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CONTROL MECHANISM FOR ROLLER SHADES OR AWNINGS

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Fig. 1

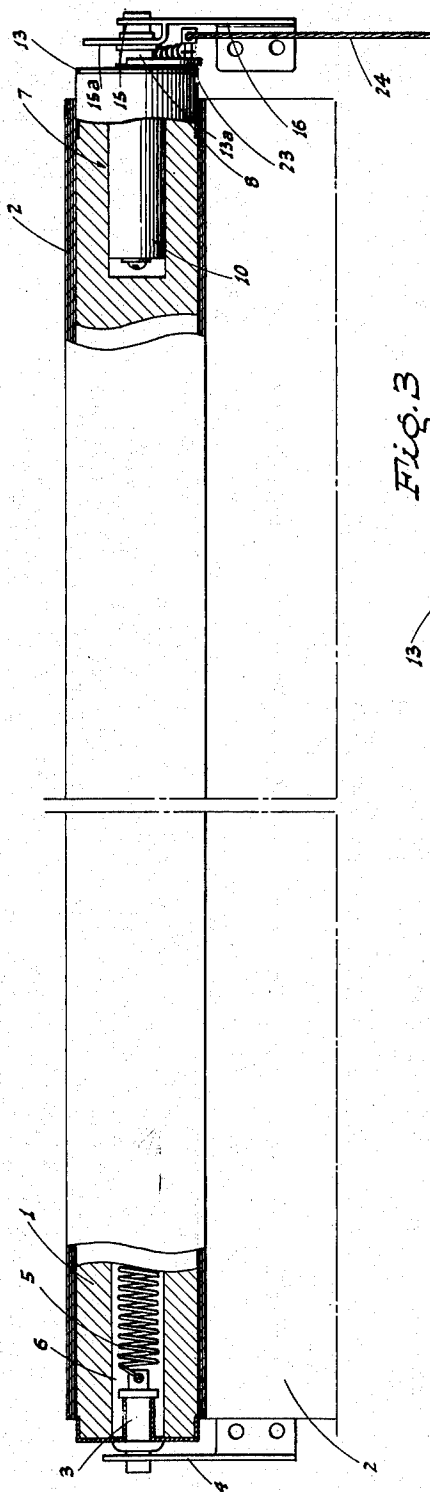


Fig. 2

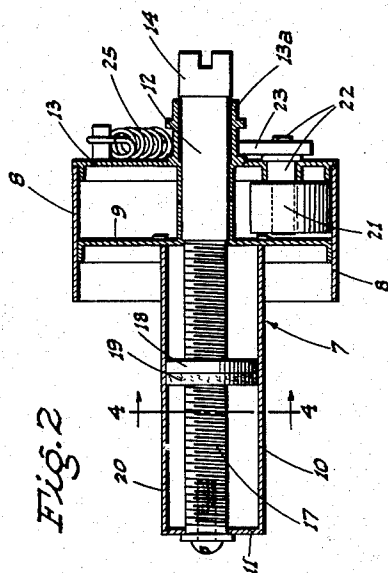


Fig. 3

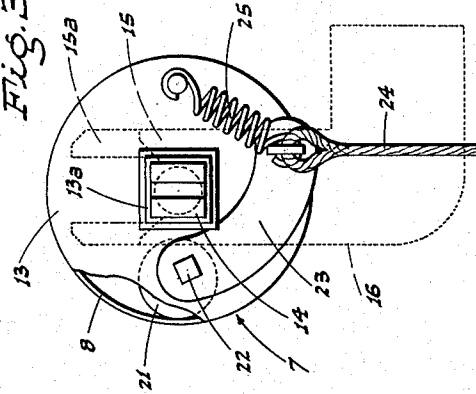
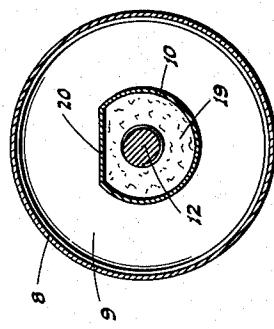


Fig. 4



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CONTROL MECHANISM FOR ROLLER
SHADES OR AWNINGS

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3 Claims. (Cl. 160—295)

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This invention relates to shade or awning mounting rollers of that type in which a spring winds the shade onto the roller and raises the shade, whereas a pull on the shade unwinds the same from the roller, lowers the shade, and at the same time tensions the spring for the subsequent shade winding and raising operation.

Ordinarily, a releasable dog mechanism between a stationary end spindle of the roller, and the roller itself, prevents detensioning of the spring and the resultant rotation of the roller and winding of the shade thereon. To release the dogs, the shade must be first pulled down slightly, and the down pull then releases.

In the event of failure of the dogs to reengage once they have been released, or if the hand holding the shade should slip from the same, the roller will rotate out of control and the shade will be rolled up to its limit, as is well known to anybody who has handled such shades. Apart from this, there is no way to definitely control the height to which the shade will raise with recurring raising and lowering movements thereof.

