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RUBBER CUSHIONED GLIDE

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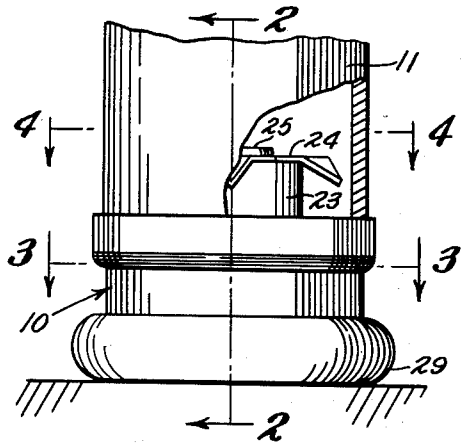
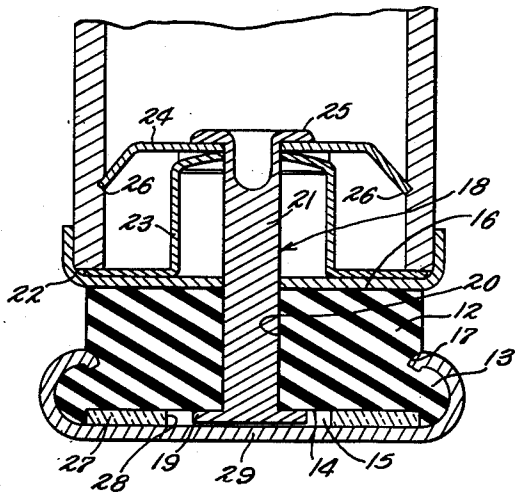


Fig. 1

Fig. 2



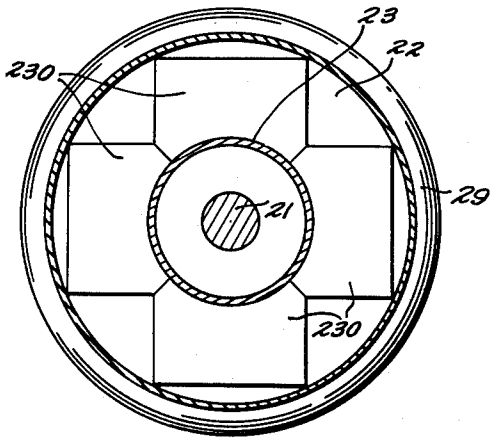


Fig. 3

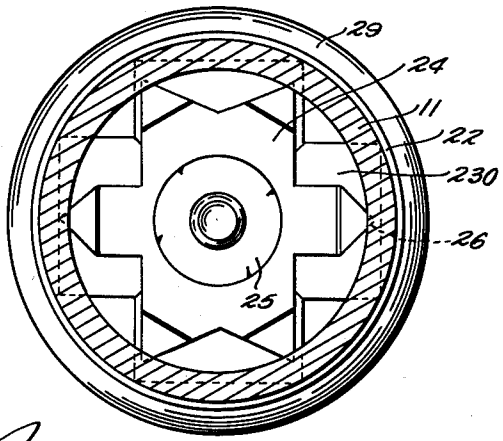


Fig. 4

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RUBBER CUSHIONED GLIDE

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2 Claims. (Cl. 16—42)

The present invention relates to rubber cushioned glides, such as are used on the ends of tubular furniture legs, and has for an object the provision of a glide that is easily applied and which is especially arranged and constructed to assure non-removable mounting and to successfully resist destruction by transient users of the furniture who sometimes mischievously employ remarkable skill and brute strength in endeavoring to remove or to damage the furniture glides.

Another object of the invention is to provide a device of the class described which affords long and efficient service and safety in use.

These and other objects are attained by the means described herein and exemplified in the accompanying drawings, in which:

Fig. 1 is an elevational view, partly broken away and shown partly in section showing a rubber cushioned glide of the invention operatively connected to a tubular metal furniture leg.

Fig. 2 is a cross sectional view taken on line 2—2 of Fig. 1.

Fig. 3 is a cross sectional view taken on line 3—3 of Fig. 1.

Fig. 4 is a cross sectional view taken on line 4—4 of Fig. 1.

