



Posselt's Textile Journal



A Monthly Journal of the Textile Industries

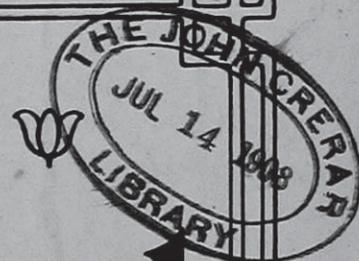
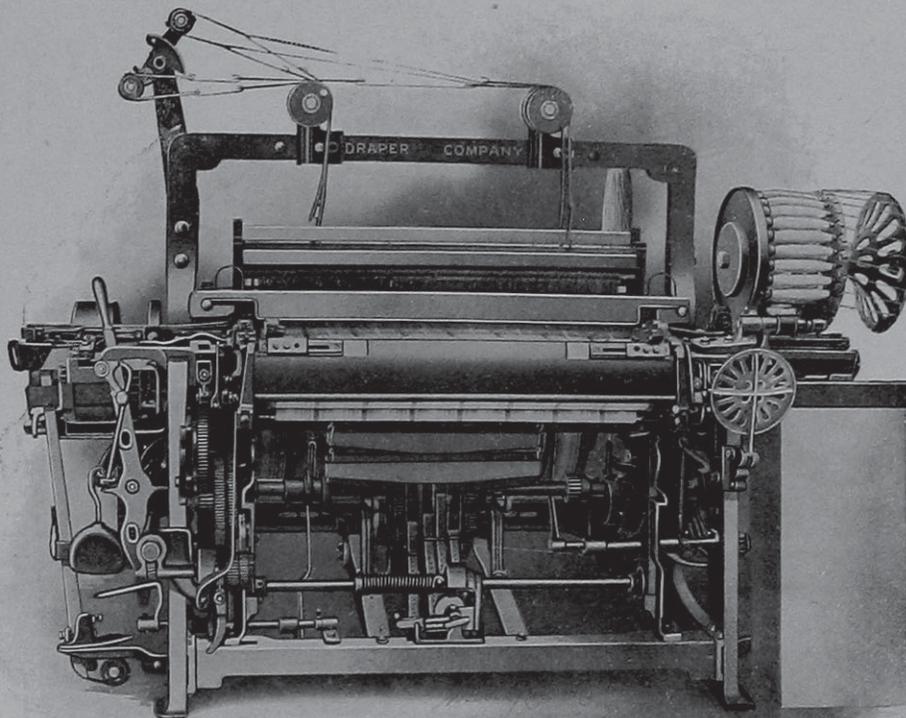


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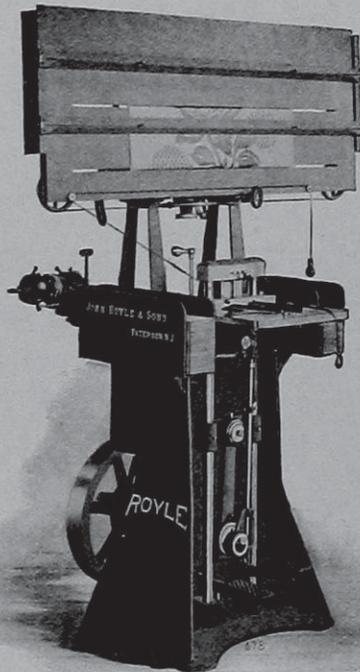
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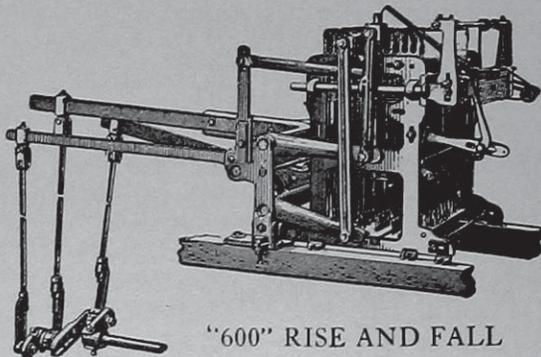
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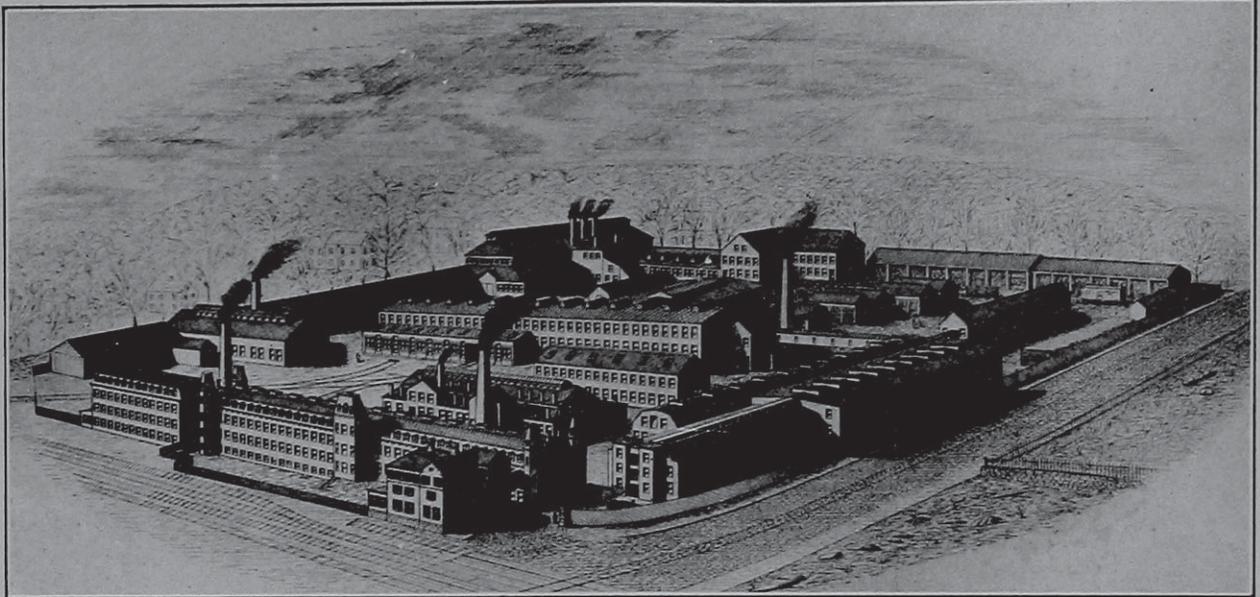
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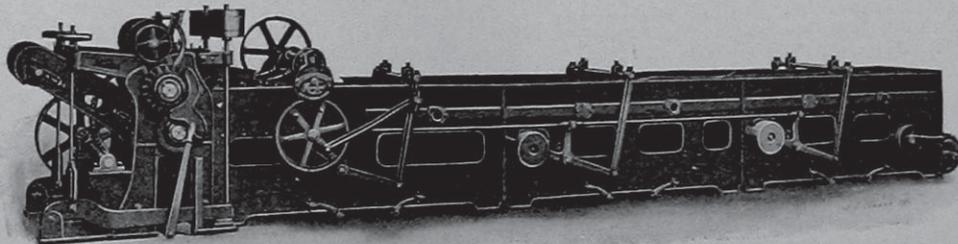
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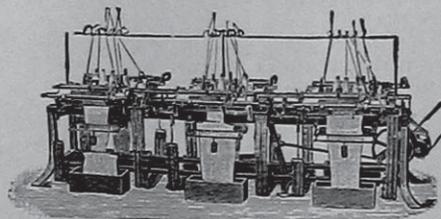
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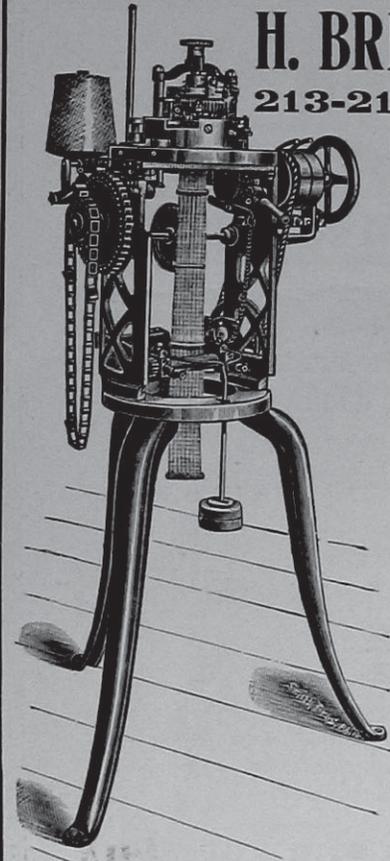
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(Continued on page x.)

