

filling is allowed to contract more than the warp, on account of the tension applied in both operations lengthwise to the fabric.

If the sample contains reed marks (or imperfections known to the weaver as can only be caused to the warp system) such imperfections readily characterize that system of threads.

If the portion of cloth under consideration contains part of the list, edge, self-edge, or selvage, as variously called, this will indicate the warp.

Another guide, for distinguishing the warp from the filling, is found in the style of the fabrics submitted for picking-out. Fabrics having a striped character, or check effects in which the one direction of the lines is more prominent, compared with the others, the direction of the stripes, or the prominent lines in the check, indicate the warp system. If the checks are of the same color but somewhat longer one way than the other, the warp, as a rule, runs the longer way.

In almost all cloths of a twill character the direction of the twill is more towards the upright or warp direction than to the horizontal. Diagonals will for this reason readily explain themselves.

In fabrics composed of two systems of filling (face and back) and one system of warp, the heavy and soft-spun filling, known as the backing, indicates itself, and thus the system of threads.

Exceptions to these instructions occur but seldom. In many fabrics the difference and the reasons for said difference in the yarn are so clear as to require little examination. That the warp-thread is usually the smoothest, strongest, also of the longest and best material is a very safe rule to follow.

If it should be found impossible to distinguish warp from filling, proceed with the picking-out, and when then the weave obtained will in most cases explain which threads are warp and which the filling.

(To be continued.)

**RIBBONS, TRIMMINGS, EDGINGS, Etc.**

**PILE FABRICS.**

(Continued from November issue.)

Fig. 101 shows us the weave for a carriage border, constructed with two ground picks and two figure picks, using every time as the fifth pick a wire. The back warp interlaces with taffeta and the face pick is bound by three ends taffeta, of which every time the first and third interlaces with the back structure. One stuffer warp-thread rests in every repeat of the weave, between face and back structure.

The four pile threads, considered in rotation from left to right in our weave, interlace respectively in:

1st end, *pile-through*;

2nd end, *pile-up*, and

3rd and 4th end, part the time *pile-through*, the other time *pile-up*.

In order to accommodate the varying take-up, either pile warp must be put on a separate beam.

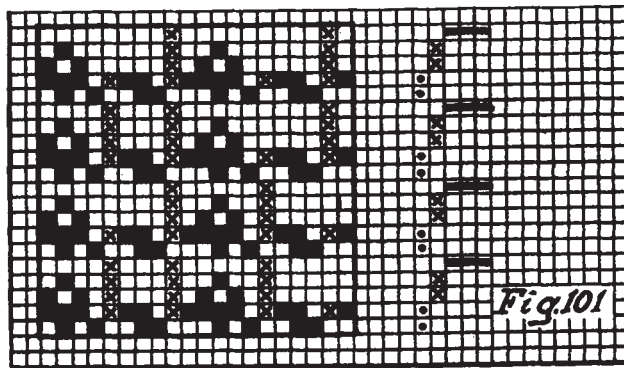
Threads 4, 6, 8, 10, 14, 16, 18, and 20 are back threads; threads 7 and 17 are stuffer threads; threads 1, 2, 3, 11, 12, 13 regular warp threads; rows of squares 5, 9, 15, 19 (see *cross* type) indicate the interlacing of the pile warp-threads.

At the right hand side of the weave is given the scheme for the filling and the wire; the back picks are indicated by *dot* type, the face picks, by *cross* type and the wires, by *dash* type.

DOUBLE VELVET RIBBONS are frequently woven with two shuttles, both traveling in the same direction through the shed, and not, as is the case with Rubber Elastics, in opposite directions.

