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H. W. BELL

2,274,468

FLOOR COVERING

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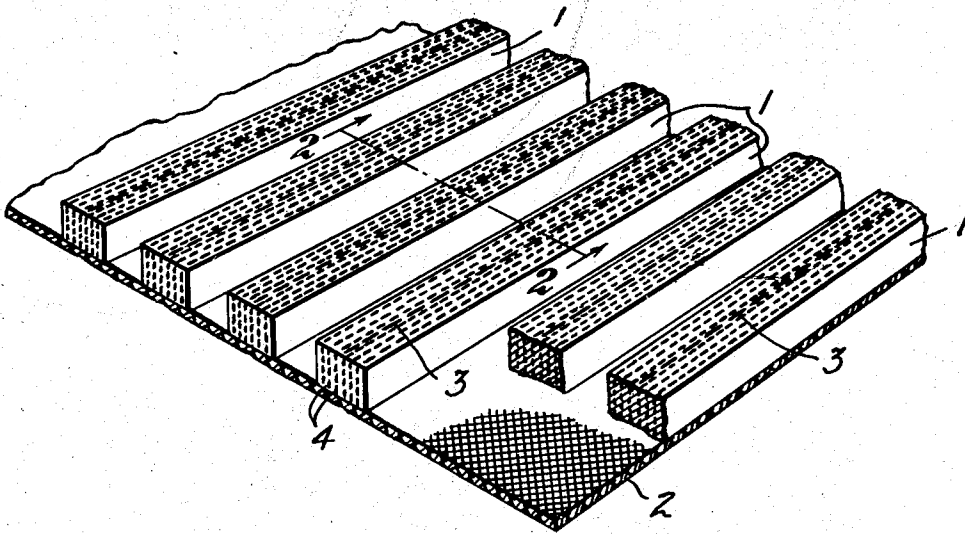


Fig. 1

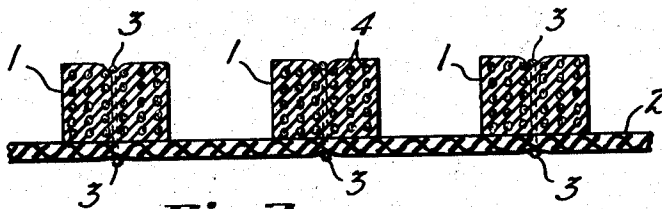


Fig. 2

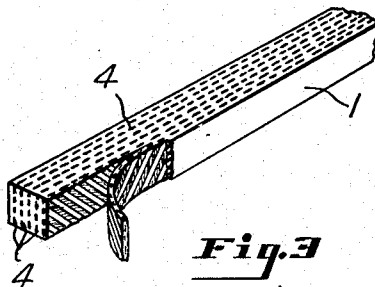


Fig. 3

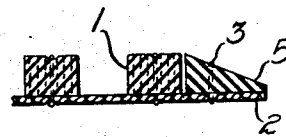


Fig. 5

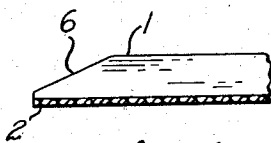


Fig. 4

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FLOOR COVERING

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1 Claim. (Cl. 154-49)

This invention relates to a floor covering, and in particular to an improved type of floor mat.

It is an object of this invention to provide a floor mat which affords a high degree of traction under all conditions.

Another object of this invention is to provide a ribbed mat in which the ribs are rigid and will resist turning or displacement with respect to the backing.

A further object of this invention is to provide a mat light in weight, but which is durable and wear-resisting and may be easily rolled and shipped.

A further object of this invention is to provide a mat which is relatively simple and easy to manufacture, and which may be readily fitted to places of irregular or curved shape.

Other objects and advantages of the present invention will become apparent from the following detailed description accompanied by the drawing, in which:

Figure 1 is a perspective view of a mat embodying the present invention;

Fig. 2 is a cross sectional view taken substantially on the line 2-2 of Fig. 1;

Fig. 3 is a view in perspective of one of the ribs; and

Figs. 4 and 5 are cross sectional views showing modified edge constructions.

Referring to Fig. 1 of the drawing, showing one embodiment of the present invention, it is seen that my improved floor mat consists of a plurality of spaced ribs 1 secured to flexible or cloth backing 2. The plurality of spaced ribs 1 are securely fastened to the backing 2 by sewing with thread or wire. In many instances it may be preferred to sew the ribs in place with a non-metallic thread because metal fastening means may corrode and permit the ribs to become loose. Also, metal adds to the weight of the mat, which may not be desirable. Preferably, each rib is attached to the backing by sewing disposed centrally thereof and extending longitudinally of the rib.

In Fig. 2 of the drawing the ribs are shown as fastened to the backing by sewing and the stitching is indicated by the numeral 3. Preferably, the stitches are countersunk into the top surface of the rib to prevent rapid wear of the stitches, due to surface exposure. Also, by counter-sinking the stitches in a depression in the top surface of each rib, a plurality of corner edges are provided in the top or friction surface of each rib which enhances the frictional characteristics of the same. If cotton, linen or other

textile thread is used, it may be waxed or otherwise treated to waterproof it and prevent deterioration.

The ribs 1 are composed of a body of rubber reinforced with layers of fabric or cord, indicated by the numeral 4. These layers of cords 4 are disposed in edgewise relation to the backing, thereby presenting ends of individual elements of the layers to the upper or tread surface of the mat. This surface presents for frictional engagement both rubber and the ends of cords, as described above, whereby excellent traction properties are afforded to persons walking thereon.