Posselt's Textile Journal

Vol. III.

July, 1908.

No. I.

JACQUARD DESIGNING.

(Continued from page 328, Vol. II.)

Designing for Single Cloth Fabrics in which Warp and Filling Floats are used for Producing the Figure.

In this instance the ground of the design is generally interlaced by means of then closely interlacing

We will follow our plan laid out with former lesson and carry on instructions by means of practical examples, explaining the process from the sketch to the worked out design on point paper, taking into con-

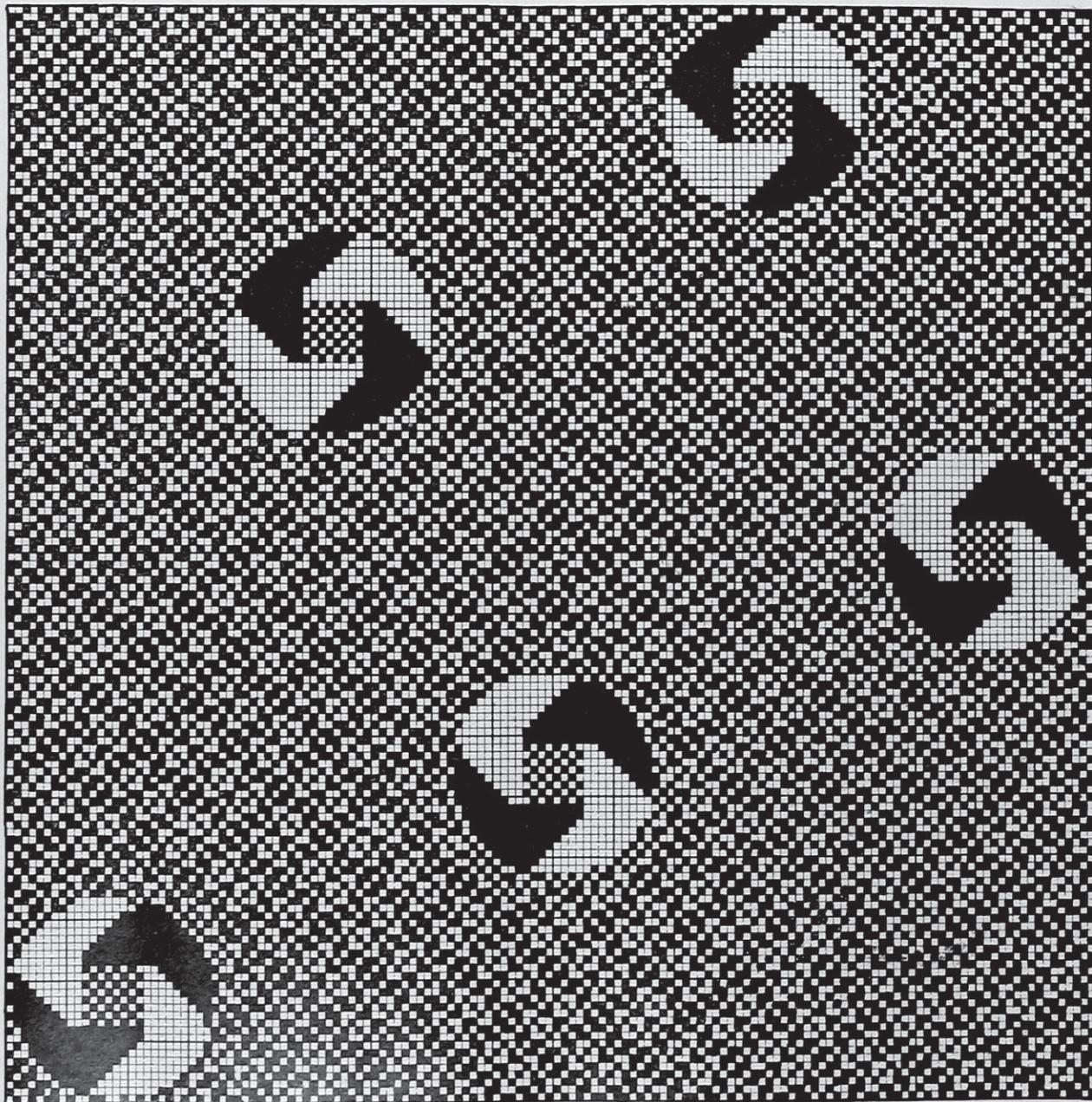


FIG. 34

warp and filling. In the same way portions of the figure can be treated, preferably selecting a different weave, in order to produce more of a contrast from the ground.

sideration the texture of the woven fabric, its lay out in the loom, *i. e.*, jacquard harness and jacquard machine used, etc.

Fig. 32 is the sketch for a dress goods, shown actual

size and to be produced with the following particulars:

FIGURE: Vertical shaded effect to be warp floating; effect shown in black to be filling floating; and

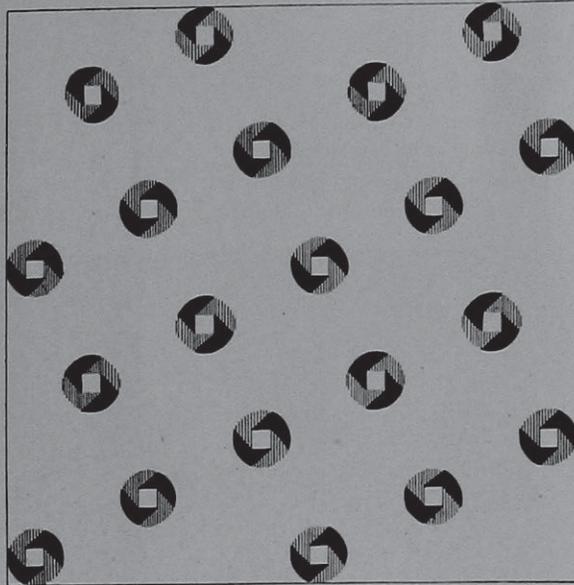


FIG. 32

effect shown cross hatched, in centre of figure, to be closely interlaced so as to prominently cut off, and consequently prominently show up the warp and filling floating effects.

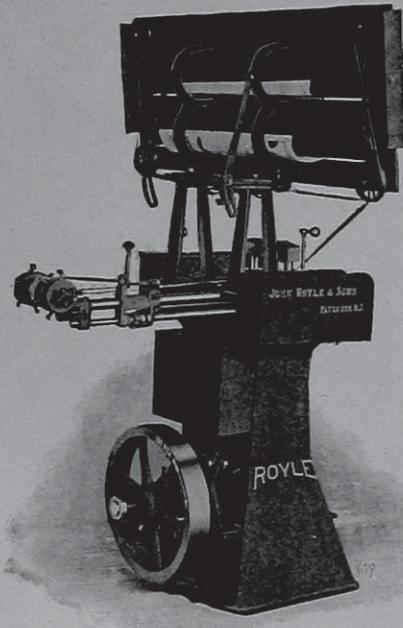


FIG. 33

THE "ROYLE" POWER PIANO MACHINE (rear view).

GROUND to be interlaced with a closely interlacing granite weave.

PLACING OF THE FIGURE: 5-harness satin setting.
TEXTURE OF THE FABRIC TO BE: 82 by 82.

Proceeding to lay out our work for the point paper design, we find on account of using the same number of warp threads as picks per inch, *i. e.*, using a balanced texture,

POINT PAPER REQUIRED to be used: 8 by 8, or 12 by 12, or any similarly balanced ruling of the point paper; the first, *i. e.*, 8 by 8 being the one we selected for our example.

