

THE MANUFACTURE OF NARROW WARES. RIBBONS, TRIMMINGS, EDGINGS, ETC.

(Continued from October issue.)

Pile Fabrics.

These fabrics consist in a ground structure into which are secured (interlaced during weaving) floating threads which afterwards are severed in the centre, forming the characteristic pile known as velvet or plush to said fabrics, or loops are formed and left uncut, producing what is technically known as terry pile to the fabric. Cotton, wool, worsted or silk are used for these pile threads.

If a pile thread rests only below one pick or one warp-thread (whether dealing with a filling or a warp pile fabric) previously to entering and leaving the ground structure, such interlacing is known as *Pile-up* (see Fig. 93). If however said pile thread interlaces with several of the ground threads previously to again leaving the ground structure, the same is termed *Pile-through* (see Fig. 94 and where the pile thread interlaces on plain weave for three ends).

There are three distinct pile fabric structures:

- (a) Filling velvet or velveteen,
- (b) Warp velvet or plush, and
- (c) Terry or loop pile fabrics.

(a) FILLING VELVET.

Rule: After inserting one ground pick (interlacing tightly with the warp-threads) insert several pile picks, *i. e.*, picks floating for a certain number of warp-threads; the length of these floats is regulated by the height of the pile desired.

Drawing the woven fabric warp ways under tension over a table will prominently raise said filling floats, and which are then cut in their centre with a specially shaped, sharp pointed knife, the pile ends thus produced being then in turn, by means of finishing (sizing) brushing, etc., secured to the ground structure. The longer the floats of the pile picks, the higher the resulting pile will be.

Fig. 95 shows us such a filling velvet weave: one pick taffeta to alternate with 5 pile picks. Repeat of weave, 10 warp-threads and 12 picks. The weave used for the interlacing of the pile picks is the 5-harness satin, considering only every other row of vertical squares in the weave plan.



Fig. 93



Fig. 94

Fig. 96 is the filling velvet weave technically known as *Genoa corduroy* (so termed after Genoa, the prominent city of Italy, and where it is said, this weave was first used). The arrangement employed in connection with this weave is: 1 pick ground to alternate with four pile picks. The weave employed for interlacing the ground structure is the 3-harness twill, warp effect. Two sizes of floats for the pile picks are formed, one over six warp-threads, the other over eight warp-threads, this combination imparting to the cord a nice rounding.

These filling velvet weaves also find use in the manufacture of Velveteen Bindings, as used for Dress Protectors. The latter are made either with a single or a twofold filling, consisting in a ribbon having a

velvety edge attached to it during weaving. These bindings are made either of a plain or a fancy structure, in the latter case figures being produced either by an extra warp or extra filling; in some instances these Bindings are woven of a conical shape, serving for connection to the edge of the garment, or they are made in double cloth structures (and when the upper ply is then worked as a figured braid) between which plies the edge of the garment is inserted.

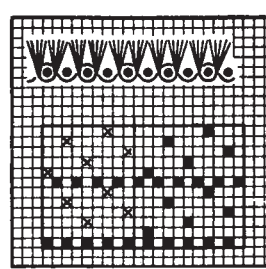


Fig. 95

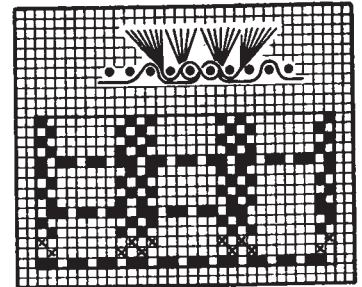


Fig. 96



Fig. 97

On the ribbon loom each set of warp-threads, technically known as a *gang* (one of the sections of the complete warp) serves for forming two of these bindings. Diagram Fig. 97 is given to illustrate the subject. Starting at the left, it shows one of these bindings by means of the heavy black line, woven in the regular way either as single or double cloth structure. Next, several dents are missed in the reed, after which a few "cutting" threads are drawn in the latter (see dark centre of our diagram) to be followed by empty dents and in turn the other binding. Wool and worsted are used in connection with the better class of these fabrics, cotton for the lower grades.

