April 26, 1960 R. F. WINANS 2,933,754

GLIDE CASTER

Filed May 7, 1957

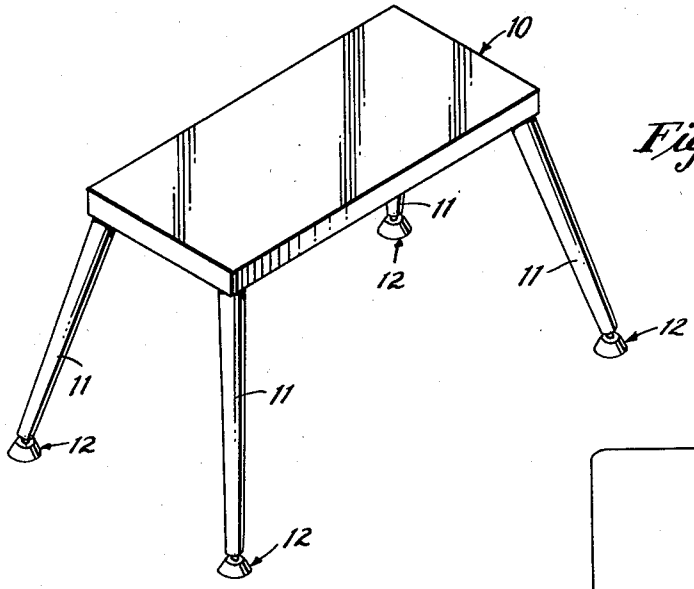


Fig. 1.

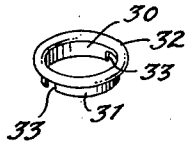


Fig. 2.

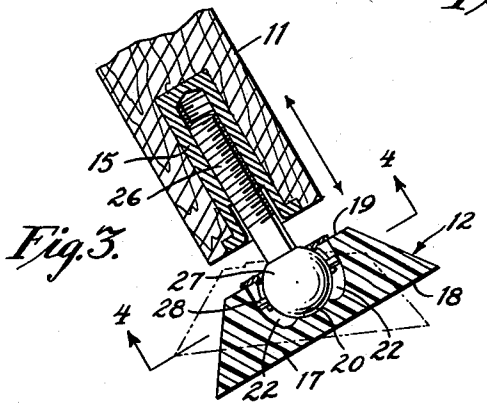
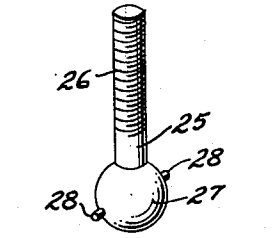
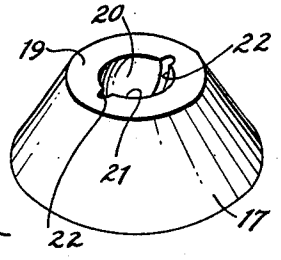


Fig. 3.





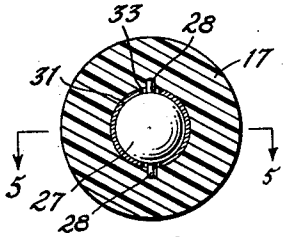


Fig. 4.

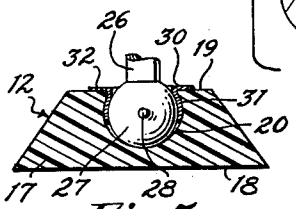


Fig. 5.

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United States Patent Office 2,933,754 Patented Apr. 26, 1960

2,933,754

GLIDE CASTER

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Application May 7, 1957, Serial No. 657,607

1 Claim. (Cl. 16—42)

This invention relates generally to glide shoes or casters of the type adapted to support a load on a floor surface.

While the glide or shoe of the present invention has been primarily developed and employed for use in conjunction with articles of furniture, and will be illustrated and described hereinafter with particular reference thereto, it is appreciated that the subject device is capable of many and varied applications, all of which are intended to be comprehended herein.

