Aug. 7, 1973 D. L. HAUSLER 3,751,327

MODULAR CARPET SYSTEM

Filed Aug. 19, 1971

FIG. 1

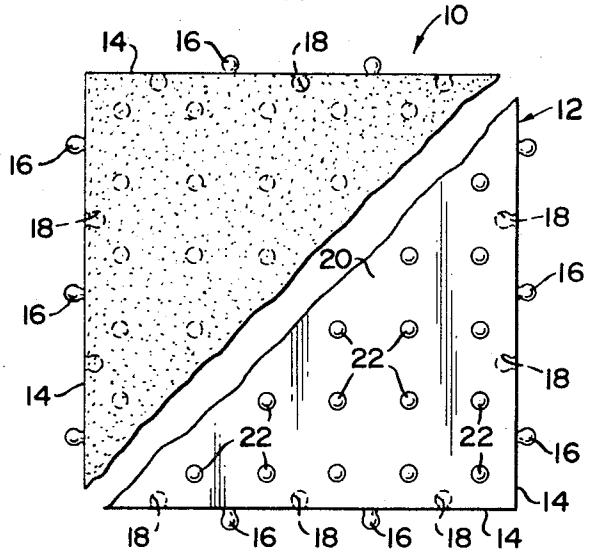


FIG. 3

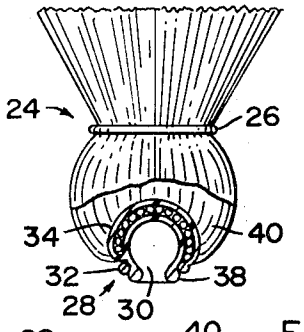


FIG. 4

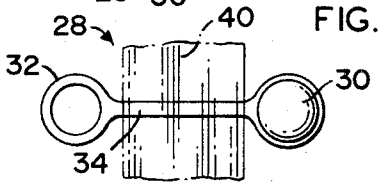


FIG. 2

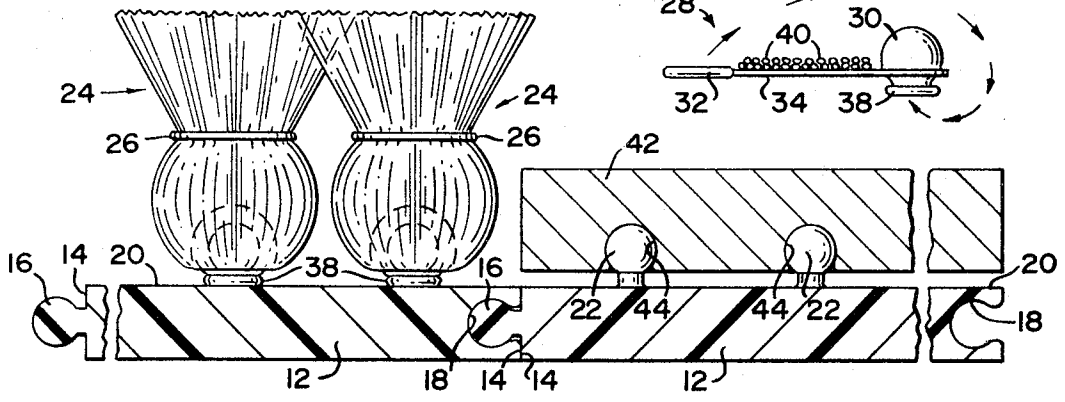


FIG. 5

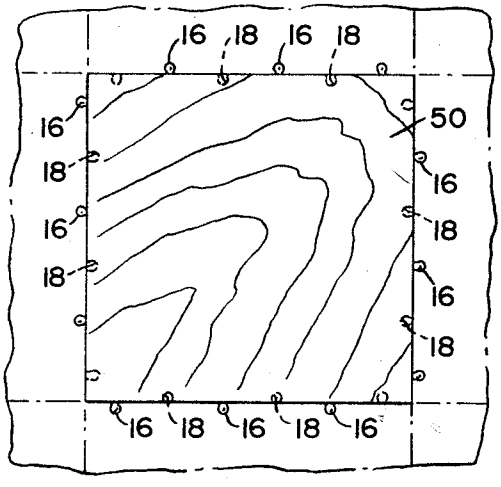


FIG. 6

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MODULAR CARPET SYSTEM

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ABSTRACT OF THE DISCLOSURE

A modular floor covering system comprising a plurality of base mats removably connected together by means of a plurality of alternately and successively arranged indentations and projections formed along the outer peripheral edge of each mat and correspondingly configured such that the projection of one mat is removably mounted within the indentations of an adjacently positioned and connected mat. Surfacing, either in the form of substantially flexible or resilient tufts or substantially rigid tile members are secured to the upper planar surface of the mat by means of a plurality of fingers extending upwardly from the planar surface of the mats so as to engage a socket located in the surfacing, wherein either the tufts or the rigid tiles are spaced in predetermined relation to one another so as to substantially cover the upper planar surface of the base mats.

BACKGROUND OF THE INVENTION

Field of the invention

This invention relates to a modular floor covering wherein a plurality of base mats are removably connected to one another to form a support base over the floor or like surface to be covered and further including either flexible or rigid surfacing means removably attached to the base of the covering in order to provide the decorative covering for a floor or like surface.

Description of the prior art

It has long been recognized that floor covering in the form of carpets or rigid tiles is very expensive both to purchase and to initially install. The average home owner does not usually have the knowledge or skill required in properly positioning or installating a carpet or like floor covering. This is especially true when it is desired to have a "wall-to-wall" type carpet placed in the home. Therefore, when it is desired to install wall-to-wall carpeting or any other floor covering on a permanent type basis it is generally necessary for one to call a firm or company specializing in installation of this type. It can, of course be seen that this installation can be very expensive and is generally unnecessary if the purchaser of the carpet had the tools, ability and knowledge to install a floor covering by himself.

