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W. W. ROBERTSON

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AXMINSTER WEAVE

Filed April 4, 1927

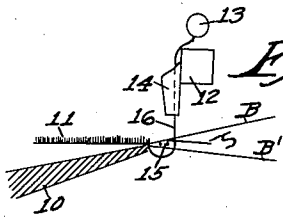


Fig. 3.

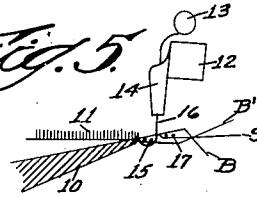


Fig. 5.

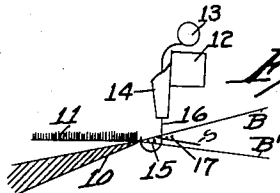


Fig. 4.

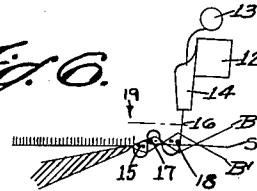


Fig. 6.

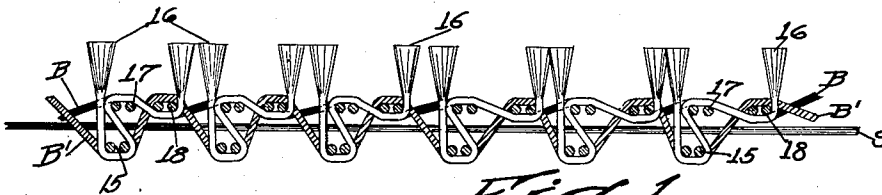


Fig. 1.

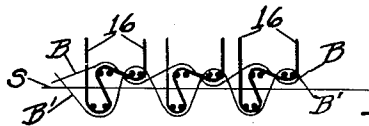


Fig. 2.

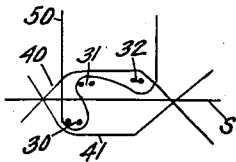


Fig. 7.

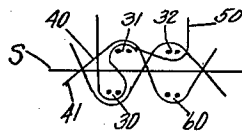


Fig. 8.

I N V E N T O R

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A T T O R N E Y S

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AXMINSTER WEAVE

Application filed April 4, 1927. Serial No. 180,731.

This invention relates to Axminster carpets and rugs and it is the principal object of the invention to provide such a fabric wherein the tufts are tightly bound into the cloth by a plurality of picks of filling. Certain Axminster weaves employ three shots or picks of filling for each tuft, said picks being divided into two planes, one pick lying in the lower plane below the stuffers and the other two picks lying in the upper plane above the stuffers. The pile tuft is ordinarily bound in by one of the picks in the upper plane. In such a fabric the back pick or the one which lies below the stuffers does not contribute directly to holding the tuft in place but serves principally to position the stuffer. It is common knowledge that the ordinary Axminster pile tuft is not bound tightly into the cloth and for this reason it may easily be displaced either in the finishing process subsequent to weaving or in actual use.

It is an important object of my present invention to employ the same number of picks as are usually present in a three shot Axminster weave and to separate them by the stuffer in the ordinary manner, and to introduce a tuft into the fabric in such a way that the same is actually bound by all three shots of filling. Accordingly, in my improved fabric the tuft may extend under the lower pick, over one of the upper picks, under the other of the upper picks and then extend upwardly to be cut from the tube frame. In this way I weave as many tufts per inch as are present in the ordinary Axminster fabric and it is unnecessary to introduce any extra picks or to modify the action of the harness frames which control the binders and the stuffers.

With these and other objects in view which will appear as the description proceeds, my invention resides in the combination and arrangement of parts hereinafter described and set forth in the claims.

In the accompanying drawings wherein one form of my invention is shown.

Fig. 1 is a vertical section through a portion of the fabric made according to my present invention,

Fig. 2 is a view similar to Fig. 1 but showing diagrammatically the relation of the vari-

ous yarns which enter into the construction of the fabric,

Figs. 3, 4, 5 and 6 illustrate successive steps in the production of the fabric,

Figs. 7 and 8 show modified forms of the invention.

Referring to Figs. 3 to 6 of the drawings I will describe the preferred method by which the fabric is made, after which the construction of the fabric itself will be readily apparent.

A cloth board 10 forming part of the ordinary Axminster loom supports a portion of the woven fabric 11 so as to position the fell thereof with respect to the tube frame 12. The tube frame may be of the form comprising a plurality of small yarn tubes arranged side by side through which extend the pile yarns from a spool or other source of supply 13. Only one of the yarn tubes 14 is shown in the drawings but it is to be understood that there will be one of these yarn tubes for each tuft space across the width of the fabric and there may also be a number of tube frames, depending upon the pattern. For a further understanding of the loom and the ordinary method by which Axminster carpets are woven, reference may be had to patents Nos. 490,237—490,238—and 712,888.

