Jan. 23, 1934. G. J. UNDERWOOD 1,944,534

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Fig. 1.

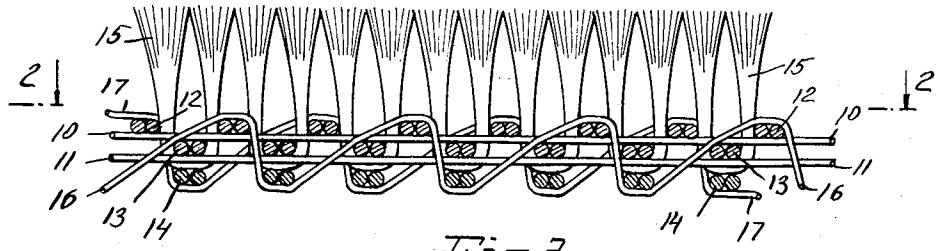


Fig. 2.

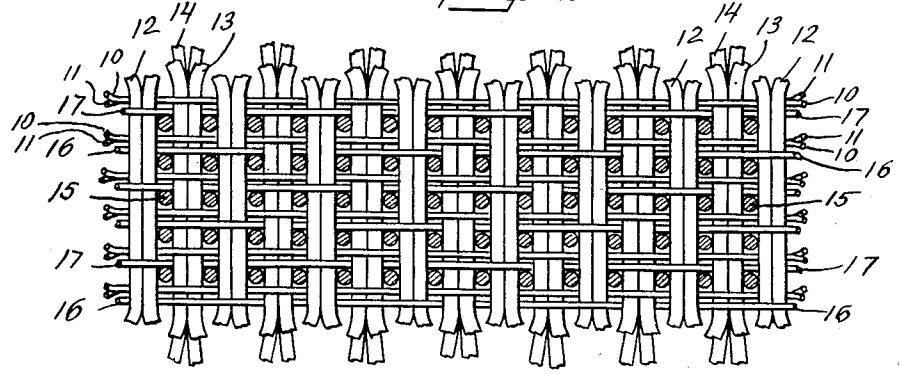
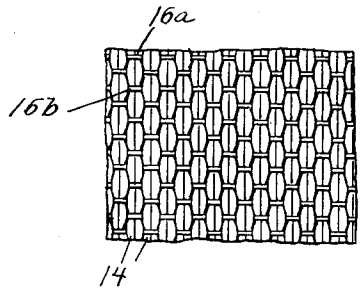


Fig. 3.



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1 Claim. (Cl. 139—401)

This invention relates to the manufacture of pile fabrics and is concerned more particularly with a novel pile fabric of the Axminster type and a method by which the new fabric may be produced. The fabric of the invention, while resembling fabrics of the Axminster weave in most respects, differs therefrom in that it has the soft heavy back of chenille material, and it thus affords advantages of both these fabrics while being free of certain objectionable features thereof.

As is well known, Axminster fabrics may be produced with sharp, clean cut face patterns and their cost of production is relatively low because Axminster looms may be run continuously with the insertion of the pile yarns carried on automatically and without interruption to loom operation. These fabrics, however, have heretofore been characterized by not having a soft heavy back and in that respect, among others, they have been thought of as inferior to chenille material. Chenille fabrics, however, cannot be woven with the sharp face patterns as Axminster, because of the manner in which the pile tufts are formed, and also the combing of the chenille fur by hand to place the tufts in proper position involves stopping of the loom at regular, frequent intervals and so reduces the rate of production that the cost is relatively high.

The fabric of the present invention is of the Axminster variety and may be produced on the standard Axminster loom, but because of a proper choice of weft materials and a novel arrangement of the binder warp threads, the fabric has the soft woolly back heretofore obtainable only in chenille goods. At the same time, it has the advantages of Axminster with respect to sharpness of pattern and low production cost.

The new fabric is of the three-shot three-plane type having stuffer warp threads in upper and lower levels and the pile yarns are looped about the middle shot of each cycle which lies between the upper and lower stuffer warp threads. The lower weft shot of each cycle which lies below the lower stuffer warp threads is of heavy woolen yarn while the middle and upper shots are of a lighter material, such as jute thread. The weft shots are bound in place by two sets of binder warp threads, and these binder warp threads are so arranged that greater lengths of the woolen weft shots are exposed on the back of the fabric than has heretofore been the case. Because these lower weft shots are of soft yarn and exposed in the manner described, the back of the fabric is much softer than the standard Axminster fabrics as heretofore woven and corresponds closely to that of chenille material.

