UNITED STATES PATENT OFFICE.


Extensible Curtain-Roller.

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To all whom it may concern:

Be it known that I, John Levan, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Extensible Curtain-Rollers, of which the following is a specification.

My invention relates to extensible rollers for curtain shades and the like and has for its object the provision in such rollers of exceedingly simple and efficient means for locking the roller members in longitudinally adjusted relation.

With this object in view and looking to low cost of manufacture I provide one of the telescopic members with a longitudinal slot and mount in said slot for angular movement a locking member such as a screw or bolt having an elongated cross-section of which the larger diameter is greater than the width of the slot whereby upon the angular movement of such expanding member the sides of the slot are forced apart and the walls of such telescopic member are expanded radially into frictional locking engagement with the walls of the other telescopic member.

The invention as thus outlined and hereinafter claimed will be readily understood from the following detailed description of preferred and modified embodiments of the same, having reference to the accompanying drawings wherein similar reference numerals designate corresponding parts throughout and in which:

Figure 1 is a broken side elevation of a curtain roller embodying my invention. Fig. 2 is a similar view partly in longitudinal section. Fig. 3 is an elongated fragmentary transverse section showing the expanding member in operative relation. Fig. 4 is a transverse section on the line 4-4 of Fig. 1. Fig. 5 is a similar section on the line 5-5 of Fig. 1. Fig. 6 is a detailed perspective of the expanding member, and Fig. 7 is a view similar to Fig. 4 showing a slightly modified construction.

Having reference to the drawing, 10 designates one member of the shade roller within which member is disposed the usual winding spring and ratchet and pawl mechanism not shown, while 11 designates the other telescopic member of the shade roller having a reduced portion 12 adapted to slide within the member 10 and formed integral with or permanently secured to and constituting a part of the inner telescopic member. The inner telescopic member is provided throughout the extent of its reduced portion 12 with a longitudinal slot 13 of which the sides 14 are preferably depressed as shown, while the entrance to the slot at the inner end of the member 12 is flared at 15 as shown. The longitudinal extent of the reduced portion 12 is sufficient to provide for telescopic movement of the parts within a range adapting the same for adjustment to fit windows of different width and the diameters of the two telescopic members are such that the slotted portion of the inner member slides snugly but freely within the outer member so that they may be readily adjusted telescopically.

The inner end of the member 10 is provided with a counter-sunk aperture corresponding to and fitting within the counter-sunk or depressed sides 14 of the slot. Within the counter-sunk aperture is mounted the frusto-conical head 17 of the locking member which is provided immediately below the head with a stem 18 of elongated cross-section, preferably rectangular as shown in Fig. 6. At the lower end of the stem 18 is formed a button 19 preferably cylindrical as shown in said figure. The diameter of the button 19 is substantially the same as the diameter of the aperture 16 and slightly less than the greatest diameter of the head 17 so that the said expanding member is readily inserted through the aperture 16 to a position with the button and stem depending within the tubular member 10. The smaller diameter of the stem 18 is substantially the same or slightly less than the width of the slot 13, while the larger diameter of said stem is slightly greater than the width of the slot 13. When the expanding member is disposed as described within the aperture of the curtain member 10 with the larger diameter of its stem extending longitudinally of the roller, the roller member 12 may be inserted within the member 10 the stem 18 entering the slot 13 without engagement with the sides thereof. When the two roller members have been adjusted to the proper length to fit between the brackets of a particular window the expanding member is angularly turned by means of a suitable tool engaging the slit 20 whereby...
the larger diameter of the stem is brought to a position at right angles to the slot 15 and its width being greater than that of the slot the walls of the inner curtain member are expanded to frictionally engage the walls of the outer member 10. If the stem 18 is rectangular in cross-section it will be obvious that the largest diameter of the same is upon a diagonal line connecting opposite corners whereby it will be understood that in order to turn the stem cross-wise of the slot as shown in Fig. 1 the greatest expansion will occur at an intermediate position of the expanding member when the same is arranged diagonally of the slot and that when brought to the position shown in Fig. 4 the resiliency of the inner member will cause the same to spring back slightly and thus prevent accidental angular movement of the expanding member, as the walls of the slot will resist the turning movement of the expanding member back to its original position.

It will be noted that by reason of the button 19 provided on the lower end of the expanding member it is impossible for the same to become dislodged from the aperture 16 while the members are in telescopic relation, whereas when they are pulled apart the expanding member may be readily removed from the outer member 10 through the aperture 16.