CALCULATING SIZE OF JACQUARD MACHINE REQUIRED: Repeat of design is $1\frac{3}{4}$ inches, thus $1\frac{3}{4} \times 82$ (ends of warp per 1 inch) = 144 warp threads are required for one repeat of the design; in turn calling for either a 200 or 600 jacquard machine, and stamping the point paper design (144 ends) respectively, either once or four times (in its width) over, on a Royle Power Piano machine. This modern card stamping machine is an improvement over the common makes of foot power machines, the operator does not pedal his strength away, but can use it solely for working the punch-keys. Then too, you can cut without extra effort, two or more cards at a time, when you have to start two or more looms on one pattern, and thus save in expenses. Fig. 33 shows one of these machines in its perspective view.

Planning for the design on point paper, we next have to consider the weave to be used for interlacing the ground portion of the fabric, since sketch refers to an *all over* ground pattern. For our example we selected a 12-harness granite weave and which is a correct multiple for the ground weave to use, since 12 is evenly divisible into 144.

We next have to enlarge one repeat of our design on fabric sketch Fig. 32 to dimension taken up by 144 small squares (18 heavy squares) on the point paper, both warp and filling ways, and transfer or sketch it direct on said point paper and when in turn

Fig. 34 is the final result, *i. e.*, the complete worked out design on 8 by 8 point paper, calling for 144 warp threads and 144 picks, *i. e.*,

144 needles of a 200 jacquard with 144 cards, or
576 needles of a 600 jacquard with 144 cards.

Cut *white* on the piano machine, since *empty* squares in design refer to warp up and *full* squares in design indicate filling up. The reverse could have been painted if so desired and when then *black* (*red* in the mill) would be cut. The affair is immaterial as long as the card stamper is informed whether to cut *white* or *color*.

