May 25, 1965 J. W. BRIGHAM 3,184,783

CASTER DEVICE

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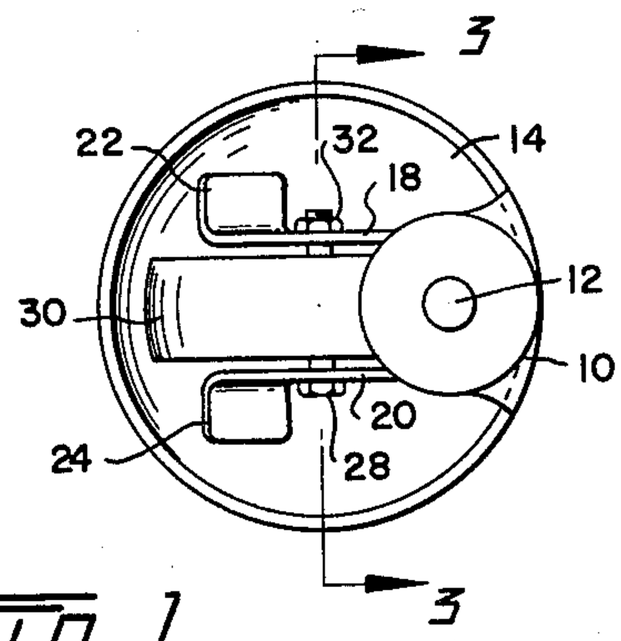

FIG. 1.

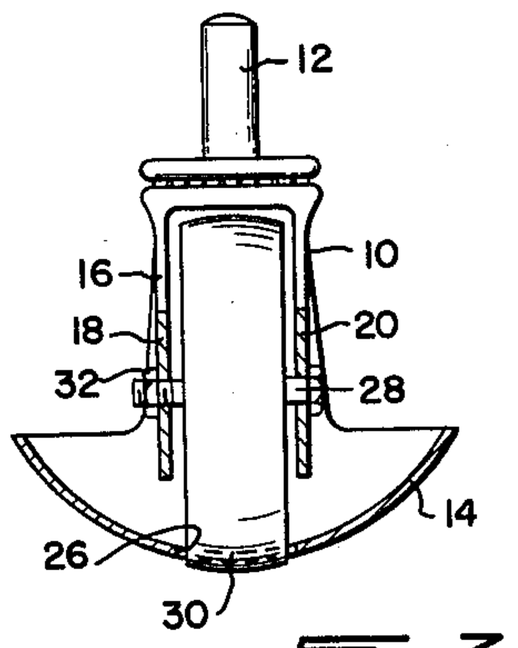

FIG. 3.

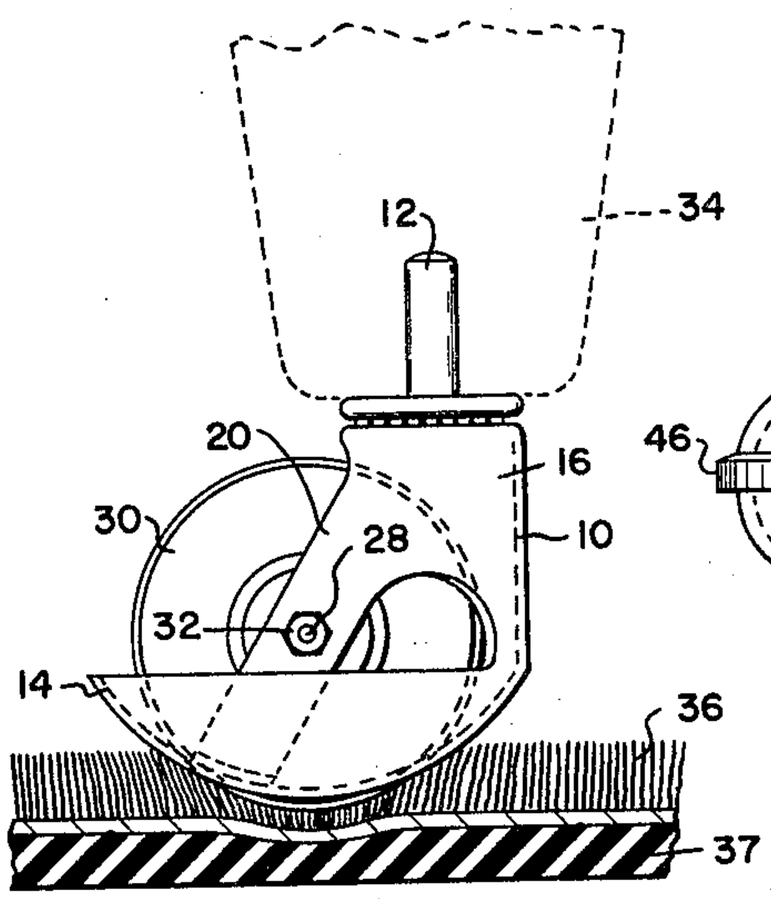

FIG. 2.

