As such, they are indicative of unity and of perfect co-ordination. Each of these form units (Figs. 206, A, B, and c) may be translated

into a woven result by developing one figure in warp and its complementary figure in weft effect, and by weaving the ground of the texture in a third crossing of a suitable construction for giving equal emphasis to the figures sketched in toned and in dark grey.

The structural plan of interlacing decorative forms here



FIG. 206A.



FIG. 206B.

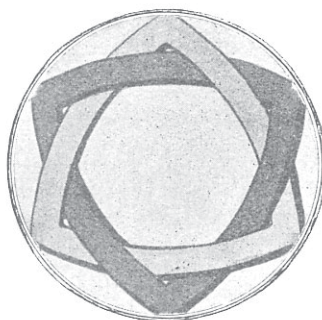


FIG. 206C.

INTERSECTING GEOMETRIC FORMS.

illustrated, is, in textile design, utilized in producing patterns on the diamond, the diagonal and figured bases. The diamond composition is observed in the simple example in Fig. 207. It comprises two sets of interlacing lines in double plain makes developed on a single-plain make ground. Colouring the pattern 1 thread of tinted yarn and 1 thread of toned yarn in the warping and in the wefting would give a textural ground in hair-line effects, on which the interlacing details

printed in □'s would be in the tinted colour, and those printed in ■'s in the toned colour. The fundamental principle here typified is that of the line effect A passing over the line effect B, followed by the line B traversing over A. The effects enclosed in these intersecting lines are woven at A', in the tinted threads ; and at B' in the toned threads, and form central spottings in the two colours on the hair-line striping. Enlarging the base, and combining three weave

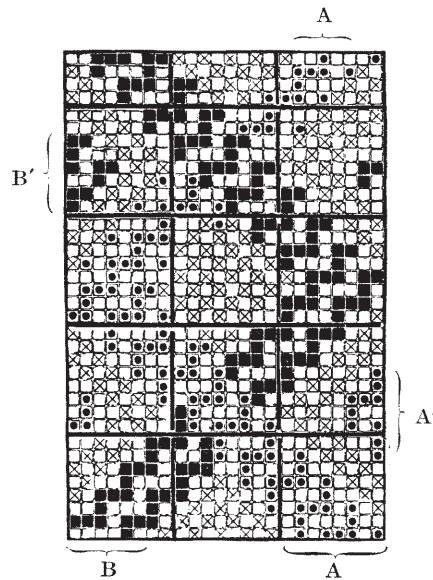


FIG. 207.—INTERSECTING STYLE.

units, such as those which contrast with each other in effect, the sections giving the diamond features are variously decorated ; so that the textures may be manufactured in one kind of yarn in the warp and in a second kind of yarn in the weft, or they may be manufactured in one quality and count of yarn for piece-dyeing.

For the application of this base to the diagonal scheme of pattern-making, the design in Fig. 208 may be considered. Here one set of details—in $\frac{4}{2}\frac{2}{2}$ twill or the zig-zag—is employed for intersecting with the constant twilled lines woven in solid

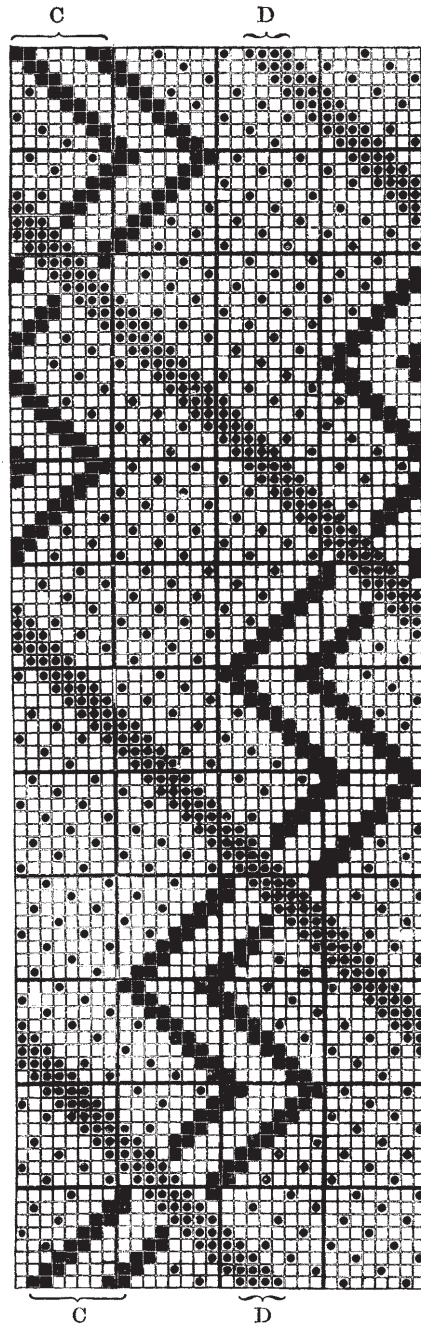


FIG. 208.—INTERSECTING DIAGONAL.

floats of weft. Both sets of detail might be interlaced, that is, the lines C made to traverse alternately over and under the lines D. The weaves used in the development of the pattern are important, for these require to impart a clear, definite quality to the diagonal line, and to be in strong contrast with the ground plan. Employing, as in this illustration, sateen for the ground, weft twill for effects D, and an 8-end twill for effects C, gives a suitable degree of textural differentiation in the three species of detail combined.

Fig. 209 is illustrative of the intersecting design basis when the figures in the repetition of the pattern are detached from each other, but disposed in a uniform relation, with one figure exactly opposite the other. Analysing this arrangement, it will be noted that the twin sections of the semi-lozenge figures are interlaced but filled in respectively in diamond intersections, and in graduated upright weft twills. With two similar or identical forms united in this manner in single transposed decorative figures, it is advantageous to develop them in crossings differing from each other in character. Moreover, it is likewise essential to apply a ground weave, which, as in this example, will give a neat, firm cloth, or one equally effective in bringing out the two or more interlacing pattern features. With certain sections in this design in a warp diamond make, combined with other sections in weft twill, arranged on a rib or cord ground—run into close contact with the former, but allowing compact floats of warp adjacent to the latter—retains the quality of pattern expression desired.

The examples studied have made it evident that should the weave units, employed in the production of interlacing designs, be sufficiently distinct in structure as to impart clearness of pattern style, this practice of design origination results in satisfactory and original classes of dress manufacture. The subject is more elaborately presented in Fig. 210, a form of pattern in which a quadrilateral figure is interlaced with a broad, waved band, A. The variety of interlacing work it comprises is dependent for forceful delineation in the fabric on the

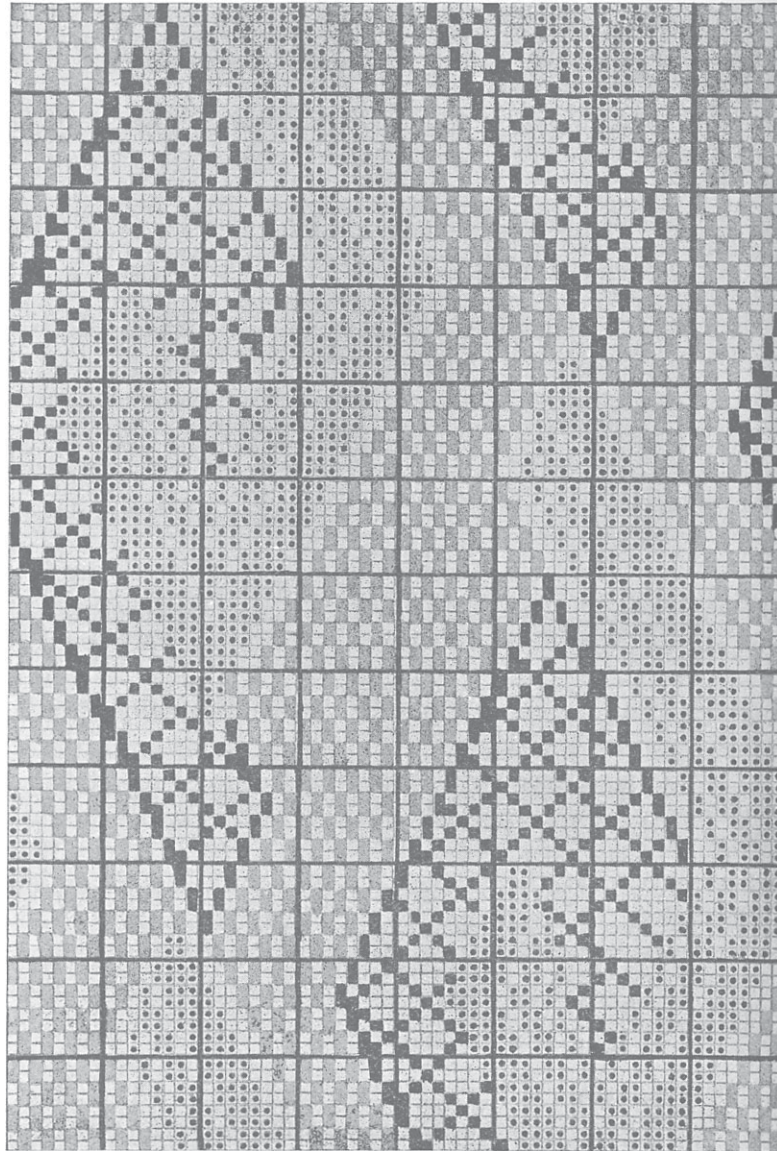


FIG. 209.—INTERSECTING SPOTTED TYPE.

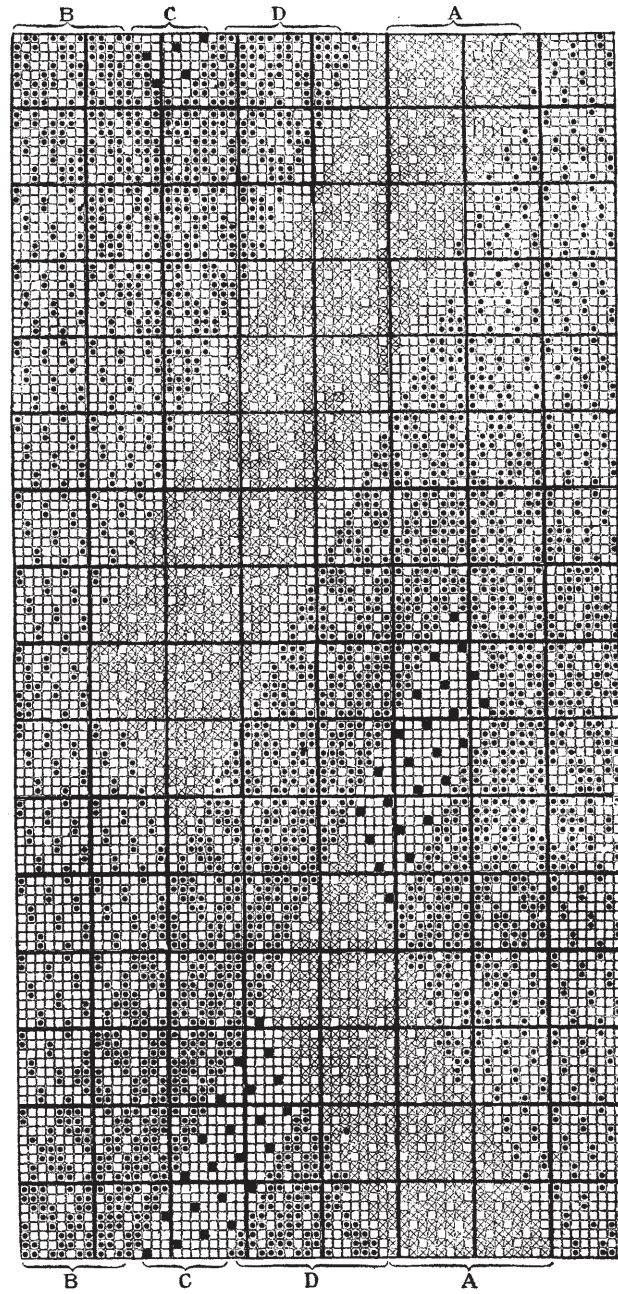


FIG. 210.—INTERSECTING GEOMETRIC BASE.

weaves employed being correctly adjusted. This technicality has been considered in working out the designs in Figs. 208 and 209. In planning a pattern of this order, its dimensions on point paper are first determined. Then follows the sketching in outline of the principal figuring, and that of the waved line A, which, in width, should be made proportionate to the other decorative details in the design. Next comes the question of the weave elements, and of their utility and fitness in developing these simple form units. It should be observed that the irregular joining of the weaves together detracts from the value of the woven result. Considering band A as a primary ingredient of the style, it is, in Fig. 210, developed in 5-end sateen, so that it appears as a toned effect in the cloth. If a weft twill were used instead of the sateen, it would sharpen the definition of the waved line, but cause it to be too prominent a characteristic of the ornamentation. For emphasizing the central portion of the figuring B, across which the weft sateen band is formed, a 10-end warp sateen has been selected, and this would obtain the requisite accentuation of the parallelogram form C. Sections A, it will be noted, also interlace with the lines D. Now by constructing these in upright weft twills, and in shaded twill moving from the extreme edge of the figure, and by applying a buckskin twill to the ground, the elemental details, as well as the form types in the design, would be as clearly defined in the fabric as on the point paper. It will be observed, on examining the illustration, that the several crossings, though differing substantially in textural effect, fit regularly with each other, so that the design would yield both a neat build of cloth and a suitably ornamented woven surface.

Various schemes of manufacture are suitable for patterns constructed on this basis. Four such schemes, adapted for Fig. 210, are appended—

- I. 80's 2-fold Silk Warp and 40's Silk Weft.
40's reed, 3 threads in a dent.
100 shots per inch.

- II. 2/60's Cotton Warp and 30's Cotton Weft.
32's reed, 3 threads in a dent.
90 shots per inch.
- III. 2/50's Cotton Warp and 20's Artificial Silk Weft.
40's reed, 2 threads in a dent.
80 shots per inch.
- IV. 2/72's Worsted Warp and 36's Worsted Weft.
22's reed, 4 threads in a dent.
84 shots per inch.

211. *Diamond Structure of Pattern.*—As a basis of weave effects, this geometric form has been dealt with in Paragraph 157. It has now to be considered as a basis of design composed

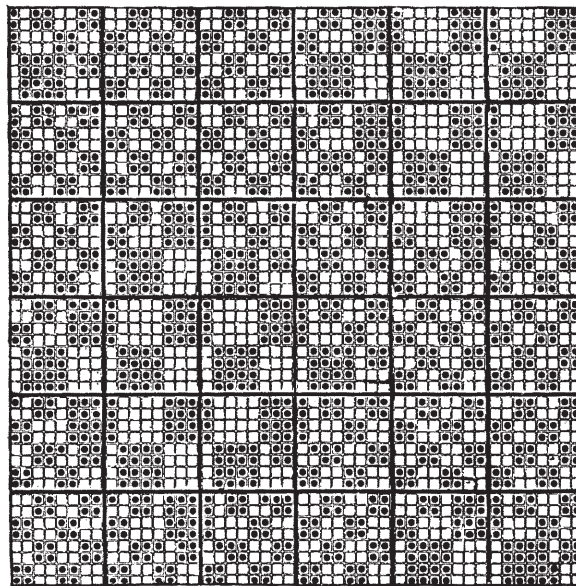


FIG. 211.—DIAMOND BASE IN MAT WEAVES.

of various plans of intertexture. The practice of dividing the pattern area into equal or unequal sections by interlacing lines in a diamond relation may be utilized, developing the ground and figured parts in different weave units, as in the combination of a fine or fast weave for the former, and a more open type

of weave for the latter. Dividing the design in this way, ordinary diamond forms—at equal distances apart, as in Fig. 211—may be arranged in some simple weave such as 4-and-4 mat, when either the 2-and-2 hopsack or the plain

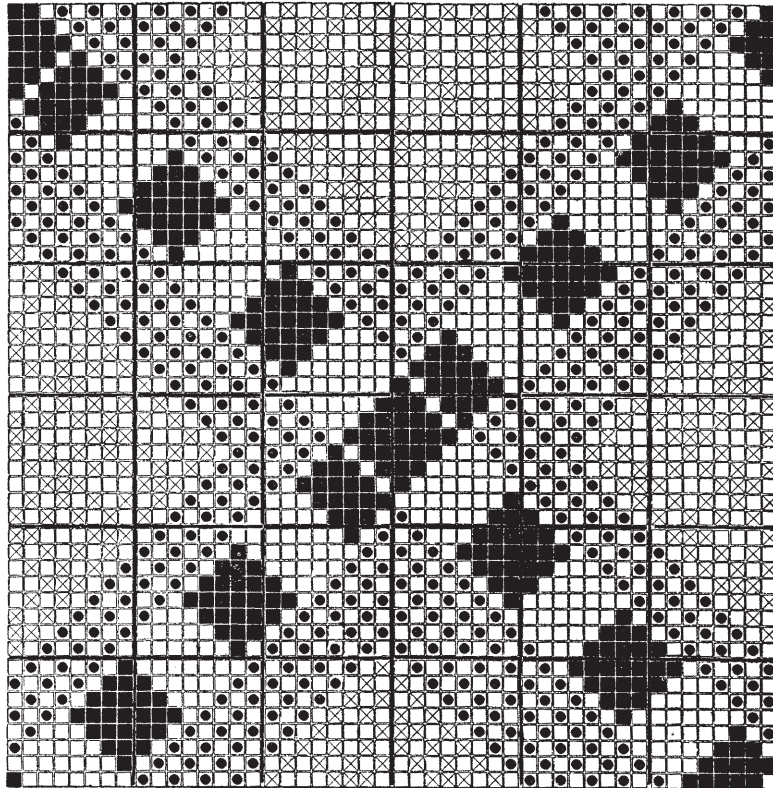


FIG. 212.—DIAMOND TYPE IN PLAIN, MOCK LENO,
AND WARP AND WEFT EFFECTS.

make would be applicable to the ground features. Obviously, the diamond shapes might be woven in reversed twills in the figuring and in the ground respectively. But, as a rule, for these styles, the weave for the diamond figures should be of a regular type, with a weave of a corresponding but closer structure, for the surface area of the pattern.