The effect to the fabric produced by means of these prominent warp and filling floats is a good one, giving the figure in the cloth what we might call a changeable effect accordingly to how the eye either strikes the warp or filling float, *i. e.*, respectively strikes the position of the threads, to transmit besides the design itself, either a lustre or a dull effect, both effects being again prominently brought up by means of the small broken up effect of the granite used for interlacing the ground.

Fabric sketch Fig. 32 also explains to the student how to change the position of the figure in the repeat of the pattern, so as to obtain more of a pleasing combination than if placing them uniformly all one way.

Two different positions are used and this without increasing either number of needles of the jacquard machine, or the number of jacquard cards required. To better explain the subject, fabric sketch Fig. 35 has

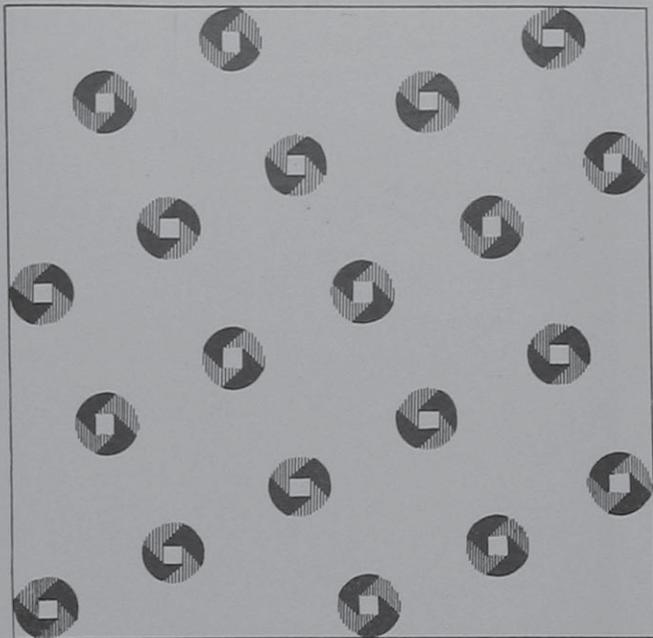


FIG. 35

been prepared, showing a corresponding figure and the same 5-harness satin setting as used for fabric sketch Fig. 32. Again two different placings of the figure have been employed, but with the result that by this

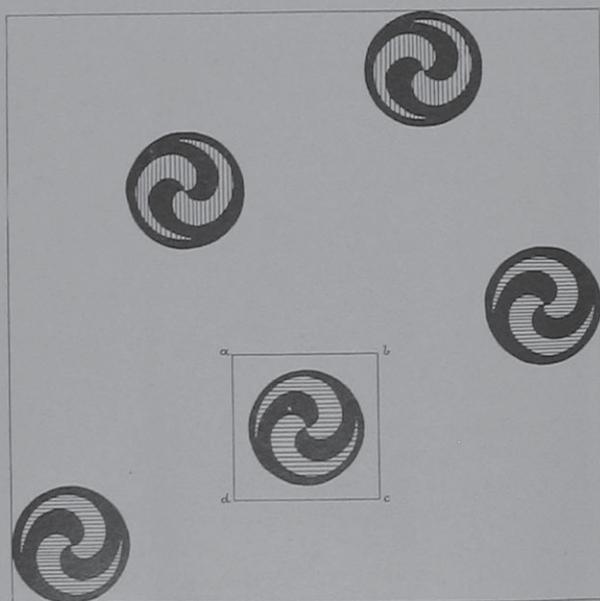


FIG. 36

arrangement the compass of the design on the point paper (that is provided the same texture as before is used) has been changed to 288 warp threads and 144 picks in repeat of pattern, requiring in turn twice as large a design executed on point paper, and consequently twice as much time and labor on the part of the designer, and yet the final result of this design in

the fabric will not be better, in fact somewhat inferior to the first effect given in fabric sketch Fig. 32.

Fig. 36 shows another fabric sketch (actual size—one repeat), the same having for its figure a circle treated with curves in Japanese style.

PLACING OF THE FIGURE: 5-harness satin setting.

TEXTURE OF THE FABRIC TO BE: 100 by 100.

SIZE OF ONE REPEAT OF PATTERN: 3 inches.

CALCULATING SIZE OF JACQUARD MACHINE REQUIRED: 100 (warp threads per inch in fabric) \times 3 (inches repeat of pattern warp ways) = 300 and when a 600 jacquard machine (cut pattern twice over) is the machine to be used.

100 (picks per inch) \times 3 (inches repeat of pattern filling ways) = 300 picks, *i. e.*, 300 jacquard cards are required for the execution of the design on the loom.

The positioning of the circles in the sketch corresponds to the arrangement observed in sketch Fig. 32.

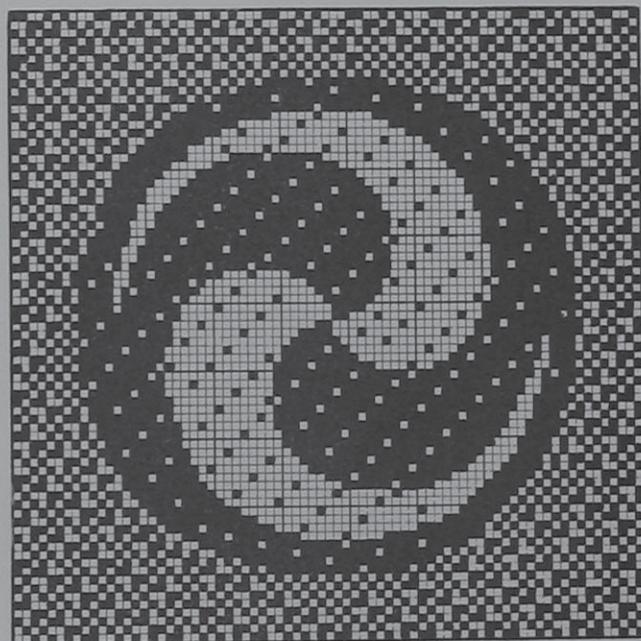


FIG. 37

On account of the Japanese style of treatment we had to keep the circle in Fig. 36 considerably larger compared to circle used in fabric sketch Figs. 32 and 35. This difference in size and treatment of circle will result in much larger warp and filling floats, requiring in turn binding, *i. e.*, stitching of the larger warp and filling floats. Fig. 37 explains the subject, being the one-sixteenth part of the entire design for sketch Fig. 36 (see square *a-b-c-d*) executed on 8 by 8 point paper.