For such entering of the filling, a double shed must be formed. The warp-threads of the lower structure rise from the bottom to centre (height of the lower

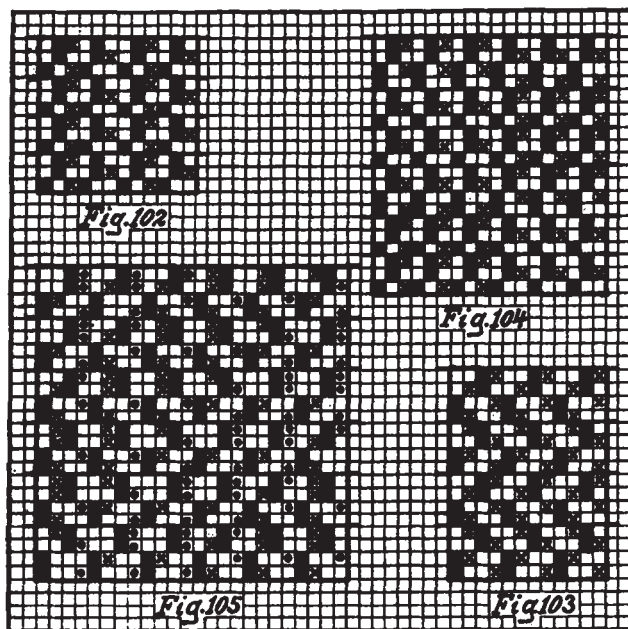
single shed); the warp-threads of the upper structure rise from centre to top of upper shed (*i. e.*, the height of the upper single shed). The pile threads in double



plush travel the same as the binder threads in Elastics do, from one ply to the other, through the centre of the fabric, hence have a considerably greater distance to travel as compared to the ground warp-threads of either ply of the double plush.

A loop pile effect, minus the use of wires, is occasionally produced in connection with ribbon weaving by using a heavy count of a cheap yarn, two picks in a shed, to interlace in place of a wire. In order that these two picks do not draw out of the fabric structure, they are made to interlace around a wire at the edges of the fabric, in the same way as is practised in connection with pearl edges.

After the fabric comes from the loom, this waste filling is then pulled out of the fabric structure, re-wound and in turn re-used. This permits us in connection with ribbon looms fitted with banks of shuttles to use them for loop pile structures, minus a wire attachment.



(c) TERRY OR LOOP PILE FABRICS.

In these fabrics the pile is produced, *i. e.*, raised, without the aid of pile wires. They are woven on looms specially constructed for the manufacture of this class of fabrics.

Two systems of warp (on two beams) are neces-

sary, one to carry the pile warp for the formation of the loop, and the other to carry the ground warp for forming the body of the fabric. Only one system of filling is used.

In the process of weaving these fabrics, the terry series of the warp is weighted much looser than the body series, or its warp beam is arranged to let off the proper length of pile warp required at every third or fourth (the tight) pick, so as in either case to allow the loops to be formed on the surface of the fabric, by the lay being driven fully up to the fell of the cloth every third or fourth pick; the two or three previously inserted picks are driven only partly home by the reed. The three or four picks so interwoven, slide on the ground warp, which is let off with a more or less tight tension during the entire process of weaving.

The interlacing of the pile threads correspond to the last pick of the preceding, and the first pick of the successively following ground pick. When high the loop will be driven on the face, when low the loop will be driven on the back of the fabric.

Provided you want to change the position of the loops from face to back, at least four picks must be used before the change in the weave occurs.

This system of pile weaving, in connection with narrow ware fabrics is used for the trimming of plush slippers, velvet and loop pile belts, etc.

Fig. 102 shows one of these loop pile weaves, the arrangement of the filling being three picks for each loop. The arrangement of warp is two ends ground warp to alternate with one end pile warp. Warp-threads 1, 2, 4 and 5, see *full type*, are the ground warp-threads; warp-threads 3 and 6, see *cross type*, are the pile warp-threads.

Pile thread 3 forms loops on the face of the fabric, on account of interlacing 2 *up* 1 *down*, whereas pile thread 6 forms loops on the back of the fabric, on account of interlacing 1 *up* 2 *down* in the repeat.