It is, however, in the employment and combination of correct weave elements that the more meritorious of these examples are obtained. This is enforced in the designs illustrated in Figs. 212, 213, 214, and 215. These are typical of developing the style base: (1) in open weaves, with the

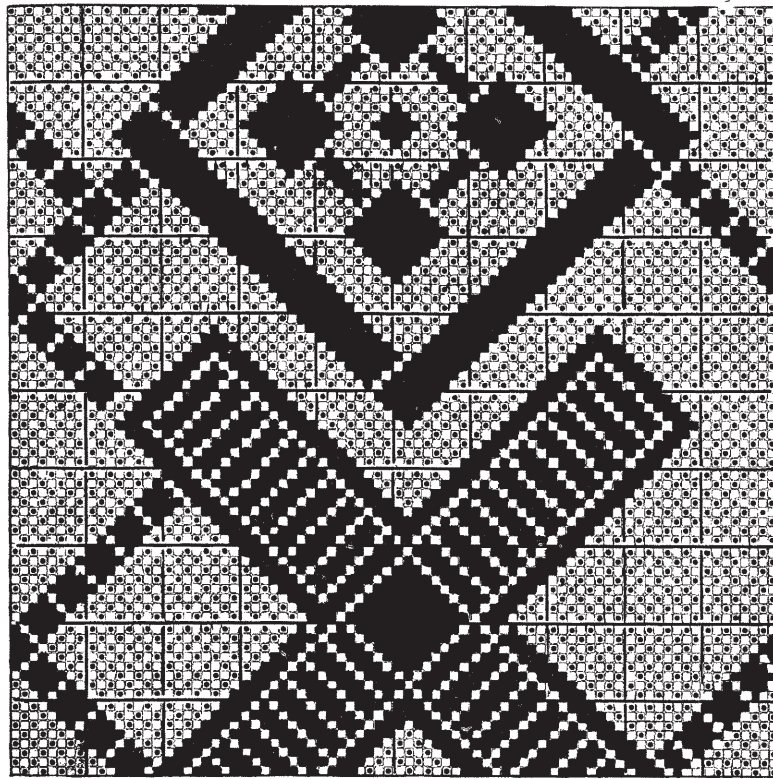


FIG. 213.—DIAMOND TYPE: FIGURED IN THE WEAFT.

diamond units in a faster weave; (2) in duplicating the diamond figuring; (3) in combining diamond forms with other geometric figures, and in ornamenting the ground of the texture with a number of decorative details; and (4) in intersecting diamond with lozenge forms. In each, as will be demonstrated, there are two primary characteristics, that of acquiring

a decided and varied pattern type, and that of acquiring diversity of textural surface as the result of assorting weave elements differing from each other in effect in the cloth.

In Fig. 212 it is not so much the arrangement of the pattern base, which is of the ordinary variety, as the weaves used which form the instructive feature. They render an otherwise simple design scheme diversified in surface details, and in decorative quality. Developing the inner and smaller diamond sections in mock leno, and surrounding these with plain weave,



FIG. 214.

imparts tone to the figuring, and produces a useful build of cloth. In addition, these weave units are in bold contrast with the diamond-shaped details in warp and weft, which define the larger and chief ingredients of the style.

While both warp and weft intersections are used in expressing the pattern details and features in this example, in the next illustration, Fig. 213 (sectional plan), the weave units are so planned as to prevent the warp yarns from appearing for more than one intersection at a time on the face of the cloth. This is the principle of design applied in weaving alpaca and silk union fabrics, where the figuring is a resultant of the shuttling yarn. It restricts the weaving scheme, and involves the

textural features being obtained by changes in the order and in the length of the weft interlacings. Recognizing this factor, it becomes a problem of determining the requisite degree of accentuation to be given to each species of line and

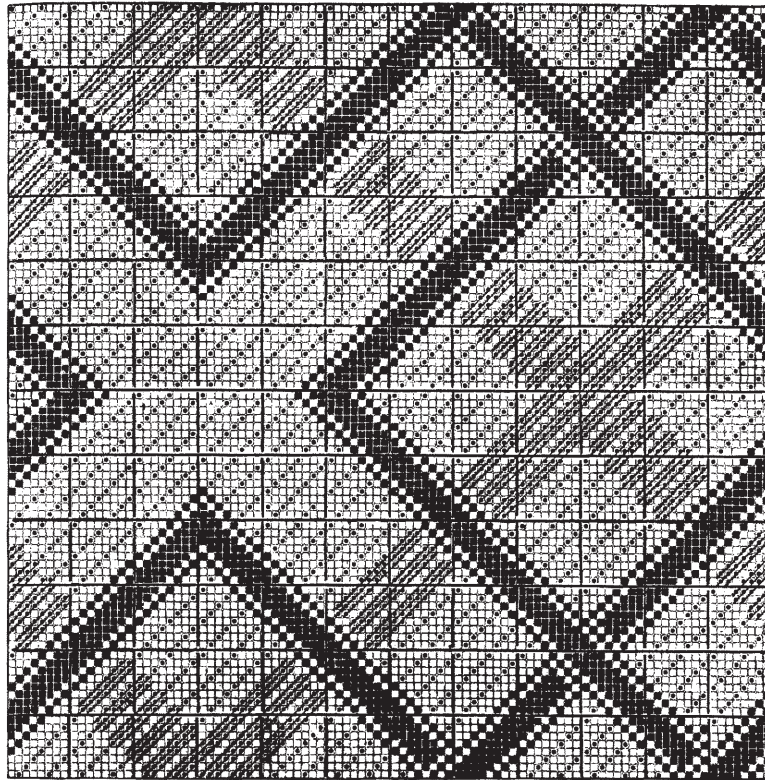


FIG. 215.—DIAMOND BASE WITH INTERSECTING DETAILS.

element in the pattern structure. Studying the woven specimen, Fig. 214 shows how the observance of these data has enabled the weave types to be so used as to give freshness to each sort of ornamental work. The fine ground texture—usually plain or weft prunelle—is of the character for contrasting with the form types developed in twill, small diamonds, and other intersections, and by floating the picks on the surface

of the fabric, and limiting the intersections of the warp threads to single and detached units.

In regard to the geometric forms in the design, the stronger and severer of these are the X-shaped figures, and for the purpose of lessening their prominence in the cloth as compared with the diamond figures, they are woven in $\frac{1}{3}^1$ weft twill, with the central spottings developed in a distinctive tone, by flushes of weft extending across as many as 12 threads of warp. Other decorative types, which are more clearly delineated, are composed of 7-and-1 of weft twill, and of 3 to 11 weft floats, as in the rectangular group of diamond details. The lines linking one type of pattern with another, and for ornamenting the ground-work, are woven in a small diamond plan of weave.

Like principles of intertexture have been practised in the construction of the example in Fig. 215, where lozenge and diamond figurings interlace with a larger scheme of figuring expressed in 4-shaft weft twill. In this case, however, the ground weave is $\frac{1}{1}^3$ warp twill, making a design adapted to manufactures in which the warp, in addition to the weft yarns, are employed in producing the surface features in the fabric. This designing practice is applicable to dress textures consisting of cotton, linen, or of mixed cotton and worsted yarns, and also to silk goods. The principal figuring lines are formed by floating the weft over five threads in succession, and binding them at the edges with plain interlacings for clearly defining their textural quality. As the pattern is constructed, there is a large diamond figure (marked in \square 's) underneath the section marked in \blacksquare 's.

Other species of weave ornamentation might be substituted for those employed, such as sateen for the bold twilling, $\frac{2}{2}^2$ cord for the $\frac{1}{1}^3$ weft twill, and $\frac{2}{2}^2$ twill as the ground crossing: in addition, the central parts of the larger figures might be decorated with plans of the diaper construction.

As showing the method of using the diamond base in the formation of elongated figures, section A of Fig. 216 may be

examined. One of the lines of the lower diamond type is continued to form the opposite side of the upper diamond, so that the two units give a compound form of figure. This is developed in clear floats of warp and weft, and on a plain ground. If the figures were constructed in broader proportions, the twilled lines might be varied or vandyked with weave

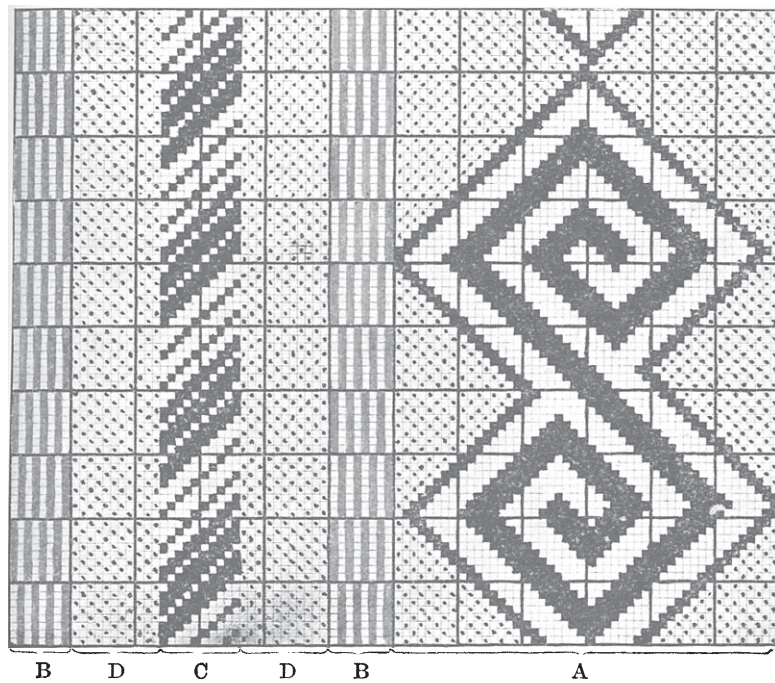


FIG. 216.—STRIPED COMPOUND.

details. But in the scale here shown, the working out of the plan, in one well-defined weave scheme, is more appropriate. As illustrated, it would produce a forceful striped design; for adjoining the two sides of band A are the stripes in 8-and-8 warp repp, and these are combined with bands of plain intertexture, centrally decorated with the fancy twilled section C. By considering the effect of the following order

of colouring on the pattern, other technicalities in this arrangement and structure will be apparent—

Warp : 1 double thread of light cotton or silk (*a*) } for
 1 " " fancy " " (*b*) } 8 threads.
 11 threads of toned cotton or silk (*c*)
 10 " " " " (*d*)
 11 " " " " (*e*)
 1 double thread of light cotton or silk (*a*) } for 8
 1 " " fancy " " (*b*) } threads.
 48 threads of toned cotton (*c*).
Weft : Toned cotton or silk (*d*).

According to this order of colours, the figuring in □'s, in band A, would be in tone *c*, and the figuring, in grey, in tone *d*. As to sections B, these would not be modified by the weft, and would consist of transverse lines of the light tint *a*, and of the fancy tint *b*. The twilled section *c* in ■'s would be woven in tone *d*, with the warp effects in tint *a*, while the plain weave ground in the two larger stripings would be in tones *c* and *d* and in *a* and *d*. Hence there are here several contrasts in colour as well as in design features resulting from the arrangement of the weaves constituting the figuring, and of the bands in rib, diagonal, and plain make respectively. It is a cast of pattern capable of some variation: thus the rib sections might be changed to twill, and the diagonal parts to a diaper crossing, with the method of colour diversified as to hue and tint, and as to order of warping.

212. *Lozenge-shaped Types*.—Two illustrations are supplied on this basis in Figs. 217 and 218. Fig. 217 is obviously a variety of elongated diamond pattern, being formed in "cutting" weave elements so as to be useful in simple schemes of colouring. Thus there is in the design the well delineated lozenge figure composed of flushes of warp, with its interior features consisting, in one section, of certain checked crossings, and, in the other section, of angled $\frac{3}{3}$ twill.

Diversity of textural construction, with the development of a balanced decorative pattern, should be the prominent

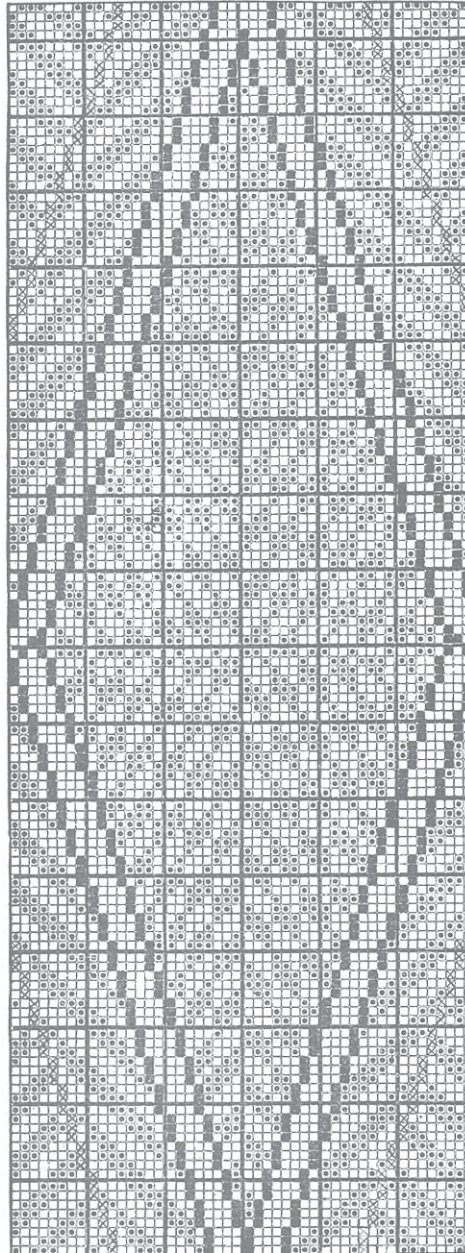


FIG. 217.—LOZENGE PATTERN DEVELOPED IN $\frac{3}{3}$ TWILL.

characteristics of this type of design. Fig. 218 is suggestive of the method of modifying the basic structure, and of the technical practice in expressing the form units of which the style consists. This example is composed of two large lozenge figures, grouped on the "drop" principle. The outlines of the figures are rendered distinct in tone by the compact floats of weft twill and sateen in which they are produced. With the colour of the weft yarn differing from that used in the warp, the sectional parts of the style in ■'s and in □'s would be quite clearly emphasized in the woven manufacture. The manner in which the interior of the figures has been decorated with weave detail is illustrative of a special scheme of textile design. These details shade from clusters of diamond spots at the upper apex of the lozenge figure, to single separated spots at the base of the figure. Other varieties of spotting, such as effective weave elements, might also be combined in this way.

Three methods of producing the design (Fig. 218) in silk, worsted, and cotton, are suggested in the particulars specified below—

- | | | |
|--------------|---------------|--|
| (1) Silks. | <i>Warp</i> : | 80's 2-fold light tint. |
| | <i>Weft</i> : | 30's medium tint.
120 threads and 100 picks per inch. |
| (2) Worsted. | <i>Warp</i> : | 2/60's Botany.
25's reed 4's. |
| | <i>Weft</i> : | 2/60's Botany.
96 picks per inch. |
| (3) Cotton. | <i>Warp</i> : | 2/60's light tint.
40's reed 2's. |
| | <i>Weft</i> : | 30's medium tone.
80 picks per inch. |

213. *Compound Geometric Types*.—"Compound Weave" designs also include figured styles consisting of two or more types of geometric forms. Several examples will be analysed, especially such as are suggestive in the base of construction, and in the weave units combined. Taking, firstly, a compound lozenge and rectangular scheme of pattern—that

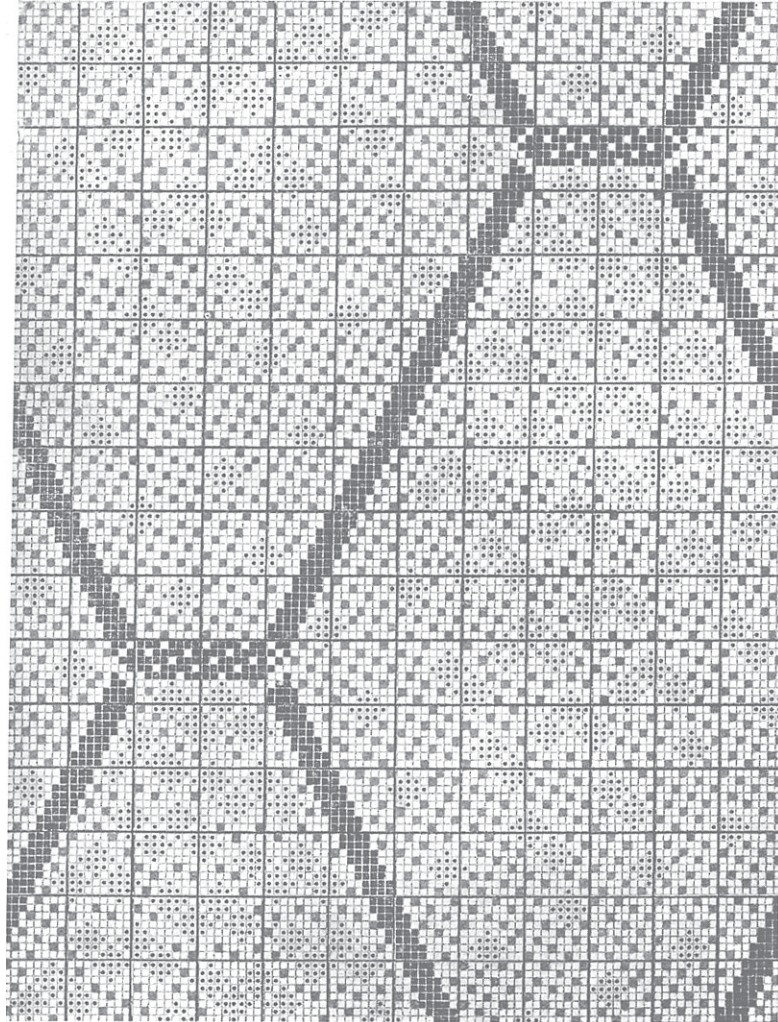


FIG. 218.
LOZENGE TYPE DEVELOPED IN SATEEN AND SPOTTED EFFECTS.

illustrated in Fig. 219—it is formed of areas of $\frac{1}{2}^2$ twill, and of $\frac{1}{1}^3$ and $\frac{1}{3}^1$ swansdown, with the diamond and rectangular figures set across each other. The complete pattern is so regular in plan of formation and in weave structure as to be useful in thick or fine yarns, and yet give, without the addition of colour, a neat and clear textural design.

Secondly, the practice in combining serpentine work with star spotting and striped features is shown in Fig. 220. This is a more complex and diversified composition. The design

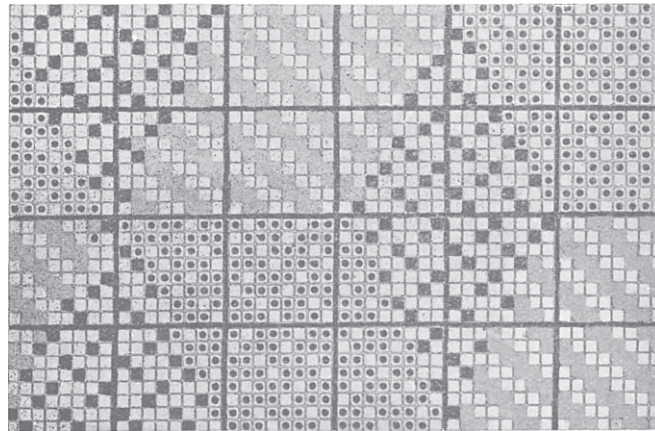


FIG. 219.—SIMPLE GEOMETRIC TYPE IN 4-SHAFT WEAVES.

elements are executed in weft repp plans. The style, as so formed, exemplifies the diversity of pattern producible in weft cord plans on a warp-twill surface. For developing the interlacing star details, the ground adjacent to such is woven in plain rib, that is a weave which forcibly differs in effect from the 5-end sateen used in other portions of the striping between the zig-zag lines B, B'. Considering it is as weavable in one colour of warp and weft, the effects in ■'s would be in solid floats of the latter, the ground in fine warp twill, and the other sections, printed in □'s, in sateen and plain rib. Assuming it, in the next place, to be produced in a light tone of warp and a deeper tone of weft, the weft features would be

more distinctly brought out in the fabric ; or, should it be coloured in the warp by some such method as that given below, the style would be further modified and enhanced—

Warp : 18 threads of light heliotrope cotton or silk (*a*).
 12 „ tinted „ „ (*b*).
 18 „ light „ „ (*a*).
Weft : A medium tone of heliotrope cotton or silk.

