July 2, 1968 MASAICHI OHNO 3,390,602

TUBULAR RUG

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Fig 1

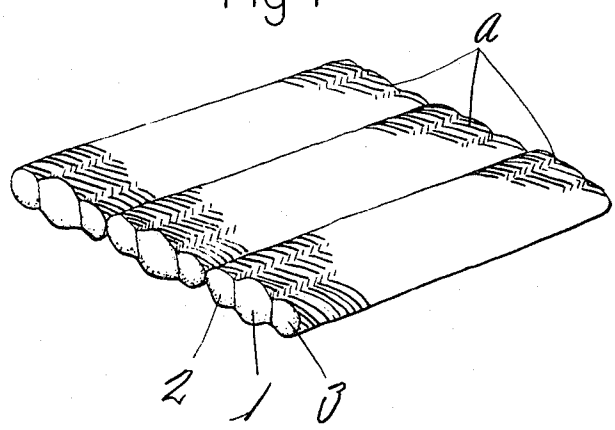


Fig 2

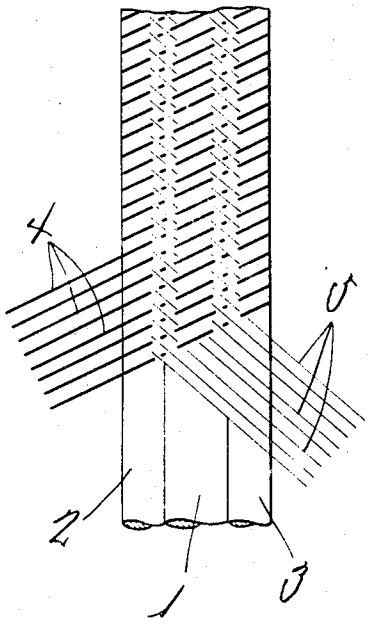
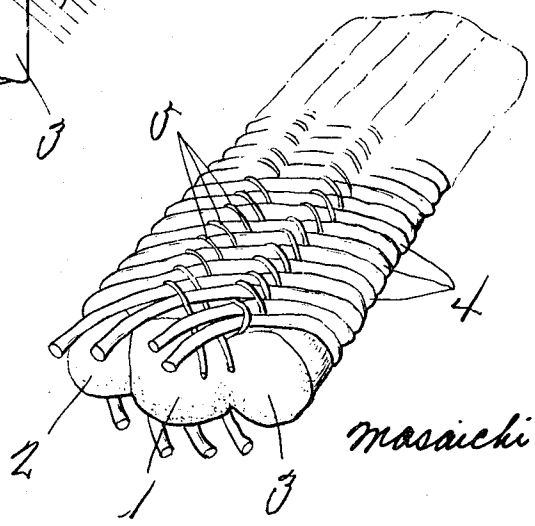


Fig 3



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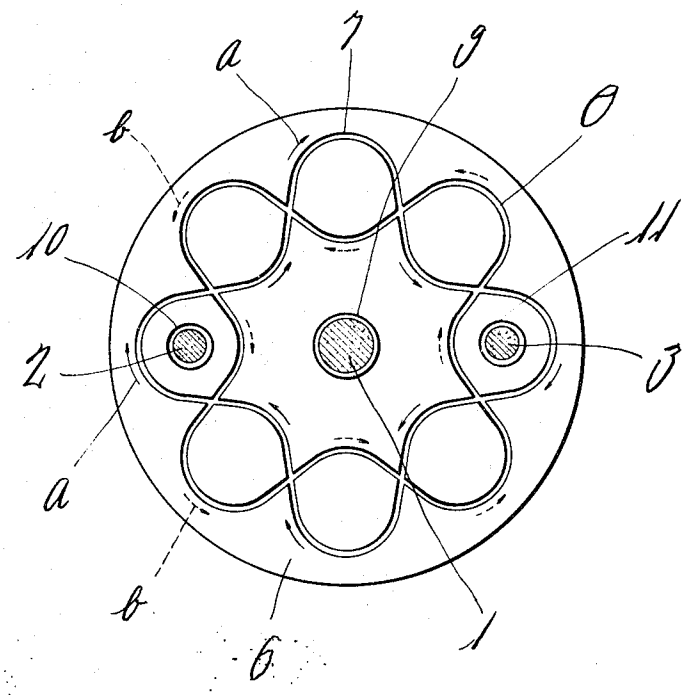
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Fig.4