As is well known to those versed in the furniture industry, a problem exists in the use of conventional casters or glides where it is necessary that the caster accommodate to both angular dispositions of the respective furniture legs, and the relative levels and possible inclinations of the floor areas upon which the shoes or casters rest. For example, in the modern trend to splay legged articles of furniture, as where the legs may all diverge from each other, it is extremely difficult if at all possible to provide a glide caster which is adaptable for securement to the variously disposed legs and adjustable for firm seating on the floor surface, regardless of its out-of-level variations.

Accordingly, it is an important object of the present invention to provide a glide shoe or caster which overcomes the above-mentioned difficulties, being capable of securement to an article of furniture at any angular disposition and readily adjustable for firm bearing engagement with the supporting floor surface under all conditions of use.

It is another object of the present invention to provide a glide shoe or caster having the advantageous characteristics mentioned in the preceding paragraph, which is adapted for quick and easy application to an article of furniture or other load, and capable of being properly adjusted thereon, even by totally inexperienced persons, say the ultimate purchaser of the article.

It is a further object of the present invention to provide a glide shoe or caster of the type described which is extremely simple and sturdy in construction, being capable of a long useful life, which requires a minimum of parts, and is adapted to be manufactured and sold at reasonable cost.

Other objects of the present invention will become apparent upon reading the following specification and referring to the accompanying drawings, which form a material part of this disclosure.

The invention accordingly consists in the features of construction, combinations of elements, and arrangements of parts, which will be exemplified in the construction hereinafter described, and of which the scope will be indicated by the appended claim.

In the drawings:

Figure 1 is a top perspective view illustrating an article of furniture employed in conjunction with glides or shoes constructed in accordance with the present invention;

Figure 2 is a perspective view showing the elements of a glide shoe of the present invention in exploded condition;

Figure 3 is a longitudinal sectional view showing a glide shoe or caster of the instant invention secured to a furniture leg, and illustrating in dot-and-dash outline an alternate position of the glide;

Figure 4 is a transverse sectional view taken substantially along the line 4—4 of Figure 3; and

Figure 5 is a partial sectional view taken substantially along the line 5—5 of Figure 4.

Referring now more particularly to the drawings, and specifically to Figure 1 thereof, there is illustrated therein an article of furniture, generally designated **10**, which may assume the form of a splay legged table having four legs **11**, all diverging downward away from each other. On the lower end of each leg **11** is secured a glide shoe or caster, generally designated **12**, of the present invention.

In Figure 3 it is seen that each leg **11** may be provided with an internally threaded tubular bushing or lining **15**, which is arranged longitudinally within and opens downward from the lower end of the respective leg.

The glide or caster **12** includes a base **17** which may be a generally frusto-conical body, as illustrated, or of other desired configuration, preferably having lower and upper surfaces **18** and **19** respectively. The base **17** may advantageously be fabricated of plastic, or other suitable material, and is formed with a recess **20** extending inward or downward through the upper face **19**, and terminating at its lower region spaced from the underside **18** of the body **17**. More specifically, the recess **20** is of generally spherical internal configuration and opens upwardly from the upper base surface **19** through a generally circular opening **21**. Further, at least one, and preferably a pair of opposed grooves **22** are formed in the body **17**, internally of the recess **20**, each extending downward toward the lower region of the recess. Further, each of the interal grooves **22** opens upward or outward through the upper base surface **19**, as best seen in Figure 2.

An elongate attachment member **25** includes a shank or rod **26** provided with external screw threads formed adjacent to one end, and is provided on its other end with an enlarged head **27** of generally spherical external configuration. The ball-like head **27** is preferably arranged having its center coaxial with the shank **26**.

At least one, and preferably a pair of diametrically opposed lugs **28** project rigidly from the enlarged head **27** of the attachment member **25**. That is, the number of lugs **28** correspond to the number of grooves **22**, for reasons appearing presently. As best seen in Figure 3, the lugs or projections **28** preferably extend normal to the shank **26**. It is also there seen that the enlarged head **27** of the attachment member **25** is substantially conformably received in the base recess **20**, while the lugs **28** are respectively received in the grooves **22**. By this arrangement, the head **27** is rotatable in substantially all directions about its center, and the lugs **28** are movable along and within their respective grooves **22**.