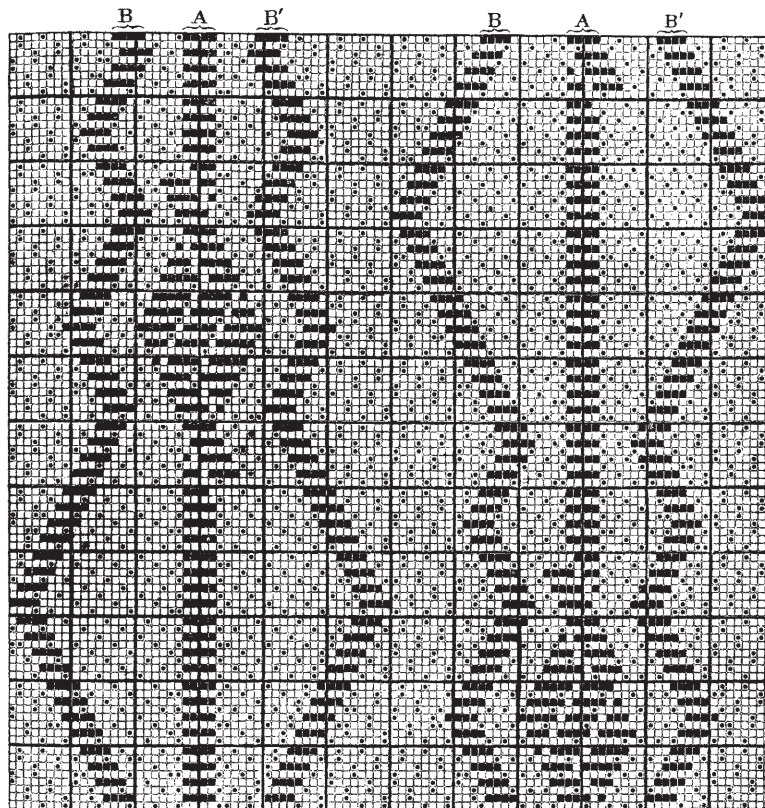


FIG. 220.
 GEOMETRIC TYPE IN CORD, SATEEN, AND TWILLED WEAVES.

This looming arrangement would result in the repp figuring being expressed in the medium tone of colour with the edges of stripe A in tint *b*, and the ground features in the light tint.

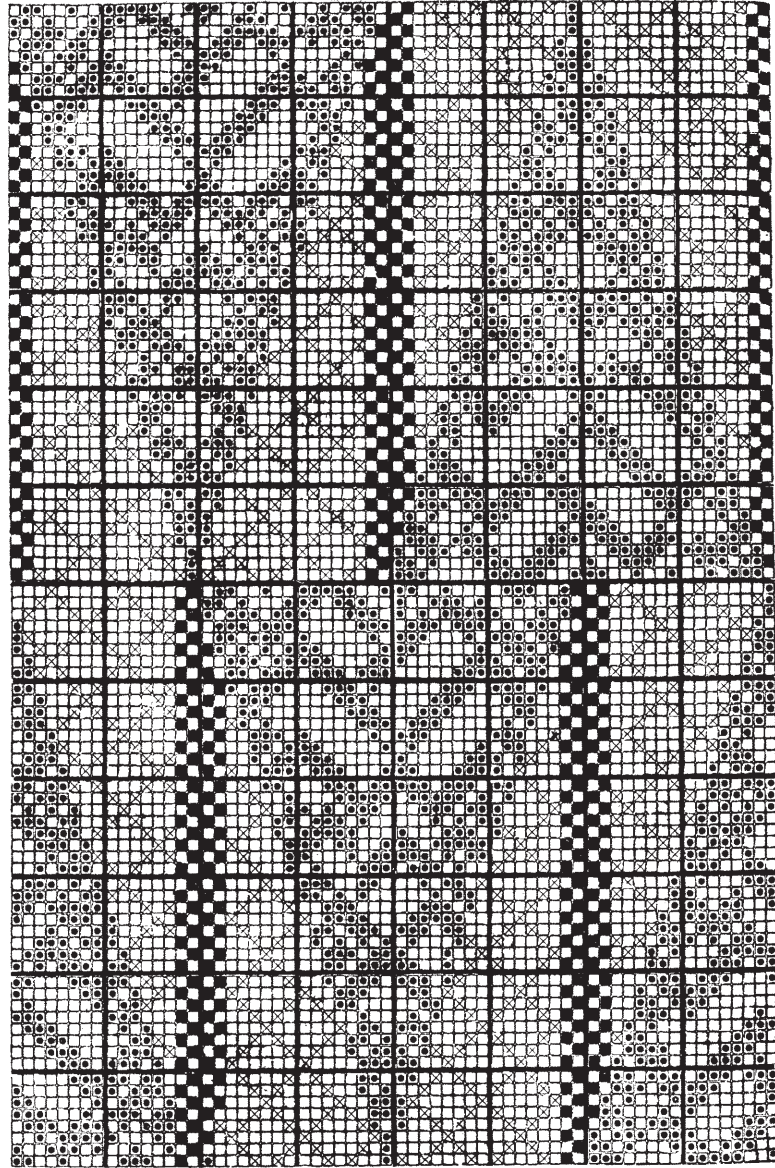


FIG. 221.—INVERTED GEOMETRIC STYLE.

The third example (Fig. 221) is based on the combination of inverted triangular figures and bi-sected parallelogram forms. There is, in this pattern, an order of weave grouping which is specially adapted to fine-set cotton, linen, and silk manufactures, namely, plain and diamond makes, with zig-zag twilling. On this account the style is not applicable to woollen yarns, but the crossings combined make it suitable for giving diversity of textural style in cotton and silk goods. Thus it would give intermittent stripes in plain weave, sections in diamond effect, and sections in shaded, angled twill. Patterns of this formation are effective, whether produced in one or several colours. This is owing to the pronounced weave effects of which they consist, the character of the design being determined by the weaves applied, as well as by the geometric base employed.

214. *Combination of Transposed and Checked Pattern Bases.*—The compound base of design construction, seen in Fig. 222, is representative of a class of diamond pattern developed in shaded twills. The repetitions of the design develop a checked character, with the addition of the spottings in ■'s—which are intended to be woven in extra picks of weft, and the method of their insertion will be considered in Chapter VIII. The design has been produced by outlining the features B, B', and working these out in twills shading from a 5-float of warp to a 5-float of weft, so that if the warp yarns should be a light colour and the weft yarns a toned colour, the edging of the figures would be in a toned shade, graduating to a light shade in the central portions of the figures. The areas of the pattern, intermediate between B and B', are rectangular in shape, but drawn in curved lines. Shading, in these sections, proceeds from a maximum weft element in the centre to a maximum warp element at the extremities, the twilled lines being made to agree with the formation of the star checkings. Sateen weaves might be similarly graduated, or, by enlarging the pattern to 192 threads and picks, warp cord, and other warp-face weaves might be used for the sections in grey, and

weft cords or weft-face weaves for the effects in □'s. As illustrated, the design is weavable—

- (1) In 96 denier organzine silk warp and
90 „ tram „ weft.
180 threads and 170 picks per inch.
- (2) In 2/80's cotton warp and 60's cotton weft—
140 threads and 132 picks per inch.
- (3) In 2/80's worsted warp and weft—
120 threads and 112 picks per inch.

215. *Circular and Geometric Forms.*—While the scroll and circular types of figuring will come under consideration later, reference should be made to the design principles, in which circular and geometric forms are combined. Fig. 223 is typical of this style of decorative pattern work. It is primarily applicable to union dress fabrics with a worsted warp and silk weft, the ground consisting of warp-cord, with the figuring in weft-cord, weft-diaper effect, and weft-sateen.

This example is well-diversified in weave arrangement, and, considering the limited number of threads and picks which it occupies, it is interesting in ornamentative structure. The figured types are arranged on the drop base, with the two principal ones opposing each other, and placed at equal distances apart. By colouring on various systems in the warp and weft, different styles of pattern development are acquired. In the first instance, assuming the warp to be 2/80's medium shade worsted, and the weft a light shade of silk, then the various parts of the figuring would be more or less defined in tone, according to the weave in which they are formed, with the ground of the texture woven in repp, and in the shade used in the warp yarn. Second, such designs are producible in cotton and silk, the combination of the weaves applied being adapted to the manufacture of fine, thin textures. In preparing this looming plan, as also in those in Figs. 209 and 210, both the selection of the weave units, and the arrangement of the figuring are important technicalities. The weaves employed should not only combine satisfactorily, but make a

sound fabric and give suitable prominence to the component parts of the style.

216. *Design Construction on Weave Bases.*—“Weave” bases, on which to construct designs composed of various weave units, are utilized in the origination of simple figured patterns.

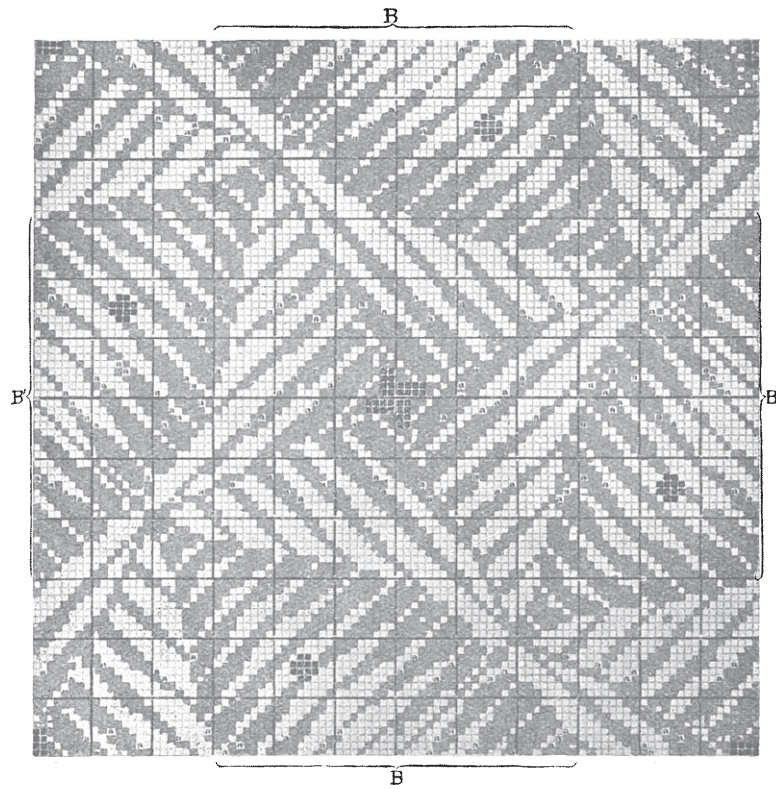


FIG. 222.—DIAMOND CHECKED STYLE IN SHADED TWILLS.

They offer certain advantages—in the first place they form a known mathematical scheme of detail arrangement and distribution ; in the second, if the weave units are, in themselves, effective plans, they result in well-balanced types of design. Moreover, such bases are capable of extension in several ways, as for example, in working out patterns composed of weaves

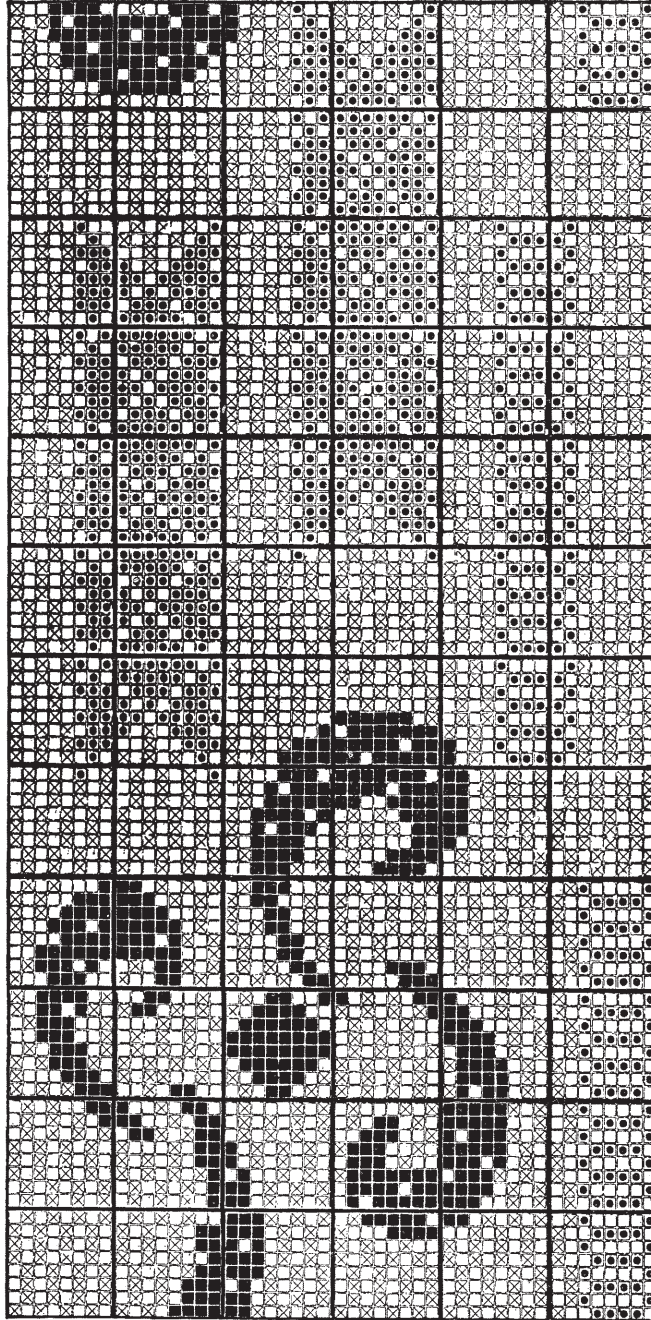


FIG. 223.—SPOTTED TYPE WITH WARP-CORD GROUND.
(Section only, similar design base as Fig. 238.)

derived from the original base, and second, of weaves of an entirely distinct character, but necessarily grouped in agreement with the scheme of intersection in the original plan.

The primary technicalities to consider are the structure of

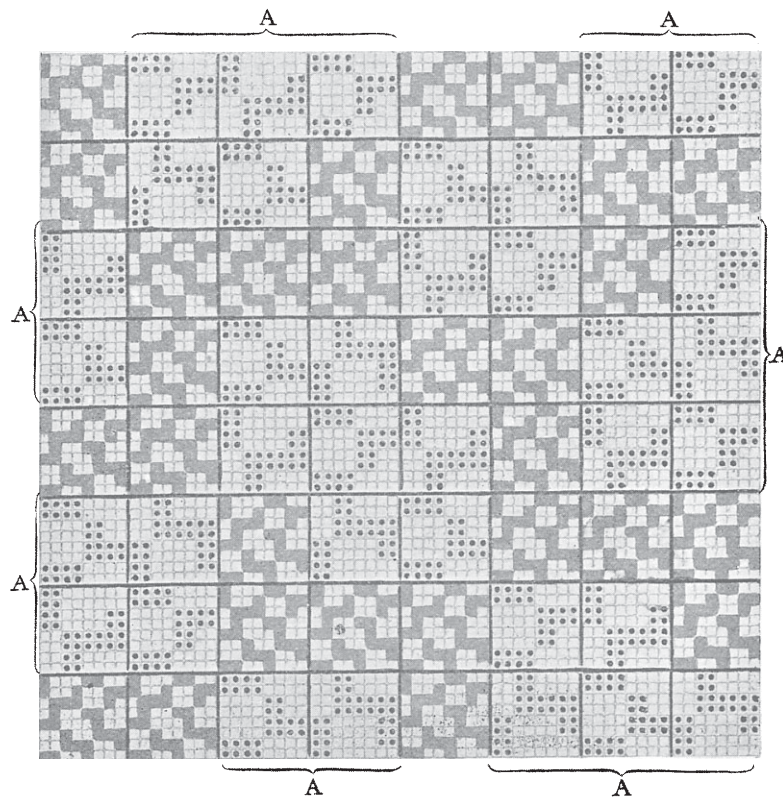


FIG. 224.—DESIGN CONSTRUCTED ON WEAVE BASE.

the weaves selected, and the several varieties of weave effects to be combined with each other in the different sections of the extended design, and which the intersections of the basic weaves represent. To make this clear, Fig. 224—on 64 threads and 64 picks—is a pattern which has been acquired on the interlacing plan shown at Fig. 224A. Each section in this weave is equal to 8 threads and 8 picks in Fig. 224. Duplicating this weave

gives the plan at Fig. 224B, which has been applied to sections A in Fig. 224, corresponding to the □'s in weave B, and

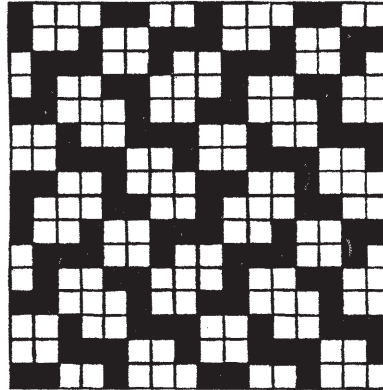


FIG. 224A.

weave A itself to the ground in Fig. 224, which further coincides in arrangement to the weft intersections in ■'s in plan B.

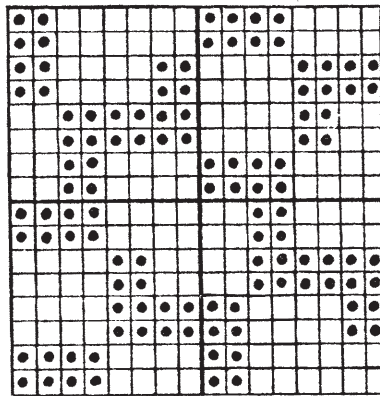


FIG. 224B.

