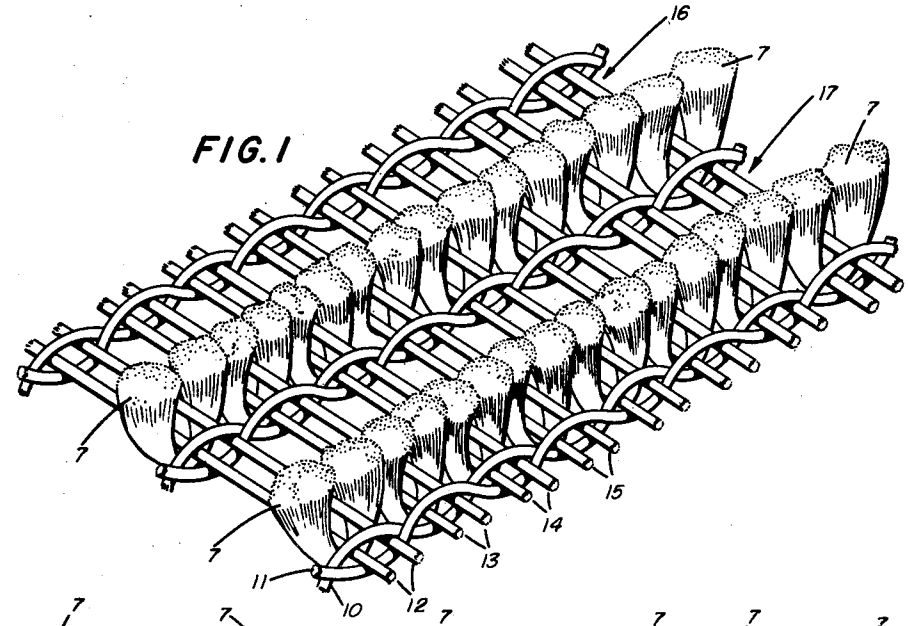
April 3, 1962 R. R. MATTHEWS ETAL 3,027,919

ONE-SHOT MODIFIED AXMINSTER WEAVE

Original Filed Nov. 5, 1956

FIG. 1



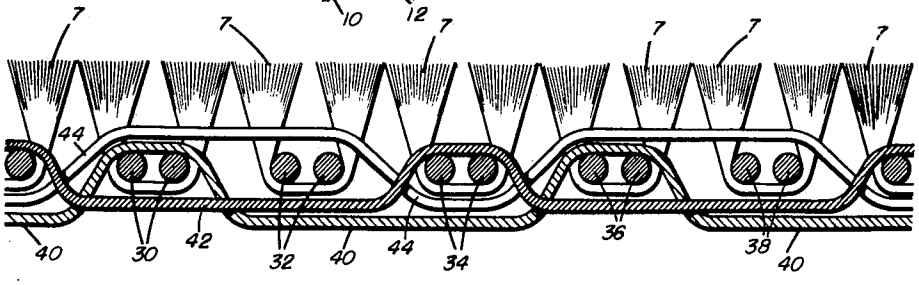


FIG. 2

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ONE-SHOT MODIFIED AXMINSTER WEAVE

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2 Claims. (Cl. 139—399)

This invention relates to Axminster carpets and more particularly to carpets that are woven with only one double back shot to each row of face pile.

It is an object of this invention to provide a modified form of Axminster weave by means of which the inherent slowness of the weaving operation is overcome by the elimination of two of the double weft shots in the back over which no face yarn lies. It is well known in the art that the regular Axminster carpet, which is also known as the Imperial Axminster, requires that the needle or shuttle, as the case may be, insert three double weft shots in the back of the carpet and that after the first two double weft shots have been so inserted U-tufts of pile yarn are inserted on the third double weft shot. The principal and the greatest advantage of an Axminster loom, as well as of the woven product which is made thereon, is the fact that the pattern and the amount of colors used are unlimited for the designer. Without limitation, any pattern and any design is possible on the Axminster loom. While this is a primary advantage of the Axminster loom, the process of manufacturing today on the Axminster loom also is subject to rigorous competition in the matter of speed of manufacturing on other type looms.

Those versed in this art will realize that the insertion of the two double weft shots in the back prior to the insertion of the face row on the third double weft shot constitutes a time consuming waste of motion. Nevertheless, it has been found necessary to employ this three-cycle type of weave for the mere reason that the spool frames employed in the Axminster loom for supplying the face yarn require as much time to be inserted and to be released as is involved in inserting the two double weft shots around which no face yarn is formed.

Therefore, it is another object of this invention to provide a modified Axminster weave wherein a face row extends around each and every double weft shot.

It is a further object to provide an Axminster fabric which, for all practical purposes, has all the design and color possibilities of the regular Axminster fabric without the hindrance of the two untufted double weft shots in the conventional fabric.