For interlacing the figure, *i. e.*, stitching the long warp and filling floats, we used the 12-harness warp or filling satin respectively.

For interlacing the ground, we used a 10-harness granite, since 10 is a suitable number for the all over repeat of the ground, on account of 300 (the repeat of design for warp and filling) being evenly divisible by 10.

Cut color on the Piano card stamping machine, *i. e.*, full squares in point paper design (Fig. 37) indicate warp up in fabric.

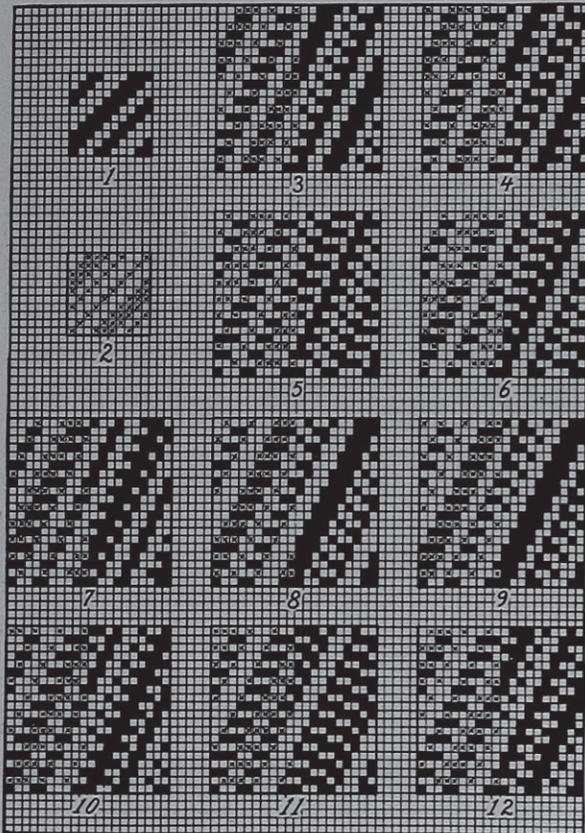
DESIGNING AND FABRIC STRUCTURE FOR HARNESS WORK.

DIAGONALS OR 63° TWILLS.

Diagonals obtained by means of Filling Drafting from the Combination of two 45° Twills.

Any two of our regular 45° twills can be combined, *i. e.*, intersected into each other in the formation of these diagonals.

As will be readily understood, both foundation twills thus combined must be of an equal repeat.



The more broken up the effects of the foundation twills used, the more broken up (better) will be the effect in the diagonal obtained, for which reason it will be advisable to always use foundation twills showing at least two, three or more twill line effects in one repeat. By this we mean, that for example if the question refers to a 12-harness foundation twill you shall not use single twill effects like $\frac{6}{6}$ or $\frac{8}{4}$ etc.; double twill effects like for example $\frac{4}{4} \frac{2}{2}$ or $\frac{4}{3} \frac{3}{2}$ etc., producing more satisfactory diagonals, whereas 12-harness foundation twills showing three or four twill effects, for example $\frac{3}{3} \frac{2}{2} \frac{1}{1}$ or $\frac{1}{1} \frac{1}{1} \frac{2}{2} \frac{2}{2}$ etc., will show still better, *i. e.*, more broken up effects, in the diagonals constructed from these 45° twills.

We will now explain how to obtain these diagonals by means of constructing, for example, all the diagonals possible to be obtained from the combination of two 10-harness twills, a careful study of which will show the student how to combine any two other foundation twills, having the same repeat, with each other,

and when the student then can construct an endless variety of new diagonals.

Fig. 1 shows us one repeat of the $\frac{3}{3} \frac{2}{2}$ 10-harness regular twill, shown in *black* type.

Fig. 2 shows us one repeat of the $\frac{1}{2} \frac{1}{1} \frac{3}{2}$ 10-harness regular twill, shown in *cross* type.

Fig. 3 shows us the combination of these two 10-harness twills previously quoted, produced by drafting alternately one pick from one twill and one pick from the other twill, starting in connection with either foundation twill with pick 1. By this is meant that

Pick	1	of	weave	3	is	pick	1	of	weave	1
"	2	"	"	3	"	"	1	"	"	2
"	3	"	"	3	"	"	2	"	"	1
"	4	"	"	3	"	"	2	"	"	2
"	5	"	"	3	"	"	3	"	"	1
"	6	"	"	3	"	"	3	"	"	2
"	7	"	"	3	"	"	4	"	"	1
"	8	"	"	3	"	"	4	"	"	2
"	9	"	"	3	"	"	5	"	"	1
"	10	"	"	3	"	"	5	"	"	2
"	11	"	"	3	"	"	6	"	"	1
"	12	"	"	3	"	"	6	"	"	2
"	13	"	"	3	"	"	7	"	"	1
"	14	"	"	3	"	"	7	"	"	2
"	15	"	"	3	"	"	8	"	"	1
"	16	"	"	3	"	"	8	"	"	2
"	17	"	"	3	"	"	9	"	"	1
"	18	"	"	3	"	"	9	"	"	2
"	19	"	"	3	"	"	10	"	"	1
"	20	"	"	3	"	"	10	"	"	2

and when the complete repeat for the new diagonal has been obtained. To simplify matters, we have shown in one repeat of the diagonal Fig. 3 its construction by means of two kinds of type, selected correspondingly to the same type used in connection with the foundation twills Fig. 1 and 2, *i. e.*, showing all the uneven picks in weave Fig. 3 in *black* type, corresponding to foundation weave Fig. 1 and all the even picks in weave Fig. 3 by means of *cross* type, *i. e.*, corresponding to type used in weave Fig. 2. The second repeat of the diagonal is given in one kind of type only, in order to more clearly show the general effect of this weave upon the fabric structure.