As shown in Fig. 3 the tube frame 12 has been dipped through the spaced binder warps, B and B', a shot of filling 15 has been laid below the stuffer S and behind the tuft yarn 16 and the tube frame raised with the pile yarn coming from the tuft tubes 14 lying behind the pick of filling 15. This much of the operation is similar to that set forth in the aforesaid patents Nos. 490,238 and 712,888. Ordinarily the pile yarn would be cut at this point in the cycle of the weave, but by my method the cutting is delayed.

With the tube frame still held in the position shown in Fig. 3 a second shot of filling 17 is laid above the stuffer S. During this much of the operation the binder B and B' have been held in the position shown in Fig. 3.

In the next step in the operation, as shown in Fig. 5, the binders are crossed preparatory to another dipping of the tube frame, the stuffer still being down.

As shown in Fig. 6 the tube frame has been dipped a second time and a third shot of filling 18 has been inserted between the binder B' and the stuffer S, the tube frame being raised so as to pull off the requisite amount of yarn. After the tube frame has been raised the yarn will be cut by the usual cutters along line 19 so that the rear half of the tuft rises from behind the third pick of filling 18.

In the particular form set forth above I have employed the weave used at the present time in the so-called three shot Axminster wherein there are three picks of filling lying in two sheds for each tuft of pile yarn. I do not wish to be limited in this particular construction so far as the shedding of the binders or the number of shots of filling is concerned, as I might with equal facility employ the weave having the binders as set forth in the aforesaid Patent 712,888, wherein all three shots lie in the same shed. Such a construction is set forth in Fig. 7 wherein it will be seen that the picks of filling 30, 31 and 32 are all inclosed between successive crossings of the binders 40 and 41 and that the pile tuft yarn 50 is trained around the shots of filling as in the preferred form, the only difference being that the binders are not crossed twice for each pile tuft.

As shown in Fig. 8, the second crossing of the binders includes two shots of filling, the fourth shot 60 being below the stuffer and not necessarily in contact with the pile tuft.

It is to be understood that the shot of filling referred to herein in reality comprises two strands, as is usual with the needle motion of an Axminster loom.

From the foregoing it will be seen that I have provided an Axminster fabric wherein the pile tuft yarn lies in direct contact with several or all the shots of filling laid in connection with the pile tuft and that each pick assists in holding the tuft firmly in place so as to prevent accidental removal thereof. It will further be seen that the tufts may be held in place whether the binders be crossed once or twice for each pile tuft.

Having thus described my invention it will be seen that changes and modifications may be made therein by those skilled in the art without departing from the spirit and scope of the invention and I do not wish to be limited to the details herein disclosed, but what I claim is:

1. In an Axminster weave, binder threads crossed to form a pair of adjacent sheds for each pile tuft, one of which sheds is relatively large and the other of which is relatively small, three shots of filling each of which lies between two binders, a stuffer to separate the shots of filling, two of said shots being located in the larger shed one shot on each side of the stuffer and the third of which is located in the smaller shed, and a plurality of successive pile tufts entering and leaving the fabric for

every three shots of filling and lying in adjacent sheds and extending around each of the shots of filling on alternate sides of successive picks.

2. In an Axminster weave, binders crossed to provide two adjacent sheds of different sizes for each pile tuft, three shots of filling each of which lies between two binders, a stuffer to separate the shots of filling one shed containing two shots of filling located on both sides of the stuffer and the adjacent shed containing the third shot, and a plurality of successive pile tufts entering and leaving the fabric for every three shots of filling and common to adjacent sheds and extending under the first and third shots of filling and over the intermediate shot.

3. In an Axminster weave, binder threads crossed to provide adjacent sheds for each pile tuft, there being but two shots of filling in one shed and but one shot of filling in the adjacent shed, and a plurality of successive pile tufts entering and leaving the fabric for every three shots of filling and part of which lies in one shed and another part of which lies in the adjacent shed, said pile tuft yarn extending under a shot of filling in each shed and over the intermediate of the three picks located in the shed containing two shots, each shot of filling lying between two binders.