This example is illustrative of the employment of one weave structure in producing the whole design scheme, that is, first, as the ground effect ; second, in its duplicated form, in defining

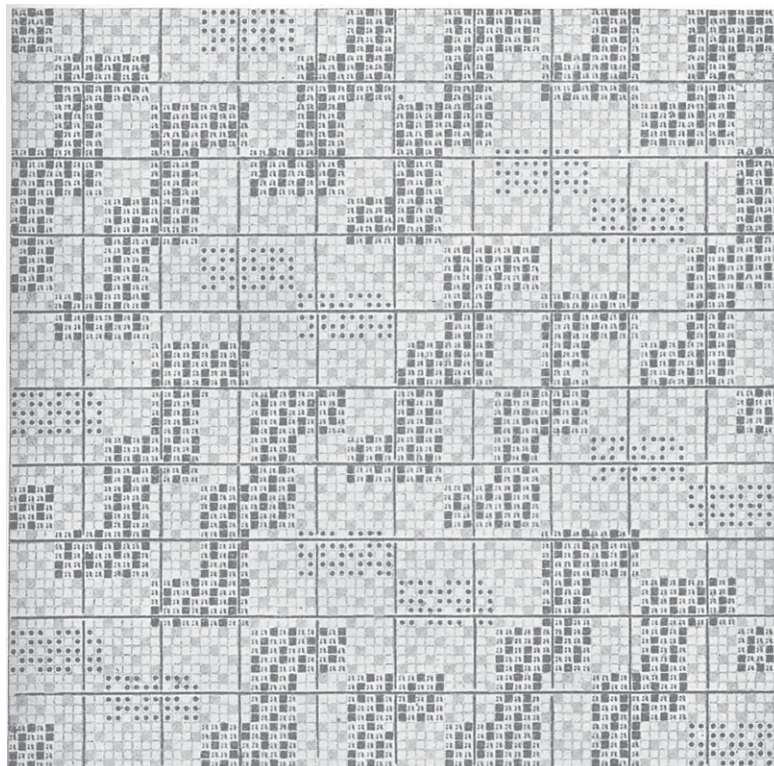


FIG. 225.—DESIGN FORMED ON WEAVE BASE.—PLAN 225c.

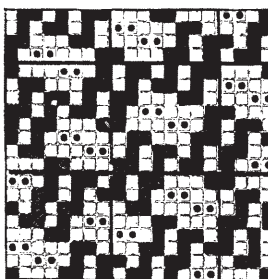


FIG. 225c.

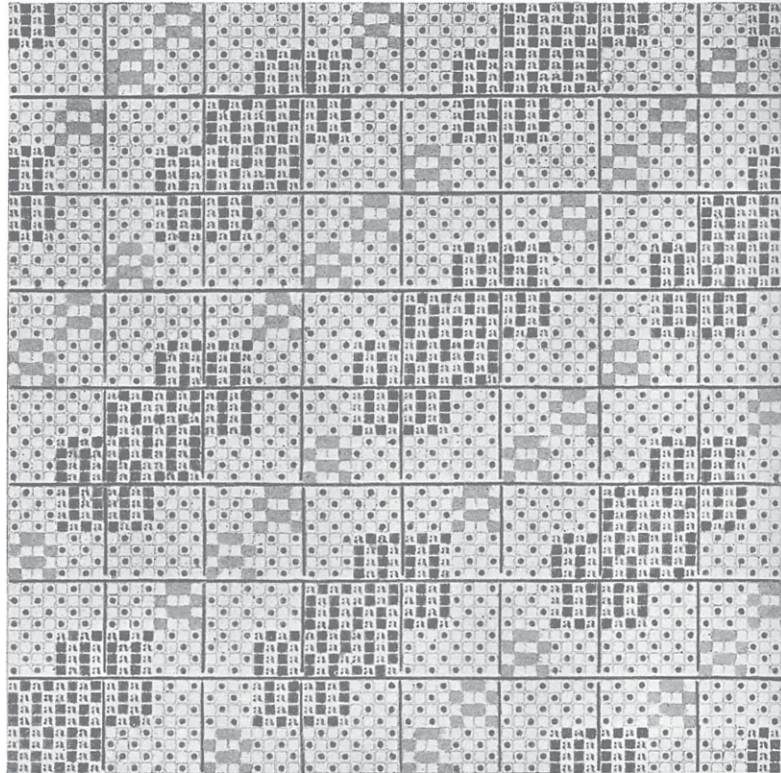


FIG. 226.
DESIGN FORMED ON WEAVE BASE.—PLAN 226D.

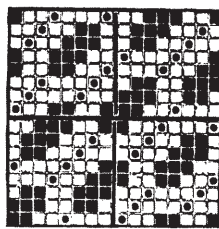


FIG. 226D.

the figured features ; and, third, as the basis of figure distribution.

The second practice, in which different weaves are used in the development of the figuring other than those derived from the structural plan, is illustrated in Figs. 225 and 226. It will be seen, on comparing Fig. 225c with Fig. 225, and Fig. 226d with Fig. 226, how the weave plans have been followed in working out the compound designs. In the first of these examples, the sections in Fig. 225c are developed in weft Venetian in Fig. 225, the sections in \square 's in weft-sateen, and the sections in \square 's in warp-sateen, thus giving a pattern of an identical formation as that of the basic plan, and developed in warp, weft, and intermediate warp and weft effects.

Considering Fig. 226d in relation to Fig. 226, the sections in \blacksquare 's in the former are developed, in the latter, in warp repp ; the sections in \square 's in weft cord ; and the ground or unmarked sections in plain weave. By changing the weft-repp to a weft-twill, this build of design would be suitable for a union fabric with cotton warp and alpaca or artificial silk weft, but, as arranged, it is intended for a texture in which the warp yarns would be the principal figuring factor.

The study of the Weave Structures, illustrated in Chapter V, made it clear that plans of intersection are, in reality, types of textural effect, that is distinctive but minute forms of pattern. This being so, the regular and special groups of plans—other than the standard twills and their derivatives—are adaptable, by the methods described, to the production of geometric styles of figuring, and should, in this relation, be more extensively applied to the different classes of patternwork characteristic of the dress trade.

CHAPTER VIII

SPOTTED AND MOSAIC PATTERNS

217.—Design Details. 218.—Structural Principles — Straight-Line Spottings. 219.—Variation in Line Proportions. 220.—Circular Spotting. 221.—Spotted Ground with Plain or Decorative Figuring. 222.—Point-Paper Production of Spotted Designs. 223.—Figuring in Spotted Minutiae. 224.—Weaving Principles in Producing Spotted Patterns. 225.—Warp, Weft, and Warp-and-Weft Principles. 226.—Lustre and Silk Weft Spotted Designing. 227.—Weft Spotting—Diversified Weave Grounds. 228.—Utility of Cross-Colourings. 229.—Mosaic Patterns in several Weave Units. 230.—Warp-Twill Ground adapted to Weft-Twill Spotting. 231.—Ribbed Ground and Warp and Weft Detail. 232.—Spotting in both Warp and Weft Intersections. 233.—Warp and Weft Spotting on Balanced Weave Grounds. 234.—Spotting of Warp and Weft Surfaces. 235.—Mosaic Patterns—Curvilinear Variety. 236.—Curvilinear Forms Spotted. 237.—Curved Forms planned on Geometric Principles. 238.—“All-over” Design Schemes. 239.—Waved “All-over” Designs. 240.—Scroll-Surface Decoration. 241.—“All-over” Patterns Spotted. 242.—Extra Warp Effects. 243.—Grouping of Spotting Threads. 244.—Figuring in Two or Three Extra Yarns. 245.—Extra Weft Spotting. 246.—Weft Grounds and Extra-Yarn Spotting. 247.—Warp and Weft Orders of Colouring applied to Decorative Pattern Construction. 248.—Compound Weave Spotting and Figuring. 249.—“All-over” Patterns developed in Double Weaves. 250.—Figured Pattern Origination by the use of Double Weaves and Orders of Warp and Weft Colouring. 251.—Spotting in the Backing Threads and Picks of Double Weaves.

217. *Design Details.*—In blouse and dress-fabric manufacture, spotted styles are largely produced in each sort of yarn unit, and also in textures composed of several classes and counts of warp and weft. The patterns comprise a diversified range of design types and detail, developed in various schemes of cloth construction and weaving.

The decorative principles may first be analysed and illustrated. Neatness of effect, clearness of detail definition, and simplicity of style, are of paramount importance in all varieties of this class of textile designing. The types of pattern-work

employed are suggestive of minute but severe forms of ornament, acquired (1) by the combination of straight, waved, and circular lines on geometric and weave bases ; (2) by the grouping, in mathematical relation, of rectangular, oval, crescent and other forms ; and (3) by the assortment of two or more figured motives on a selected basis of style arrangement.

218. *Structural Principles—Straight-Line Spottings.*—In illustration of these structural principles of spotting, the sketches in Figs. 227 to 244, A, B, and C, are supplied. They are Japanese in idea and character, and are valuable here as presenting the methods of forming spotted types useful in the manufacture and design of light textures made of cotton, silk, worsted and other sorts of yarn. The elementary, straight-line effects in Figs. 227 to 232, differ in structure from the line patterns—striped and checked—which have been dealt with. Whereas the latter are formed by the plan of intersection or by the order of colouring in the warping and the wefting, in these examples the pattern units are the result of line grouping and arrangement, apart from the looming practice adopted. In their origination, it is a question of assorting and combining lines varying in thickness, length, and in plan of classification. Figs. 227, 228, and 229 exemplify these fundamental bases of pattern work. The first is the result of lines of equal length and breadth arranged at like distances apart, a form of spotted detail variable by the dimensions and thickness of the lines, and also by the spaces intervening their repetition in the cloth. The second, which is a checked type, being composed of three parallel lines in square sections alternating with ground spaces, may be similarly modified in technical practice. Fig. 229 consists of lines differing in measurement, so planned and distributed as to develop a waved species of design.

219. *Variation in Line Proportions.*—Lines dissimilar in thickness and length are combined in the origination of diaper, diamond, and other varieties of elementary figured effects, with a spotted design composition. The diaper

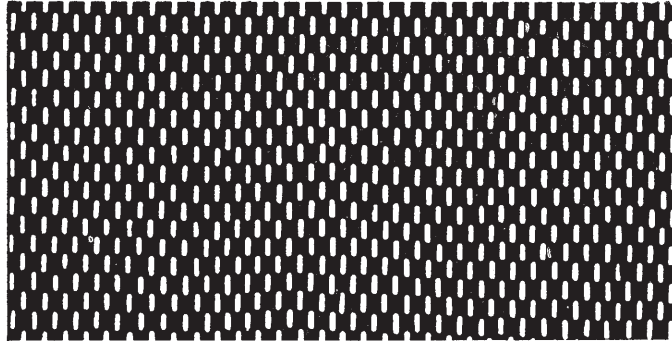


FIG. 227.

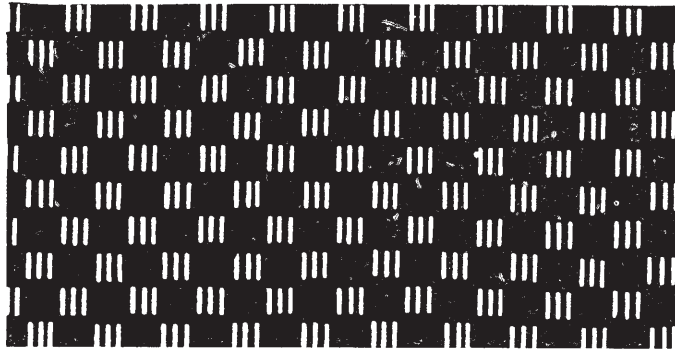


FIG. 228.

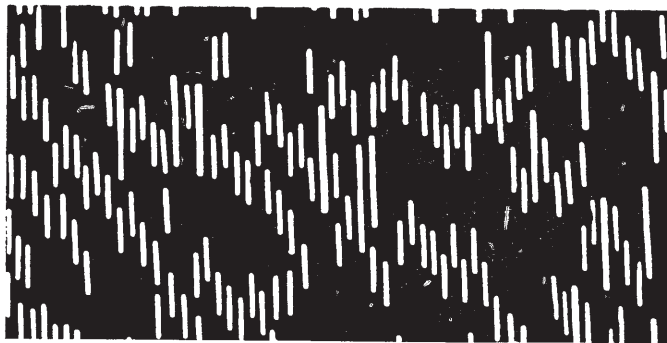


FIG. 229.

STRAIGHT-LINE SPOTTINGS.

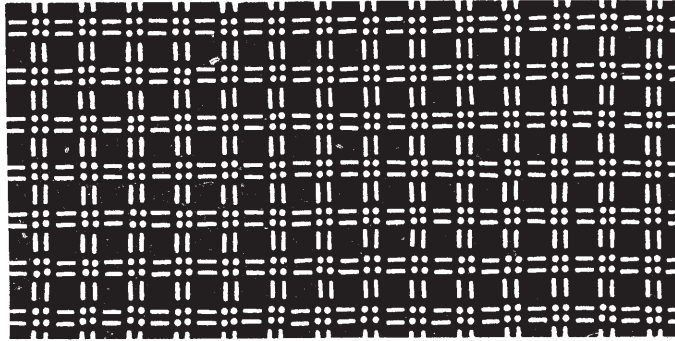


FIG. 230.

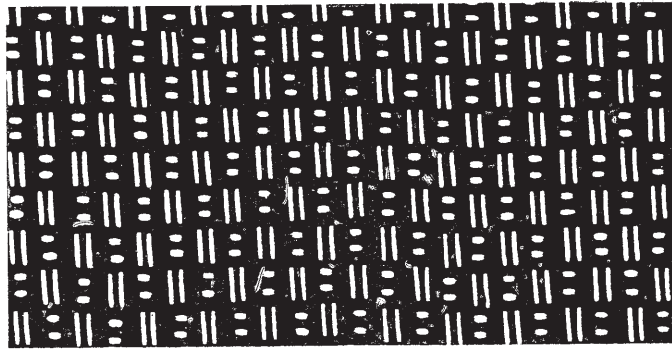
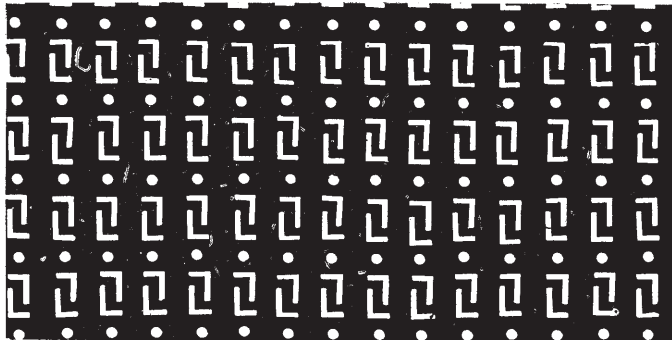


FIG. 231.



A A A A

FIG. 232.

STRAIGHT-LINE SPOTTINGS.

arrangement is seen at Fig. 230, where four small details are linked with pairs of vertical and transverse parallel lines. For varying this principle, the size of the corner checkings is changed, and the method and order of grouping the spots in the checking units are altered, inserting, as desired, sets of three, four, etc., parallel and connecting lines. Combining lines of two sizes and in pairs, and setting these across each other, yields a species of basket work as seen in Fig. 231, again variable by the numerical order of the line details, but retaining the system of intersecting them at right angles. Triangular, and other sectional line motives, arranged on some common basis as in Fig. 232, are used in this class of spotting. In the example, the textural effect is rendered interesting by the insertion of circle details between the repeats of the transposed triangular shapes. This scheme of design is adaptable to striped styles by running several sections together comparatively closely grouped with each other, and following with a number of sections in which the units of effect are differently spaced: or plain ground sections may be made to intervene stripes of spotting consisting of any suitable number of the effects A.

220. *Circular Spotting*.—Circular and beadlike spotted designs are obtainable on various bases—two common and effective systems of construction being shown at Figs. 233 and 234. In the former, the larger spots are first grouped and then the small ones added, varying their diameters and number with the fineness of the texture, and the clearness with which the effects are definable in the counts and sorts of yarn employed. Half-moon, crescent, and other segment forms are combined, which may be run in a twilled order—Fig. 234—or arranged on some such basis as illustrated in Figs. 230, 231, and 232. Combining two or more spotted types—each the result of several varieties of effect, and with the spotting base sateen, and emphasized or otherwise by increasing or lessening of the ground area—is a common practice in this class of designing. Alluding to Figs. 235 to

238, they are apparently diversified forms of the line and circular pattern types described. Fig. 235 is formed of intersecting lines, making the star features of transposed diagonal lines, and of circular details. It makes a diamond type of

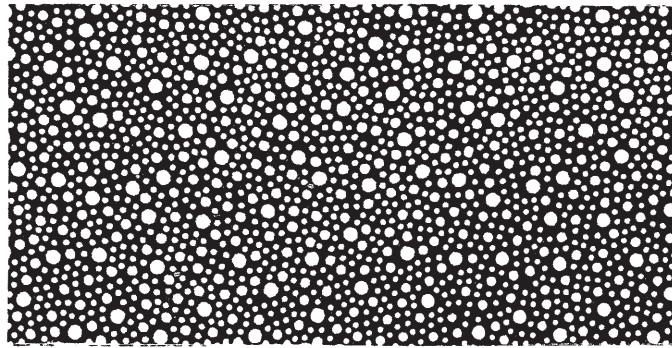


FIG. 233.

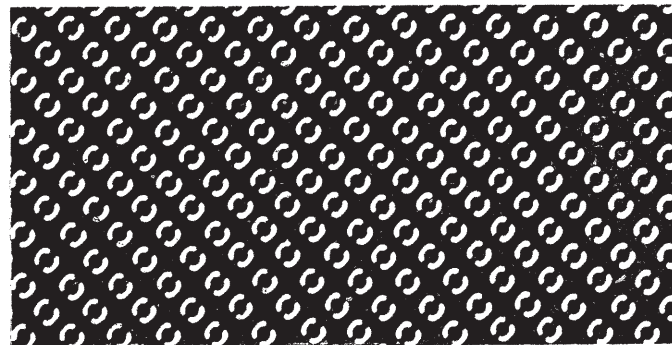


FIG. 234.

CIRCULAR FORMS OF SPOTTING.

spotted pattern. A striped style of effect is shown at Fig. 236, comprising the elements B in lines, and the effects A in small inverted fan shapes. Spotting forms, with the basic features constructed in circles, are illustrated in Fig. 237. On this principle the outlines may be devised on a geometric base, and the spotting lines or features may be alternately set across, as well as produced in lines differing in dimensions.

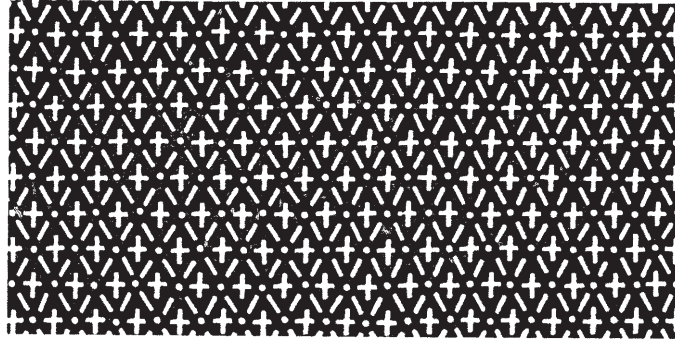


FIG. 235.

