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3,481,245

TUBE MAT USED AS A CARPET

Filed Nov. 20, 1967

3 Sheets-Sheet 1

FIG. 1

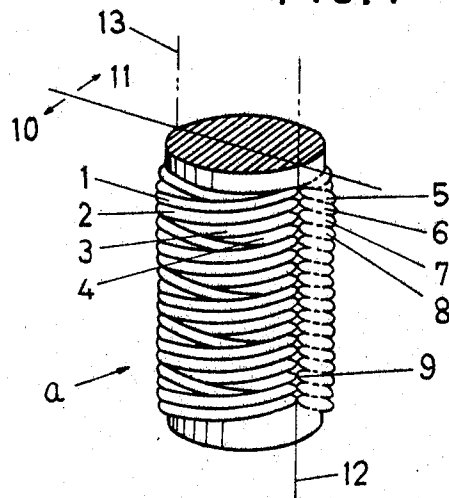
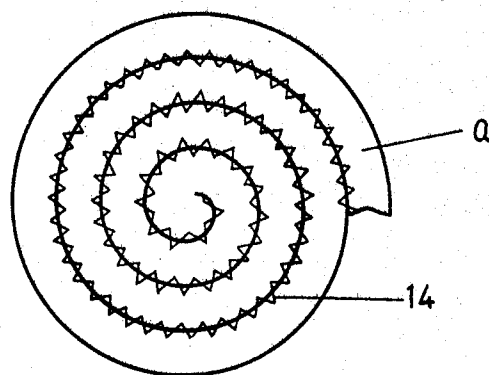


FIG 6



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FIG.3

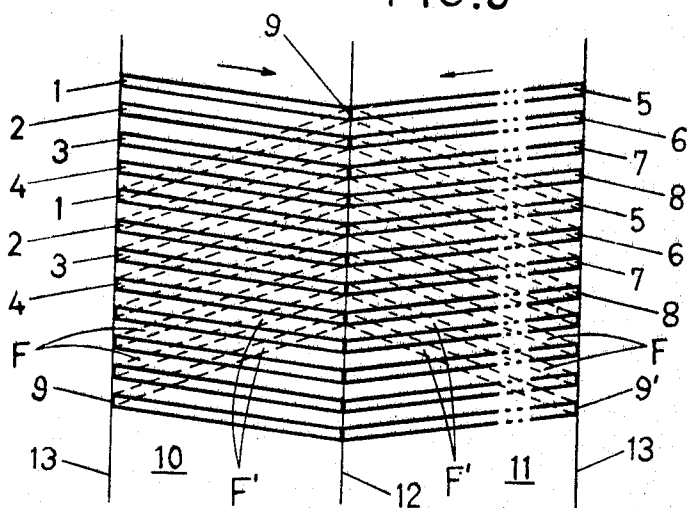


FIG.5

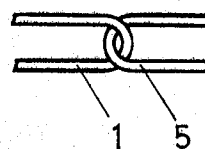
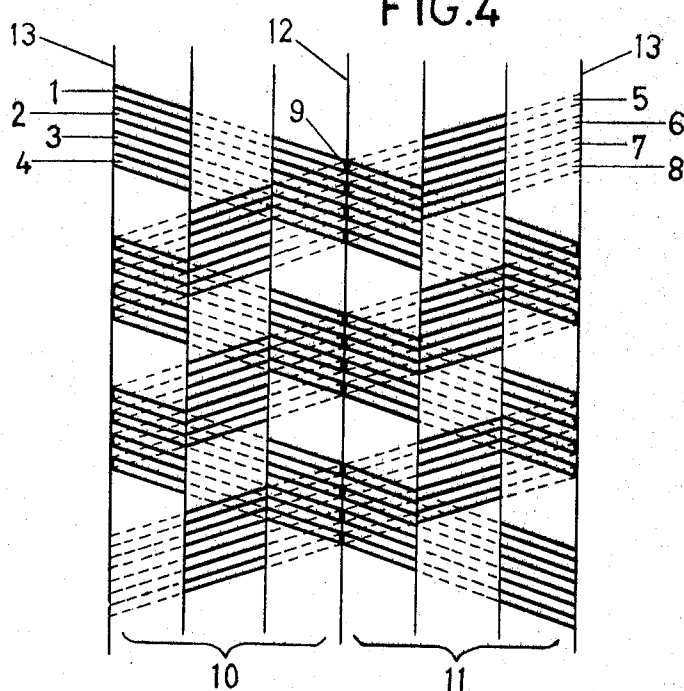