For a better understanding of the invention, reference may be had to the accompanying drawing, in which

Figure 1 is a view of the new fabric in longitudinal section, the threads being spread apart so that the arrangement of the various parts may be readily seen;

Figure 2 is a sectional view on the line 2—2 of Figure 1, and,

Figure 3 is a plan view of the back of the fabric in its ordinary finished condition.

Referring to the drawing, the new fabric is shown as being of the three-plane three-shot type and it includes stuffer warp threads 10 and 11 in upper and lower levels, respectively, and weft shots 12, 13, and 14 lying above the upper stuffer warp threads, between the upper and lower stuffer warp threads, and below the lower stuffer warp threads, respectively. The bottom weft shots 14 are of heavy woolen yarn while the upper and middle weft shots 12 and 13 are of lighter material as, for example, jute thread. The pile tufts 15 are formed by lengths of pile yarn of a suitable type looped around weft shots 13 lying between the upper and lower stuffer warp threads.

The weft shots are bound in place by binder warp threads, in two sets, the threads 16 of one set crossing alternately over and under the top weft shot of one cycle and the bottom weft shot of the next cycle throughout the fabric, while the binder warp threads 17 of the other set cross alternately under and over the bottom weft shot of one cycle and the top weft shot of the next cycle throughout the fabric. The total number of binder warp threads in the two sets equals the number of splits in the reed and there is thus but one binder warp thread in each reed split instead of two, as has heretofore been the practice in weaving fabrics in which two sets of binder warp threads are employed.

The pile tufts are so inserted in the fabric with reference to the binder warp threads that in any space in the fabric between adjacent rows of pile tufts extending lengthwise of the fabric, there is only a single binder warp thread. Consequently at the back of the fabric, each weft shot 14 is bound only by binder warp threads of the same set and the distance along the weft shot between the point of crossing of the shot by a binder warp thread 16*a* and the point of crossing of the shot by the next binder warp thread 16*b* in the set is equal to twice the width of

a pile tuft plus the width of one binder warp thread. More than double the usual length of the weft shot is thus exposed at the back of the fabric between the points of crossing of the shots by binder warp threads and, since the back weft shots are of heavy woolen material which is somewhat resilient in character, the shots tend to bulge out between the points of crossing. This gives the back of the fabric a soft rich feel and is an effect which cannot be obtained, even though woolen yarn is used in the back weft shots, when the usual number of the binder warp threads in the two sets is employed.

The combined use of the heavy woolen yarn in the back weft shots and the reduced number of binder warp threads as above explained accordingly gives the Axminster fabric of this invention a thick body and soft back heretofore characteristic only of chenille materials. The new fabric thus closely resembles chenille in the desirable characteristics of that type of fabric but affords these advantages at lower cost. Also it retains the better face patterns characterizing Axminster materials. At the same time, the fabric can be woven on the standard Axminster loom and the cost of production is that of Axminster weaving instead of the higher cost involved in producing chenille goods.

I claim:

An Axminster fabric which comprises stuffer warp threads in upper and lower levels, weft shots, each comprising a double strand and said shots being inserted in cycles of three with one shot per cycle above the upper stuffer warp threads, another shot per cycle between the upper and lower stuffer warp threads, and another shot per cycle below the lower stuffer warp threads, said last-named shot being of soft heavy wool yarn and the other shots per cycle being of jute thread, tuft yarns looped only about that shot of each cycle which lies between the upper and lower stuffer warp threads and having their free ends projecting upwardly to form pile on the face of the fabric, and two sets of binder warp threads, each binder warp thread of each set crossing alternately over the weft shot of one cycle lying above the upper stuffer warp threads and under the weft shot of the next cycle lying below the lower stuffer warp threads throughout the fabric with only one binder warp thread lying in each space between adjacent rows of pile tufts extending longitudinally of the fabric.

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