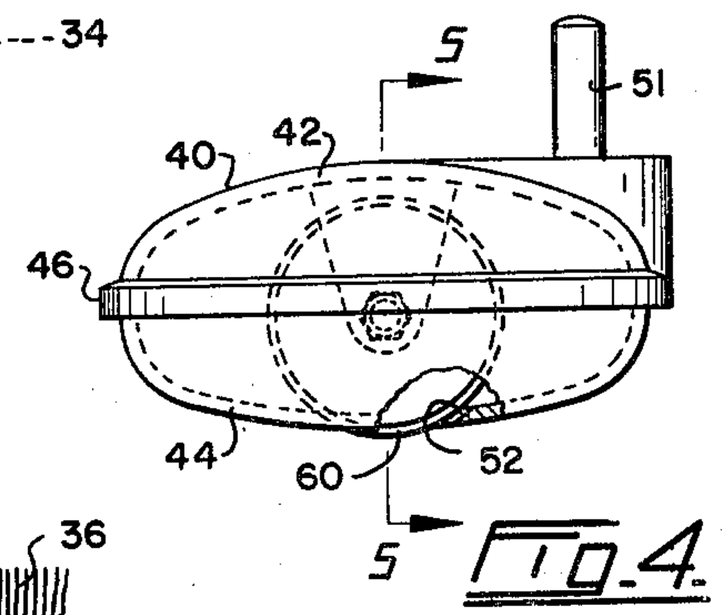

FIG. 4.

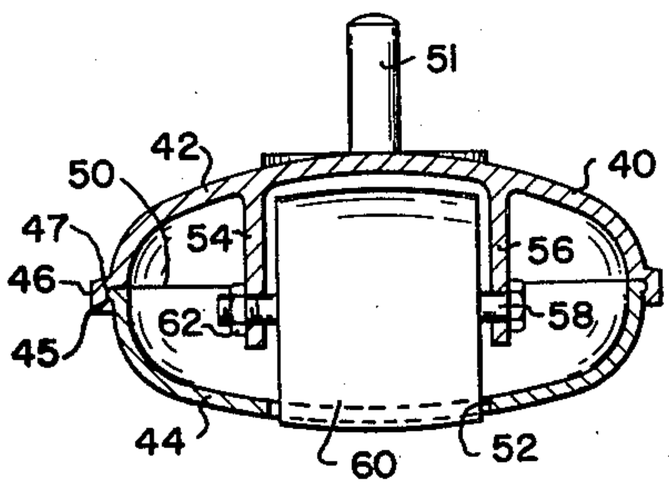

FIG. 5.

INVENTOR
JAMES W. BRIGHAM
BY
Fetherstonhaugh & Co
ATTORNEYS

United States Patent Office

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CASTER DEVICE

James W. Brigham, 6744 Brantford Ave., South Burnaby, British Columbia, Canada

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This invention relates to caster devices and particularly to caster devices for use with furniture intended to be stationed on or moved over floor coverings, such as carpets and the like.

The most common type of caster used heretofore for supporting furniture and the like has been the ordinary roller caster. This type of caster, however, whilst providing a satisfactory rolling support has many drawbacks as a stationary support. The principal drawback of the roller caster lies in the fact that it has a relatively small bearing area with the result that when a load is applied thereto the high pressure exerted over the small area creates depressions in the surface of the floors and floor coverings below the casters. This damage to the floors and floor coverings is of course greatly aggravated when the article of furniture or the like is allowed to remain long in any one position. To overcome these drawbacks, it has been the common practice to provide cups or other rests for insertion between the rollers and the floor or floor coverings. These cups provide an extended bearing surface on the floor or floor coverings and thus minimize damage thereto. However, these cups have to be removed when it is desired to move the article supported from one position to another and then restored when the article is in its new position.

The present invention seeks to overcome these drawbacks and objects of this invention are to provide a simple inexpensive caster device which enables the article supported to be readily moved from one position to another and which provides a relatively large bearing surface, thus eliminating or minimizing damage to the floor or floor covering.

In accordance with these objects, the present invention contemplates the provision of a caster device comprising a casing adapted to be mounted on an article to be supported, said casing having a smooth lower flooring engaging surface, and a rotatable element journalled in said casing and projecting slightly below said lower casing surface through an opening formed therein into contact with said flooring, said rotatable element and the lower casing surface forming a substantially even and unbroken bearing surface effectively supporting an applied load when on a soft flooring, such as a carpet, without unduly disarranging the latter and the exposed portion of said rotatable element supporting the load on a hard flooring, such as a wooden floor, and enabling the article to be easily moved over said hard flooring.

Other features which may be included in accordance with this invention will be described hereinafter and referred to in the appended claim.

The invention will now be more particularly described in connection with the accompanying drawings which show examplary embodiments of the invention, and in which:

FIGURE 1 is a top plan view of one form of the invention,

FIGURE 2 is a side elevation of the device according to FIGURE 1,

FIGURE 3 is an end elevation of the device of FIGURE 1,

FIGURE 4 is a side elevation of an alternative form of the invention, and

FIGURE 5 is a sectional view taken on the line 5—5 of FIGURE 4.