We have kept up showing the construction of the diagonal in the first repeat by means of two kinds of type and the general effect of the weave upon the fabric by one kind of type in the second repeat of the diagonal in all ten combinations, *i. e.*, the ten diagonals given with this article. This will simplify the construction of these weaves to the student. No other example on our part will be required and when questions given at the end of the article will be readily solved by the student.

Weave Fig. 4 is the combination of twills 1 and 2, starting to draft weave Fig. 1 with pick 1 and weave Fig. 2 with pick 2, and when the drafting for the diagonal has been thus:

Pick	1	of	weave	4	is	pick	1	of	weave	1
"	2	"	"	4	"	"	2	"	"	2

Pick 3 of weave 4 is pick 2 of weave 1
 " 4 " " 4 " " 3 " " 2
 " 5 " " 4 " " 3 " " 1
 " 6 " " 4 " " 4 " " 2 etc.

Weave Fig. 5 is again the combination of twills 1 and 2, starting again to draft weave Fig. 1 with pick 1, but weave Fig. 2 with pick 3.

Weave Fig. 6 is again the combination of twills 1 and 2, starting again to draft weave Fig. 1 with pick 1, but weave Fig. 2 with pick 4.

Weave Fig. 7 is again the combination of twills 1 and 2, starting again to draft weave Fig. 1 with pick 1, but weave Fig. 2 with pick 5.

Weave Fig. 8 is again the combination of twills 1 and 2, starting again to draft weave Fig. 1 with pick 1, but weave Fig. 2 with pick 6.

Weave Fig. 9 is again the combination of twills 1 and 2, starting again to draft weave Fig. 1 with pick 1, but weave Fig. 2 with pick 7.

Weave Fig. 10 is again the combination of twills 1 and 2, starting again to draft weave Fig. 1 with pick 1, but weave Fig. 2 with pick 8.

Weave Fig. 11 is again the combination of twills 1 and 2, starting again to draft weave Fig. 1 with pick 1, but weave Fig. 2 with pick 9.

Weave Fig. 12 is again the combination of twills 1 and 2, starting again to draft weave Fig. 1 with pick 1, but weave Fig. 2 with pick 10.

Questions:

(1) Construct six diagonals by combining the $\frac{3}{2}$ and the $\frac{2}{2} \frac{1}{1}$ 6-harness 45° twills, pick and pick, starting drafting one of the foundation twills always with the same pick, but changing the starting of the drafting of the other foundation twill with every new diagonal.

(2) Construct eight diagonals by combining the $\frac{2}{2} \frac{1}{1} \frac{1}{1}$ and the $\frac{3}{2} \frac{1}{2}$ 8-harness 45° twills, pick and pick.

(3) Construct eleven diagonals by combining the $\frac{3}{2} \frac{2}{4}$ and the $\frac{2}{2} \frac{2}{2} \frac{1}{1}$ 11-harness 45° twills, pick and pick.

(4) Construct twelve diagonals by combining the $\frac{3}{3} \frac{2}{2} \frac{1}{1}$ and the $\frac{1}{2} \frac{2}{2} \frac{2}{1} \frac{1}{1}$ 12-harness 45° twills, pick and pick.

RIBBONS, TRIMMINGS, EDGINGS, ETC.

A Treatise on Narrow Ware Manufacture.

By O. Both.

(Continued from page 338, Vol. II.)

Hollow Selvages.

The same play a most important part in the manufacture of ribbons and appear either as complete, half or three-quarter hollow selvages.

COMPLETE HOLLOW SELVAGES contain a separate face and back structure (face and back warp and filling), both having the same number of warp threads.

HALF HOLLOW SELVAGES are such as contain a face and a back filling, but only one system of warp, and which interlaces with the face filling, the back filling floating, *i. e.*, is not interlacing with the warp threads.

THREE-QUARTER HOLLOW SELVAGES have a face and back warp and filling; however, the face carries in this

case more selvage threads. The term three-quarter is only taken to indicate the difference between complete and half hollow selvages, it has nothing to do with the proportion of face and back selvage threads

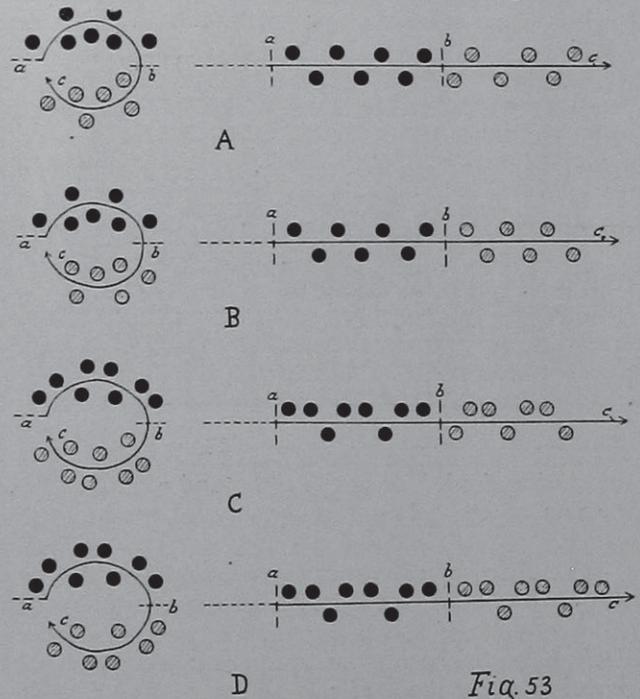


Fig. 53

used, and which vary according to character of fabric structure under consideration.

