DESIGNING AND FABRIC STRUCTURE OF JACQUARD SILKS.
FIGURING WITH AN EXTRA FILLING.

This system of fabric structure refers more particularly to the manufacture of dress goods, producing in this instance the design by means of floating an
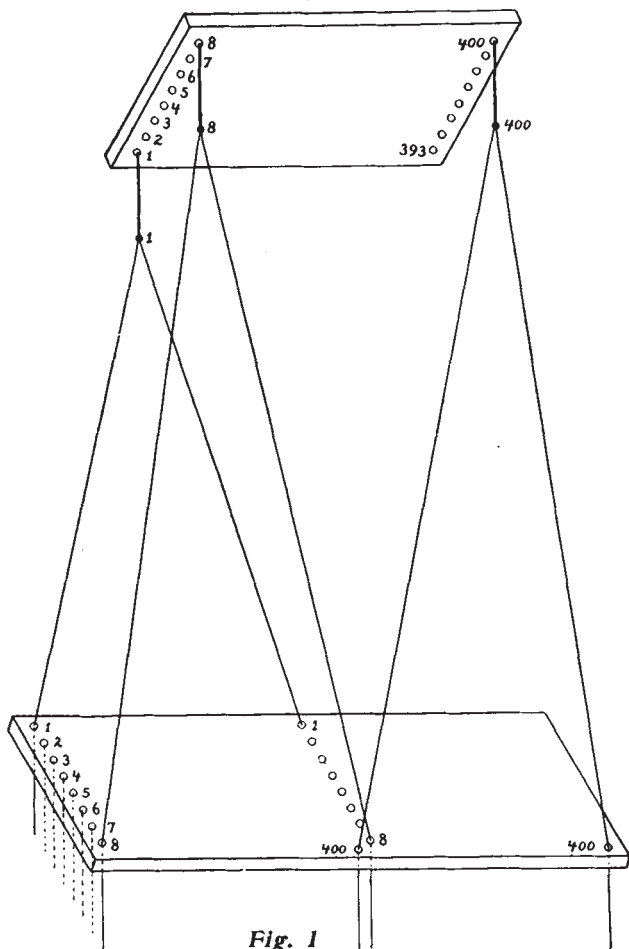

Fig. 1

extra filling on the face of a single cloth structure which in itself is interlaced either with a twill, granite, crêpe or satin weave.

On account of the floating effect of the figure picks, in planning the sketch for the point paper design it will be advisable to select figures presenting well broken up details, since this will not only facilitate the work of the designer, but at the same time a better character will be imparted to the formation of the design in the fabric; excessive floats will have to be tied down on the point paper.

With reference to the Jacquard machines to use, a 400, 600 or 1200 regular or French index or a 1304 or 2608 Fine index machine will be employed, which to use depending upon the elaborate character of the design.

The Tie-up.

The common straight trough tie-up is the one most often used for mounting the Jacquard harness.

Fig. 1 illustrates this tie-up in connection with a 400 Jacquard machine, using an 8 row deep machine and 8 row deep comberboard; this illustration however, will at the same time explain the use of a larger Jacquard machine and comberboard for higher textured fabrics, and when both are made 12 or 16 rows deep.

The Jacquard harness is shown (for the principle of an example, and to simplify illustration and procedure of tying up the harness to the reader) tied up for 2 divisions, using 2 harness cords for each leash. How many harness cords actually to use for each leash in practical work depends upon the size of the Jacquard machine used, the warp texture of the fabric to be made and its width in the loom. The wider the fabric is to be made in the loom, considering size of Jacquard and texture of fabric given, the more divisions in the comberboard necessary, and consequently the more harness cords to each leash are required. The larger a Jacquard machine we use, width in reed and texture of fabric remaining standard, the fewer divisions in the comberboard and correspondingly the fewer harness cords to each leash, will be required.

Varieties in Jacquards.

