truding flutes of the heated steel roller *b*. The ground effect *b* in diagram 5, shown shaded denotes the gros-grain ground in fabric sample Fig. 4. In these places the paper roller *a* in Fig. 3 is cut out, *i. e.*, presents a depressed surface (the design in low relief) hence the fabric passes these places without coming under the influence of either rollers, it is *not* moiréd and retains its original dull gros-grain finish as compared to that of the moiré diamond spots.

Gros-grains will show the most defined moiré effects on account of their well defined ribs and which are displaced by the process, hence the pronounced effect.

Fair textured taffetas will lend themselves to excellent effects; satins on account of their characteristic warp face effect are not suitable for being moiréd.

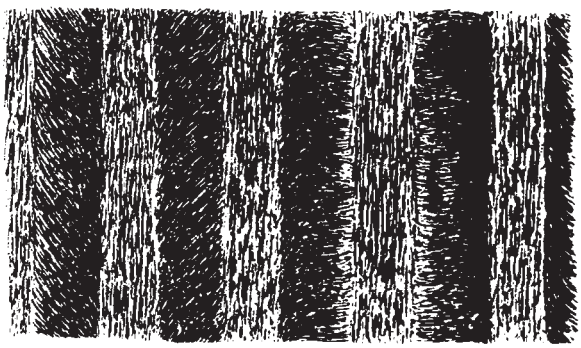
To get satisfactory results, the ribs to be pressed against each other should be as nearly as possible parallel, which is accomplished by doubling the piece lengthwise, face to face, stitching the selvages at short intervals to hold the fabric in the desired position. To get the best results, do this work by having the fabric pass between the eyes of the operator and the light. The doubled fabric in turn is subjected to the moiréing calendar, which accounts for the crease (with its imperfection in design) noticed in the middle of most pieces of moiré.

Moiréing being more or less a crushing process imparted to the fabric under great heat, at the same time imparts to the latter a more or less thin, glossy, papery effect, for which reason fabrics intended for this treatment must be made with sufficient body.

From explanations given, it is seen that moiréing is somewhat destructive to the fabric, and when then the slightest wrinkle or fold in the cloth is apt to cut clear through the fabric in place of only crushing its (picks) structure. This will at the same time show that the greatest of care must be exercised with the selvages in their construction and at the weaving as well as in handling them in the moiréing process, since if not perfectly constructed and evenly matched, it will cause them to be cut.

A weak effect of moiréing occasionally may appear in fabrics without being wanted, when woven goods accumulate, laying in stock for some time, piled upon each other; more particularly will such a defect be noticed in connection with the better qualities of gros-grains as used for neckties, etc. To prevent such a defect, tissue paper is placed between the folds of the fabric. *(To be continued.)*

Novelty in Plush Fabric.