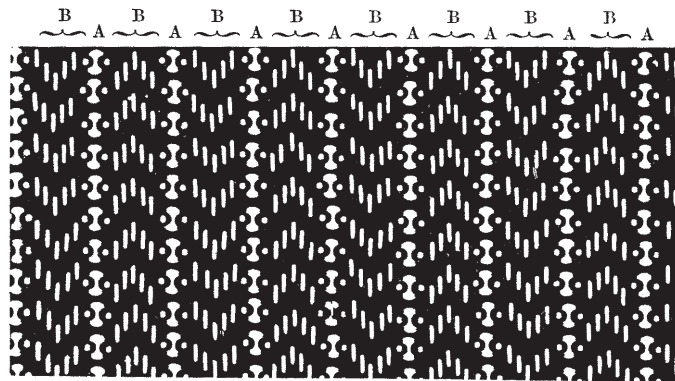


FIG. 236.

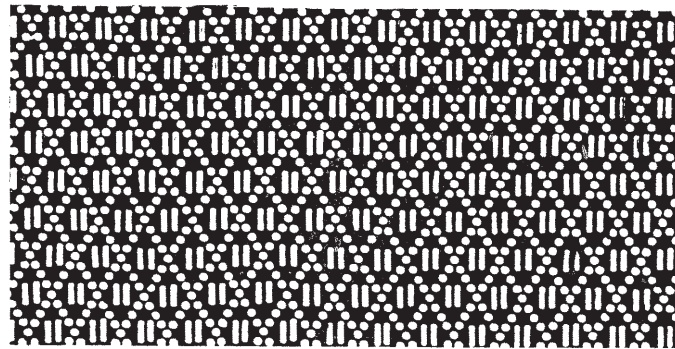


FIG. 237.

LINE- AND CIRCULAR-SPOTTED TYPES.

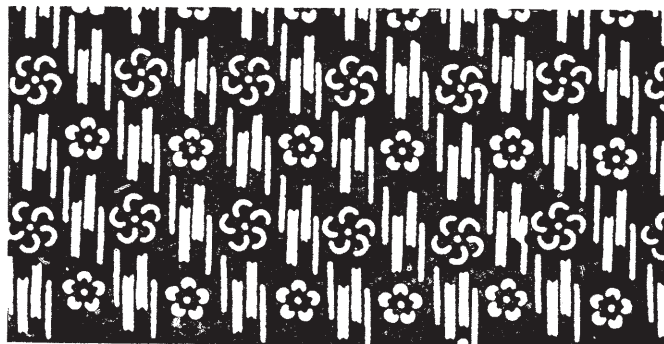


FIG. 238.

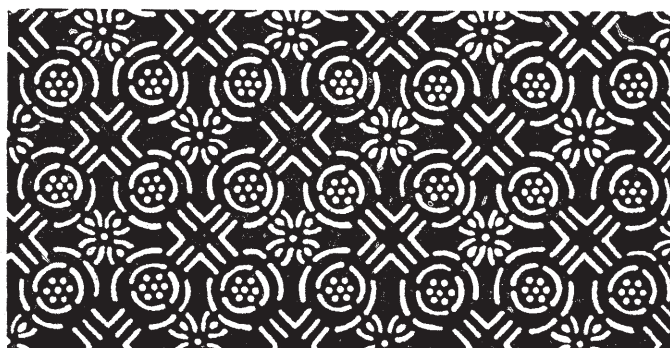


FIG. 239.



FIG. 240.

ROSETTE, LINE, AND DIAMOND FORMS OF SPOTTING.

The pattern scheme shown at Fig. 238 has been acquired by first sketching and grouping the effects in broader and in finer straight lines, and secondly, by adding the lesser rosette forms, with their elemental sections more pronounced than in the additional series of these forms. Combining triangular and quadrilateral motives, and spacing them in identical relation with each other, and then by joining these results, the spotted type of design seen in Fig. 239 is obtained. Here the central figures are planned on a checked base, so that the triangular elements interchange in position with the decorative units consisting of small conventional floral forms. In Fig. 240 an example is seen of the severer and set variety of spotting. Strictly, it is a lozenge pattern with vandyked cross-shaped figuring in contrast with elongated diamond forms developed in parallel lines, and also in contrast with the divisional lines making the basic plan of the style.

221. *Spotted Ground with Plain or Decorative Figuring.*—In the examples examined the groundwork has been plain, but in Figs. 241 and 242 it is of a spotted nature. In both these illustrations the ground sections consist of bird's-eye spotting, but in Fig. 241 T-shaped forms, and cross and rectangular details are combined; and in Fig. 242 small stars in pairs and in single units are distributed on a spotted surface. Further, in the first of these designs the figuring is worked in plain patches; while, in the second example, the figuring is due to insertion. Both are suggestive of standardized practices in spotted and mosaic designing, but the second principle gives the more varied type of structure in the woven fabric.

222. *Point-Paper Production of Spotted Designs.*—As showing the systems of looming feasible in the production of the different groups of spotted and detail patterns illustrated, and the weave units adaptable in transferring the sketches on to point-paper, examples in constructive data for Figs. 227 to 242 are given in Table XI—

TABLE XI
METHODS OF PLAN MAKING APPLICABLE TO SPOTTED STYLES

Fig. Nos.	Weave Structure and Composition.	Point-Paper Design.
227	(a) Plain weave ground with line details in $\frac{1}{3}^3$ and $\frac{1}{3}^1$ warp and weft twills	24 × 24, or 32 × 32
	(b) Sateen ground, with lines in weft twill	30 × 30, or 60 × 60
228	Similar to Fig. 227, also in prunelle twill ground and in $\frac{1}{7}^1$ twill for line streaking or spotting	48 × 48
229	(a) Stronger lines in $\frac{1}{4}^1$ sateen, finer lines in $\frac{1}{3}^1$ twill with plain ground	64 × 64
	(b) Stronger lines in $\frac{1}{4}^4$ warp twill, finer lines in $\frac{1}{2}^1$ weft twill, plain ground	96 × 96
230	Similar to Figs. 227 and 229.	
231	Transverse lines in weft twill, vertical lines in warp twill, plain ground	24 × 24 32 × 32, or 48 × 48
232	(a) Triangular forms in weft twill, and circular spots in sateen, with plain ground	48 × 48, or 64 × 64
	(b) Circular spots in plain, triangular spots in $\frac{1}{3}^1$ broken twill, ground in $\frac{1}{7}^3$ warp twill	ditto
233	(a) Small spots in weft floats, larger spots in weft sateen, ground plain	96 × 96
	(b) 5-shaft warp sateen ground, small spots in weft floats, larger spots in weft twill	100 × 100
234	(a) Warp sateen ground, weft sateen or twill spotting	48 × 48
	(b) Plain ground, weft float spotting	64 × 64
235	Intersecting diagonal lines in warp floats, circular spots in weft floats, star effects in weft sateen, ground plain	64 × 64
236	(a) Plain ground, line effects in $\frac{1}{3}^1$ weft twill, detail figuring in sateen	72 × 72
	(b) Warp prunelle twill ground, line effects in weft prunelle, detail features in weft twills angled from the edges of the spottings	96 × 96
237	(a) Plain ground, circular spots in warp, vertical lines in $\frac{1}{3}^1$ weft twill	64 × 64
	(b) Sateen ground, circular spots in weft floats, vertical lines in weft sateens.	
238	(a) Thicker lines in weft twill, finer lines in plain, floral forms in weft effect, ground in $\frac{1}{7}^3$ broken twill	96 × 96
	(b) Ground warp rib, finer lines in warp twill, thicker lines in weft twill, floral forms in adapted weave units	96 × 96, or 192 × 192
239	Triangular sections in twilled lines, following the direction of the pattern forms; circular features in sateen, with interior spots in weft floats; floral details in special weaves, plain ground.	
240	(a) Parallel lines in warp twill, basis lines in weft twill, diamond spotting in sateen, plain ground	64 × 64, or 72 × 72
	(b) Warp sateen ground, parallel lines in weft twill, basis lines in fine warp repp, stars in weft sateen.	
241	(a) Plain ground, spotting in floats of warp, figuring in weft sateen.	The sketches to be adapted to designs formable on 192 × 192
242	(b) For a double-plain make texture, colouring 1-and-1, ground and figuring being developed in one shade, and spotting in a second shade.	

From these data, it is clear : (1) that the weaving practice may be adapted to the manufacture of fabrics in which the design is a product of the weft, warp, or both the warp and weft yarns ; and (2) that it may be made to impart freshness and diversity of character to the simpler as to the more varied

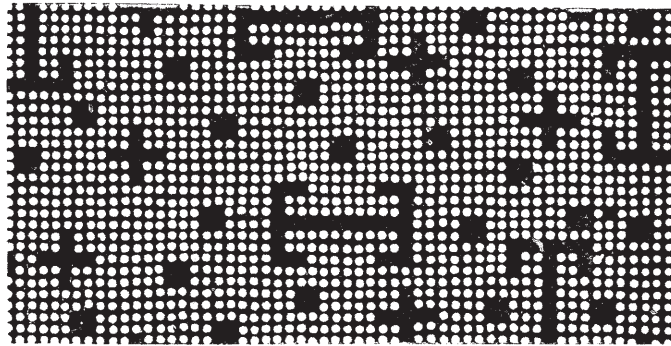


FIG. 241.

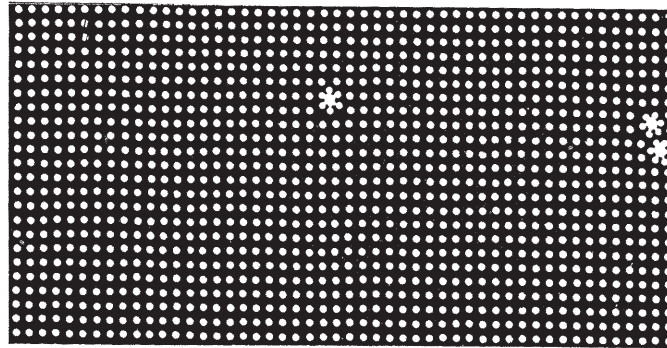


FIG. 242.

PATTERNS WITH A SPOTTED GROUND.

descriptions of spotting. Printing the design on the goods leaves the decorative type in the same textural effect as the ground, whereas the process of weaving them into the fabric, enables the line features, and each kind of pattern detail, to be developed in a different species of woven surface.

223. *Figuring in Spotted Minutiae.*—It should, however, be noted that spotted goods, in which the figuring consists of

decorative details, are extensively acquired by printing. Many styles of this class of ornamentation are therefore applied to the cloths, after weaving, as in blouse and dress materials, and in silk foulards, etc. Styles of pattern specially suitable for this treatment are shown in Figs. 243,

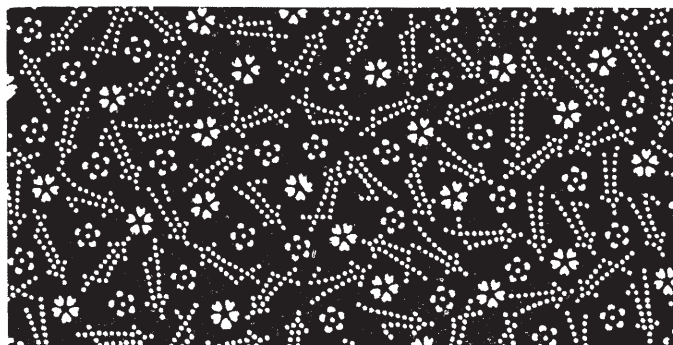


FIG. 243.

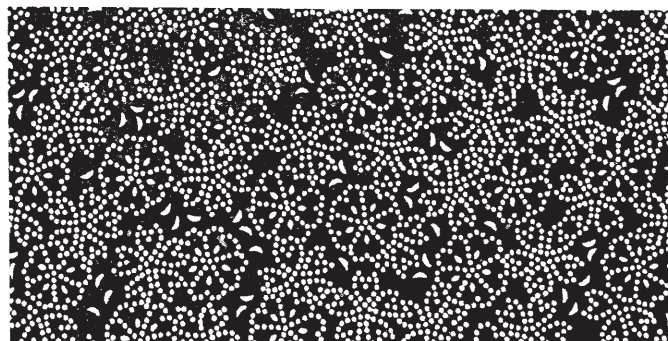


FIG. 244.

DECORATIVE STYLES IN SPOTTED MINUTIAE.

244, and 244A, B, and C. However fine the counts of the yarn employed, and closely set a texture may be woven, these extreme minutiae in decorative composition and planning are more accurately reproduced by the art of printing than by the art of warp and weft intersection. But such examples are not on that account to be assumed as wanting in textural suggestiveness and interest. They are valuable as pattern

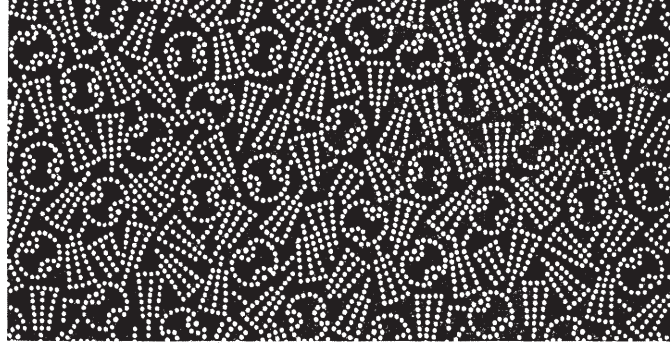


FIG. 244A.

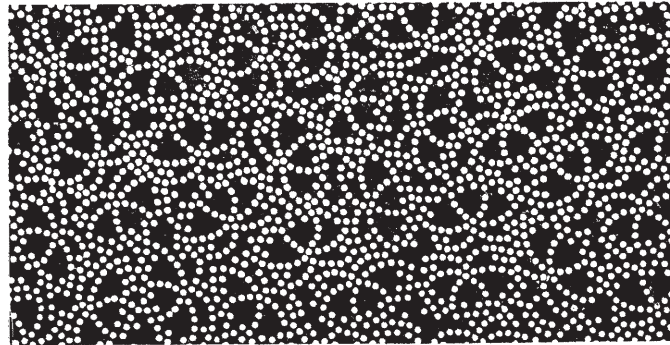


FIG. 244B.

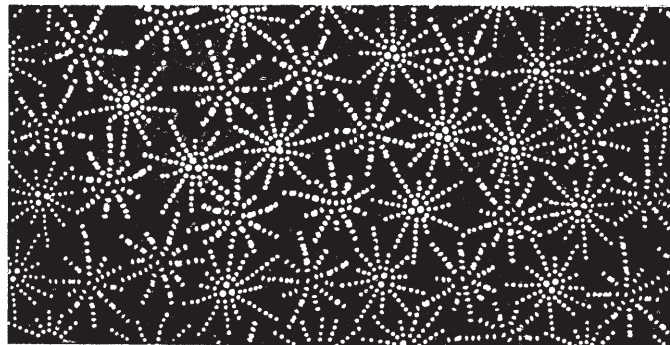


FIG. 244C.

DECORATIVE STYLES IN SPOTTED MINUTIAE.

schemes in which the figured features are formed in dots, specks, streaks, and other small effects, and in which the form structures are delineated without contrasts due to line emphasis and demarcation, or contrasts due to tone shading. Further, they are also useful as schemes of design construction applicable, in a correct scale, and when simplified in detail arrangement, to point-paper draughting. Thus, in Figs. 243, 244, and 244A, B, and C, the varied filigree ornamentation they comprise is transferable into textile productions by working out the looming designs on the lines indicated below—

FIG. 243.—WEFT FIGURING, COTTON WARP, AND SILK OR LUSTRE YARN WEFT

Size of design 192×192 .—Developing the small floral patterns in weft-face twills, agreeing in direction with the form features, and the filigree effects in circular spots in solid floats of weft, with a plain make for the ground of the fabric.

FIGS. 244, 244A, B, AND C.—SILK WARP AND WEFT

Similar types of pattern to these examples are producible in a 300 or a 400 Jacquard machine, with the designs in two tints of weft yarn, shuttled pick and pick, and using one weft in developing the smaller, and the second weft in developing the more pronounced details—each weft floating solid for figuring, and intersecting in regular order with the warp for producing the ground.

It will be understood that the methods of looming described in Table XI for Figs. 227 to 242 inclusive, require to be varied with the quality and counts of the yarn employed. While therefore the instructions, tabulated for working out the patterns on point paper, would result in correct schemes of textural design, in the application of such data to the fabric they are necessarily modified by the nature and class of the goods manufactured.

224. *Weaving Principles in Producing Spotted Patterns.*—The principles of intertexture applied in producing spotted and mosaic styles of pattern include looming practices in which the effects are obtained—

- (a) In the weft.
- (b) In the warp.

- (c) In the warp and weft.
 (d) In extra or supplementary weft yarns.
 (e) In extra or supplementary warp yarns.
 (f) In both supplementary warp and weft yarns.
 (g) By colour arrangement in single and compound-fabric structures.

These may be studied and dissected under the serial groups of fabrics and design types described in Table XII—

TABLE XII
 VARIETIES OF SPOTTING AND MOSAIC PATTERN
 DESIGNING

<i>Classes.</i>	<i>Methods of Spotting.</i>	<i>Manufacturing Practices.</i>
1	Warp weave ground, weft spotted or weft pattern development.	Worsted, cotton, or silk warp with similar yarns for weft, e.g. cotton warp crossed with silk, or worsted warp crossed with mohair or silk alpaca, etc.
2	Weft weave ground, warp spotted or warp pattern development.	Cotton warp in ground, with special warp threads inserted for spotted sections, and with lustre worsted, alpaca, etc., for weft.
3	Plain or twill ground, weft, warp, or both warp and weft spotted.	Cotton, silk, worsted, or linen warp and weft, or cotton warp crossed with different counts and quality of weft.
4	Extra or supplementary weft spotting.	Applied in different varieties of single-make dress and blouse textures.
5	Extra warp spotting	ditto ditto
6	Extra or supplementary warp and weft spotting.	ditto ditto
7	Single simple-make fabrics, with the spotting developed by weave and colour assortment.	Applied in cotton, silk, linen, worsted or woollen fabric construction.
8	Compound-make fabrics, with the spotting developed by weave and colour assortment.	ditto ditto
9	Compound - make fabrics, spotted with extra yarns.	ditto ditto

225. *Warp, Weft, and Warp-and-Weft Principles.*—These principles of design are suggested in Figs. 245, 246, 247, and 248. Employing warp-face weaves (e.g. sateen or twill) for the ground, as in Fig. 245, provides for detail pattern production by floating the picks of weft in any regular order in the

spotted sections; while for developing the effects in warp threads, the ground weave is changed to a weft-face plan, and the spottings are formed in warp floats as in Fig. 246.

If the two schemes are combined, the ground plan should be of a plain weave, simple twill, or of a mat character, that is a weave which floats the warp and weft evenly and equally on both sides of the texture. In using the plain make for ground purposes, the spottings are acquired on the basis of construction seen at Fig. 247, and in employing the $\frac{3}{2}$ twill in the ground the spottings are formed as indicated in Fig. 248. In both these illustrations the warp ingredients are printed in \boxtimes 's and the weft ingredients in \blacksquare 's and in \square 's.