Conventional floor covering, especially carpeting also requires that a base pad or underlying cushion to be installed first over the area of the floor where the carpet is to be laid. These cushions are also very expensive and require the same skill and expense of installation as does the carpeting itself.

Even when the average person does resort to having such a floor covering installed by professional skilled labor, such installation often necessarily results in unnecessary expense which can be directly contributed to the amount of waste carpeting resulting when the carpeting is installed in a room or over a floor area of unusual size or configuration. Generally speaking this waste cannot be avoided in that the carpeting comes in rolls of predetermined length which when installed in a given floor area has to be cut to provide proper installation. This cutting often times results in a large amount of scrap

carpeting pieces being accumulated which have no practical use but which necessarily still have to be added to the cost of purchase.

Other problems and disadvantages directly associated with decorative surface coverings of this type are directly attributable to the fact that these coverings are installed on a permanent basis over a desired floor area. In this context permanent installation is meant to include carpeting which cannot readily be taken up from a given floor area and re-arranged or re-positioned in another area without excessive difficulty and additional expense of re-installation. Often times it is highly desirable to remove on a temporary basis or replace on a permanent type basis either the entire carpeting or portions thereof. This is frequently the case when a particular area of the carpet has been stained by children, pets or the accidental spillage of some material onto the surface of the carpeting. Often times to remove the unslightly stain on the carpet a large portion of, or the entire carpet itself, would have to be replaced.

In addition, it is frequently desirable both in public and private areas that a soft carpet-like floor covering be replaced by a substantially rigid wood or hard material type covering suitable for dancing or excessive traveling over a particular area. Since this is most usually desired to be changed in a temporary rather than a permanent type basis, such a change does not usually justify the expense required in frequently substituting for one another a soft and hard floor covering.

