Sept. 16, 1958 A. J. MATTER 2,851,820

TABLE LEG ADJUSTER WITH TAMPER PROOF COVER

Filed April 29, 1957

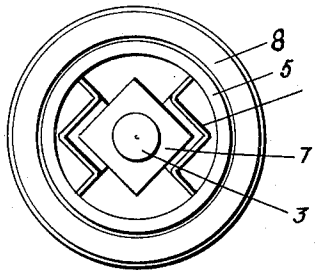


Fig. 1

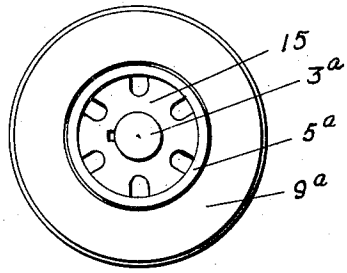


Fig. 4

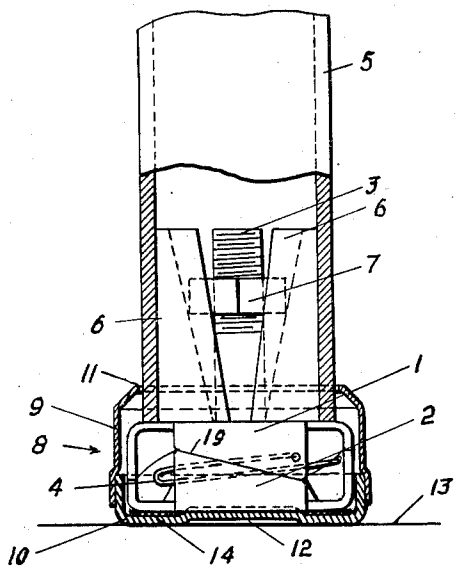


Fig. 2

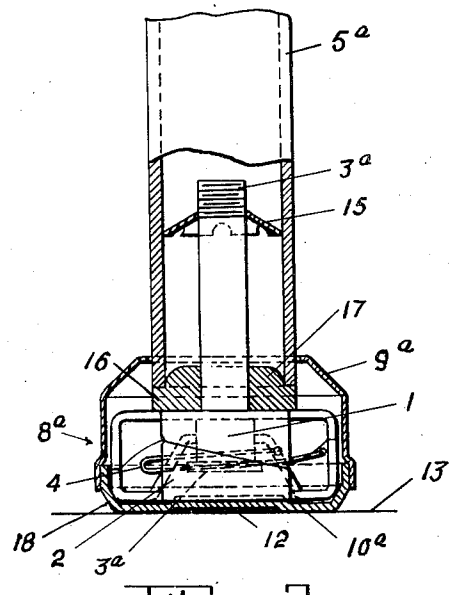


Fig. 3

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TABLE LEG ADJUSTER WITH TAMPER PROOF COVER

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9 Claims. (Cl. 45—139)

In my Patent No. 2,682,131 I have disclosed an automatic table leg adjuster adapted to be attached as a downward extension of the leg. It is easy to attach and detach these devices and so they are a temptation to vandals seeking to do damage. This has militated against the use of these adjusters in school rooms, for example, where vandalism frequently occurs.

The present invention has for its primary object to protect the aforesaid adjusters so that they cannot be removed without the use of special tools.

In carrying out my invention I enclose the adjuster proper in a casing or cover which effectively seals the same and its connection with the table leg or the like, although permitting the adjuster to function in the normal, intended manner. The cover may be adapted to protect other adjusters, where desired.

Therefore, viewed in one of its aspects, the present invention may be said to have for its object to create a novel, tamper-proof cover for any automatic table leg adjuster.

The various features of novelty whereby the present invention is characterized will hereinafter be pointed out with particularity in the claims; but, for a full understanding of the invention, its objects and advantages, reference may be had to the following detailed description, taken in connection with the accompanying drawing, wherein:

Fig. 1 is a top plan view of a tubular table leg provided with an automatic adjuster housed in a tamperproof cover.

Fig. 2 is a view, partly in elevation and partly in section, of the structure appearing in Fig. 1.