226. *Lustre and Silk Weft Spotted Designing.*—The weft scheme of spotted pattern

\square 's = Warp.

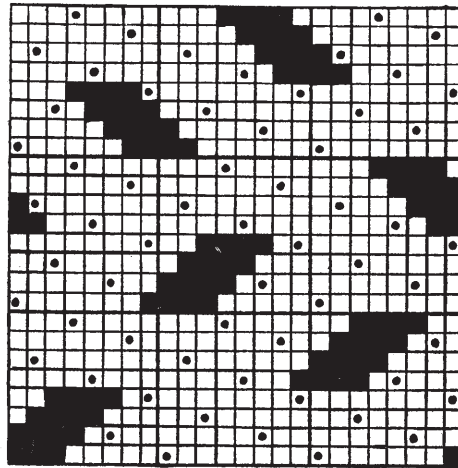


FIG. 245.

\square 's and \boxtimes 's = Warp.

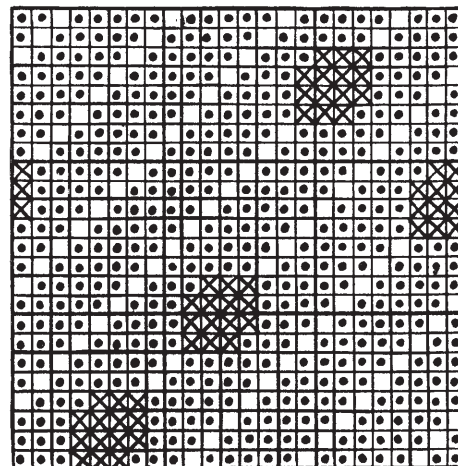


FIG. 246.

WEFT AND WARP SPOTTED PLANS.

□'s and ⊗'s = Warp.

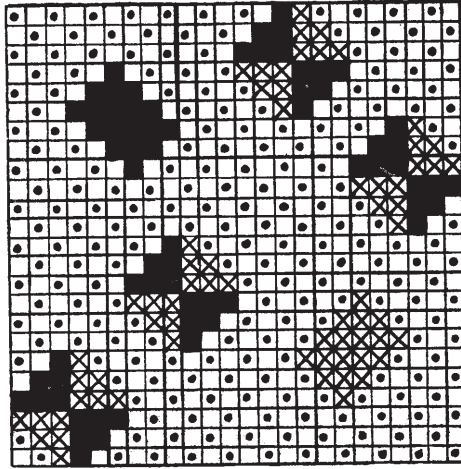


FIG. 247.

□'s and ⊗'s = Warp.

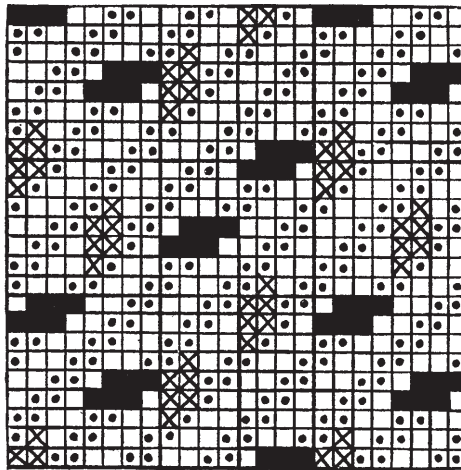


FIG. 248.

WARP, WEFT, AND WARP-AND-WEFT
SPOTTED PLANS.

origination is, in the first place, applied to lustre or silk weft and cotton warp textures, and also to pure cotton goods. The designs have almost invariably a plain ground, which provides for the pattern features being woven in different weave structures. Fig. 249 is a typical Jacquard style, and consists of a series of decorative elements in $\frac{1}{3}$ twill, and of a second series in $\frac{1}{7}$ twill. Variety of effect in the cloth is obtained by the two types of weave used in relation to the distinctive forms of spotting of which the design is composed. As prominence is given to the weft yarn in such plan-making, the build of the texture as well as the pattern scheme, develop satisfactorily in manufactures of the *glacé* quality, and also in cotton zephyrs. In originating such styles of pattern, the first work should be to devise and group the principal spottings selected, combining those which harmonize in structural form ; and, second, the arrangement and distribution of the figures should be determined, two factors which are affected by the relative dimensions of the several motives employed.

227. *Weft Spotting—Diversified Weave Grounds.*—In the next place, for more varied classes of fabrication, different kinds of ground weaves are used, particularly such as agree with the style of spotted figuring and the make of fabric required. One object of this constructive principle is to employ a warp yarn which, in quality and tint, may be made to contrast with the pattern features expressed in the weft yarn. Whether the warp appears in the figuring or simply in the ground, it is thus rendered effective in imparting tone to the style. Two examples are given in Figs. 250 and 251, in which the warp is not a decorative unit, being concealed in the spottings by the picks of weft, but in the third example, Fig. 252, the warp assists in delineating the design form.

In Fig. 250, the spotted features are severe in tone and character ; but the weaves combined are of such a formation that whether the design is produced in cotton, silk, worsted or woollen yarns, it yields a neat, level cloth, and also one

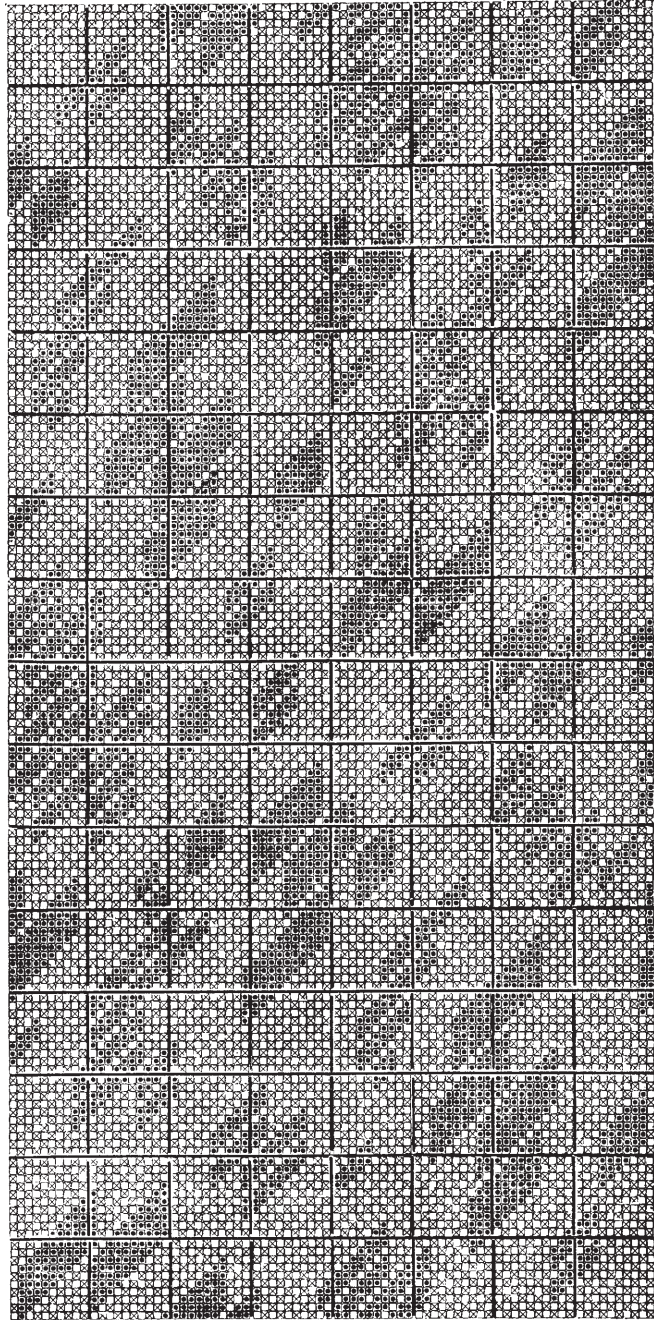


FIG. 249.—WEFT SPOTTING ON A PLAIN GROUND :
ZEPHYR OR LUSTRE.

diversified in constructive detail. Of the several methods of producing this style in the woven manufacture, three may be described. Considered in relation to cottons or silks, it is weavable, in the first instance, in one colour of warp and weft ; and, in the second place, by the insertion of fancy threads into the warp and by the use of a contrasting colour of weft yarn, or on the following lines—

Warp.

4	threads	of a	light	shade	cotton	(2/50's)	or	silk	(50's/2).
40	,,	,,	very	light	,,	,,	,,	,,	,,
4	,,	,,	light	shade	,,	,,	,,	,,	,,

Weft.

A third shade (25's cotton, spun silk or art. silk) contrasting equally in depth of tone, and in hue, with the two shades in the warp.

The result of this order of colouring would be to give the star figures in a distinct shade, namely, that of the weft ; the light threads in the warp would stripe the edging of the spottings, and the very light shade would form the ground or circular shape in which the star features occur.

Third, a design of this regular construction is also weavable in worsted and woollen yarns. For the former, two practices in manufacture might be adopted—

(1) *Warp and Weft.*
 2/60's worsted light shade.
 ,, ,, medium shade.
 64 threads and 60 picks per inch.

(2) *Warp and Weft.*
 1 thread of 2/72's worsted mixture.
 1 ,, ,, ,, ,, ,, darker tone.
 78 threads and 74 picks per inch.

If applied to woollen costume cloths, the yarns should be about 32 skeins with a lighter shade in the warp than that used in the weft, and with 36 threads and 34 picks per inch.

Analysing Fig. 251, the larger star spottings are centrally placed, one opposite the other. The grouping of the two sorts of motive combined, is on the 6-end sateen base, hence the balance of figure distribution here observed. The design

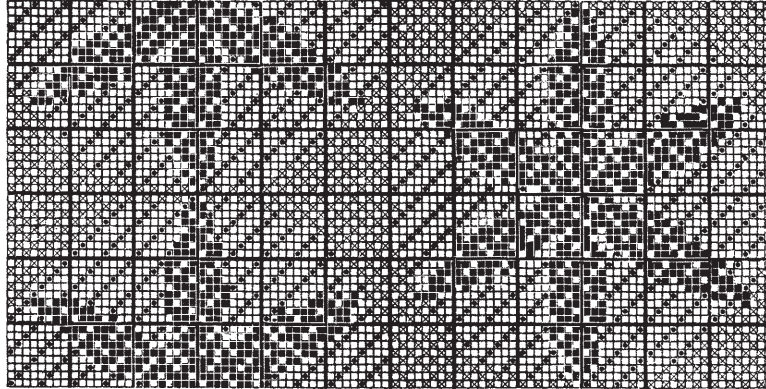


FIG. 250.—PATTERN DEVELOPMENT IN 4-SHAFT WEAVES.

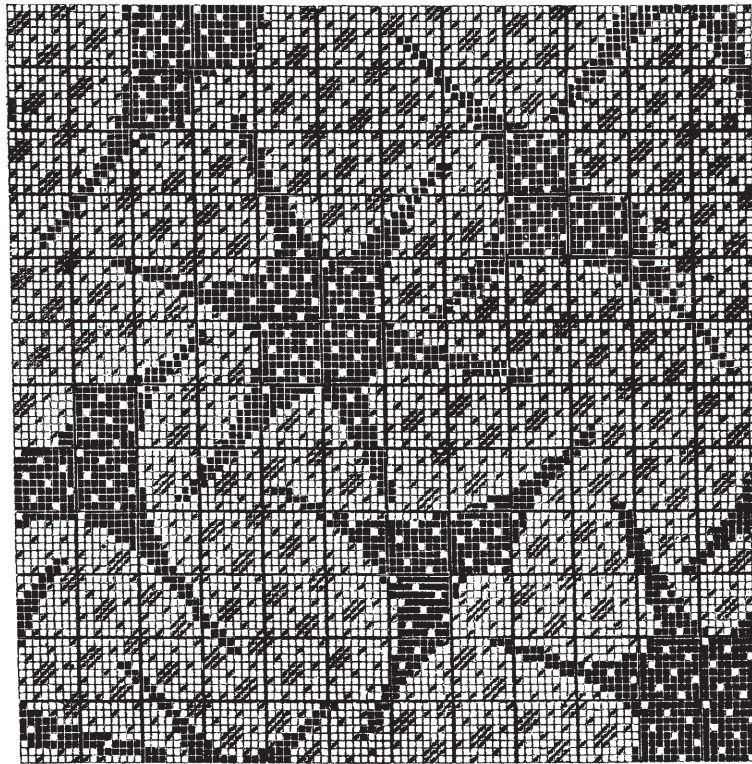


FIG. 251.
STAR SPOTTING IN 8-SHAFT SATEEN ON A MOTTLED GROUND.

features are developed in weft sateen, but the two central spottings might also be woven in weft twill. The ground is a derivative of the 8-shaft sateen due to extending it to 16 threads and picks. It fits correctly with the weft sateen applied to the figured details. The ordinary warp sateen would give the necessary levelness of fabric surface, and definition of pattern, but it would be less efficient in textural effect as compared with this plan, the small weft spots in which add to the tone of the ground work of the fabric.

228. *Utility of Cross-Colourings.*—The utility of the warp yarn in giving design characteristics—in addition to the

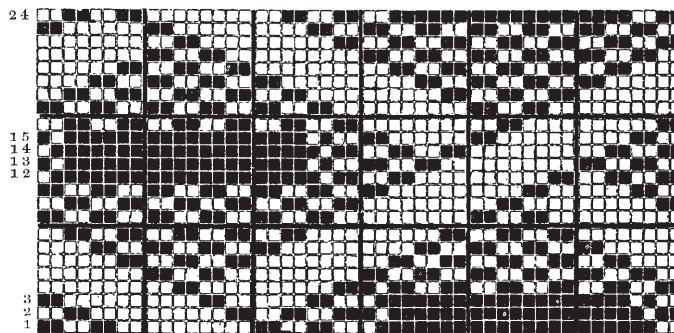


FIG. 252.—FLOATED WEFT SPOTTING.

features due to the figuring in these two specimens, Figs. 250 and 251—will be understood by assuming the warp to be a light tint, and the weft a deeper colour. For either cottons or silks, this degree of contrast of shade in warp and weft is an advantage, as it defines the figuring and lends clearness to the detail in the different parts of the design. Still, for certain cotton and worsted textures, the soft quality of figured expression which results when only one shade of yarn is used, is a desirable characteristic of the fabric. Especially is this the case in worsteds, where the finishing routine develops the constructive features of designs in which there is a diversity of warp and weft effects ; as, for example, in the warp-twill ground in Fig. 250, and in the fancy sateen

ground in Fig. 251, both of which would possess a distinct tone in the finished cloth from the pattern elements composed of the weft yarn. When a contrast in the materials of which the yarn consist is also allowed, the respective details of the style are further enhanced. Thus, supposing the warp to be fine worsted and the weft mohair or silk, then the ground of the texture would be in a dull, and the figuring in a lustrous, quality of yarn. Another practice, in the lighter varieties of

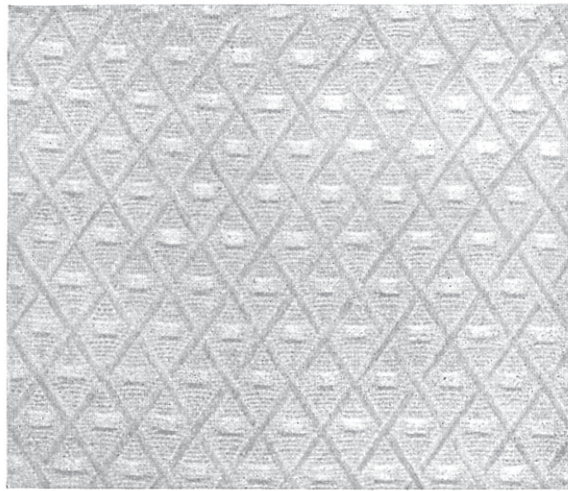


FIG. 252A.

fabric, is to employ a cotton or linen warp, and cross with a silk or artificial silk weft.

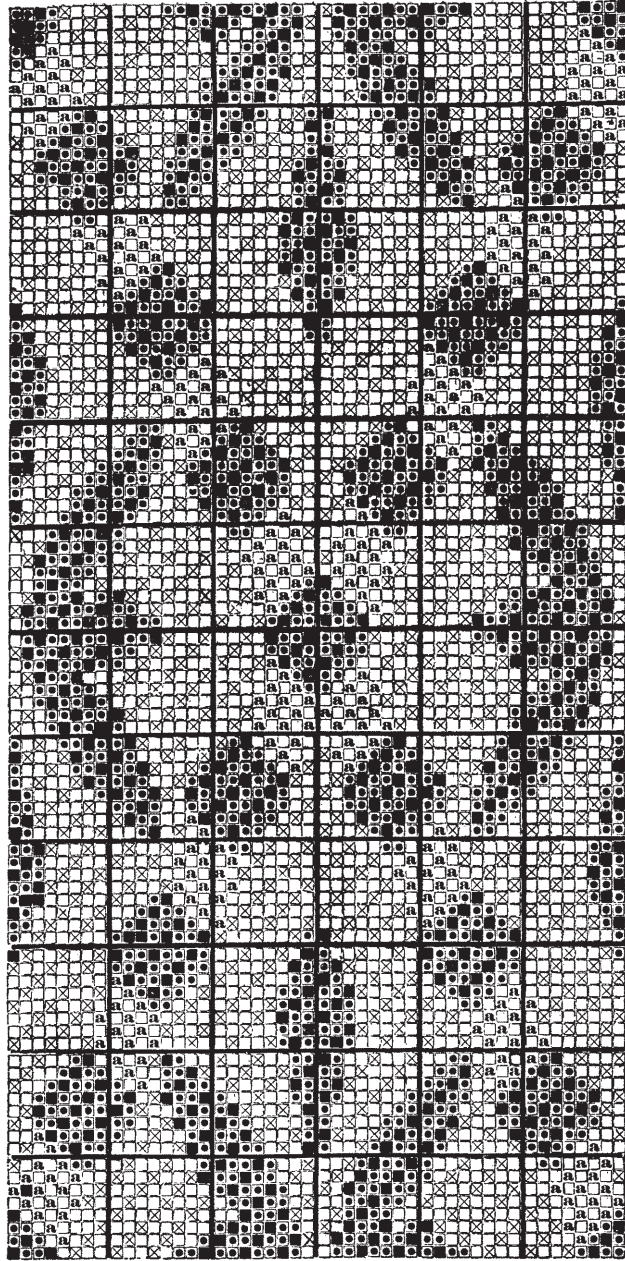
Spotted types are also made on fast woven grounds in which special design sections are developed in the threads of the warp. Taking a simple illustration, that in Fig. 252, it is formed of weft cord and intersecting diagonal lines in floats of warp, with the spottings in loose flushes of weft. As the latter are unknitted into the cloth, they show prominently on the surface, protruding in minute patches as observed in the woven specimen, Fig. 252A. Such designs should be firmly set in the warp, but less closely wefted, allowing for

the production of a firm, fast structure, with the employment of a thicker counts of weft than warp yarn, and a smaller number of picks than threads per inch. The specimen has been produced in 2/60's mercerized cotton warp and 15's weft, having 130 threads and 52 shots per inch. For emphasizing the spotted lines, the picks—1, 2, 3, and 24, and 12, 13, 14, and 15—forming these should be in silk.