The size, shape and spacing of the ribs may be varied as desired to produce a mat which is particularly applicable to specific requirements. Preferably, the ribs are substantially rectangular in cross section, and, if added stability is desired, they may be wider at the base than at the top. A spacing of the ribs such that the distance between adjacent ribs is approximately equal to the width of the individual rib has been found advantageous, since in such a construction the ribs are rigidly held on the backing and are not easily turned or displaced with respect to the backing. The ribs are preferably placed in parallel rows, but they may be positioned on the backing in any desired pattern. In this way pleasing designs, words, monograms, or other decorative schemes may be formed.

When the mat is to be used in a location where it is desirable to have the edges of the mat slope or incline to the floor a suitable nosing 5 may be secured to the backing 2, as by sewing, and located adjacent to and longitudinally of the end rib 1, as shown in Fig. 5. Similarly, the ends of the longitudinal rib 1 may be beveled at 6 to give an inclined slope to the floor, as indicated in Fig. 4.

It is possible to form the ribs from used rubber products containing fabric and cords, such as belting or casing walls of used vehicle tires. In forming the ribs from used vehicle tires it may be done in the following manner: The bead and tread portion of the tire are removed, leaving the side walls. These side walls are cut into strips so that the width of the strip cut is not greater than the thickness of the tire, whereby, when the strips are cut into ribs, the height of the rib is not greater than the width thereof. When the ribs are formed in this way they usually consist of a series of alternate layers of a fabric ply and sheet rubber bonded into a unit by vulcanization. Due to the construction of the

tires the ribs formed from them have the layers of fabric cut on the bias, the layers, however, being disposed perpendicularly to the backing when secured thereto. In this way all the individual cords run at 45° angles to the backing when the ribs are positioned on the backing, but individual cords of adjacent layers run at right angles to each other. However, it is to be understood that this invention is not limited to tire carcass material for construction of the ribs.

The flexible backing 2 is preferably made of canvas or other suitable material. This backing may be treated by a process such as water-proofing, rubberizing or the like to protect it and preserve it from deterioration.

In forming this mat it may be desirable to cement the ribs to the backing prior to fastening thereto. In this way the ribs are held to the backing during the fastening operation. Also, the cement or other suitable adhesive will have a tendency to more firmly hold the ribs to the backing after fastening.

In addition, the finished mat may be painted, coated, or otherwise rendered impervious for the purposes of preservation and decoration.

Thus, it may be seen that a mat embodying the present invention has a great many advantages and is of general application where a non-slip mat is desired, and it is light, durable, and weather-resistant. It is especially useful as a floor covering on boats, submarines and the like. When this mat is cemented or otherwise secured to the deck of a boat it affords a high degree of traction, even though it may be frequently under water in rough or stormy weather. Thus the mat provides a safety measure for seamen in that it enables them to keep their feet when the boat is rocking and waves are washing over the decks.

It is also contemplated that the mat may be applied to stairs, ramps, and the like. When the mat is applied to stairs it may be seen that the ribs may be omitted from the vertical portions so that the tread portions are disposed only where necessary, although the stair covering is still in one piece. In connection with the application of this mat to ramps and inclines, it may be noted that the mat is sufficiently flexible in any direction, even longitudinally of the ribs, so that it may conform to surfaces inclined in more than one plane.

This mat may be economically manufactured in a shape from which it may be adapted to any desired location, since it is not necessary to limit its manufacture to any certain sizes and shapes, as is the case with link or molded mats. In this connection the manufacture of the mat is similar to the manufacture of linoleum or the like. The mat may be made in a suitable predetermined width and shipped in rolls of a desirable length. After cutting and fitting it may be fastened to the floor by suitable means, as by

cementing or the like, to provide a resilient non-slip tread surface. The mat may be readily treated to render it germ-proof to make it desirable for use in places where sanitation is essential, such as for example hospitals, swimming pools, locker rooms, and the like.

Thus, it may be seen that the mat disclosed above may be easily rolled and shipped. Also, it can be readily cut and fitted to floors of irregular or curved border to which the outline of the mat as made may not conform. Also, the ribs of the mat may be provided with a suitable nosing or the ends of the ribs may be beveled or tapered.

Another advantage of the mat disclosed is that it may be cleaned without removing it from the floor. The ribbed construction facilitates the cleaning operation, in that the spaces between ribs are open and may be easily reached by the cleaning implement. When the mat is applied to the floors behind bars, soda fountains and the like it may be easily rolled and cleaned elsewhere to promote sanitary conditions.

It is to be understood that various modification of the specific illustration shown and described herein may be made without departing from the spirit of my invention.

What I claim is:

A floor covering comprising a flexible sheet of woven fabric constituting a backing, a plurality of elongated relatively thick rib members disposed in spaced side by side relation on the backing sheet and each having an exposed traffic bearing surface and a generally flat bottom surface in intimate engagement with the backing sheet, each of said rib members including a rubber-like body and a multiplicity of relatively short non-metallic cords disposed transversely relative to the rib members and embedded in said rubber-like body, said cords each having one end thereof terminating at said flat bottom surface and abutting against the woven backing to thereby stiffen and reinforce the rib members and increase the strength of the rib members for sustaining heavy concentrated loads, and a continuous line of stitching extending along the central portion of the traffic surface of each rib member and completely through the rib member and the backing sheet to secure the ribs in place on such sheet and to draw said cord ends firmly against the backing sheet, said stitching depressing the central portion of each rib member to provide a longitudinal slip preventing groove therein and to dispose the exposed parts of the stitching below the plane of the traffic surface, said backing sheet being exposed to the atmosphere on both sides thereof along the portions thereof disposed between the rib members whereby such backing sheet portions are readily flexed in rolling the covering into a compact bundle for shipping.

HARRY W. BELL.