May 12, 1942. R. C. ALLISON 2,283,027

FLOOR COVERING

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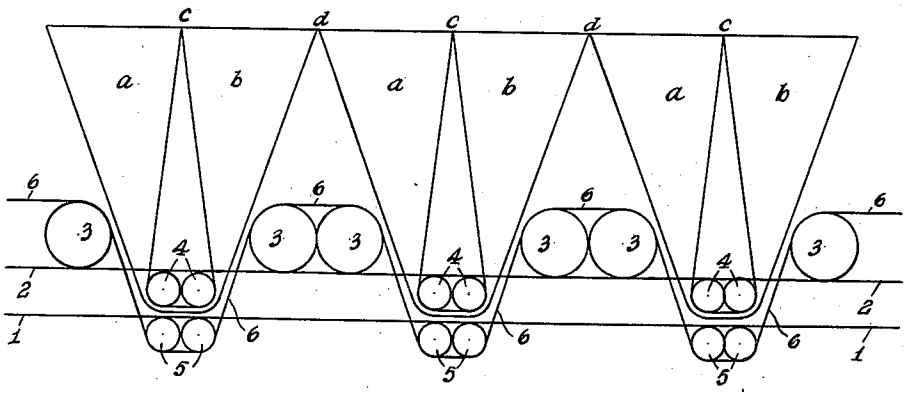
Fig. 1.



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FLOOR COVERING

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4 Claims. (Cl. 139—401)

My invention relates to floor coverings, and more particularly to floor coverings composed of pile fabrics. My invention is particularly adapted for pile floor coverings of the Axminster construction.

Heretofore, Axminster carpets have been made with 7 to 9 rows of pile per inch. These carpets were very satisfactory in that there were sufficient rows of pile and the weave was tight enough so that the tufts of the pile would stand substantially erect and the top of the pile at the burst would present a smooth, unbroken surface.

There has come, however, a demand for a looser woven and less expensive type of carpet and it has been proposed to make a carpet having 5, or even 4, rows of pile per inch. In this looser woven type of carpet when weft threads of 16 pound jute are used, an effect called "grinning" appears; that is to say, some of the filling or weft threads appear when one looks directly down upon the pile. This is due to the fact that there are fewer rows of pile per inch and the fabric is more loosely woven so that the outsides of the pile tufts are not held in upright position.

Heretofore, it was believed that the grinning effect was due to the fact that the spacing shots, i. e. the spacing weft threads, appeared between the rows of tufts or piles. I have discovered, however, that the grinning is due to the fact that the tufts do not stand as erect as in the old construction and that the pile binding shots (wefts) are the ones which appear and cause the grinning, and not the spacer shots. The reason for this is that, in the normal 4 or 5 row construction prior to my invention, the jute threads used for the weft threads of the base were substantially the same size when 4 rows of pile were incorporated per inch as were formerly used when 7 rows of pile were incorporated into the inch. This means that the spacer shots which press against the outside of the pile tufts do not tend to hold the pile tufts erect, with the result that the two legs of the U of the tufts tend to separate showing the pile binding shots.

I have found that by making the pile binding shots of lighter, thinner jute than heretofore used, say 12 pound, and by making the spacer shots of heavier, bulkier jute threads than have heretofore been used, say 25 pound, I can eliminate the grinning without reducing or increasing to any substantial extent the amount of jute in the base and without any substantial additional cost. The total weight of the jute in the rug under my invention is substantially the same as the amount of jute used in the old construction.

By using heavier, bulkier jute threads for the spacer threads, the sides of the U of the pile tufts are supported more nearly upright, whereas, the two legs of the U of the tufts are closer together because the pile binding shots are of substantially smaller size than heretofore used and the U of the pile is narrower. By this construction a better spacing of the tips of the tufts can be obtained so that maximum burst of the tips is utilized, greater coverage obtained, and grinning eliminated.

It has been the practice to use stock dyed yarn for the pile or tufts of the carpet. It has also been the practice to use skein dyed yarn for the pile of the spot or pattern which is woven into the rug. This use of skein dyed yarn is due to the fact that very little of any one particular color is needed for the spot or pattern, and the skein dyed yarn is easier and cheaper to dye in order to obtain the exact shade desired.

When stock dyed yarn is used for the tufts, the pile tends to burst open more readily, but, when skein dyed yarn is used, the twist is more or less set by the dyeing and the pile does not burst to the same degree as the pile formed by yarns made from stock dyed material. Thus, the defect of grinning is more accentuated at the spot or pattern in carpets having 4 or 5 rows of pile to the inch. By my invention, the grinning of the spot or pattern is greatly minimized if not wholly eliminated.

In the accompanying drawing is shown an enlarged diagrammatic view of the preferred embodiment of my invention.

Figure 1 is a section of the carpet cut along the lines of the warp. In this drawing, the two legs of the U forming the tufts are represented by *a* and *b*. The warp threads (spacers) are indicated at 1 and 2, 1 passing under the tufts *a*, *b*, and 2 passing over the tufts *a*, *b*. The spacer threads or shots (wefts) are shown at 3. The pile binding shots (wefts) are illustrated at 4 and 5. A chain warp thread is shown at 6 and constitutes the binding warp.

The wefts 3, 4 and 5, as shown in the drawing, are arranged in three vertically spaced layers with the warps 1 lying between the wefts 4 and 5 and the warps 2 lying between the wefts 3 and 4. The binder warps 6 pass alternately over the wefts 3 and under the wefts 5.