Fig. 3 is a view similar to Fig. 1, but the tubular leg being smaller in diameter and the means for attaching the adjuster thereto being different.

Fig. 4 is a view similar to Fig. 2, showing the structure appearing in Fig. 3.

Referring to Figs. 1 and 2 of the drawing, 1 is a circular base member, 2 a cooperating, circular shoe, 3 a stem or screw and 4 a C-spring connecting the shoe to the base. These four elements may be identical with the corresponding elements in the aforesaid patent; except that the screw or stem is longer because it extends well up into a tubular table leg 5. Within this leg are a pair of W-shaped spreaders 6, 6 between which is interposed a nut 7, screwed onto the stem, to secure the adjuster to the leg. These attaching means are the same as in my Patent No. 2,687,547.

The body portion of the adjuster, namely base 1 and shoe 2, is slightly larger in diameter than the table leg. Therefore, when the base is pulled tightly against the lower end of the tube, a marginal portion of the base forms an annular ledge surrounding the latter.

In accordance with the present invention I add to the old structure just described, a round cover 8 which completely encloses the lower end of the tube and all parts of the adjuster below the tube. This cover preferably consists of an upper deep, inverted cup-shape section 9

and a lower pan-shaped section 10 which is a press fit within the lower end of the upper section. The top of section 9 has an open center 11 slightly larger in diameter than tube or leg 5. Since the vertical dimension of the body of the adjuster varies with changes in the relative angular positions of the base and the shoe, the vertical dimension of the cover must be at least as the maximum thickness that may be achieved by the body member of the adjuster. In the drawing the top of the cover is well above the top of base 1. If the shoe 2 is now turned toward the right the base must rise, and sufficient space is provided in the cover to permit such rise. Because the marginal part of the top of the cover surrounding the open center 11 overlies a corresponding marginal portion of base 1, the cover cannot fall off.

To install the adjuster on the leg, the upper section 9 of the cover is first slipped onto the leg and then the stem of the adjuster and the spreaders 6 are inserted in the tube and securing of the adjuster proceeds in the conventional way. After the adjuster has been attached to the leg, the lower section 10 of the cover is forced under heavy pressure into the upper section. Thereafter the cover cannot be removed except by using special tools. And, by making the cover of steel, it cannot easily be destroyed and is therefore tamper proof.

After a covered adjuster has been attached to a table leg the shoe rests on the bottom of the lower section of the cover. Therefore, since it is necessary for the shoe to turn as a table, for example, is moved over a floor 13, the bottom wall of the cover must turn with the shoe to achieve automatic adjustment. I therefore provide means to create sufficient friction between the shoe and the bottom of the cover to cause the latter to act as though it were a part of the shoe.

In the arrangement shown, the bottom wall of the cover is pressed upwardly to form a central concavity 12 of considerable diameter. In the annular valley thus formed within the cover, surrounding the bulge created by the deformation resulting in said concavity, I place a washer-like piece of fiber 14, or other suitable material, which serves as the immediate support for the shoe. Thus the friction between the shoe and the underlying cover element is greater than the friction between that element and the floor and the automatic adjuster will operate in the same way as it would without a cover.

In Figs. 3 and 4 the tube 5^a is smaller in diameter than tube 5, but the automatic adjuster is the same as in Figs. 1 and 2, except as to the means for attaching it to the tube. Instead of the spreaders 6 in the other form, I employ an "umbrella" type of fastener screwed onto stem 3^a. Also, on top of base 1 and surrounding the stem is a thick rubber-like washer 16 engaged with the end edge of the tubular leg and provided with a central boss or hub 17 that fits into the leg and centers the adjuster. The cover is substantially the same as in the other form, except that the bottom of the lower section 10^a is joined to the cylindrical part by an inverted frusto-conical part 18 of such size that the edge at the juncture of the bottom and side walls of the shoe rests on this frusto-conical part about midway down the slope. I have found that with a slope making an angle of about 30° from the vertical the cover takes a good grip on the shoe and the automatic action remains undiminished by reason of cover.