Referring to the drawings, the caster device as shown in FIGURES 1 to 3 comprises a casing generally designated 10 rotatably coupled at its upper end to a stem 12 for vertical rotation about said stem. The stem 12 is adapted to be mounted on the bottom of an article, such as a piece of furniture to be supported. Although casing 10 is shown coupled to a pivot, such as stem 12, for rotation about a vertical axis, it will be appreciated that if desired the casing could be fixedly attached direct to the bottom of the article to be supported. The casing 10 includes a lower cup-shaped portion 14 and a body portion 16 having a pair of downwardly inclined arms 18 and 20 projecting thereform. The lower ends of arms 18 and 20 extend into the interior of portion 14 and terminate in end flanges 22 and 24 which are secured to the inner surface of portion 14. The cup-shaped portion 14 is formed with a central opening in the form of a slot 26. An axle in the form of a bolt 28 having a roller 30 rotatably mounted thereon is passed through aligned holes in the arms 18 and 20 and secured in position therein by a nut 32. The axle 28 is mounted on arms 18 and 20 in a position so that a small portion of the periphery of roller 30 projects through the slot 26 in the cup-shaped portion 14.

In use, the caster device is intended be mounted on the bottom of an article, such as a piece of furniture, to be supported with the stem 12 thereof extending into said article. With the caster thus mounted, the major portion of the weight of the article is supported by the lower surface of the cup-shaped portion 14 which forms a relatively large load bearing surface as compared to the roller which in the present case is only required to support a small portion of the applied load. FIGURE 2 shows the device mounted on the leg 34 of a piece of furniture placed on a carpet 36 having an underlay 37 and as shown a major part of the weight of the article is transmitted to the carpet through the cup-shaped portion 14. In this manner the applied load is more evenly distributed over the carpet than is the case with the conventional casters which due to their small bearing areas damage carpets and floors by creating depressions therein particularly if allowed to remain for any length of time in one position. Furthermore, the present caster device through the roller 30, a portion of which projects below the cup-shaped portion 14, enables the piece of furniture to be readily moved from one position to another even over a heavy carpet since the lower surface of cup-shaped member 14 glides easily over the carpet when rolling motion is imparted to roller 30. When the piece of furniture is stationary, its weight is distributed over a large bearing area. The present device thus enables the article supported to be easily moved from one position to another and presents a relatively large bearing area to the floor or floor covering when in a stationary position, thus eliminating or minimizing the possibility of damaging the floor or floor covering.

In another form of the invention shown in FIGURES 4 and 5, the caster device includes a closed casing generally designated 40. Casing 40 is of substantially oval configuration and is formed of upper and lower interfitting sections 42 and 44 respectively. Upper section 42 is formed adjacent its lower peripheral edge with a flange 46 having an annular groove 47 formed in the inner peripheral surface thereof. The upper peripheral edge 40 of lower casing section 44 forms a snap fit within flange 46 and the two sections are releasably interlocked upon the engagement of the annular ridge 45 formed adjacent the upper peripheral edge of lower section 44 with the groove 47. The upper section 42 of casing 40 is, as shown, preferably pivotally connected to a stem 51 which is fixedly attached to the article to be supported, but could also if desired be directly and fixedly

attached to the said article. The lower section 44 of casing 40 is provided with an opening 52 centrally thereof and the upper section 42 is provided with spaced arms 54 and 56 depending downwardly therefrom and terminating above opening 52. An axle in the form of a bolt 58 having a roller 60 rotatably mounted therein is supported between arms 54 and 56 and secured in position thereon by means of a nut 62. The axle 58 is so positioned that a portion of the roller 60 projects downwardly through the opening 52 in lower section 44 of casing 40 into engagement with the floor or floor covering.

In this second embodiment of the invention, the applied load is transmitted to the floor or floor covering over the curved lower surface of casing section 44 and through the roller 60 whereby the load is distributed over the relatively large bearing surface. Also, with this design the roller is substantially concealed from sight providing a neat locking, streamlined and substantially dust-proof unit.

What I claim as my invention is:

A caster device comprising a casing adapted to be rotatably mounted adjacent the bottom of an article to be supported, said casing comprising a pair of interfitting shells, the upper one of said shells having a pair of spaced

arms depending downwardly therefrom interiorally thereof and the lower shell forming a flooring engaging surface and being formed with an opening centrally thereof, and a roller carrying axle fixedly connected at each end to said arms in a position whereat a portion of the roller periphery projects slightly downwardly through said opening into contact with the flooring, said roller and the outer surface of said lower shell forming a substantially even and unbroken bearing surface effectively supporting an applied load when on a soft flooring without unduly disarranging the latter and the exposed portion of said roller supporting the load on a hard flooring and enabling the article to be easily moved over said hard flooring.

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DONLEY J. STOCKING, *Primary Examiner.*

JOSEPH D. SEERS, *Examiner.*