Fig. 103 shows us a loop pile weave, arranged with four picks for each loop. The arrangement of the warp is one end ground (see *full type*), to alternate with one end pile (see *cross type*).

Every pile warp-thread, when driving up the picks, rests once on the face, the next time on the back of the structure.

Fig. 104 shows us the pile warp-threads (see *cross type*) arranged to exchange face and back after a checkerboard motive, the loops forming themselves according to this motive either on the face or on back of the fabric. Three picks are used for each group, with four picks at the change of the effect.

Fig. 105 shows us loop piles arranged to form stripe effects, both sides being reversible. The pile threads are shown by *cross type*, and *dot type*.

The heavy horizontal lines drawn in all four weaves thus quoted, show where the lay beats up close to the fell of the cloth, in order to form the characteristic loop, either on the face or the back of the fabric, as previously explained.

#### Weighting Silk.

In weighting silk, according to a new process just patented, use is made of a mixture of titanium salts with salts of tin, or zirconium, or of the rare earths, or of any two or of all three of these. Rare-earth metals mentioned are cerium, didymium and lanthanum.

## IMPROVEMENTS IN FABRIC STRUCTURES.

### Chenille Fabrics.

In weaving chenille carpets, rugs, mats, etc., in connection with the new fabric structure, as shown in Fig. 1, two picks *i, h* of plain filling are inserted after each pick *j* of round chenille filling.

In the body of the fabric, the two picks *i, h* are inserted in the same shed, but the shed of the selvage is changed after each pick.

The filler warps *f* are woven with a greater tension than the binder warps *e*, thus causing most of the chenille filling *j* to appear on the face of the fabric.



Fig. 1

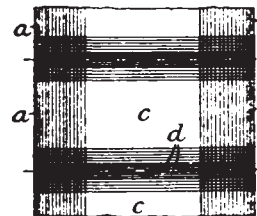


Fig. 2

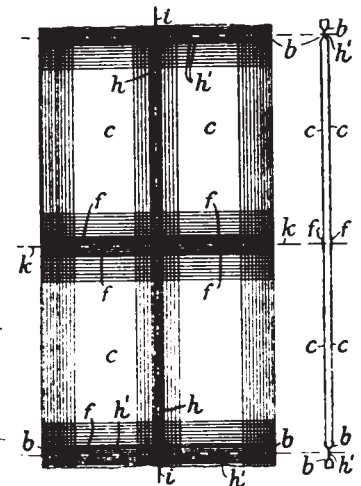


Fig. 3

Fig. 4

### Weaving Sacks.

By this construction, sacks or bags having special strengthened mouths and bottoms are produced by weaving above one another two fabrics connected at certain parts.

In one form, the fabrics *c*, (see Fig. 2) are woven together at one side *b* to form the bottoms of the sacks, etc., and have selvages at the other side *a* forming the mouths. The fabrics are also woven together at parts *d*, which are subsequently cut through and form the sides of the sacks. The latter are woven with more warp-threads per inch at the bottoms, in the selvages, and in the parts adjacent thereto than are present in other parts.

In another form, the fabrics *c*, (see Figs. 3 and 4) are woven together at each side, at the middle *h*, and at parts *h'* situated at distances apart equal to the length of two sacks. The sacks are formed by cutting the fabrics along the lines *i-i* and *k-k*, and they are woven with more picks per inch at the bottoms *b* and at and near the mouths *f* than are present in other parts. To ensure extra strength, the fabrics where they are woven together and cut through may be bound by stitching.

### Velvet in Fashion.

It is many years since velvet and all allied fabrics, such as ponyskin, broadtail, and miroir plushes were as much in demand as they are this season. For hard-wear tailored suits nothing is better than the new corduroy velvets, or those woven to produce a striped effect. The best colors for these are dark pansy, rifle-green, raven-blue, mole, beige, and black.