In my construction, the spacer shots 3 are substantially larger than the pile binding shots 4 and 5. This causes the U formed by the two

legs of pile tufts *a*, *b* to meet at the inside of the U at *c*. This is due to the fact that the pile binding shots are of lesser size than heretofore used in carpets of this type, which causes the U of the pile to be narrower and the space between the legs *a*, *b* to be nearer together. The spacer shots **3** are substantially larger than the pile binding shots **4** and **5**, and, pressing against the sides of the legs *a*, *b* of the U of the pile, tend to force the pile more erect and to close up the opening in the U between the two legs *a*, *b* at *c*, while at the same time allowing the leg *a* of one tuft to come in contact with the leg *b* of the other tuft at *d* at the surface of the carpet, thereby causing the burst of the tuft or pile to give an extremely good coverage.

I have found that, when I use pile binding shots of 12 pound jute and spacer shots of 25 pound jute, I obtain excellent results, although the difference between the pile binding shots and the spacer shots may vary and still be within the scope of my invention, it only being necessary that the spacer shots are sufficiently larger than the pile binding shots so as to force the two legs of the U of the pile together and close the opening, thereby preventing grinning. As an illustrative range of size of the wefts, the wefts **3** may be formed of 20 to 30 pound jute and the wefts **4** and **5** may be formed of 14 to 8 pound jute, the respective sizes used being such as to total approximately 46 to 50 pounds, and preferably approximately 48 pounds, as is hereafter set forth.

Heretofore, in the manufacture of carpets of the Axminster type having 7 rows of pile per inch, it was customary to use 16 pound jute. When this weight of jute was used in that construction containing 4 rows of piles per inch, the opening between the two legs of the U of the tufts was too great, and the spacer shots did not tend to support the outside of the legs of the U of the pile tufts and cause them to stand more erect, and thereby close the opening in the U. Thus, when using 16 pound jute as was customary, the shots **3**, **4** and **5** would equal 48, whereas, by my construction, the spacer shots **3** being of 25 pound jute, and the pile binding shots **4** and **5** being of 12 pound jute, the total value would be 49. Thus, it is evident that by my construction only a slight increase is given to the amount of jute in the base of the carpet. On the other hand, I may make my spacer shots **3** of 24 pound jute, and my pile binding shots **4** and **5** of 12 pound jute, thereby having exactly the same weight of jute in the back as if I used 16 pound jute in the spacer and pile binding shots, and thereby causing the pile to have better coverage and grinning eliminated. I may use 22 pound jute for the spacer shots **3**, and 14 pound jute for the pile binding shots **4** and **5**, the total weight of the jute threads **3**, **4** and **5** being 48. This will be quite satisfactory for a plain rug having no spot or pattern, but, where a spot or pattern is incorporated into the rug, I prefer to use for the spacer shots **3**, 25 pound jute, and for the pile binding shots **4** and **5**, 12 pound jute.

In this specification, the sizes of the jute yarns are designated, in accordance with the standard practice, by weight. In the art, the weight of the yarn, as used in the specification, is the weight of 14,440 yards of the yarn.

Since it is obvious that various changes and modifications may be made in the above description without departing from the nature or spirit thereof, this invention is not restricted thereto except as set forth in the appended claims.

I claim:

1. An Axminster pile fabric consisting essentially of U-form warp pile tufts, wefts, binder warps and spacer warps, the wefts being arranged in three vertically spaced layers, the spacer warps lying between the layers of wefts, the binder warps passing above the wefts of the upper layer and below the wefts of the lower layer to tie the fabric together, the U-form pile tufts being looped about the wefts of the central layer and the legs of each individual pile tuft passing between next adjacent wefts of the top layer, the wefts of the top layer being considerably larger than the other wefts to press the legs of the individual pile into contacting relationship to prevent grinning, there being from four to five rows of pile per inch.

2. An Axminster pile fabric consisting essentially of U-form warp pile tufts, wefts, binder warps and spacer warps, the wefts being arranged in three vertically spaced layers, the spacer warps lying between the layers of wefts, the binder warps passing above the wefts of the upper layer and below the wefts of the lower layer to tie the fabric together, the U-form pile tufts being looped about the wefts of the central layer and the legs of each individual pile tuft passing between next adjacent wefts of the top layer, the wefts of the top layer being formed of 20 to 30 pound jute and the wefts of the other layers being formed of from 14 to 8 pound jute, whereby the legs of the individual pile are pressed into contacting relationship to prevent grinning, there being from four to five rows of pile per inch.

3. An Axminster pile fabric consisting essentially of U-form warp pile tufts, wefts, binder warps and spacer warps, the wefts being arranged in three vertically spaced layers, the spacer warps lying between the layers of wefts, the binder warps passing above the wefts of the upper layer and below the wefts of the lower layer to tie the fabric together, the U-form pile tufts being looped about the wefts of the central layer and the legs of each individual pile tuft passing between next adjacent wefts of the top layer, the wefts of the top layer being formed of 25 pound jute and the wefts of the other layers being formed of 12 pound jute, whereby the legs of the individual pile are pressed into contacting relationship to prevent grinning, there being from four to five rows of pile per inch.

4. An Axminster pile fabric consisting essentially of U-form warp pile tufts, wefts, binder warps and spacer warps, the wefts being arranged in three vertically spaced layers, the spacer warps lying between the layers of wefts, the binder warps passing above the wefts of the upper layer and below the wefts of the lower layer to tie the fabric together, the U-form pile tufts being looped about the wefts of the central layer and the legs of each individual pile tuft passing between next adjacent wefts of the top layer, the wefts of the top layer being formed of 22 pound jute and the wefts of the other layers being formed of 14 pound jute, whereby the legs of the individual pile are pressed into contacting relationship to prevent grinning, there being from four to five rows of pile per inch.

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