In an attempt to overcome many of the problems and disadvantages set forth above which have been prevalent in conventional floor covering for many years, a number of prior art systems have been devised wherein floor covering is installable on a modular type basis. Such coverings generally comprise tiles or blocks either made from a hard or flexible material and generally including an adhesive-type backing either adhered directly to the undersurface of the floor covering module itself or to the floor surface being covered. However, these prior art devices do not often times efficiently overcome the problems existing. This is due to the fact that the modules themselves are often designed to be installed on a permanent type basis and accordingly the removal and the installation itself is time consuming, a relatively complex and often require an inordinate amount of skill and ability on the part of the person who is installing these carpeting units. It can therefore be seen that the problems associated with permanent floor type coverings are still present and either the entire covering or portions thereof are still not readily removable or interchangeable.

Based on the above it can readily be seen that there is a great need for a floor covering which gives the appearance and advantages of a permanently installed surfacing while at the same time maintains the advantages of being easily and readily replaced, either in its entirety or predetermined portions thereof, while at the same time requires a minimum amount of skill and ability to install.

SUMMARY OF THE INVENTION

The present invention relates to a modular surface covering primarily designed to cover floors in such a manner as to give the appearance of a permanently installed floor covering but which in reality is installed on a modular basis such that the covering may be removed, replaced or repositioned on a temporary basis either in its entirety or portions thereof.

More particularly, the present surface covering arrangement comprises a plurality of base mats generally having a square or rectangular configuration and each being removably attachable to adjacently positioned base mats by means of mat connecting means. These connecting

means comprise a plurality of projections and indentations arranged in successively alternating, aligned, linear relation to one another along the entire, outer peripheral edge of each of the base mats. Each of the projections and indentations on any given base mat is specifically configured to removably connect by a "snap fit" type of engagement, the correspondingly positioned indentations and projections respectively on any adjacently positioned base mat. Since these alternating projections and indentations are arranged on each side of a base mat the individual mats can be joined to form substantially any configuration or size floor covering thereby adding to the present invention's versatility. The undersurface of each of the base mats is merely placed over the particular floor area or like surface to be covered and may or may not be otherwise secured to this surface dependent upon the particular application to which the surface covering arrangement is applied.

The upper planar surface of the mat means comprising a plurality of removably connected base mats includes a plurality of spaced upwardly projecting fingers arranged in predetermined spaced relation to one another. These fingers are designed to removably engage correspondingly configured sockets formed in the surfacing means which is designed to be removably attached to the fingers as described. The surfacing means may comprise a plurality of tufts formed from flexible or resilient, generally soft, yarn-type fibers which are each positioned on at least one finger in such a manner as to cooperatively engage one another so as to substantially cover the entire upper surface of the base mats to which the tufts are attached. The upwardly extending fingers and cooperatively positioned sockets formed on the base mats and tufts respectively comprise the fastening means for removably attaching surfacing to the base mat in such a manner that one or all of the tufts may be removed if the entire surface or portions thereof are desired to be replaced. The sockets cooperating with the finger comprising a socket cup which, as stated above is specifically configured to movably engage the finger. This cup is connected to a locking ring by means of a flexible strap integrally attached to both. This flexible strap movably positions the locking ring relative to the cup in such a manner that the ring may be moved to an interlocking position relative to the outer, lower peripheral lip of the cup. In this position the interconecting strap partially surrounds the upper surface of the cup in such a manner as to sandwich therebetween fibers which form the tuft. The tuft and the socket are thereby securely attached to one another and the entrance to the cup of the socket is positioned in cooperative engagement with the upwardly extending finger to form a "snap fit" type of engagement. Alternately, the surfacing of the present invention may comprise a substantially rigid or hard material tile which may have a substantially rectangular configuration generally similar to the base mat. Of course the surfacing tile may have varying configuration and is primarily intended to provide a hard type floor covering for areas of heavy traffic as discussed above. The undersurface of the tile has sockets integrally formed therein to readily and removably engage at least one finger in a manner generally similar to that which was explained with reference to the flexible tufts.