For double face ribbons as well as the better class of one face structures, complete hollow selvages are mostly used, the other two kinds of selvages referring

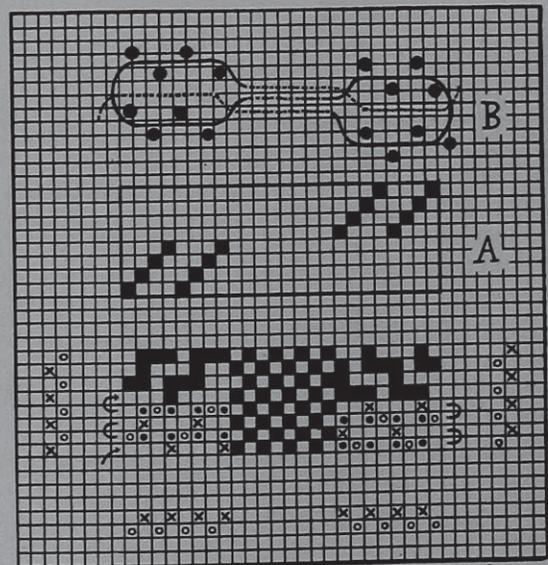


Fig. 54

more particularly to the medium and cheaper grades of one faced structures.

Complete and Three-quarter Hollow Selvages.

The weaves used for these selvages belong to the class described in the June issue, under Tubular and Double Cloth Weaves. In addition to directions then given, be careful that a perfect edge (no curling up)

of the selvage is produced by the filling traveling from one ply into the other.

When planning the draft for such a fabric be sure to indicate on the point paper the entering of the first pick into the structure, *i. e.*, whether said pick enters

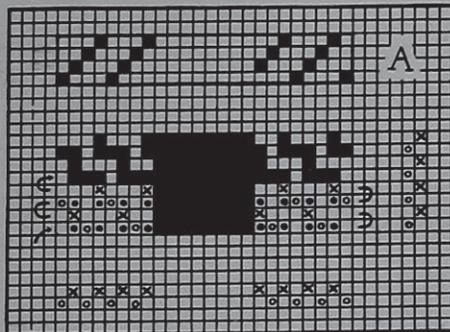


Fig. 55

the shed at the left or at the right, and after this trace the run of the filling throughout the repeat of the weave.

The filling traveling on every two picks from one ply into the other is the cause of connecting the face and back selvage structures. These two picks, successively following each other, are known as a *return pick*. Severing the hollow selvage, next to the structure lengthwise in the fabric, and opening out the same so as to represent a single cloth structure, such a return pick will then show as one pick. Provided the shuttle enters the shed at the left, the first return pick for the right hand selvage then will be picks 1 and 2, the second return picks, picks 3 and 4 and so on. At the same time the first return pick for the left hand selvage then will be picks 2 and 3, the second return pick, picks 4 and 5, etc. Changing the entering of the

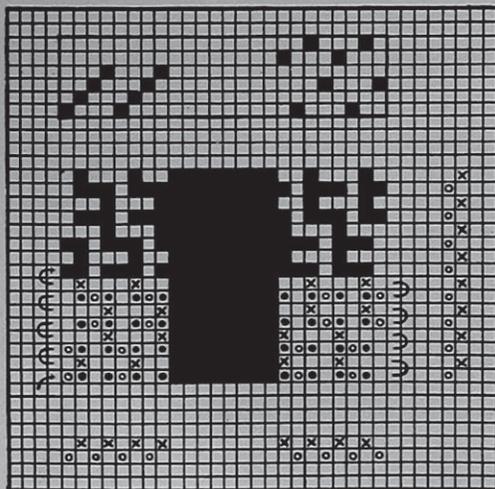


Fig 56

shuttle will naturally also change the number of the two picks as form a return pick. Having obtained a clear understanding of this return pick, remember that when planning the weave, these return picks must form perfect single cloth if opened out as before ex-

plained. How to proceed, will be best explained in connection with a practical example.

Suppose a hollow selvage showing 3-harness warp effect twill is required. After indicating on your point paper face and back warp threads and picks, as well as return picks, raise first all the face warp threads on every back pick. The method of interlacing of the 3-harness twill (warp effect) is *2 up 1 down* and what we change in the present instance to *2 out 1 in*. Following this formula, insert the weave for the face structure in plan mapped out previously on the point paper; next insert the weave in the back ply, being careful that the formula in the back pick as forming with the face pick together a return pick, connects properly to the respective face pick, remembering at the same time that *2 out* in connection with the back pick, means the lowering of 2 back warp threads and *1 in* in the raising of a back warp thread, since in the lower ply the *down* of the back warp threads forms the face of the fabric. Any number of warp threads can be used for these selvages, the number to use de-

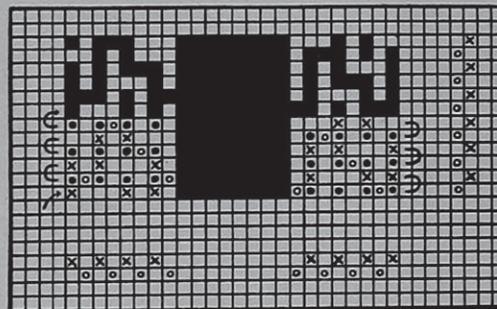


Fig. 57

pending upon the character of the fabric under consideration.

The accompanying four diagrams Fig. 53 A, B, C and D, illustrate sections of differently interlaced hollow selvages and their plans of interlacing if severed from the fabric and turned flat, as previously referred to.

The face warp threads are shown in full black circles.

The back warp threads are shown in shaded circles.
a to *b* = face pick.

b to *c* = back pick.

Diagram A shows a perfectly interlacing return pick in connection with interlacing face and back structure with the plain weave (see *b* in flat diagram).

Diagram B shows the same weave used in connection with an imperfectly interlacing return pick (see *b* in flat diagram, showing 2 warp threads up, *i. e.*, interlacing the same).