In Fig. 7 is shown a slightly modified arrangement in which the slot 21 of the inner member and the aperture 22 of the outer member are not depressed or counter-sunk. As shown in this figure the button 23 is not cylindrical but is rectangular in cross-section and formed similarly to and at right angles to the stem 24. In this case the expanding member may be removed by turning through an angle of 90 degrees to bring the button 23 into alinement with the slot 21 and aperture 22. It will be noted that when the larger diameter of the stem 21 is in alinement with the slot so as to permit adjustment of the members the button 23 expands transversely of the slot so as to prevent withdrawal and when the stem 24 is turned transversely of the slot to expand the inner member the button 23 expands longitudinally of the slot but withdrawal is prevented by the frictional engagement between the edges of the slot and the stem 24. Obviously the elongated rectangular button 23 of Fig. 7 can be used in connection with the depressed slot and counter-sunk portion of preferred construction shown in the other figures.

It will be understood that in both forms of the invention illustrated and described, a double locking action takes place due to the frictional engagement of the expanded walls of the inner member with the rigid walls of the outer member and also to the direct engagement between the non-circular stem and the sides of the slot. By reason of this latter action, the locking of the parts will result upon the turning of the locking member even though the inner roller member be inextensible, as the stem will bite into the sides of the slot and thus prevent longitudinal displacement.

I claim—

1. An extensible curtain roller comprising in combination telescopically arranged members, one member slotted, and a locking device having a stem of elongated cross-section disposed within the slot and angularly adjustable therein, the elongated cross-section of the stem greater than the normal width of the slot whereby to act upon the sides of the slot to vary the diameter of the slotted member to frictionally engage the other member, substantially as described.

2. An extensible curtain roller comprising in combination telescopically arranged members, the inner member slotted longitudinally, and a locking device having a stem of elongated cross-section disposed within the slot and angularly movable therein, the elongated cross-section of the stem greater than the normal width of the slot whereby to act upon the sides of the slot to expand the slotted member into frictional engagement with the other member, substantially as described.

3. An extensible curtain roller comprising in combination telescopically arranged members, the inner member slotted longitudinally, and a locking device mounted in the outer member and having a stem of elongated cross-section disposed within the slot and angularly movable therein, the elongated cross-section of the stem greater than the normal width of the slot whereby to act upon the sides of the slot to expand the slotted member into frictional engagement with the other member, substantially as described.

4. An extensible curtain roller comprising in combination telescopically arranged members, one member slotted, and a locking device carried by the other member and having a stem of elongated cross-section disposed within the slot and angularly adjacent therein, the elongated cross-section of the stem greater than the normal width of the slot whereby to act upon the sides of the slot to lock the members against longitudinal displacement, substantially as described.

5. An extensible curtain roller comprising in combination telescopically arranged members, the inner member slotted longitudinally, and a locking device carried by the outer member and having a stem of elongated cross-section disposed within the slot and angularly movable therein, the elongated cross-section of the stem greater than
the normal width of the slot whereby to act upon the sides of the slot to lock the members against longitudinal displacement, substantially as described.

6. An extensible curtain roller comprising in combination telescopically arranged members, the inner member slotted longitudinally, and a locking device mounted in the outer member and having a stem of elongated cross-section disposed within the slot and angularly movable therein, said locking device also having upon the end of the stem a button, the smaller cross-section of the stem less than the normal width of the slot and the elongated cross-section of the stem greater than the normal width of the slot whereby to act upon the sides of the slot when angularly moved to lock the members against longitudinal displacement, substantially as described.

7. An extensible curtain roller comprising in combination telescopically arranged members, the inner member slotted longitudinally, the outer member having an aperture in one wall, and a locking device comprising a head portion mounted in the aperture and having a stem of elongated cross-section disposed within the slot and angularly movable therein and also having a lower button of diameter less than the aperture and greater than the width of the slot, the elongated cross-section of the stem greater than the normal width of the slot whereby to act upon the sides of the slot to expand the slotted member into frictional engagement with the other member, substantially as described.

8. An extensible curtain roller comprising in combination telescopically arranged members, the inner member provided with a depressed longitudinal terminal slot and the outer member provided with a counter-sunk aperture in one wall adjacent its end, and a locking device comprising a slitted head portion mounted in the counter-sunk aperture and having a stem portion of elongated rectangular cross-section and also having a lower button of diameter less than that of the aperture and greater than the normal width of the slot, the stem of the locking member disposed within the slot and angularly movable therein, the elongated cross-section of the stem greater than the normal width of the slot whereby to act upon the sides of the slot to expand the slotted member into frictional engagement with the other member, substantially as described.

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Witnesses:

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