After the binding is woven, the same is severed lengthways in the centre of the cutting threads (see dark centre of our diagram) and the latter drawn out of the two separated bindings. These cutting threads may also be omitted, the eye then being the only guide in the matter of severing the floating picks between the two fabric structures, each provided on one side with a velour, velvet or velveteen edge. If dealing with a woolen filling, by means of steaming the cut pile edges will become more bushy; again, the more picks per inch inserted, the fuller the pile will be.

(b) WARP VELVET OR PLUSH.

Two systems of warp-threads are used in the construction of these fabrics.

(1) the warp for the body or ground structure, and

(2) the pile warp.

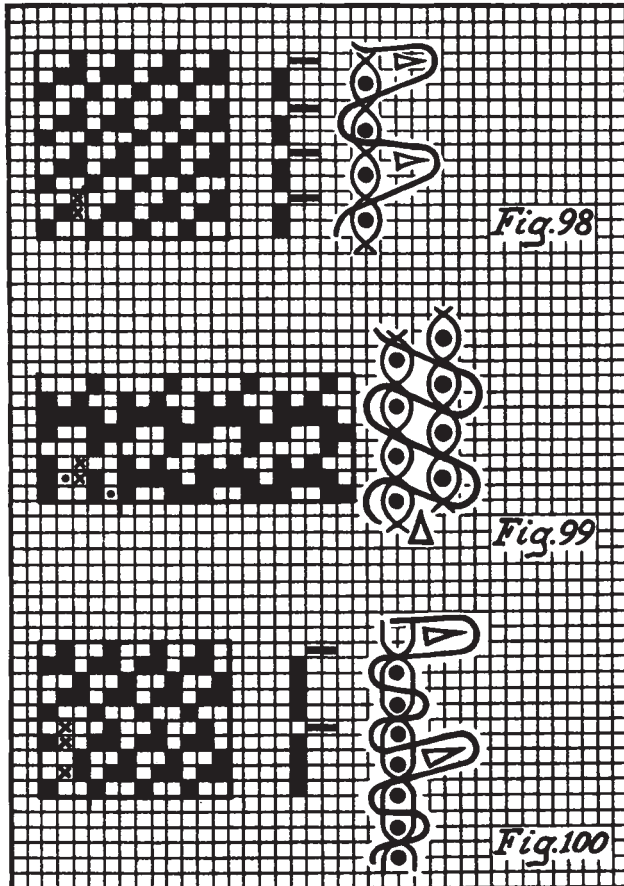
The body or ground warp-threads form, by interlacing with the filling, a solid fabric structure.

The pile warp-threads are interwoven with an easy let-off, interlacing off and on into the body structure. After a certain number of picks have been interlaced with the body warp-threads, all the latter are then made to remain in the lower shed, and when in connection with smooth (plain) plush structures, all the

pile warp-threads are raised; in connection with figured velvet or plush fabrics only such of the pile threads are raised as required by the design.

At this pick no filling is entered, a brass or steel rod known as a pile-wire, being inserted in its place between the body structure and the raised pile warp-threads. These pile warp-threads are in turn afterwards interlaced again into the body structure of the fabric, thus forming loops, after the pile wires are withdrawn; the height of these loops depends upon the height of the pile wires used.

Two kinds of pile wires are used, destined respectively either for uncut or cut pile.



The first are either round or rectangular in their section, resulting in what is termed loop piles in the fabric.

The other kind of pile wires are again of two constructions; either they have one of their ends formed, *i. e.*, enlarged and shaped, into a knife, which severs the loops when the wire is pulled out, or they are plain wires, provided on their top with a groove into which extends the knife of the *trevette* and which knife is made to travel therein across the width of the fabric. Either kind of wires used results in what is known as cut, velvet or plush pile.

Cut and uncut pile in one fabric structure are produced by raising the pile warp-threads over two wires, a cut and an uncut pile wire. This procedure results in a somewhat higher cut pile compared to the pile not cut, permitting a clipping of the protruding cut pile later on by the shear, without the blades of the shear cylinder touching the uncut pile. An interesting feature to note is the fact that in connection with uni-colored fabrics, figured with cut (velvet) and uncut

(loop) pile, the first will show a darker shade. The number of wires to use per inch at the loom depends upon the character of the fabric structure.

In connection with Double Plush, two body fabric structures are woven on the loom, one above the other. The pile warp-threads interlace in both structures, traveling between said points of interlacings, from one fabric structure to the other.