FIG.4



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3,481,245

TUBE MAT USED AS A CARPET

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U.S. Cl. 87—6

3 Claims

ABSTRACT OF THE DISCLOSURE

A tube mat comprising a core upon which a plurality of strings are wound half-way about the periphery. A plurality of other strings of different colors are wound around the other half of the periphery. Both sets of strings engage each other at opposite points and reverse their courses a desired number of times, so that each of the halves of the periphery are covered by each of the sets of strings, respectively, each set having different colors or patterns, so that strings of the same colors or patterns appear on the same half of the periphery. The engaging points of the two sets of strings are sewn together.

The present invention relates to a method of manufacturing a tube mat which is used as a carpet, in general, and in particular to a method of making a tube mat, which is characterized by changing color or patterns of the right and wrong sides of the tube mat, so that the mat can be used in two ways, upwardly and downwardly, displaying different color or designs as the occasion demands and whereas the mat remains far more durable than conventional ones.

Hitherto conventional mates are manufactured by winding one or several colored strings from both right and left sides around the bundled cotton padding made into a core-shape, for instance, and the mat made in this way appears to have the same color or patterns, when viewed from any angle. Consequently, when the material strings of this sort are spirally wound and all the contacting parts are sewn in order to manufacture the tube mat as described hereinafter, its color and patterns appear the same irrespective of its position, upwardly or downwardly.

It is an object of the present invention to solve these shortcomings of the conventional tube mats.

With the above and other objects in view, which will become apparent in the following detailed description, the present invention will be clearly understood in connection with the accompanying drawings, in which:

FIGURE 1 is a perspective view showing a section of the material strings of the tube mat;

FIG. 2 is a developed plan view of the tube mat of FIG. 1, where the positions of the strings are slightly shifted to run separately in order to facilitate an understanding of the structure of the tube mat;

FIGS. 3 and 4 are developed plan views of the material strings in other embodiments of the present invention, in which the positions of the material strings are shifted slightly in order to facilitate more ready understanding;

FIG. 5 is an enlarged broken away view of the material strings engaged and caught with each other; and

FIG. 6 is a top plan of the tube mat of the present invention.

Referring now to the drawings and more particularly to FIG. 3, several material strings 1, 2, 3 and 4 are arranged to run obliquely, in parallel to each other in the direction of the arrow from the left side of the cotton padding *a* so that it may be wound over portion 10 half way around, while the same number of material strings as above-mentioned, but of different color, namely strings 5, 6, 7 and 8,

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are arranged to run in like manner from the right side in the direction of the right-hand pointing arrow so as to be wound on the cotton padding *a* over portion 11, half way around, so that at the points on vertical line 12 on the peripheral side of the padding *a*, respective pairs of the material strings 1 and 5; 2 and 6; 3 and 7; and 4 and 8 may become engaged and caught with each other so as to lie upon the peripheral side of the padding as shown in FIG. 5. From this position the respective strings run slightly obliquely downwardly in the direction opposite to their previous movement as shown by the dashed lines F, F'. The important point in this respect is that all the return movements are made by passing the strings beneath all the material strings 1, 2, 3 and 4 on one side and strings 5, 6, 7 and 8 on the other side, respectively, so that all the material strings may be engaged and caught with each other at the points 9', which is 180° opposite to points 9 on the line 12, but slightly positioned downwardly because of the oblique running of the strings, and on the straight line 13 completely opposite to the line 12. From this position all the strings will further reverse their respective courses to cover the exposed parts F', F' on the sections F, F indicated by the dashed lines where the strings have been previously wound around the semi-peripheral sides 1 and 2. This processing will be repeated again and again so as to cover the semi-peripheral side portions 10 and 11 with the material strings 1, 2, 3 and 4 on one side and 5, 6, 7 and 8 on the other side, which sets of strings are different colored as mentioned above.