When assembling the adjuster and its cover on the leg, the stem and the fastener thereon are pushed up into the leg until the base contacts the washer 16. Then the stem may be turned to draw the washer and fastener toward each other, the fastener biting into the surrounding leg and the washer being compressed. Or the stem and fastener may be driven up forcibly until the washer

is compressed sufficiently to exert a downward pull on the fastener, causing the latter to flatten somewhat.

Since the automatic adjuster illustrated is old and well known it does not seem necessary to describe it in detail. It should be noted, however, that after the adjuster is installed the base and the stem remain stationary, whereas the shoe can rotate about and move up and down on the stem; the spring tending constantly to hold the shoe at one limit of its angular movement, namely in that position in which the cam surfaces **19** between the base and the shoe have raised the base to its highest elevation above the floor.

During use of the automatic adjusters illustrated, the only forces tending to turn the stem are in a screw-tightening direction. Should a tamperer attempt to unscrew the stem by grasping the cover and turning it in the direction tending to unscrew it, no harm would result; the resistance offered by the engaged friction surfaces on the shoe and cover being too weak to transmit to the shoe a sufficiently powerful force to affect the stem.

I claim:

1. The combination with an automatic table leg adjusting unit that includes a device comprising a shoe member and a base member above the latter, the base member being adapted to be attached to the lower end of a leg and the shoe member being rotatable and vertically movable with respect to the base member, thereby to vary the vertical dimension of the device according to variations in the relative angular positions of said members: of a cover which consists of a casing loosely surrounding said device and having at the top an opening through which such leg may extend, the casing also having a bottom that underlies said shoe, the height of the casing being at least as great as the greatest height to be achieved by said device while in use, the upper end of the cover being shaped to overhang marginal portions of the base member, and cooperating elements on the shoe member and the bottom portion of the cover to cause the cover to turn with the shoe during automatic adjustment movements of the shoe when in use.

2. A combination as set forth in claim 1, wherein the bottom of the cover has a concave under surface to cause the cover to engage an underlying flat surface only through an annular area surrounding the concave surface.

3. A combination as set forth in claim 1, wherein the cooperating elements that cause the cover to turn with the shoe are in frictional engagement with each other to create a friction drive for the shoe.

4. A combination as set forth in claim 3, wherein the bottom wall of the cover merges into the side wall through an inverted frusto-conical section, and wherein the diameter of the bottom of the shoe is somewhat greater than the smallest diameter of the frusto-conical section and smaller than the greatest diameter of the latter.

5. A combination as set forth in claim 1, wherein a friction disc is interposed between the shoe and the bottom wall of the cover.

6. A combination as set forth in claim 1, wherein the cover comprises an upper section in the form of an inverted cup and a lower pan-shaped section which is a pressed fit in the lower end of the cup.

7. In combination, an automatic table leg adjuster that includes a circular device comprising a shoe and a base above the shoe, a stem extending through the base and adapted to extend up into the lower end of a tubular leg smaller in diameter than said device for clamping the base against said leg, the shoe being rotatable and vertically movable on the stem, thereby to vary the vertical dimension of said device as variations in the relative angular positions of the base and shoe occur, a cover loosely surrounding said device and having in the top an opening through which such leg may extend, the cover also having a bottom that underlies said shoe, the height of the cover being at least as great as the greatest height to be attained by the device during use, the upper part of the cover being shaped to overhang marginal portions of the base, and cooperating elements on the shoe and the bottom of the cover to cause the cover to turn with the shoe during automatic adjustments of the adjuster during use.

8. A tamper proof cover for an automatic table leg adjuster comprising a member adapted to be fixed to the lower end of a table leg and an element connected with said member so as to be vertically movable thereon, said member being shaped to provide below the leg a protruding ledge; which consists of a cover adapted loosely to surround said device and having in the top an opening through which such leg may extend and which is surrounded by a marginal portion of said top that overhangs the ledge and prevents the cover from falling off.

9. A cover as set forth in claim 8 which is composed of an upper section and a lower section, one of which is a pressed fit in the other.

No references cited.