ABSTRACT

A carpet fluffing device having a pair of wheels rotatably mounted at opposite ends of an axle, and having a handle fixedly secured to the middle of the axle. Plural axially extending rows of pins are fixedly secured to the axle, which pins project radially of the axle and have a length less than the radius of the support wheels. The rows of pins are disposed at a predetermined angle relative to each other and relative to the handle. In a preferred embodiment, the pins in one row have a length different from the pins in the other row.

7 Claims, 3 Drawing Figures
CARPET FLUFFING DEVICE

This invention relates to a device for fluffing carpets, specifically carpets commonly referred to as shag carpets.

A carpet whose fluffs are 40 mm or longer has disadvantages that it is difficult to remove dust therefrom, and it is quite impossible to clean the carpet when its fluffs are trod down uneasily.

It is the object of the present invention to provide an improved carpet fluffing device to raise the above mentioned long fluffs of a carpet to make the surface of the carpet beautiful again, and at the same time make cleaning thereof easier.

The present invention will be explained more particularly with reference to the accompanying drawings where:

FIG. 1 is a perspective view partially cut away of an embodiment of the carpet fluffing device according to the present invention.

FIG. 2 is an enlarged longitudinal sectional side view of the device shown in FIG. 1.

FIG. 3 is a sectional view of the bearing of the device of FIG. 1.

In an embodiment shown in the drawings, a pair of right and left wheels 1 are rotatably fitted to an axle 2. A plurality of pins 3 and 4 arranged in axially-extending rows project toward the floor at predetermined axially-spaced intervals along said axle 2. A long handle 5 is so fixed at the middle of the axle 2 that one can run the wheels on the floor as he stands thereon.

When the carpet fluffing device according to the present invention is used on a carpet, the ends of radial spokes 7 mounted on hubs 6 of the pair of wheels 1 support the device on the carpet so that the fluffs of the carpet are not pressed down. Said spokes 7 are thin and somewhat wide so as not to tread down the fluffs, thereby supporting the device firmly on the carpet when the wheels 1 of the carpet fluffing device run on the carpet A.

The spokes 7 and the hubs 6 are integrally formed from synthetic plastic resin, and the spokes 7 have a thin channel-shaped cross section to make them strong and light in weight.

The shaft 2 is formed by covering a reinforcement core 8, such as steel wire, etc. with a synthetic plastic resin sleeve 9, with the reinforcement core 8 being exposed at both ends thereof to which the wheels 1 are fitted.

A coupling 10 for the handle 5 is mounted at the middle of the reinforcement core 8. The part connecting the coupling 10 to the reinforcement core 8 is also covered with the synthetic resin 9. Thus, the coupling 10 is firmly fixed to the reinforcement core 8.

The two axially-extending rows of pins 3 and 4 project from the axle 2 at a predetermined symmetrical angle from the coupling 10. The above mentioned symmetrical angle is so determined that when the pin row 4 sets up the fluffs of the carpet A, the other pin row 3 is out of contact from the carpet A, and when the pin row 3 sets up the fluffs of the carpet A, the other pin row 4 is out of contact with the carpet. Thus, when the carpet A is fluffed up with one pin row, the other pin row does not disturb such operation.

The radial length of the pins in pin row 4 is somewhat longer than the radial length of the pins in pin row 3, and the pins 4 are somewhat shorter in length than the radial length of the spokes 7 of the wheels 1.

Usually, a so-called shag carpet has 40 mm or longer fluffs. Accordingly, when one walks on such a carpet, fluffs thereof are readily trod down. When the carpet fluffing device runs on a carpet, the fluffs are set up or raised by the pins 3 or 4 to make the carpet beautiful and to make it ready for cleaning.

It is convenient to employ the longer pins 4 to raise a carpet whose fluffs are short, and to employ the shorter pins 3 for fluffing up a carpet whose fluffs are long. If these pins are used reversely, the pins do not act at all or their operation is very heavy. To prevent such misemployment of the pins, a thick synthetic plastic resin cover 11 is formed at the middle of the axle 2, and such cover 11 has a flat part 12 at a specific angle to the coupling 10 to indicate and identify the length of the pins 3 and 4 relative to said flat part 12.

It is preferable to form the pins 3 and 4 integral with the synthetic resin sleeve 9. However, each pin can be fixedly mounted on the axle in any desired manner. To reinforce the adjacent pair of pins 3 and 4, they may be connected to each other by means of a rib 13.

The coupling 10 may be tapered, and to such coupling the handle 5 is fitted.

The fluffs of a carpet are apt to absorb large amount of fine dust. Therefore, the carpet fluffing device according to the present invention which is used on a carpet should be provided with a dust prevention device for the rotatable parts thereof.