4. In an Axminster fabric, binders crossed to form two adjacent sheds for each pile tuft, three shots of filling only for each tuft, a stuffer to separate the shots of filling, two of the shots being located in one shed one below and the other above the stuffer and the other shot being located in the other shed above the stuffer, and a plurality of successive pile tufts entering and leaving the fabric for every three shots of filling, said tuft yarn always extending under the shot of filling below the stuffer and over and under the other two shots of filling above the stuffer, said tuft yarn lying partly in one shed and partly in the adjacent shed.

5. In an Axminster weave, a plurality of successive pile tufts, groups of three shots only of filling, one group for every tuft, a stuffer separating the shots of filling so that one shot lies under the stuffer and two shots lie over the stuffer for each pile tuft, said tufts always entering the fabric and each tuft extending around the pick of filling of its group below the stuffer, extending over and under the other two picks of its group above the stuffer thereafter leaving the fabric and shed forming binders to hold the shots of filling in position.

6. In an Axminster fabric, a plurality of successive pile tufts, a group of three shots only of filling for each tuft, a stuffer separating the shots of filling so that one shot of a group lies under the stuffer and the other two shots of the group lie over the stuffer, said pile tuft entering and leaving the fabric for

every three shots of filling, each tuft extending under the shot of filling of the corresponding group below the stuffer and over one of the shots of filling above the stuffer and under the other shot of filling above the stuffer of the group, and shed forming binders to hold the shots of filling in position.

7. In an Axminster fabric, a plurality of shots of filling, binder threads crossed to form two sheds each of which contains a shot of filling, a stuffer to separate the shots of filling, a plurality of successive pile tufts to form a pattern on both sides of the fabric, said tuft extending around a shot of filling below the stuffer in one shed and around a shot of filling in the adjacent shed, that portion of the tuft yarn which extends around the shot of filling below the stuffer forming the pattern on the lower side of the fabric.

8. In an Axminster fabric having a plurality of successive pile tufts to form a pattern to show on the front and back sides, binders crossed to form two adjacent sheds for each pile tuft, three shots of filling only for each tuft, a stuffer to separate the shots of filling, two of the shots being located in one shed one below and the other above the stuffer and the other shot being located in the other shed above the stuffer, each tuft entering and leaving the fabric for every three shots of filling and always extending under the shot of filling below the stuffer and over and under the other two shots of filling above the stuffer, that portion of the pile tuft which extends under the pick of filling below the stuffer forming that part of the pattern which shows on the back side of the fabric.

9. In an Axminster weave, binders crossed to form a pair of adjacent sheds for each pile tuft, three shots of filling each of which lies between two binders, a stuffer to separate the shots of filling two of the shots being located in one shed on one side of the stuffer and the other of which is located in the adjacent shed on the other side of the stuffer, and a plurality of successive pile tufts entering and leaving the fabric for every three shots of filling and extending around all three shots of filling on alternate sides of successive picks and lying partly in one shed and partly in the adjacent shed.

10. In an Axminster weave, binders crossed to form two adjacent sheds of unequal sizes for each pile tuft, three shots of filling each of which lies between two binders, a stuffer to separate the shots of filling two of said shots being located in the larger shed one shot on each side of the stuffer and the third of which is located in the smaller shed above the stuffer and a plurality of successive pile tufts entering and leaving the fabric for every three shots of filling and passing under a pick of filling in adjacent sheds and over the intermediate of the three picks located in the larger shed.

11. In an Axminster weave, binders crossed to form a pair of adjacent sheds for each pile tuft, three shots of filling two of which are located in one shed and the other of which is located in the adjacent shed, a stuffer passing through the shed having the pair of shots of filling to separate said shots of filling, and a plurality of successive pile tufts for every three picks extending around all three shots of filling, passing on alternate sides of successive picks and lying partly in one shed and partly in the adjacent shed.

12. In an Axminster weave, binders crossed to form a pair of adjacent sheds for each pile tuft, three shots of filling two of which are located in one shed and the other of which is located in the adjacent shed, a stuffer passing through that shed only which has two shots of filling and passing between said shots, and a plurality of successive pile tufts for every three picks extending around all three shots of filling and lying partly on one side of the stuffer and partly on the other side of said stuffer.

13. In an Axminster weave, binders crossed to form a pair of adjacent sheds for each pile tuft, three shots of filling two of which are located in one shed and the other of which is located in the adjacent shed, a stuffer passing through that shed only which has two shots of filling and passing between said shots, and a plurality of successive pile tufts for every three picks extending around all three shots of filling and lying partly on one side of the stuffer and partly on the other side of said stuffer, said tuft extending under the shot of filling below the stuffer.

In testimony whereof I have hereunto affixed my signature.

WILLIAM W. ROBERTSON.