Referring now to FIG. 2, another embodiment of the invention with strings 1 and 5 is disclosed. The material string 1 will be wound around the semi-peripheral side portion 10 of the padding *a* from the left side in the direction of an arrow in FIG. 2, and string 5 which is colored differently from that of string 1 is wound around running obliquely downwardly from the right side likewise in the direction of the arrow, so that the semi-peripheral side 11 may be covered. At one point on the straight line 12 on the external side of the padding *a*, both the strings 1 and 5 are engaged with each other and caught at 9 as shown in FIG. 5, and then their courses will be reversed, during which the reversing strings 1' and 5' cover the parts *x* and *y* which are shown with dashed lines in the drawing, i.e., half a length *D* of the strings 1 and 5 that were originally wound.

Next the material strings 1' and 5' are wound around reversely, i.e., in the same direction as the original strings 1 and 5, so that both strings 1' and 5' may become engaged and caught with each other at the point *p* on the line 13 which is completely opposite to the line 12, as shown in FIG. 4. When winding the material strings 1' and 5', however, they are forced to pass over the parts indicated by *x'* and *y'* in the drawing, which correspond to half a length of these strings 1' and 5' and the strings are wound around so as to cover the parts *x'* and *y'*. Again at the point 9' on the straight line 12, the strings 1' and 5' become engaged and caught with each other and are forced to reverse their courses in order to cover the parts *x''* and *y''*, upon which they have been previously wound around. This processing is repeated to cover the semi-peripheral portion 10 of the padding *a* and the semi-peripheral portion 11, respectively, with the material strings 1 and 5 of different colors, while the strings 1 and 5 mutually cross on the straight lines 20 and 20' in the central part of the semi-peripheral portions which these strings 1 and 5, respectively, cover, so that one of them may be in a condition, such as for pressing down the other. Consequently, the measurement of 1' and 5' which are exposed appears shorter so much on that account, so that there will be a reduced possibility for them to be cut off by abrasion or for being caught by

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something else and these material strings will remain durable and strong. When these material strings of the same color or those of the same patterns are put on the same side and are wound spirally, for instance, as shown by FIG. 6, all their contacting parts will be sewn together at 14, so that the finished goods according to the invention will be obtained.

In addition to the above-mentioned embodying example, the material strings can be made to appear on the surface to engage with the other set of the strings as many times as required, which is exemplified in FIG. 4 where the strings are forced to appear on the surface three times each when the strings will cover the semi-peripheral side portions 10 and 11 for one forward and reverse pass.

Since the tube mat according to the invention consists of the right side which is covered by one or plural number of the material strings and the other or wrong side covered by the strings which are colored or patterned differently from the strings on the right side, the mat can be used in two ways, the right and wrong sides, respectively, while it can be used longer than the conventional ones as the strings will not be easily cut off as above-mentioned. When the plural cotton round cores are used in parallel or when strings of different characteristics, instead of different colors, are used, the finished goods will be equal to the above-mentioned one.

While I have disclosed several embodiments of the present invention, it is to be understood that these embodiments are given by example only and not in a limiting sense.

What I claim is:

1. A tube mat formed of a plurality of strings wound about a single core, comprising
at least one first string wound back and forth over

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a semi-circular half of the periphery of said core, at least one second string wound back and forth over the other semi-circular half of the periphery of said core and symmetrically relative to said at least one first string, and

said at least one first string engaging said at least one second string in interlocking linking engagement forming inverted U-links relative one another thereat at a plurality of points along two longitudinal lines spaced 180° apart on the periphery of said core at the back and forth turning points of said strings.

2. The tube mat, as set forth in claim 1, wherein said at least one first string comprises strings of a different color combination than that of said at least one second string.

3. The tube mat, as set forth in claim 1, wherein said strings are bound by sewing together at said engaging points.

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87—7; 161—35; 112—412