The pile thus woven is in turn automatically severed in its centre during weaving by a specially constructed knife, traveling near the breast beam of the loom, thus severing said double cloth structure into two single cloth plush fabrics. Two small grindstones are provided over which the knife travels thus keeping itself automatically sharp to produce a perfect severing of the pile warp-threads. One of these grindstones acts, *i. e.*, comes in contact with the one side of the knife, whereas the other grindstone (as located on the other side of the loom) keeps the other side of the knife's edge properly sharpened.

In connection with narrow ware weaving, warp pile weaves are used with velvet ribbons, belts, etc.

Fig. 98 shows us a single plush, *pile-up* weave, using one system of pile warp (see *cross* type) in connection with two picks ground and one wire. The arrangement of the warp, reading from left to right, is:

- 2 ends ground, see *full* type
- 1 end pile, see *cross* type

3 ends in repeat.

At the right hand side, near to the weave, the scheme for the arrangement of the filling is given, *viz*:

- 2 picks ground, see *full* type.
- 1 wire, see *dash* type.

At the extreme right a section of the woven fabric is given, representing the interlacing of the two ground and one pile warp-thread used in one repeat of the weave. Black circles indicate the sections of the filling, of which two repeats are given. The pile wires are indicated by triangles.

Fig. 99 illustrates a weave for a double plush fabric using one system of pile warp to travel from one ply to the other, interlacing the latter with the ground structures of each ply with a *pile-up* arrangement.

Considering one repeat of the weave, 5 warp-threads and 4 picks (see lower left hand corner of weave) we find the following arrangement used for the warp:

- 1 end ground, upper ply, see *full* type.
- 1 " " , lower ply, see *dot* type.
- 1 " pile warp, see *cross* type.
- 1 " ground, upper ply, see *full* type.
- 1 " " , lower ply, see *dot* type.

5 ends in repeat of pattern.

Four picks form the repeat of the pattern.

At the right hand side of the weave a diagram showing the interlacing of the double plush weave is given, both plies interlacing on plain weave and the pile warp interlacing with the ground structures on the *pile-up* principle. Triangle on bottom of fabric section indicates by its point the knife for cutting the pile warp.

Fig. 100 shows us again a weave for a single plush fabric, having its pile warp interlace on the *pile-through* principle.

The weave for the ground structure is the 2 by 4 rib weave.

Repeat of complete weave (see left lower corner of weave) is 3 by 5.

The arrangement of the warp is:

- 1 end ground, see *full* type.
- 1 " pile, see *cross* type.
- 1 " ground, see *full* type.

3 warp-threads in repeat of pattern.

Diagram next to weave illustrates the arrangement of the filling, to read: 4 picks ground, see *full* type, to alternate with 1 wire, see *dash* type.

Next to it, at the right, is given a diagram showing the interlacing of warp and filling of the fabric structure. The pile wires are indicated by triangles. Following the run of the pile warp throughout the diagram clearly shows its *pile-through* principle of interlacing with the ground structure.

(To be continued.)

SOLIDONIA.

By R. Werner.

Solidonia is a bast fibre which has already found application for many kinds of textile materials. The yarn prepared from it has beautiful lustre and a good tensile strength. The fibre is not used alone, but mixed with wool and cotton. Solidonia does not felt, and hence behaves like cotton when mixed with wool.

The fibre can be bleached pure white and can be dyed with any dyestuffs suitable for cotton. It is dyed at low temperatures, and not above 80-90 deg. C., as the material becomes harder and more brittle at the boiling point. For the same reason the material should not be dried at high temperatures.

When dyeing with Benzidine, developed direct colors, and Sulphide dyes, the addition of Monopol soap or Monopol brilliant oil is advantageous to maintain the soft handle of the goods and aid in the production of even dyeing. In the case of the Benzidine colors, 10-20 per cent of Glauber's salt and 1-2 per cent of Monopol soap are added to the dyebath, into which the material is introduced at 40 deg., slowly warmed to 80-90 deg. C., and dyed for one hour. The developed direct colors are dyed in a similar manner, then diazotised and developed. The Benzoform colors are dyed in the same manner as the Benzidine colors and then treated with formaldehyde for 20 minutes; dyeings fast to washing are obtained. Katigen colors are dyed with the addition of 4-8 per cent soda ash and 1-2 per cent Monopol soap or Monopol brilliant oil (without Glauber's salt) at the before mentioned temperatures. Algal colors are dyed as usual for wool, using caustic soda, hydrosulphite, and salt.