Still another embodiment of the present invention comprises the base mat itself being formed from a rigid tile. In this embodiment the base mat having the fastening means in the form of upwardly projecting fingers on its upper planar surface is replaced by the rigid tile which also has the peripheral, alternate projections and indentations. It can be seen therefore that one or more rigid tiles can be substituted for the base mats in order to provide a hard surface area which can stand more pedestrian traffic.

The invention accordingly comprises the features of construction, combination of elements, and arrangement of parts which will be exemplified in the construction hereinafter set forth, and the scope of the invention will be indicated in the claims.

BRIEF DESCRIPTION OF THE DRAWINGS

For a fuller understanding of the nature and objects of the invention, reference should be had to the following detailed description taken in connection with the accompanying drawings in which:

FIG. 1 shows a top plan view of the base means of the present invention.

FIG. 2 is a sectional view of the base means with various surfacing means attached.

FIG. 3 is a detailed sectional view of the tufts which form the surfacing.

FIG. 4 is a top plan view of the socket associated with the tuft fibers.

FIG. 5 is a side, sectional view of the socket as shown in FIG. 4.

FIG. 6 is a top plan view of a rigid tile forming the surfacing installed with other base mats.

Similar reference characters refer to similar parts throughout the several views of the drawings.

DETAILED DESCRIPTION

As shown in FIGS. 1 and 2 the subject invention comprises a mat means generally indicated at **10** which include a plurality of base mats **12** which may be removably connected to one another along their cooperatively positioned peripheral edges **14**. This connection occurred by mat connecting means comprising a plurality of projections **16** and indentations **18** arranged in alternating, successive and spaced relation to one another around the entire peripheral, outer edge **14** of each base mat **12**. Each projection **16** and indentation **18** on each of the base mats **12** are commonly configured such that they may removably engage in a "snap fit" type of engagement correspondingly positioned indentations and projection respectively on any other adjacently positioned base mat. As explained above this allows each of the base mats to be removably connected from one another and therefore readily replaceable.

Referring to FIG. 2 the undersurface of each base mat **12** may be positioned on any surface which is desired to be covered. If this particular surface is horizontally oriented then generally no additional fastening means would be required to secure the mat means to the surface. However, it should be noted that this particular invention could be readily adaptable for wall or ceiling type covering and in that particular application, additional connecting means may be desirable.

The upper planar surface **20** of each of the base mats has surfacing connection means attached thereto in the form of upwardly projecting fingers **22**. These fingers are arranged in predetermined spaced relation such that when the surfacing is attached thereto, the entire upper planar surface **20** is substantially covered. Each finger **22** is designed to cooperate with sockets formed in the surfacing material which itself is removably attached to the upper planar surface of each of the base mats. The sockets will be explained in detail hereinafter.

The surfacing may comprise a plurality of tufts generally indicated at **24** each of which comprise flexible resilient carpet-type yarn arranged into a specific desired configuration. As explained above configuration of each tuft may be designed to correspond to the spacing of the finger **22** such that the surface **20** is covered. In order to maintain any desired configuration a retaining loop **26** may be applied at various points along the tufts. It should be noted that any applicable material could be used to form the tufts **24**.

As briefly explained above the fingers are designed to cooperate with sockets generally indicated in FIGS. 4 and 5 as **28**. Each socket comprises a hollow cup **30** and a locking ring **32** movably attached thereto by means of a

flexible strap **34**. The cup **30** is specifically configured to removably engage the finger **22**. Attachment of the socket to the undersurface of the tuft occurred by virtue of locking ring **32** being rotated about the upper surface of cup **30** as indicated by directional arrows **36** in FIG. 5. As shown in FIG. 3 the locking ring lockingly engages the lower, outer peripheral lip **38** of the cup as shown. In this position strap **34** serves to secure a plurality of fibers between the strap **34** and the upper surface of cup **30**. These fibers of course form part of the tuft **24** and thereby securely attach the sockets in proper position for engagement with the fingers relative to the tuft **24**.