229. *Mosaic Patterns in Several Weave Units.*—Theoretically, designs constructed for developing the effects in the weft, when inverted are usable for developing such effects in the warp. This practice in designing is applicable to styles of pattern due to combining warp and weft face weaves, one weave applied to the ground, and the second weave to the figured or spotted sections. Examples thus constructed are given at Figs. 253 and 254, with a third example—Fig. 255—in which the ground is warp rib, and in which the detail effects are in graduated weft cords. They are illustrative of different systems of pattern construction, and will be separately examined.

Fig. 253 is a compound of star and festoon spotting, the latter features being linked with each other by details in plain weave. Should the design be applied as illustrated, the figuring would be in weft, but should the order of looming preparation be reversed, that is, □'s taken as weft, and the ⊠'s taken as warp intersections, it would give the pattern types in warp, and the ground of the texture in weft twill. Various practices in textural development are feasible in the weaving of designs of this class. In the first instance, they are made in piece-dye cloths; in the second, in fabrics in which the warp and weft yarns differ in colour; and, in the third instance, the standard orders of warping and wefting applied to the prunelle twill are suitable, such as the 2-and-1, and the 1, 1-and-1, both of which would develop the ground in lines of colour.

230. *Warp-Twill Ground adapted to Weft-Twill Spotting.*—Fig. 254 is producible, like Fig. 253, either as a warp or as a



Lift □'s and ■'s.

FIG. 253.—WEFT PRUNELLE PATTERN : LOZENGE BASE.

weft-spotted style. An advantage, in developing the effects in the weft, is the readiness with which the colour quality of the

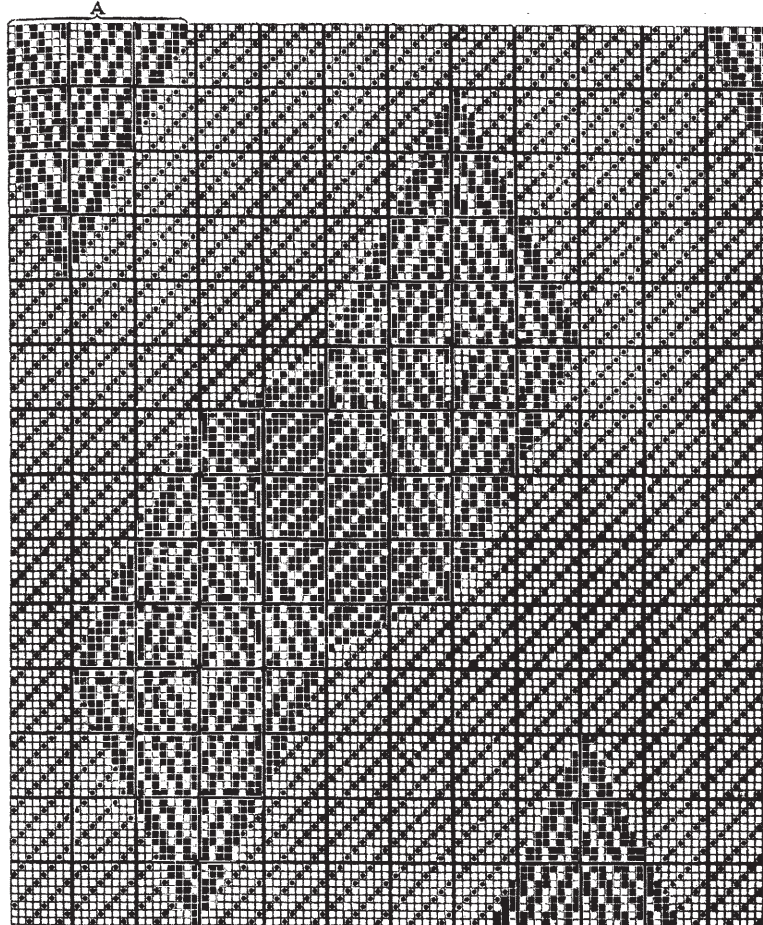


FIG. 254 (*Section only*).

SPOTTING IN SPECIAL WEAVES ON A WARP-TWILL GROUND :
DROP BASE.

texture may be changed. If, however, the object is a piece-dye manufacture, then the warp principle of delineating the figured types might be selected. The two characteristics of this style—Fig. 254—are the adaptation of the weave structure

to the lines of the lozenge shapes, and the unity of pattern detail derived by linking these shapes together by the parallelogram forms in weft twill. The design, as printed, has a warp ground, with the figures in weaves of a weft-flush character. The upright twills combined, following the outlines of the figuring, yield diamond spots decreasing in size from the outside to the inside of the figure. For varying the ground, two systems of work may be followed—first, it may be

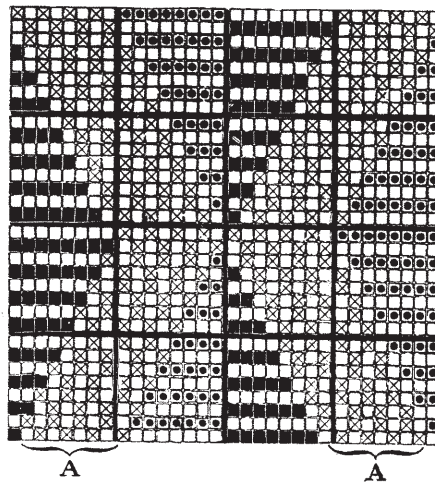


FIG. 255.

WARP-AND-WEFT CORD SPOTTED EFFECT: DIAMOND BASE.

coloured 2-and-2 in the warp and weft, giving line stripings; and, second, small weft spots arranged on a sateen or similar base, may be inserted on the principle defined in reference to Fig. 251. Assuming the first practice to be adopted, and the colours to be blue and white, a texture would be produced in which the groundwork would consist of lines in these two colours, while the rhomboidal spottings would be woven in transverse lines, and the lozenge spottings defined in intermingled colouring. The use of simple weave units, as indicated in regard to Fig. 253, renders the standard orders of warping and wefting applicable to such weaves, adapted to both the

ground and figured portions of these designs, with the use of either woollen or worsted yarns. Hence this illustration—Fig. 254—may be appropriately coloured 2-and-2, 1-and-1, and 2-1-and-1. In the case of the first arrangement, it would cause the ground to be developed in vertical, and the small rhomboidal forms in transverse lines in the two shades of yarn employed, with the lozenge spottings in a melange tone of colour. A subdued quality of figured expression is thus acquired with the ground in line striping. Should the $\frac{1}{1}^3$ twill be modified by the insertion of specks of weft arranged on a 24-end sateen base, it would give the figuring, when woven in one colour of warp, and in a second colour of weft, clearly outlined, and the ground in a decorative warp twill.

Applying the example to cotton and linen goods, should the $\frac{1}{1}^3$ twill be changed to the plain weave or warp rib, a coloured striping might be run underneath the figuring, on some such plan as shown below—

		<i>Warps.</i>					
I.	White . . .	8	12	16	12	8	
	Lavender . . .	8	8	8	8	8	
II.	Fawn . . .	10	10	4			
	White . . .	4	10	10			

Wefts.

For the first order of warping, to be rose colour, and for the second order, light blue, or French grey.

By using these wefts, the pattern resulting from the former colouring, would be a shaded striping, on which the spotted figuring would be distributed in the rose colour, but that resulting from the second order would consist of definite bands of colour in white and fawn, with the figuring in light blue.

231. *Ribbed Ground and Warp and Weft Detail.*—The repp or ribbed ground is particularly suitable for firmly-set fabrics in which the decorative details are developed in the weft or in the warp yarn. If the weft should be employed for spotting, then the designs may be constructed on the system seen at

Fig. 255. But should the warp be used for this purpose, and a similar type of spotted effect be intended, the designs would be changed to a weft rib in the ground with warp cords in the figured sections. For the first of these methods of construction, the example is weavable in 2/80's cotton or 80's two-fold silk with 36's weft, and with 96 threads and 80 picks per inch, and in proportionate settings with the increase or decrease in the counts of the yarn applied. The design, as illustrated, admits of the use of a thicker and distinct kind of yarn in the shuttling than in the warping; but in acquiring pattern development on the warp principle, it is essential that the warp should be two-fold, and the cloths be built closer in the reeding than in the shots per inch.

The example is an elementary form of geometric spotting. The ground sections, between the repeats of the pattern details, may be varied, as also the character and type of the spots. But if a cord or repp plan of fabric structure is desired, ribbed weave units should be selected, but modified in the length of the weft intersections to make them consistent with the accurate and precise definition of the spotting details. Colouring Fig. 255 1-and-1 in two shades of weft (and in two shades of warp should the plan be inverted) gives the features in ■'s in a different colour from those printed in □'s, with the effects in the warp or weft yarn in one or more tints as required.

232. *Spotting in both Warp and Weft Intersections.*—Should the spotted characteristics be woven in both warp and weft intersections, the weaves employed in the ground of the texture should equally accentuate the effects produced in each yarn unit, as, for example, in Figs. 256, 257, and 258; or the warp spottings should be developed on a weft-woven surface, and the weft-spottings on a warp-woven surface as in Figs. 259 and 260. The first of these systems of design is commonly practised in dress textures, with a plain, twill, or rib ground, each of which is effective in clearly defining the textural ornament developed in the weft as in the warp yarn. Considering

the line spot pattern—Fig. 256—the $\frac{2}{2}$ twill enforces the streaked details due to both the $\frac{3}{1}$ and the $\frac{1}{3}$ twills, and also fits correctly with each plan. This line variety of double

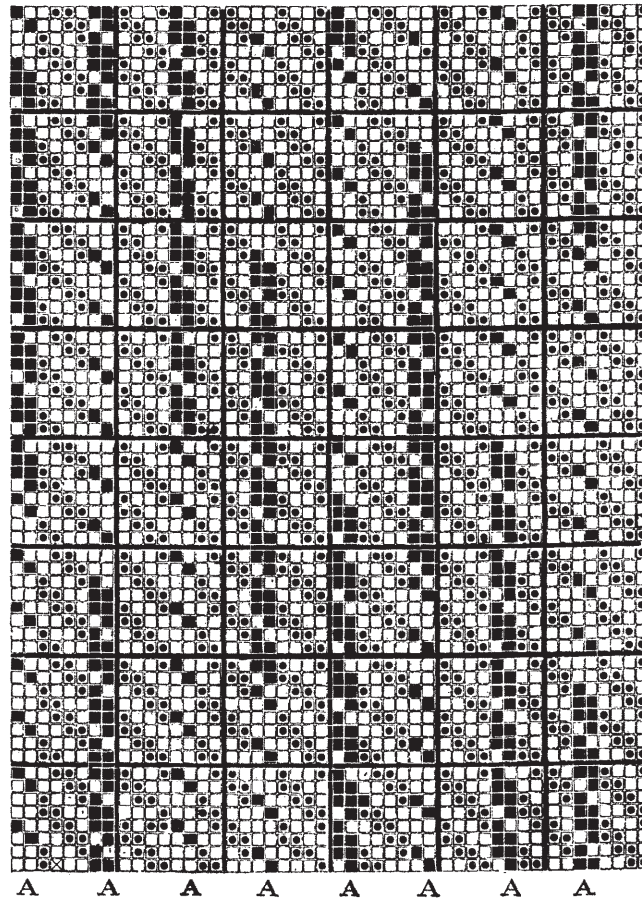


FIG. 256.—LINE SPOTTING ON $\frac{2}{2}$ TWILL GROUND.

spotting is applied to rectangular as well as to striped patterns, and is also produced in $\frac{5}{1}$ and $\frac{1}{5}$ sateens or twills, with the prunelles weave for the groundwork ; or the plain make may be used for the ground with either the ordinary or broken 4-shaft warp and weft twills in the spotted elements. This

description of design is weavable in worsted and woollen yarns, applying twist or fancy threads to sections A—Fig. 256—as indicated in the schemes of manufacture appended—

I.—WORSTED COSTUMES

Warp.

2 threads of 2/48's light mixture.

4 " " " " medium "

Weft.

24's medium mixture, but in a different tone to the medium shade in the warp.

II.—WOOLLEN TWEED COSTUMES

Warp.

2 threads of 18 skeins fancy mixture (1).

4 " " " " mixture ground shade.

2 " " " " fancy mixture (2).

4 " " " " mixture ground shade.

2 " " " " fancy mixture (3).

4 " " " " mixture ground shade.

Weft.

16 skeins mixture ground shade.

III.—COTTON AND WORSTED UNION

Warp.

2 threads of 2/40's cotton, fancy colour (1).

4 " " " " ground "

2 " " " " fancy " (2).

4 " " " " ground "

Weft.

24's worsted, matching the ground shade in the warp.

Scheme II is arranged to distribute the light mixture yarns successively on each group of spotting threads in the repetitions of the design, but in Scheme III, the order of the fancy colourings—tallying with the number of sets of the spotting threads in the pattern—would systematically tint the first, fourth, seventh, etc., pairs of threads A in fancy shade (1); the second, fifth, eighth, etc., pairs of threads A in fancy shade (2); and the third, sixth, first, etc., pairs of threads A in fancy shade (3). Each of these systems of colouring is utilized in the several makes and grades of light-fabric manufacture.

233. *Warp and Weft Spotting on Balanced Weave Grounds.*—
 In the first place, an illustration of this class of looming may
 be examined in which the plain make is used in the ground,

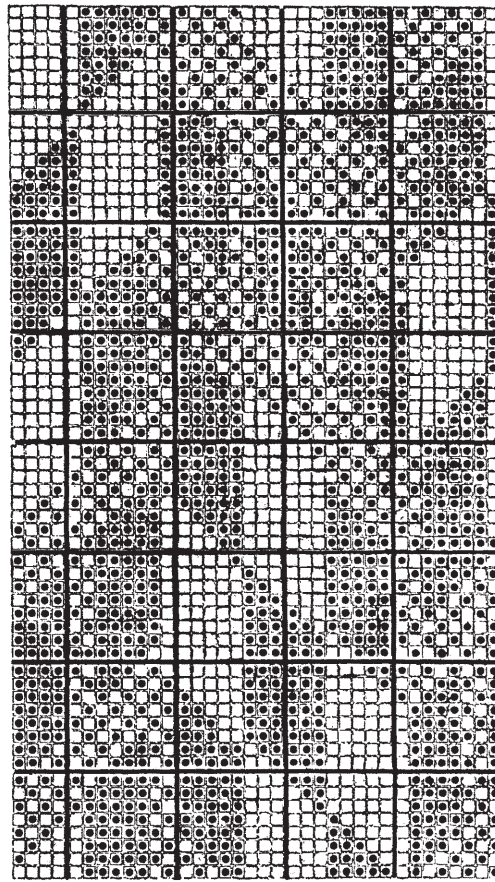


FIG. 257.—MOSAIC SPOTTING IN WARP AND WEFT DETAILS.

and in which the spottings—Fig. 257—are produced alter-
 nately in warp and weft floats with certain pronounced effects
 in weft intersections, and divided from each other by plain
 interlacing threads. The idea in this constructive scheme is
 to approximately balance the two sorts of detail, and to

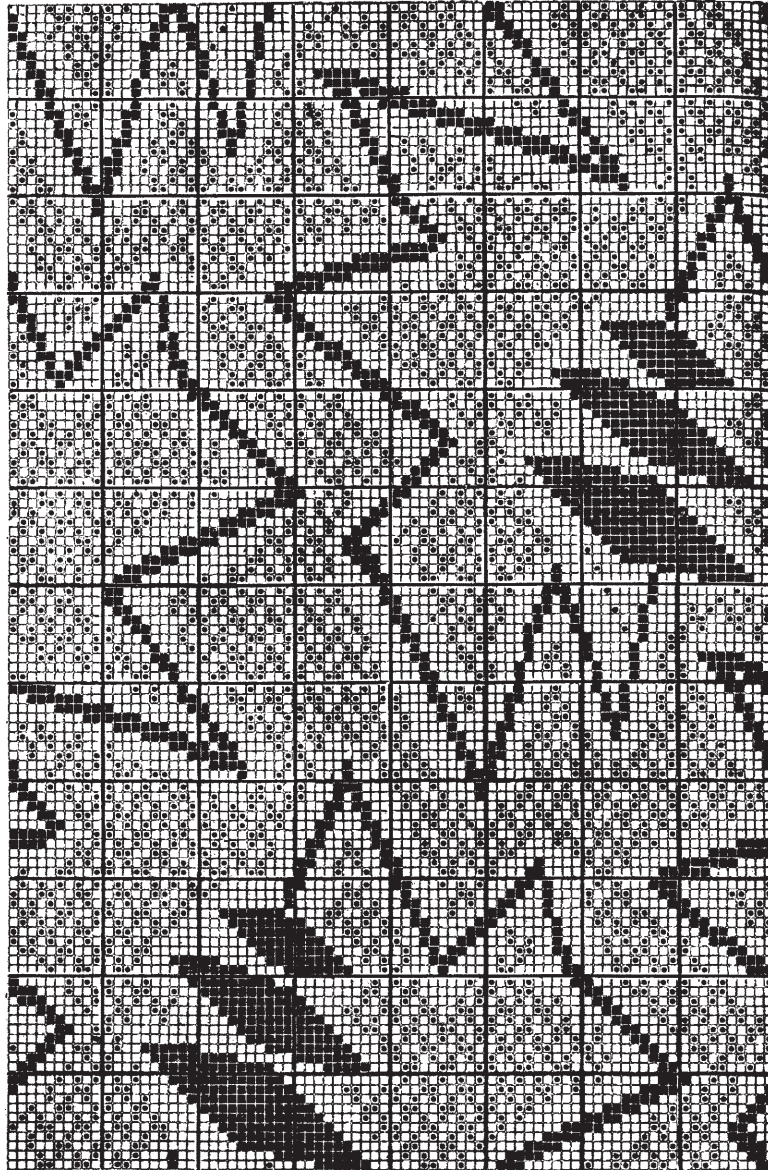


FIG. 258.
IRREGULAR-SHAPED SPOTTING ON A CREPE-WEAVE GROUND.

develop the distinctive lines of the pattern composed of either warp or weft floats. The spotted features are formed in regular or irregular shapes, for which sectional parts of diamond, diaper, twill, and other characteristic crossings are well adapted. In Fig. 257, portions of broad twills have been combined. This method of spot distribution is also usable in larger scale designs, and with the pattern features produced in diamond, lozenge, and other motives.

Mottled grounds are obtainable in weaves of the mock leno and minute check category, as well as in broken and cutting

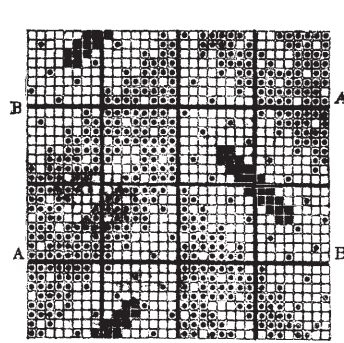


FIG. 259.—TRANSPOSED SPOTTING.