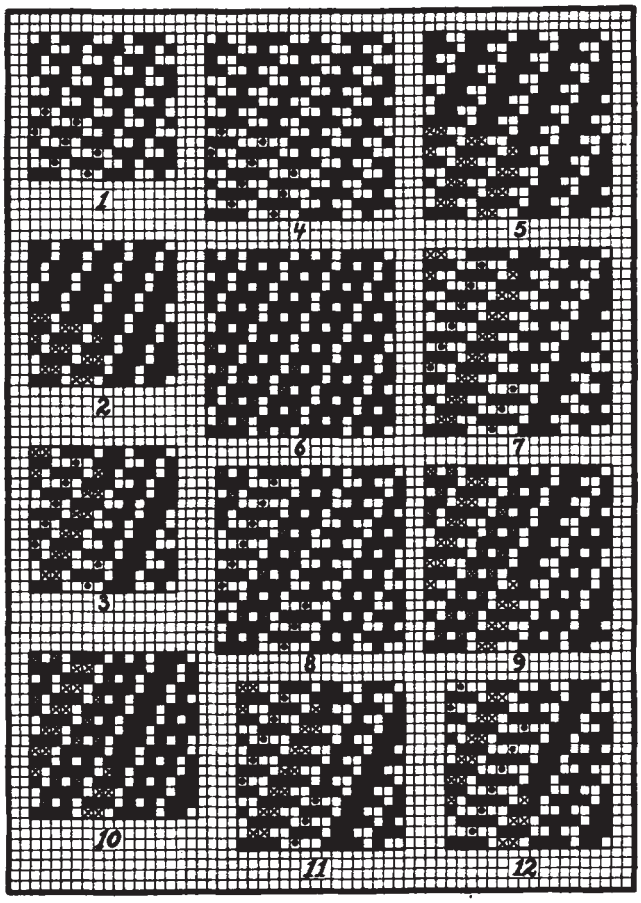


The above shows the design for a plush fabric just patented by the Stroock Plush Company of Newburgh, N. Y.

A STUDY IN WEAVE FORMATION.

CONSTRUCTION OF WHIPCORDS.

The object aimed at in the construction of these weaves is to produce pronounced rib lines, *i. e.*, cords running in a diagonal direction (from left to right) on the face of the fabric. These weaves are met with in all classes of woolen, worsted, cotton and silk



structures, finding however their most extensive use in the manufacture of worsted dress goods, cloakings, suitings, etc.

As a rule they refer to weaves repeating on 7, 8 and 9 harnesses, with a preference towards the latter number.

The cord effect, previously referred to, is produced by floating each pick for a certain number of warp-threads on the back of the fabric structure and stitching, *i. e.*, interlacing these floating picks in an oblique, or diagonal direction to the fabric structure. Every pick is thus treated partways as floating on the back and partways interlacing with the warp-threads, the latter interlacing being moved bodily one warp-thread towards the right hand side on every second pick, *i. e.*, every filling float on back of structure. It is this floating of the filling on the back of the fabric structure that produces the cord effect on the face of the fabric. These portions of the pick, not interlacing with the warp-threads, will shrink more in the finishing of the fabric as compared to the portions of the pick that interlace with the warp-threads, in turn throwing the cord effect prominently on the face of the fabric.

Weaves Figs 1 to and including 12 are given to illustrate explanations regarding the construction of

these whipcords. Either 4 or 2 repeats of each weave are given, 4 where the repeat of warp and filling is uniform, 2 where the repeat of the picks calls for twice the number of that of the warp-threads. In the first instances uniform interlacing cords are the result, whereas in the latter instance two different interlacing cords are produced, these two cords exchanging alternately in the fabric structure.

In one of the repeats of every one of these whipcord weaves the method of constructing the same is clearly shown, using for this purpose in said repeat of the weave different kinds of crochet type and to which we will refer; the remaining one or three repeats of the weave (as the case may be) are shown in one kind of type only to more clearly illustrate the diagonal cord effect produced in the fabric. It is to this one repeat of the weave shown in different kind of crochet type we will refer in our explanations of how to construct these whipcords, *full* type in every instance indicating the filling float on back of fabric structure.

Weaves Figs. 1, 2 and 3 show three examples of whipcords for 7 harness repeat. *Full* type indicates warp up for producing the characteristic float of the filling on the back of the fabric structure as previously referred to, and which in the present example means a float under three warp-threads. *Dot* and *cross* type show the stitching of the filling when floating on the face, *i. e.*, producing the cord effect to the warp.

In weave Fig. 1 one warp-thread is raised in the float of over four warp-threads, whereas in weave Fig. 2, two warp-threads are raised, producing in turn a more pronounced, *i. e.*, raised cord effect. Repeat of both weaves 7 x 7.

Fig. 3 shows the combination of the two kinds of cords shown before, using one effect for one cord and the other effect for the other cord, resulting in a repeat of 7 x 14 for the new weave.

Weaves Figs. 4 to and inclusive 9 show six whipcords repeating on 9 harnesses. The filling float on back of the fabric structure in this instance is below four warp-threads. Weaves Figs. 4, 5 and 6 show one kind of cord used for each weave, viz: $\frac{1}{2}\frac{1}{2}$ $\frac{2}{1}\frac{1}{2}$ and $\frac{1}{1}\frac{1}{1}\frac{1}{1}$ and consequently repeat on 9 x 9.