An annular member, eyelet or grommet **30** includes a generally tubular skirt **31** and an annular, laterally outstanding flange **32** on the upper end of the skirt **31**. The skirt is preferably formed with notches or cut-outs **33** corresponding in number and location to the grooves **22**. After the enlarged head **27** of the attachment member **25** is inserted into the recess **20**, with the lugs **28** received in the grooves **22**, the annular grommet **30** is passed over the shank **26** and its skirt **31** caused to enter the recess opening **21**. The skirt notches **33** are in registry with the recess grooves **22**. Upon continued inward insertion of the grommet skirt **31** into the recess **20**, until the flange **32** seats on the upper base surface **19** surrounding the recess opening, the skirt will be deformed outward into substantial engagement with the undercut adjacent internal surface of the recess, to thereby retain the grommet **30** in position bounding the recess opening **21**. The grommet in turn serves to retain the head **27** in the recess **20** while

permitting the above-described rotation of the head, and the grommet flange 32 overlies and closes the upper ends of the grooves 22 to prevent withdrawal of the lugs 28 from the grooves. That is, the lugs 28 are movable in the grooves 22, and also in the grommet notches 33, but are engagable with the end edges of the grommet notches or with the grommet flange 32 to limit their upward movement and hold the lugs in the grooves.

It will now be appreciated that the recess 20 of the base 17 defines a socket in which the enlarged head 27 is universally rotatable about its center, except in a direction normal to the grooves 22. That is, the ball or head 27 is universally rotatable in its socket 20 except about an axis in the plane of the grooves 22 and normal to the lugs 28; and conversely, the base or body 17 is universally rotatable about the enlarged head 27 except in a direction normal to the grooves 22, or stated otherwise, about an axis lying in the plane of the grooves and normal to the lugs 28. Of course, the shank 22 is swingable to any desired inclination upon this rotative movement of the head 27 in its socket 20.

When it is attempted to turn the base 17 about an axis lying in the plane of the grooves 22 and normal to the lugs 28, it is apparent that the base and attachment member 25 will turn as a unit about this axis. Hence, the glide shoe or caster 12 may be attached to the leg 11 by insertion of the threaded end of shank 26 into the bushing 15, and manually or otherwise effecting the above-decribed unitary rotation of the device. By this means the shank 26 may be inserted into the leg 11 to any desired extent; and, as the base 17 is adjustable relative to the shank 26, and consequently relative to the leg 11, to any desired angular disposition, it is understood that the device may be adjusted to have its undersurface 18 firmly rest upon a floor area of any level or inclination. Of course, the remaining glides or casters 12 may be similarly adjusted and the article 10 thus firmly supported on any floor surface.

From the foregoing, it is seen that the present invention provides a glide caster or shoe which fully accomplishes its intended objects and is well adapted to the practical conditions of manufacture and use.

Although the present invention has been described in some detail by way of illustration and example for purposes of clarity of understanding, it is understood that certain changes and modifications may be made within the spirit of the invention and scope of the appended claim.

What is claimed is:

A glide shoe comprising a body having a generally flat undersurface for engagement with the floor and provided in its upper side with an upwardly opening recess, a generally spherical head snugly inserted in said recess and slidably rotatable therein in substantially all directions, a threaded shank projecting from said head exteriorly of said recess for swinging movement with said head, said body being formed internally of said recess with a pair of opposed grooves each extending generally downward opening through the upper side of said body and terminating at a closed end spaced above the lowermost region of said recess, a pair of lugs projecting oppositely from said head respectively into said grooves and movable therealong upon rotation of said head in said recess about an axis transverse of said lugs, said lugs and the closed ends of said grooves being located for engagement of each lug with the closed end of its receiving groove to limit upward movement of the other lug to a position within the receiving groove of the other lug, said lugs being engageable with the sides of said grooves to limit rotation of said head relative to said body, an annular skirt depending into and extending peripherally about said recess adjacent to the upper side of said body, said skirt being cut out in registry with said grooves for receiving said lugs, and a flange extending about the upper region of said skirt seated on the upper side of said body and closing the upper ends of said grooves.

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