The choice of dyestuffs depends on the materials which are to be made from Solidonia. For curtain material, shades fast to light may be obtained by using the benzo light colors, suitable bordeaux and scarlet shades.

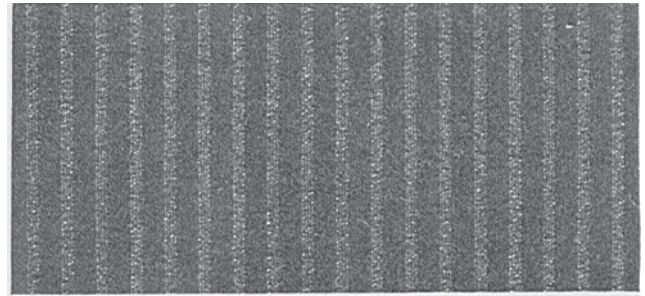
For articles which are to be fast to light in addition to washing, such as hosiery, developed colors are available. In case a simpler method of dyeing is required than that necessary for the Diazo colors, the Benzoform colors may be used.

If it is considered advisable to obtain dyeings fast to light, the Katigen colors are used.

The best general fastness is obtained with the Algal colors.

Worsted Trousering.

Warp: 7680 ends; draw on 16-harness.



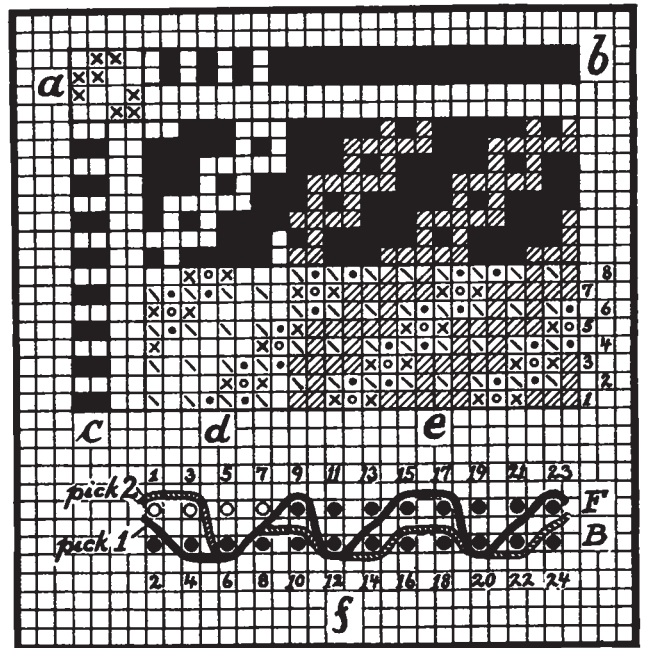
ACTUAL REPRODUCTION OF FABRIC

Dress: 16 sections, each containing 20 patterns @ 24 ends, or 480 ends, total.

Arrangement of Warp:

- 1 end 2/56's worsted, black, twisted over } × 4
- with 90/2 spun silk, pearl.
- 1 end 2/56's worsted, black.
- 16 ends 2/56's worsted, black.

24 ends in repeat of pattern.



DETAILS OF FABRIC STRUCTURE:

a: Weave for Face and Back structure, the 4-harness even sided twill.

b: Color Scheme for Warp.

c: Color Scheme for Filling.

d and e: Construction of the two effects, dark and light; repeat of weave 24 warp-threads and 8 picks to be drawn on 16-harness, fancy draw.

f: Fabric section, cut in the direction of the filling, showing the interlacing of picks 1 and 2 of the weave above. F indicates the warp-threads in the face ply, B those for the back ply. Empty circles show the silk twist, Full circles the plain black warp-threads. Pick 1 shown in full black indicates black worsted pick, pick 2 shown shaded gray mix pick.

Reed: 14½, using 8 ends per dent; 66.2 inches wide, exclusive of selvage.

Filling: 140 picks per inch, arranged thus:

- 1 pick 2/56's worsted, black.
 - 1 pick 2/56's worsted, gray mix.
- 2 picks in repeat of pattern.

Finish: Worsted finish, clear face, 56 inches wide.