Weaves Figs. 7, 8 and 9 show a combination of two of the cords used in the construction of the previously quoted three cord weaves. Repeat 9 warp-threads and 18 picks.

Weaves Figs. 10, 11 and 12 show three examples of whipcords repeating on 8 warp-threads and 16 picks. Only double cord effects can be produced on an even number of harness repeat for the weave, since in this instance the size of the filling floats can not be balanced. For example take 8 harness: 8 — 1 = 7 and the latter number can not be evenly divided; 3 + 4 is the best dividing we can do, and which combination we used.

As mentioned before, whipcords are used extensively with worsted dress goods and for which reason we quote a few textures of these fabrics, ranging in weight from 4 to 9¾ ounces per yard, taken from fabric structures in the market. Weaves used: See Figs. 4 and 5. *Crossband* or warp twist is used for the warp yarn and *openband* or filling twist for the filling. Arrangement of the direction of the twill of the cord from left to right.

(*a*) *Warp:* 40's worsted, 100 threads per inch.
Filling: 62 picks per inch, 44's worsted.
Finish: 41 inches wide, 4.1 oz. per yard.

(*b*) *Warp:* 50's worsted, 130 threads per inch.
Filling: 78 picks per inch, 56's worsted.
Finish: 43 inches wide, 5.3 oz. per yard.

(*c*) *Warp:* 38's worsted, 95 threads per inch.
Filling: 56 picks per inch, 32's worsted.
Finish: 45 inches wide, 6.3 oz. per yard.

(*d*) *Warp:* 42's worsted, 92 threads per inch.
Filling: 76 picks per inch, 32's worsted.
Finish: 47 inches wide, 6.3 oz. per yard.

(*e*) *Warp:* 2/72's worsted, 96 threads per inch.
Filling: 72 picks per inch, 34's worsted.
Finish: 50 inches wide, 7.7 oz. per yard.

(*f*) *Warp:* 2/100's worsted, 135 threads per inch.
Filling: 81 picks per inch, 44's worsted.
Finish: 49 inches wide, 9.7 oz. per yard.

Worsted Yarn Calculations.

QUESTION: Ascertain the counts of a third minor thread to produce with 10's and 30's single worsted, a 3-ply yarn to equal 3's count in single.

30 hanks of 3's weigh 10 lbs.

For the same reason:

30 hanks of 10's weigh 3 lbs.
30 " " 30's " 1 "
Both weigh 4 lbs.

10 minus 4 equals 6 lbs., the weight for the third minor thread; hence:

30 (hanks) ÷ 6 (weight obtained) = 5's count of the third minor thread wanted.

PROOF: Ascertain compound size of a 3-ply worsted yarn composed of 30's, 10's and 5's minor threads.

10 × 30 = 300 ÷ 40 (10 + 30) = 7½ compound thread of 10 and 30's count.

7½ × 5 = 37.5 ÷ 12.5 (7.5 + 5) = 3's count. ANS.

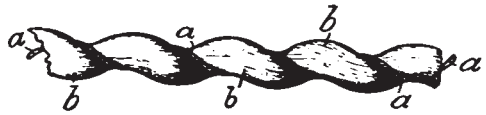
QUESTION: Ascertain the counts of a compound thread composed of

2 threads of 28's worsted and 1 thread of 2/80's cotton.

2 80's cotton = single 60's worsted.
2 threads 28's worsted = single 14's worsted.
60 × 14 = 840.
60 + 14 = 74.
840 ÷ 74 = 11.35 (practically 11⅓'s) count of the 3-ply thread expressed in one.

Improved Process of Mercerizing Sliver.

The same refers to a late English patent granted to the British Cotton and Wool Dyers' Association



and J. H. Robson, Huddersfield, England, and has for its object to enable the sliver or roving to withstand the tensions during the mercerizing process.

For this purpose, as seen from the accompanying illustration, a strong string *a* is wound spirally round the sliver *b*. In this way the full tension is borne by the string, and the fibres can be extended to the full extent practicable in passing through the machine without injury, and can be held in this state of tension until the lye is neutralized and contraction prevented.