The use of caps or glide shoes on the ends of the metal tubular legs of furniture has been subject to numerous efforts and arrangements to save the surface of the floor, to render the furniture easily movable thereover, to suppress noise occasioned by such movement and to provide for safe tilting of the furniture in the routine use thereof. In ice cream parlors, taverns and the like the tubular metal furniture is at times roughly used and is occasionally subjected to mischievous pranks of patrons who seek to remove one or more of the glides from a chair or table and thus render it unstable. The maintenance of tubular metal furniture in some locations is a costly and vexatious problem that has not heretofore been satisfactorily solved.

The device of the present invention affords the maximum in the cushioned self-leveling, quiet, and safely tiltable features afforded by high quality rubber cushioned furniture glides and at the same time effectively resists any and all attempts to forcibly detach the device or destroy it without the use of suitable tools.

The device **10** as illustrated is constituted of a preassembled unit which is subject to application to a tubular leg **11** by driving it in place with a hammer or the like without danger of distortion of its parts to render them ill fitting and with assured conformation of the elements of the device to the respective exterior, interior and bottom edge portions of the tubular leg to which it is applied.

The rubber cushioned glide of the invention comprises an axially bored cushion body **12** having a peripheral enlargement or bead **13** surrounding it at the lower end of its outer cylindrical face and depending a short distance below the bottom **14** to provide in the bottom of

the cushion a shallow recess **15** of a diameter approximating that of the top **16** of said cushion. A circumferential groove **17** encircles the cushion body **12** immediately above the top of bead **13** and thus overhangs the inner periphery of recess **15**.

A tubular ended rivet, indicated generally by the reference numeral **18**, has a flat head **19** seated on the bottom **14** of the cushion **12** surrounding the open end of the axial bore **20** in the cushion while the shank **21** of the said rivet extends upward through said bore. The thickness of the rivet head **19** is less than the depth of recess **15** in the cushion bottom.

Secured on the top **16** of the cushion, in the order named, are a drive cap **22**, an outwardly flanged dome **23** and a stiff, resilient and sharp pronged washer **24**. The tubular end is turned over at **25** on top of washer **24** and securely mounts the latter on top of dome **23**. The dome may have its flange formed of a plurality of angularly disposed parts **230**, as illustrated, but in any event however formed and shaped the flange seats on the interior flat bottom of cup **22** and is substantially self-centering within the circumferential side wall of said cup. By reference to Fig. 2 it will be noted that the end of the prongs of washer **24** are downturned and outwardly inclined with the points **26** at an elevation above the level of the cup **22** and below the top of dome **23**.

Seated in and snugly filling a wide peripheral margin of the bottom recess **15** in the cushion is a rigid washer **27** which washer is thicker than rivet head **19** and has a center opening **28** of appreciably greater diameter than that of the head.

A cup shaped glide shoe **29** seats on the bottom face of washer **27** and has its side turned upwardly around bead **13** and inwardly into the groove **17** of the cushion body and is tightly crimped to compress and rigidify the bead **13** and an inwardly adjacent marginal portion of the cushion that is disposed between the top face of washer **27** and the overhanging rim of the glide shoe in the groove **17** above the washer **27**. It will be observed that the cushion body is under very little compression in the horizontal zone between the bottom of drive cap **22** and the level of the top of the inturned edge of the glide shoe when the piece of furniture of which leg **11** is a part, is under little load; and further that there is in fact a small air cushion space formed within the interior of opening **28** in washer **27** surrounding the sides and major face of the rivet head into which space some of the cushion body may be forced when sufficient pressure is applied.

The application of the rubber cushioned furniture glide to the squarely cut off end of a metal tube such as **11** is quickly effected by turning the open hollow end of the tube upwardly and entering the tapering or inclined face of resilient washer **24** into the opening in the leg whereupon the completely preassembled device **10** will assume a self-adjusted position. A sharp blow with a hammer or mallet on the polished bottom exterior face of the glide shoe will effect a sufficient compression of the unconfined part of the cushion to transmit the force of the blow to the rivet and flex the prongs of washer **24** to enter the points inside the hollow interior of the leg **11**. One or more further hammer blows will now force the hollow open end of drive cap **22** in tight frictional binding relation with the exterior circumferential face of leg **11** and incidentally effect a compensating enlargement or spreading of the flange of said cap to justify it with any variation in permissible wall thickness or outside diameter of said tube **11**. At the same time the prongs of washer **24** are resiliently accommodating the points **26** thereof to the inner surface of tube **11** so that said surface is but lightly scored by the points while the device is being driven inwardly until the end edge of tube **11** seats on the flange portion **230**.