Diagram C shows a perfectly interlacing return pick in connection with the 3-harness twill warp effect (see *b* in flat diagram), whereas

Diagram D shows an imperfectly interlacing return pick (see *b* in flat diagram, showing 4 warp threads up side by side in place of 2, the formulæ of the 3-harness twill).

IF DEALING WITH JACQUARD WORK, it will be found advisable to balance the interlacing of the two selvages

of the fabric with reference to face and back pick, *i. e.*, when one of the selvages interlaces back pick, plan in your design that the other weaves face pick,

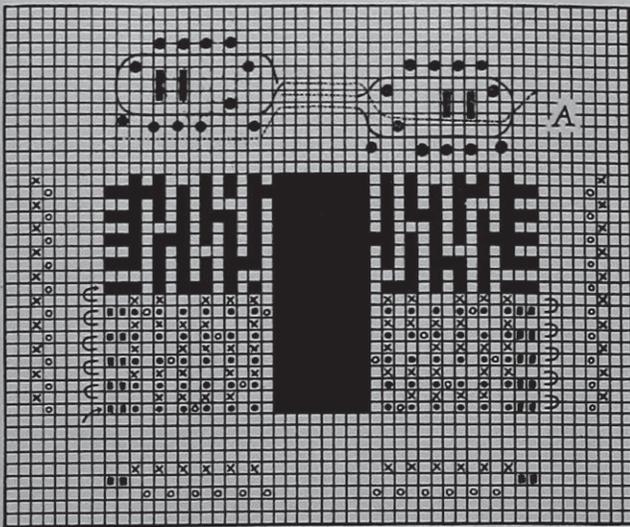


Fig. 58

and vice versa. In connection with harness work, in order to reduce the number of harnesses required, this feature is, as a rule, not made use of.

STUFFER WARP THREADS as inserted into these hollow selvages, in order so as not to show on either side of the fabric, must be raised on every back pick and lowered on every face pick.

EXAMPLES: Diagrams Figs. 54, 55, 56, 57, 58 and 59 show six examples of weaves. The centre of the ribbon in Fig. 54 is shown, but omitted (shown black) in the other five diagrams.

Fig. 54 shows a weave plan for a hollow selvage, plain face and back, reverse working.

x = face warp and filling.

o = back warp and filling.

Centre of ribbon = common plain weave, *i. e.*, taffeta weave.

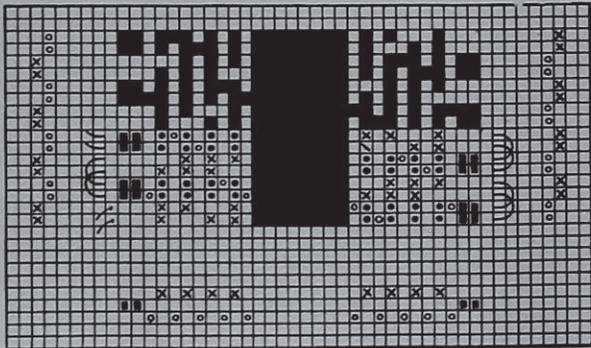


Fig. 59

Selvage requires 8 harnesses, *i. e.*, four harnesses for each side (see Diagram A), no attention being taken to the centre of the ribbon, and for which 4 or any other multiple of 2 harnesses, additional, are required.

B shows diagrammatically the interlacing of one return pick from both selvages.

Combining a hollow selvage with taffeta, *i. e.*, plain weave for centre of ribbon, see that the first

taffeta thread next to the selvage, raises on the face pick of the latter and is down on the back pick of the latter; the reverse being the cause of it simply acting as a stuffer for the selvage.

Diagram Fig. 55 shows a similar hollow selvage as the one just explained, only that in this case selvages are working face and back pick alike, requiring only four harnesses for their execution (see Diagram A).

Fig. 56 shows us a hollow selvage produced with the 2 by 4 warp rib weave, *i. e.*, 2 picks in a shed of the plain weave.

Fig. 57 is a hollow selvage with 3-harness twill, warp effect, for both sides of the selvage.

Fig. 58 shows us a hollow selvage with 5-harness satin, warp effect, for both sides of the selvage, showing also the application of stuffer warp threads. Selvage threads and stuffer warp threads are shown in fabric section A, showing two return picks in connection with it.

Fig. 59 illustrates a hollow selvage with a 4-harness broken twill, warp effect, for face and back, designed for using 2 shuttles; each shuttle successively interlacing once in one ply then in the other ply. If using the arrangement of one face to alternate with one back, the threads as coming from one of the shuttles would cross only in the face warp, the other in the back warp, obtaining no hollow selvage but a double selvage minus interlacing face and back ply.

Testing the Fastness of Dyes to Light.

One of the most important properties of a dye-stuff is its fastness to light, *sun proof* as it is sometimes called, and which property is more important than those fast to washing or to ironing.

The test of a dyestuff with reference to its fastness to light refers naturally to an exposure of the dyed fabric to the direct rays of the sun, but it is very difficult to get comparative results, on account of the long time required for the test, and during which the intensity of the light constantly changes.

To ascertain the fastness to light of a dyestuff, it is necessary to expose the fabric dyed with the dye-stuff in question, to the rays of the sun, side by side with the same make of fabric but dyed with a dye whose behavior to light is well known. Such a dye-stuff as indigo carmine, and where repeated experiments have shown that this dye changes on exposure to varying daylight with more uniformity than any other known dye. If, then, the fabric to be tested is exposed to the direct rays of the sun, together with another piece of the same fabric, but dyed with indigo carmine, the fastness of the dyestuff to be tested can be judged according as the color alters more or less quickly than that of the indigo carmine. If the behavior of the two samples is the same, the dyestuff to be tested can be considered as satisfactorily fast, whereas if the indigo carmine sample changes first, the dyestuff to be tested can be considered as extremely fast, while, if the reverse is the case, the dyestuff may be fast enough for some purposes, but not for others, and when further experiments may be necessary to be made. (Dr. Jacobi in Chemiker Zeitung.)