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TUBULAR RUG

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1 Claim. (Cl. 87—7)

ABSTRACT OF THE DISCLOSURE

A tubular rug comprising a rope having a central core member and two side core members one on each side of the central core member. A plurality of covering yarns are wound in one helical direction around the outside of the three side by side core members. A plurality of fixing yarns are wound in the opposite helical direction around only the central core member and are interwoven with the plurality of covering yarns. The rope is placed in side by side lengths which together make up the rug.

In case of the traditional single rolled tubular rug, the ropes are composed by over-stitching thick decorative yarns helically and in the same direction around the periphery of the core member, and by over-stitching separate thin yarns helically and in the opposite direction to the said decorative yarns so as to prevent the said decorative yarns from coming up.

In the tubular rug made of the above-mentioned traditional ropes, the fixing yarns are arranged in a single row on the surface of each rope, so that there is a defect of the core member being sometimes exposed as a result of dislocation of the decorative yarns, the said decorative yarns not being fixed effectively enough.

The aim of this invention is to provide a superior tubular rug which is not only free from dislocation of the decorative yarns but also full of solid beauty, elegance and gorgeousness, by means of arranging the fixing yarns in a double row on the surface of the ropes composing the tubular rug to keep the decorative yarns from getting out of position.

In this invention, each rope composing the tubular rug has at least one lateral core member on each side of the central core member, and around these three core members a proper number of thick decorative yarns are helically over-stitched in the same direction, while a proper number of thin fixing yarns are helically over-stitched in the opposite direction to the said decorative yarns around the periphery of the central core member only, the said fixing yarns being intertwined with the decorative yarns between the central core member and the lateral core members on both sides, part of the said fixing yarns being exposed on the surface. Therefore, the fixing yarns are arranged in two rows on both sides of the central core member.

These facts and the aim will be made clear by the following explanation and the attached figures.

FIG. 1 shows an oblique view of a section cut from the tubular rug of this invention. FIG. 2 shows a plain view of the rope composing the tubular rug of this invention, in which the decorative yarns and the fixing yarns are shown partly in a loose state. FIG. 3 is an oblique section of what is shown by FIG. 2. FIG. 4 is a plain view of the apparatus with which to over-stitch the decorative yarns and the fixing yarns around the periphery of the three core members continuously and automatically.

In this invention, the ropes composing the tubular rug consist of a core member **1** made of an appropriate fiber, which is sandwiched in between two lateral core members **2, 3** made of the same fiber. The said core members **2, 3** are slightly smaller in diameter than the central core

material **1**, but all the core members **1, 2, 3** may be of the same internal diameter.

Around the periphery of these three core members **1, 2, 3** a required number, 8 for instance, of thick decorative yarns **4** are properly arranged and helically over-stitched. A beautiful effect can be obtained by properly selecting different colors for the decorative yarns.

When the decorative yarns **4** are over-stitched around the periphery of the core members **1, 2, 3** as mentioned above, then a required number, 8 for instance, of fixing yarns **5** which are thinner are over-stitched helically and in the opposite direction to the decorative yarns **4** around the periphery of the core member **1** alone, the said fixing yarns being intertwined with the decorative yarns **4** on both sides of the core member **1**, but the number of the fixing yarns **5** may be one.

A plurality of ropes *a* consisting of three core members **1, 2, 3** over-stitched with the decorative yarns **4** and the fixing yarns **5** as mentioned above are arranged side by side as shown by FIG. 1, the adjoining parts of which being connected together by the zigzag sewing machine or other means. Or, the ropes *a* are arranged spirally, the adjoining parts being connected together by means of the zigzag sewing machine or the like, and made up into a tubular rug.