The foregoing and other objects and advantages of this invention will be more clearly understood from the following detailed description and accompanying drawing, wherein:

FIGURE 1 is an enlarged and expanded isometric view of two warpwise rows of U-tufts indicating how they are inserted around the wefts between the chain warps in the prior art; and

FIGURE 2 is a warpwise section of the novel weave of this invention embodying three chain warps in a one-shot modified Axminster fabric.

The one-shot modified Axminster fabric illustrated in FIG. 1 and noted as being prior art, comprises a plurality of binder warps shown as chains **10** and **11** which pass over and under successive double weft shots **12–15** in alternating fashion to grip and hold the double weft shots. The U-shaped tufts **7** are held by the weft shots thus forming warp rows **16** and **17** of U-shaped tufts.

It will be understood from FIG. 1 that the lack of extra double weft shots would mean that open spaces may occur in the backing between successive double weft shots which

hold the U-shaped tufts in place. This can be overcome by sizing the back of the carpet with materials such as starch, rubber or rubber blends, or vinyl resin or other plastics as may seem advantageous as a backing for a soft surface floor covering.

FIG. 2 illustrates the one-shot modified Axminster fabric of this invention. In this construction there is still a saving of a considerable amount of binder material and at least two-thirds saving of weft material.

As shown in FIG. 2, this fabric comprises a series of double weft shots **30**, **32**, **34**, **36** and **38** bound by chain warps **42** and **44** together with binder warp **40**. U-shaped tufts **46** are held by the double weft shots which engage the tufts at the closed end of the U. The chain warps **42** and **44** and binder warp **40** are combined to form a weave wherein the chain warp **42** goes under double weft shots **30** and **32**, over double weft shot **34** and then under double weft shots **36** and **38**, while chain warp **44** goes over double weft shots **30** and **32**, under weft shot **34** and then over weft shots **36** and **38**. Binder warp **40** goes over double weft shot **30**, under weft shots **32** and **34**, and then over weft shot **36**. Therefore, the warps are disposed as follows:

Warps	Shot 30	Shot 32	Shot 34	Shot 36	Shot 38
40	up	down	down	up	down.
42	down	down	up	down	down.
44	up	up	down	up	up.

This particular invention eleminates the necessity of re-threading a loom that is generally set up for the production of a regular Axminster weave wherein chain warps **42** and **44** correspond to conventional warps and binder warp **40** corresponds to the conventional stuffer warp.

A one-shot modified Axminster weave may tend to lose the U-shaped tufts before the finishing process due to the lack of the two double weft shots. A number of years ago such a fabric would have been unmarketable, but today there are various sizing materials which do not need any heating process such as is necessary for starch and the like. In view of this, it is customary to provide the back of the woven fabric with a sizing, such as a light application of a commercially available rug seal as made by the United States Rubber Company, which will dry in a few seconds and serve to maintain the U-tufts in position until the final back sizing is applied in the finishing operation.

After the one-shot Axminster weave is so finished the carpet is inspected for missing tufts and then is treated with any type back sizing that may be advantageous. It has been found, for instance, that a rubber size of high viscosity is more advantageous than one of very thin viscosity because the latter tends to work up through to the carpet face. Also it was found that application on the back of the fabric of a thin layer of foam or sponge rubber, respectively, will be of great advantage because it will give a very smooth and skid-proof back, and at the same time supply a padding for the carpet. Due to the saving of material in the weft and warp and due to the labor saving in having one-shot instead of three-shot Axminster, it is possible to manufacture a one-shot Axminster carpet with a foam or sponge rubber back at the same cost as an Imperial type three-shot Axminster with a conventional sizing of starch or latex.

It will be understood by those skilled in the art to which this invention pertains that various changes and modifications can be made in the preferred embodiment of the Axminster weave that has been illustrated and described without departing from the principles of the invention and the scope of the appended claims.

This application is a division of application Serial Number 620,549, filed November 5, 1956, now abandoned.

We claim:

1. A one-shot modified Axminster carpet weave comprising at least three series of first, second and third double weft shots; U-tuft pile elements looped under each of the said double weft shots; a chain warp going under the first and second double weft shots, and over the third double weft shot of each series; a chain warp going over said first and second double weft shots, and under said third double weft shot of each series; and a binder warp going over said first double weft shot and under said second and third double weft shots of each series.

2. A one-shot modified Axminster carpet weave comprising at least three series of first, second and third double weft shots; U-tuft pile elements looped under each of the said double weft shots; a chain warp going under the first and second double weft shots, and over the third double weft shot of each series; a chain warp going over said first and second double weft shots, and under said third double weft shot of each series; and a binder warp going over and under the double weft shots.

References Cited in the file of this patent

UNITED STATES PATENTS

2,437,379	Clark	Mar. 9, 1948
2,718,243	Matthews	Sept. 20, 1955
2,745,442	Herrnstadt	May 15, 1956
2,794,449	Matthews	June 4, 1957