From the foregoing and from an inspection of Fig. 2 it will be noted that when the glide shoe is resting on the floor, when the furniture is in use, any directly downwardly acting load will be cushioned by the horizontal section of body 12 which is circumferentially exposed and by the concealed and connecting inner portion below which is not rigidified and permanently compressed by the washer 27 and the crimped flange of the glide shoe. The tilting of a chair or the like on one or two legs such as 11 will admit of localized compression of the free cushion material and a degree of deformation thereof while the shank and head of the rivet maintain a position unchanged with respect to the leg but effecting some localized internal deformation of the interior of the cushion body. Any sudden heavy impact downwardly on the leg 11 will not be immediately transmitted through the rivet head to the center of glide shoe resting on the floor. Nor will the pulling of a chair or table, equipped with the devices, over an irregular hard floor surface set up any harsh metallic chatter. The long life and continued efficient functioning of the device under all normal or probable conditions of use are thus provided for in the structural arrangement and relationship of the parts.

The aforementioned arrangement and relationship of the parts not only enables the devices to be initially applied with ease and dispatch but it serves to non-removably secure each device to an end of a hollow tubular member in a manner that will withstand separation and loosening under both normal and rough handling of the furniture, and it will effectively resist attempts to deliberately remove or damage the device. It has been generally and specifically provided in hitherto known and used glides for a proper use of furniture supplied with such glides that the glides are removably attached to the legs or that no effective arrangement was provided to prevent removal or destruction of the glides. However, in the construction and arrangement of the devices of this invention, the use of brute strength is ineffective because there is no way of simultaneously displacing the leg securing means because of the cooperative reaction of drive cap 22, dome 23, pronged washer 24 and rivet 21 against external forces however applied. Cap 22 cannot be either independently distorted or sufficiently exposed at the free edge of the rim to enable a mischievously active person to get a successful purchase or bite thereon with the edges of the soles of the shoes. Similar efforts directed onto the smooth arcuate rim surface of the glide shoe 27 are likewise frustrated and, due to the peripheral zone of rigidification inwardly of the shoe and the support afforded at the bottom center of the cushion by the head of the rivet it is impossible to tear the cushion body or to distort it in the critical area so as to locally displace the rubber from the shoe for removing the latter. The devices once applied have proved to be definitely non-removable by variously designed tests of force and skill. Only by the use of proper metal cutting tools is it possible to remove the devices and then only by piecemeal destruction.

What is claimed is:

1. In a rubber cushioned furniture glide the combination of a yieldable cushion body having a peripheral bead around the exterior side wall at the bottom and provided with a peripheral groove above and immediately adjacent the bead and further having in the bottom of said cushion a shallow recess of a diameter approximating that of the top of the cushion, a rigid washer seating with its top face and outer edge in contact with the bottom and inner edge of the recess and having its bottom face flush with the bottom of the bead, a rivet extending upwardly through the center axis of the cushion body and provided with a head passing freely in non-contacting relation through the enlarged center opening of the washer and seating directly on the bottom of the cushion body, a metal glide shoe seating on the bottom of the washer and bead and extending in rigidly crimped relation upwardly around the exterior of the bead and into the peripheral groove for compressing the bead and an adjoining marginal portion of the cushion against the periphery and a top marginal face of the washer, and means connected to the top of the cushion by the rivet for securing the device to a tubular leg and for rigidly retaining the rivet concentric with said leg.

2. The combination as set forth in claim 1 and characterized by the fact that the leg securing means is constructed and arranged for non-removable mounting on the end of a tubular metal leg and said securing means includes an upwardly open drive cap seated on top of the cushion for drive fit connection with the exterior wall of the leg, an outwardly flanged dome seating in the bottom of the drive cap and retained concentrically in the cap by said flange, said dome adapted to be fixedly positioned concentrically within the tubular leg by the clamping of the flange between the bottom edge of the leg and the flat interior bottom of the cap and a resilient washer mounted on the dome and having hardened resilient prongs turned diagonally downwardly toward the top rim of the drive cap, the upper end of the rivet passing through the bottom of said cap, the top of the dome and said pronged washer and turned over on top of the latter for rigidly retaining the rivet immovably concentric with the cap and dome.

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