Another embodiment of the present invention comprises the surfacing including a rigid or hard material tile **42** also removably attachable to fingers **22** as shown clearly in FIG. 2. In this embodiment one or more sockets **44** are integrally formed in the undersurface of tile **42**. These sockets **44** are also specifically configured for removable engagement with fingers **22**.

Yet another embodiment of the present invention comprises the tile shown in FIG. 6 as **50** comprising a hard material substance in the size and configuration of base mats **10**. Similarly, alternating projections and indentations **16** and **18** may be formed around the peripheral edge of the tile **50** in order that it may be readily and removably attached to either other tile **50** or to base mats **12**. In this particular embodiment no surfacing is supplied to the upper planar surface **50**.

It will thus be seen that the objects set forth above, among those made apparent from the preceding description, are efficiently attained and, since certain changes may be made in the above construction without departing from the scope of the invention, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

It is also to be understood that the following claims are intended to cover all of the generic and specific features of the invention herein described, and all statements of the scope of the invention which, as a matter of language, might be said to fall therebetween.

Now that the invention has been described, what is claimed is:

1. A floor covering comprising: a plurality of base mats, mat connecting means arranged on a peripheral edge portion of each of said base mats, surfacing means arranged on said base mats, mat fastening means removably connecting said surfacing means to said base mats, said mat fastening means comprising a plurality of fingers projecting upwardly from said base mats and a corresponding plurality of socket means formed in said surfacing means, said finger and sockets arranged relative to each other to cooperatively engage one another, said fingers mounted on each of said base mats in cooperative relation such that said surfacing means mounted thereon substantially covers an upper planar surface of said mats.

2. A floor covering as in claim **1** wherein said mat connecting means comprising a plurality of projections and indentations arranged in alternating, successive relation to one another on at least one edge of each of said base mats.

3. A floor covering as in claim **2** wherein each of said projections and indentations on each of said base mats are correspondingly configured such that the projection of any one base mat is removably positionable within the indentation of another, whereby said base mats are removably connected to one another.

4. A floor covering as in claim **2** wherein said mat connecting means are arranged around the entire periphery of each of said base mats.

5. A floor covering as in claim **1** wherein said surfacing means comprises a plurality of tufts each of which is connected to said fastening means in contiguous relation to one another, whereby a predetermined portion of each mat means is substantially covered.

6. A floor covering as in claim **5** wherein said socket means is connected to each of said tufts so as to mount said tuft on said fastening means, said socket means comprising a cup and lock ring arranged to lockingly engage said cup, a flexible strap movably interconnecting said cup and said lock ring, whereby said cup is configured to removably engage said fastening means.

7. A floor covering as in claim **6** wherein said fastening means comprises a plurality of fingers arranged in spaced relation on and extending from said upper surface of each of said mats, said cup of each tuft and each of said fingers being correspondingly configured such that said tuft is removably mounted on at least one of said fingers.

8. A floor covering as in claim **6** wherein said tuft comprises a plurality of flexible fibers at least a portion of which are attached to said socket means, said portion being surrounded by said strap when said ring is in engagement with said cup.

9. A floor covering as in claim **1** wherein said surfacing means comprises a substantially rigid tile.

10. A floor covering comprising: a plurality of base mats, mat connecting means arranged on a peripheral edge portion of each of said base mats, surfacing means arranged on said base mats, mat fastening means removably connecting said surfacing means to said base mats, said surfacing means comprises a plurality of tufts each of which is removably connected to said fastening means in contiguous relation to one another, whereby a predetermined portion of each mat means is substantially covered, said surfacing means further including socket means connected to each of said tufts so as to mount said tuft on said fastening means, said socket means comprising a cup and lock ring arranged to lockingly engage said cup, a flexible strap movably interconnecting said cup and said lock ring, said mat fastening means comprising a plurality of fingers projecting upwardly from said base mats in cooperative relation such that said surfacing means mounted thereon substantially covers an upper planar surface of said base mats.

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U.S. Cl. X.R.

156—72, 293; 161—37, 38, 44, 49, 63