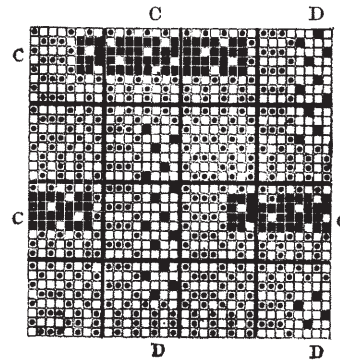


FIG. 260.—SATEEN-WEAVE DETAILS ON CORD STRUCTURES.

twill as in Fig. 258, a nondescript but symmetrical species of spotted design. The uneven, rectangular forms are here outlined in weft interlacings on a warp-flushed surface, with well defined effects in floats of weft arranged and grouped in agreement with the variety of spotting detail, making the distinctive sections of the style. The figured basis, in originating this class of pattern is first outlined, and developed in weft twills following the constructive lines. The possible dimensions of the warp flushes, on either side of the twilled sections, are, in the second place, marked out on point paper, and the special spotted features subsequently inserted. In running the ground weave on to the looming plan, it is made

to fit with the weft effects, and also with the pattern developed in flushed threads of warp. While a severe and sharp definition of the different forms should be avoided, the character and composition of the design require to be neatly and clearly expressed in the fabric, or on the principle of construction observed in this example.

234. *Spotting of Warp and Weft Surfaces.*—Sateen, diamond, and twilled weaves, having a warp or weft surface, are combined on geometric and other bases, and then spotted with simple motives or small figured details. Figs. 259 and 260 are illustrative of this practice. The former is composed of 8-end sateen weaves, having the sections A and B grouped in a striped relation, with *weft* spottings—marked in ■'s—on the warp-face plan, and *warp* spottings—marked in □'s—on the weft-face plan. The two weaves are used in check, diaper, and in various pattern schemes, and the spots are distributed on a sateen or other mathematical arrangement; or twilled weaves, the reverse of each other in warp and weft intersections, are employed. But, whichever system is followed, in this description of weave compound, the practice of producing the spotted units in *warp* effect on a weft-face, and in *weft* effect on a warp-face crossing, is strictly adhered to. Textures of another class—Fig. 260—are acquired by developing the spottings in “face weaves” on a suitable ground. Here it will be noted that the spots C and D are woven in 5-end warp and weft sateens. The effects D are lined at the edges with weft cord, and effects C with warp-cord, with plain binding or knitting threads and picks for delineating and clearly defining the spotted motives. The cord weaves have in such instances a two-fold application, for they first present each kind of spot on a textural surface differing in structure and thread development from that in which the spotted sections are woven; and, second, they produce in the ground of the fabric a pattern type in complete unison with the plan of the spotted effects. The example may therefore be regarded as illustrative of the spotted basis

in which the ground weaves are adapted in method of combination, and also in warp and weft-face features, to the structural principle of grouping the detail elements of the pattern.

235. *Mosaic Patterns—Curvilinear Variety.*—These are as varied, and as multiform in plan and composition, as designs devised on geometric bases. Their mosaic characteristics are also similarly diversified and commingled, with the effects interchangeable as in the latter.

It is primarily fundamental that the curvilinear figuring should be effectively drafted on point paper, the form and shape of the curved decorative types being smartly defined by the order of the movement of the warp and weft intersections in which they are produced.

The scheme of design work will be described by referring to Figs. 261, 262, and 263—examples in which the figured sections consist of circular and curved outlines. Fig. 261 consists of two equal arcs of circles joined together, and two similar arcs, so combined as to give the central diamond effects marked in \boxtimes 's. The figuring, printed in grey, would, in the texture, be sateen woven. Repeating the style exhibits the scheme of arrangement more clearly than in the illustration. Though each of the circular forms is worked out on 40 threads and 40 picks, the plan of the intersections results in the different form types being as neatly curved in the fabric as if instrument drawn. When the exact pattern structure has been thus produced, the manner in which it is treated, as to weave detail, may improve or detract from its textile application. Analysing the example, it will be seen that the several weaves of which it is formed are planned and intermingled with the object of making each section of the design interesting and distinct in textural character. In constructing patterns of this class, the figuring requires to be accurately moulded, but it is also necessary that the woven fabric should be level and well-built, and diversified in weave composition. The specimen enforces these principles of design and cloth structure. First, the crescent forms are developed

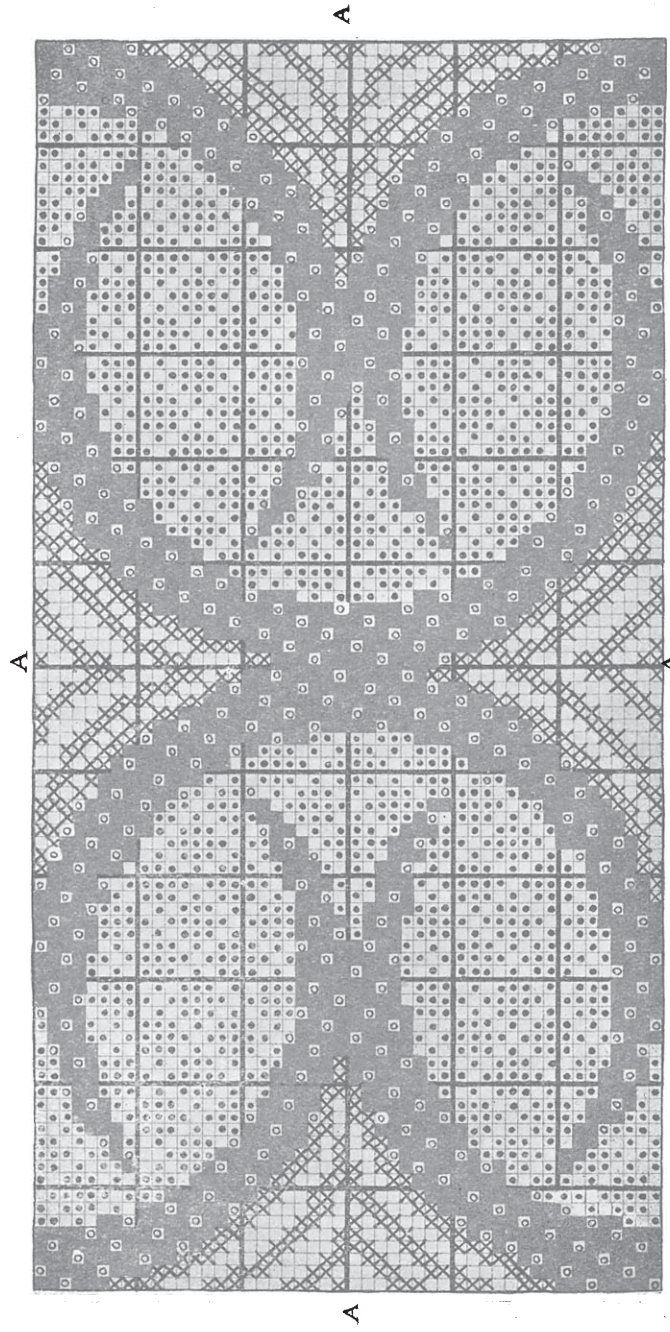


FIG. 261 (*Left* □'s and Marks in Grey).
MOSAIC STYLE: WEST DIAMOND GROUND WEAVE.

in warp-face sateen, with the interior sections in a weft diamond make ; and, second, the types A are woven in twilled lines. As constructed, this scheme of pattern is applicable to cotton, silk, or union cloths, giving the more satisfactory woven results in close setting and fine counts of yarn.

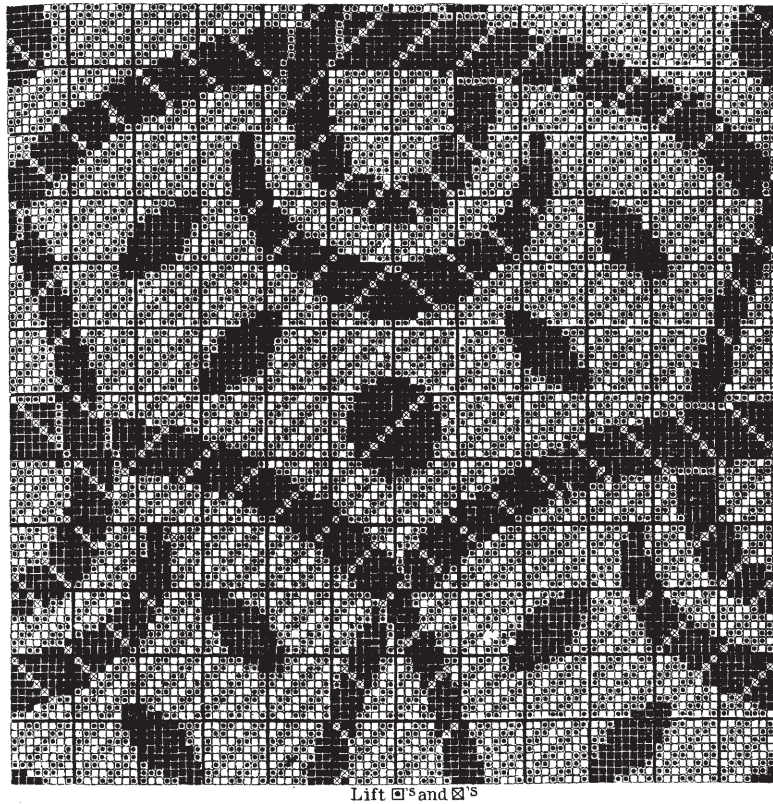


FIG. 262.—MOSAIC TYPE IN CURVED LINES.

236. *Curvilinear Forms Spotted.*—Mosaic designs, in which the curved lines interlace, are a development of the principles of woven ornament described in reference to Fig. 261. The several groups of detail are now arranged to intercross with each other ; and the resultant styles may be spotted in warp, weft, or both warp and weft. The elemental lines in Fig.

262 are produced in weft twills, with the spotting in compact floats of weft, and with the $\frac{1}{2}$ -² twill in the ground, making the style adapted to worsted warp and silk weft manufactures ; or, for such weaving particulars as 2/100's worsted warp and 30's spun silk weft, in a 20's reed 4's and 80 picks per inch.

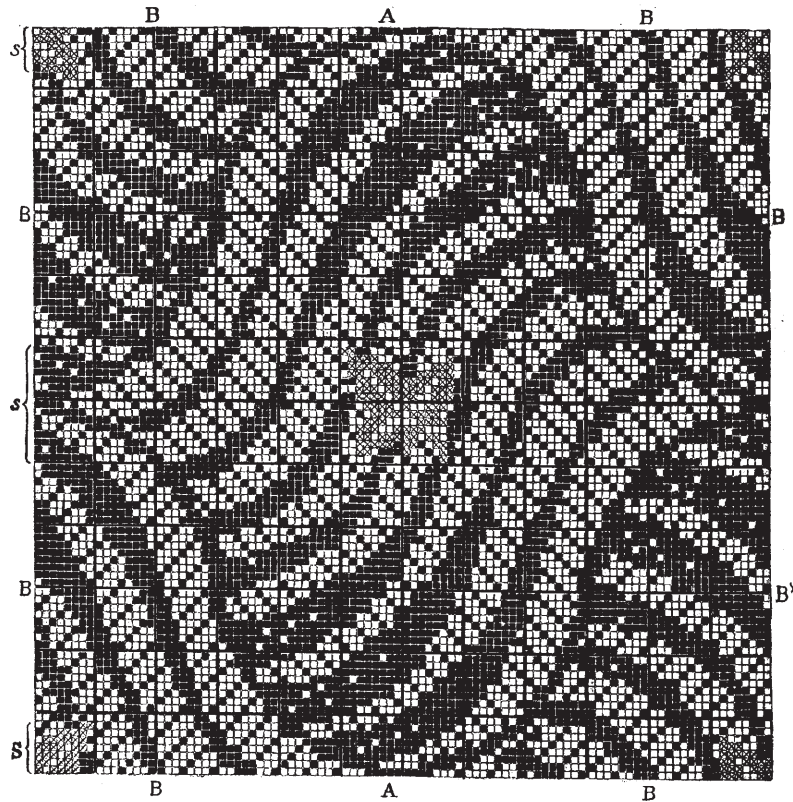


FIG. 263.—WAVED PATTERN IN TWILL AND WEFT EFFECTS.

Changing the ground make to plain, the methods of production to be followed are : (1) that of using cotton warp crossed with artificial silk, and (2) that of using silk warp and silk weft. The distinguishing features of this example are the larger intersecting arc forms, the smaller looped figuring and the crescent details, with the effective grouping of the

spottings. Weft-twilled weaves are applied to all the decorative sections of the design, and in a manner which conforms with the outlines of the curves as well as with their dimensions.

237. *Curved Forms planned on Geometric Principles.*—The motives or types employed in curvilinear patterns may be grouped in geometric relation, or they may be transposed or otherwise arranged. Selecting, for example, an elliptical form, a method of looming preparation is shown in Fig. 263, where the curved details, woven in warp twill and flushed weft, move to the right in sections A, and to the left in sections B. The design is, with or without the extra leaf spotting—in \boxtimes 's—suggestive of the kind of pattern-work obtainable in waved types, and in contrast with the species of effect of a rectilinear formation. Such curved features should, in the texture, be as correctly delineated as if obtained by the process of cloth printing. That this is feasible arises, first, from the comparatively small scale on which the pattern is produced in the woven fabric; second, from the drafting of the motives clearly on the point paper; and, third, from the plan of the weave units and the order of their adjustment.

This design, and also that illustrated in Fig. 261, are to be considered as illustrative of curvilinear pattern structures, repeatable on a limited number of threads and picks. The practice of fine setting in the reeding and in the wefting is essential in producing accuracy of textural origination in this class of ornament, and also in the assortment of other decorative features constructed on a circular basis.

238. *"All-over" Design Schemes.*—The term "all-over" is applied to designs in which the effects are so distributed on the surface of the fabric as to give styles of pattern in which the lines of the figuring are blended on a definite but apparently on a nondescript principle. In one important group of such designs, that acquired by drafting weave compounds—Fig. 264—the pattern forms are indefinable; but, in a second group, that obtained by combining straight or curved lines, or both—Fig. 265—a decided variety of style results, yet one

in which the effects run in an "all-over" formation on the face of the texture. Considering the first group, it is distinctive of designs composed of two or more weave elements. Having selected these, they are grouped in sections, and then

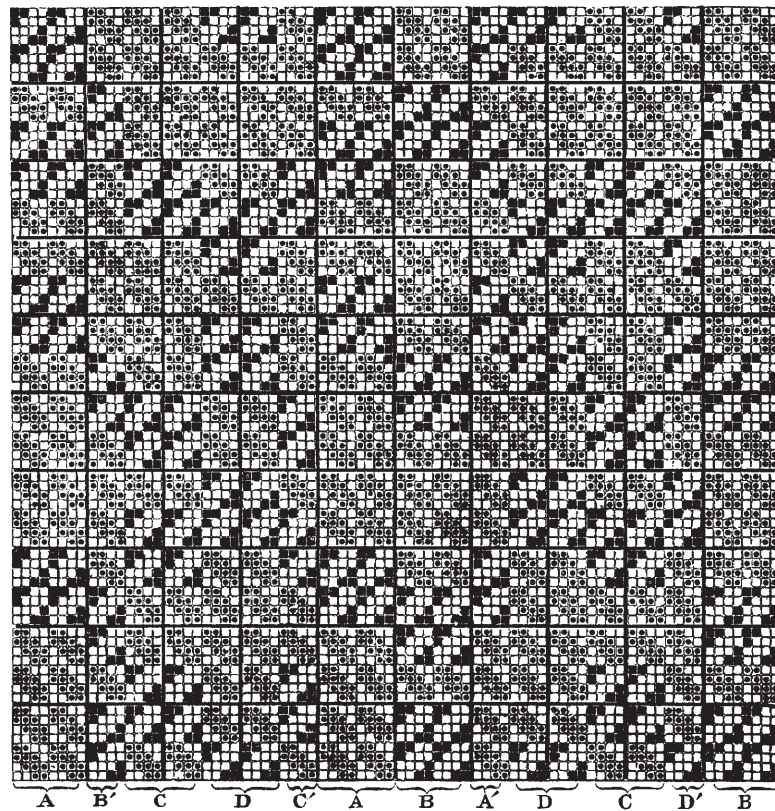


FIG. 264.—"ALL-OVER" DRAFTED DESIGN.

the several sections are re-arranged by the order of healding the warp. Fig. 264, is, for instance, a compound "all-over" drafted style acquired in two weave plans. Its integral parts are A, B', C, and D. Their sequence by drafting, becomes A, B', C, D, C', A, B, A', D, C, D', B, yielding the form of weave decoration illustrated. Further, it will be noted

that sections A, B, C and D are composed of eight, and sections A', B', C', and D' of four threads. Usually several multiples of threads are combined, as, for example, in 3-shaft weaves, three, six, nine, etc., and in 4-shaft weaves, four, eight, twelve, etc., that is in multiples corresponding with the number of

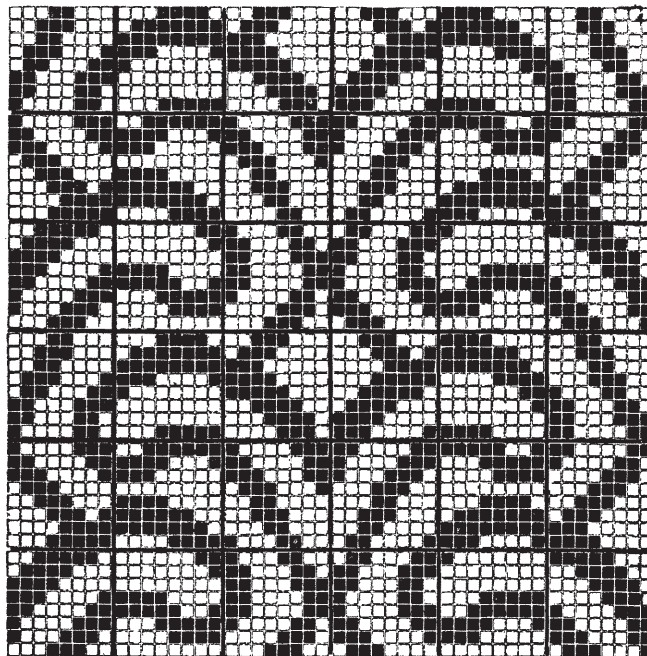


FIG. 265.—WAVED PATTERN ON DRAFTABLE BASE.

threads of which the weaves combined consist. This practice results in the interchanging of the multiples forming each section, which contributes to the varied assortment and composition of the pattern. Uniformity, in the plan of weave distribution, is, however, a characteristic of this group of "all-over" styles, on account of the mathematical system of assorting the sectional parts, and also on account of attaining, by the drafting scheme, an identical aggregate number of threads of each weave unit in the complete design. In the example, there are two sections of eight threads and one