With reference as to standard size of Jacquard machines we find:

THE AMERICAN INDEX, 400 Jacquard machine containing 50 rows, 8 deep $= 400 + 2$ reserve rows $= 416$ hooks, and which machine we used for illustrating subject of tie-up Fig. 1, since the less numerals, neck
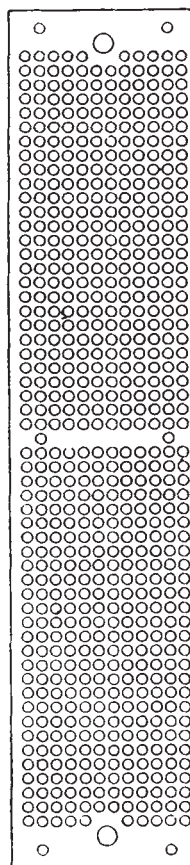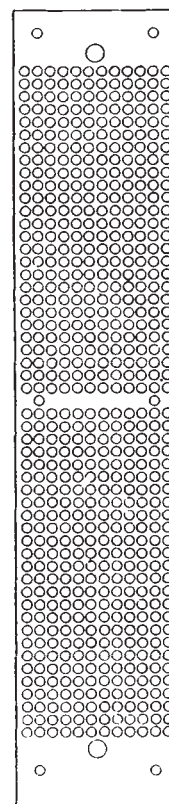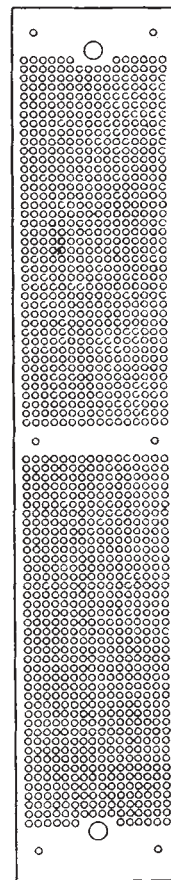

Fig. 2   *Fig. 3*   *Fig. 4*

and harness cords shown in the illustration, the better the reader will understand the subject. For a similar reason we only used harness cords 1, 8 and 400 in the tie-up of Fig. 1; more lines used would only bewilder the reader.

As mentioned before, larger Jacquards than 400 are also used in this class of work, for which we quote and illustrate:

Fig. 5

way the French index and the 400 and 600 American index machines can be run on the double lift double cylinder motion, *i. e.*, speed, hence production.

American Index, 600 Jacquard, see card for it given in Fig. 2, showing the capacity of this machine to be

$$52 \text{ full rows @ 12 holes} = 624 \text{ holes and}$$
$$2 \text{ extra } \text{``} \quad \text{``} 10 \text{ ``} = 20 \text{ ``}$$
$$\overline{644} \text{ hooks and}$$

needles is the actual capacity of this Jacquard.

French Index, 600 Jacquard, see card for it given in Fig. 3, showing the capacity of this machine to be

52 full rows @ 12 holes = 642 hooks and needles is the capacity of this machine.

Fine Index, 1300 Jacquard, see Fig. 4 showing

$$80 \text{ full rows @ 16 holes} = 1280 \text{ holes and}$$
$$2 \text{ extra } \text{``} \quad \text{``} 12 \text{ ``} = \underline{\phantom{0}24} \text{ ``}$$
$$1304 \text{ needles and}$$

hooks is the actual capacity of this machine.

Another standard size of Jacquard machine in the market, but which will be too large a machine for this class of work, is what we call a *Double Fine Index* machine, *i. e.*, two machines of the *Fine Index* machine combined in one, resulting in a Jacquard machine of a capacity of 2608 needles and hooks.

The speed at which this large machine can be operated on is 120 picks per minute. It is built on the single lift principle whereas the regular 1304 Fine Index can be used in connection with the double lift double cylinder arrangement and run in this way conveniently up to 200 picks per minute. In the same

The Sketch.

Having ascertained the size of the Jacquard machine at our disposal, the tie-up of the harness, texture of fabric, *i. e.*, full details of comberboard, we now can plan for our fabric sketch, for use later on for the point paper design.

Considering tie-up given in Fig. 1 under the following data:

Size of Jacquard = 400 hooks and needles.

Two repeats of pattern to be cut in one repeat of machine = 200 warp-threads for repeat of point paper design.

Comberboard planned, *i. e.*, bored 5 inches wide for each division. Thus 400 harness cords (or its corresponding 400 warp-threads) to every 5 inches of the comberboard give us in turn (400 ÷ 5 =) 80 warp-threads per inch of fabric in the reed.

200, the repeat of the point paper design ÷ 80, the warp-threads per inch in fabric in reed = $2\frac{1}{2}$ inches, the size of the sketch on the design paper if the latter is to equal its size in the loom, *i. e.*, considering its width in the reed. The fabric will shrink, *i. e.*, take up some in the loom, but this will not influence the design in our sketch, since it will be only very little.

This now gives us $2\frac{1}{2}$ inches for width of repeat warp ways, or the repeat of the design we used in fabric sketch Fig. 5, and which has for its unit $2\frac{1}{2}$ inches, both warp and filling ways.

(To be continued.)