FIG. 3 shows the construction of such a dust prevention device. Wheels 1 are rotatably fitted on the reinforcement core 8 exposed at both ends of the axle 2. Recesses 14 are formed on the outer surfaces of the hubs 6 of said wheels. Wheel holding washers 15 are fitted to the ends of the reinforcement core 8 which project into said recesses. Covers 16 are somewhat tightly fitted to the recesses. Flanged edges 18 are formed on the opposite ends of the synthetic resin cover 9, which flanges 18 are fitted into recesses 17 formed in the inner surfaces of the hubs 6, with narrow gaps 19 existing between the flange edges 18 of the cover and the inner periphery of the recesses 17 on the inner surfaces of the hubs. Thus, dust is completely prevented from entering the rotatable parts of the device from the outer surfaces of the hubs. From the inner surfaces of the hubs, dust hardly enters the rotatable parts of the device through the narrow gaps 19 between said flange edges 18 and the inner periphery of said recesses 17 on the inner surface of the hubs. This ensures the permanent smooth rotation of the wheels 1.

As mentioned above, the rows of pins 3 and 4 are each symmetrically positioned relative to the handle 5. That is, the angle between the row of pins 3 and the handle 5 is the same as the angle between the row of pins 4 and the handle 5. Thus, when it is desired to use the device so that the long pins 4 contact the carpet, then the device will be positioned substantially as illustrated in FIG. 2. However, when it is desired to use the device so that the short pins 3 contact the carpet, then it is merely necessary to rotate the complete device substantially about an axis defined by the axle 2 (which rotation would occur in the clockwise direction of FIG. 2) so that the handle 5 projects upward and rightwardly in FIG. 2, thereby causing the pins 3 to be disposed for engagement with the carpet. Thus, due to the symmetrical relationship of the pin rows 3 and 4
relative to the handle 5, either pin row 3 or 4 can be selectively disposed for engagement with the carpet merely by selectively positioning the device so that the proper pin row is in engagement with the carpet. A mere rotation of the handle from one side of the axis to the other side will thus result in the other pin row being moved into engagement with the carpet.

In the disclosed embodiment, the handle 5 and the pin rows 3 and 4 project radially outwardly from the axis and are substantially equal angularly spaced from one another, being spaced from one another by an intermediate angle of approximately 120°. This thus facilitates the selective use of either the pin row 3 or the pin row 4.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A carpet fluffing device, comprising an elongated substantially horizontal extending axle, and elongated handle fixedly attached to the axle substantially at the center thereof, a pair of wheels rotatably mounted on the axle adjacent the opposite ends thereof, each wheel comprising a hub rotatably mounted on the axle and a plurality of spokes extending outwardly from the periphery of the hub, the spokes being thin in thickness but rather broad in width, a plurality of first pins fixed to said axle and aligned in a first row which is substantially parallel with the longitudinal direction of the axle, a plurality of second pins fixed to the axle and aligned in a second row which is substantially parallel with the longitudinal direction of the axle, the first and second pins each projecting radially outwardly from the axle, the first and second pins each having a length less than the radius of said wheels with the first and second pins being of different lengths, the first row of pins being angularly spaced from the handle to permit the first pins to engage a carpet when the handle is in a first position, and the second row of pins being angularly spaced from both the first row of pins and the handle to enable the second row of pins to engage the carpet when the handle is moved into a second position.

2. A carpet fluffing device according to claim 1, wherein the axle includes an elongated steel reinforcing core and a sleeve member of synthetic resin molded around the core, and wherein the first and second pins are integrally molded with the member.

3. A carpet fluffing device according to claim 2, wherein the sleeve member has enlarged flanges formed at opposite ends thereof, and wherein the hub associated with each wheel is provided with a centrally located recess on the inner side thereof and which closely accommodates therein one of the annular flanges as disposed on an adjacent end of the sleeve member.

4. In a device for fluffing a carpet, comprising: an elongated substantially horizontal axle; a pair of wheels rotatably mounted on said axle adjacent the opposite ends thereof; elongated handle means fixedly attached to said axle and projecting transversely therefrom; first means adapted for engaging said carpet for fluffing same, said first means including a plurality of first pins fixedly secured to said axle and projecting radially therefrom, said first pins being spaced from one another and being aligned in a first row which extends substantially parallel with the elongated direction of said axle, said first pins having a length less than the radius of said wheels; and second means adapted for engaging said carpet for fluffing same, said second means including a plurality of second pins fixedly secured to said axle and projecting radially therefrom, said second pins being spaced from one another and being aligned in a second row which is substantially parallel with the elongated direction of said axle, said second row of pins being angularly spaced from said first row of pins relative to the longitudinally extending direction of said axle, and said second pins having a length which is different from the length of said first pins; whereby locating said handle means in a first position relative to said carpet results in said first pins being positioned for engaging said carpet while said second pins are maintained out of engagement with said carpet, and whereby locating said handle means in a second position relative to said carpet results in said second pins being positioned for engaging said carpet while said first pins are maintained out of engagement with said carpet.

5. In a device according to claim 4, wherein the first and second rows of pins are substantially equally angularly spaced from said handle means.

6. In a device according to claim 5, wherein the handle means and the first and second rows are substantially equally angularly spaced from one another by an intermediate angle of approximately 120° therebetween.

7. In a device according to claim 5, wherein each of said wheels comprises a central hub and a plurality of spokes fixed to said hub and projecting radially outwardly therefrom around the periphery of said hub.

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