The apparatus with which to make the above-mentioned ropes *a* is different from the ordinary braiding device as shown by FIG. 4. This apparatus over-stitches the decorative yarns **4** and the fixing yarns **5** around the periphery of the core members **1, 2, 3** continuously and automatically.

As shown in FIG. 4, a pair of endless circular grooves **7, 8** are formed on the table plate **6**, the said grooves **7, 8** running zigzag intersecting each other, forming 8 rings on the way. To the groove **7** are fixed 8 bobbin holders in such a way as will move in the direction indicated by the solid arrow *a*, each of the said bobbins being over-stitched with the decorative yarn **4**.

Likewise, the groove **8** is also provided with 8 bobbin holders in such a way as will move in the direction indicated by the dotted arrow *b*, each of the said bobbins being over-stitched with the fixing yarn **5**.

The table plate **6** is provided with a hole **9** in the center to admit the core member **1** and two other holes **10, 11** to admit the core members **2, 3** on both sides where the groove **7** runs outside and the groove **8** runs inside.

When the bobbin holders fixed in the grooves **7, 8** are moved in the directions indicated by the arrows *a, b* respectively by means of the driving device equipped beneath the table plate **6** and the core members running through the holes **9, 10, 11** are moved upward by means of the device equipped above, the decorative yarns **4**, revolving along the groove **7**, over-stitch themselves around the periphery of the cores **1, 2, 3**, while the fixing yarns **5**, revolving along the groove **8** in the opposite direction to the decorative yarns **4**, over-stitch themselves around the periphery of the core **1** alone

In this case, the grooves **7, 8** intersecting each other, the decorative yarns **4** and the fixing yarns **5** are intertwined, and this intertwining occurs at four locations, that is, in front, at the rear and both sides of the rope *a* respectively, so that each two rows of the fixing yarns appear on both the right and the wrong sides of the finished rope *a*.

As mentioned above, in case of the component ropes of the tubular rug of this invention, the fixing yarns **5** are so arranged as will appear on the surface only between the core members **1, 2, 3**, as a result of which the decorative yarns are fixed quite securely, unlike the traditional arrangement in which the fixing yarns appear on the surface in a single row, and are never dislocated to expose the core clumsily. Moreover, the fixing yarns **5**

running in a double row, an extremely beautiful tubular rug can be obtained by properly choosing different colors for the decorative yarns and the fixing yarns respectively.

As a rule, the thicker is the rope, the more gorgeous is the tubular rug. In case of the traditional rope, however, the thickness is naturally limited by the possibility of dislocation of the decorative yarns as mentioned above. On the other hand, this invention makes it possible to obtain a considerably thick rope because three separate core members are arranged in parallel and the fixing yarns run in a double row on both the right side and the wrong side of the rope. Moreover, when the central core **1** is made thicker than the lateral cores **2**, **3** on both sides, a rope of an extremely solid effect can be obtained, the part of the central core being raised higher, so that the tubular rug made of such ropes will be full of dynamic beauty and gorgeousness.

The tubular rug of this invention consisting of broad ropes, the number of the component ropes is smaller as compared with the dimension of the rug, as a result of which the operation efficiency can be remarkably increased. Moreover, though nylon, acrylic and other man-made fibers are apt to grow pills with long use, such

pilling can be effectively prevented in the case of the tubular rug of this invention, because the decorative yarns are securely fixed by means of the fixing yarns running in a double row, helping thus prolong the life of the tubular rug.

What I claim is:

1. A tubular rug, comprising a rope having a central core member and two side core members, one on each side of said central core member, a plurality of covering yarns wound in one helical direction around the outside of the three side by side core members, and a plurality of fixing yarns wound in the opposite helical direction around only the central core member and interwoven with the plurality of the covering yarns, said rope being in side by side lengths which together make up the rug.

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