It is therefore one of the objects of this invention to provide a shade roller mechanism which eliminates the dogs and their hit-and-miss action.

Another important object of the invention is to provide a roller control mechanism which will cause the shade to stop at any preselected level or height when released and wound up from its fully lowered position. As a part of such mechanism, it is a feature of the invention to provide means which allow the shade to raise to the desired level, and positively stop, without being touched or otherwise controlled by hand pressure.

Since the shade is not manually handled while the winding up and raising of the same is being carried out, there is no tendency for the shade to be pulled laterally or out of true, and the resultant cracked or diagonal rolling or winding-up of the shade on the roller is thus eliminated.

It is also an object to provide a roller control mechanism which is designed for ease and economy of manufacture.

Still another object of the invention is to provide a practical and reliable roller control mechanism and one which will be exceedingly effective for the purpose for which it is designed.

These objects are accomplished by means of such structure and relative arrangement of parts as will fully appear by a perusal of the following specification and claims.

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Fig. 1 is a foreshortened elevation, partly in section, of a shade roller equipped with the novel control mechanism.

Fig. 2 is an enlarged sectional plan of the control mechanism at one end of the roller, shown detached from the roller.

Fig. 3 is an end elevation of the same.

Fig. 4 is a cross section on line 4—4 of Fig. 2.

Referring now more particularly to the characters of references on the drawings, the roller 1 itself is of conventional construction, and ordinarily of wood, to which the flexible roll-up shade 2 is secured at one end as usual. At one end—preferably the left-hand end—of the roller, a relatively turnable spindle 3 projects from the roller axially thereof, the outer end of the spindle being non-circular as usual and being non-turnably engaged in a supporting bracket 4. The inner end of the spindle is connected to one end of a longitudinal torque spring 5 disposed in a bore 6 in the roller; the other end of the spring being connected to the roller in the customary manner. The spring is arranged so that an unwinding or unloading action of the same, with the spindle held stationary, tends to rotate the roller in a direction to roll up the shade thereon, as is common practice.

At the opposite or right hand end of the roller, the shade and spring controlling unit is mounted. This unit being generally indicated at 7. This unit comprises a cylindrical cup 8, the same diameter as the roller and secured thereto, with the bottom or back wall 9 abutting said end of the roller.

Secured on the wall 9 and projecting into the roller axially thereof is a tube 10, closed by a cross-wall 11 at its far or inner end. A spindle 12 extends lengthwise axially through the tube 10, the cup 8, and a plate 13 separate from and covering the outer open end of the cup.

The spindle 12 is journaled in walls 11 and 9, and in the plate 13, having an outer squared end 14 beyond said plate normally but releasably held against rotation by a fork 15 of an end bracket 16. The plate 13 is also held against rotation, independently of spindle 12, by means of a non-circular hub 13a on the plate engaging the main fork 15a of said bracket 16.

The spindle 12 within the tube is threaded as at 17 and is engaged by a washer-like nut 18 backed by a cushion washer 19 of leather or the like. The spindle 12 is mounted so that it may rotate but cannot move axially and the nut 18 is prevented from rotation in the tube by cooperating flat faces 20 thereon. From this arrangement

it will be seen that, as the roller rotates, the nut 18 moves along the spindle 12 toward one end or the other of the tube, the pitch of the thread being such that with a complete winding or unwinding of the shade, the nut moves the entire length of the tube. The direction of the thread pitch is such that, as the roller is turned to wind up the shade thereon, the nut 18 will move toward the endwall 11 of the tube.

Arranged with plate 13 and a cup 8 to restrain and control the action of spring 5 is a hand-released brake unit. This unit comprises a one-way friction cam member 21, normally riding on the inner periphery of cup 8, which thus forms a brake drum. Member 21 is fixed on a shaft 22 journaled in the plate 13, the shaft exteriorly of said plate being fixed on an actuating arm 23 to which a depending pull cord 24 is attached. A tension spring 25 is connected between the arm 23 and plate 13, acting in opposition to a pull on the cord.

The member 21 is so arranged on the shaft 22 and relative to the spring 25 and the shade wind-up direction of rotation of the roller 1 and cup 8, that the member 21 will jam and bind against the cup with any tendency of the roller and cup to rotate in said direction, but will allow of unrestricted rotation of the roller and cup in the opposite or shade unwinding and lowering direction. Release of the cup so that the spring 5 is free to act and rotate the roller in a shade wind-up or raising direction is accomplished by pulling down on the cord 24 to turn lever 23 and shaft 22 to a cam release position. Automatic raising of the shade from a lowered position will therefore take place upon a downward pull being imparted to the cord, and raising will cease as soon as the cord is released.

The control unit 7 is mainly for the purpose of assuring that the shade, when being thus automatically raised, will stop at a predetermined level even though the pull on cord 24 is not released.

In order to set the control to stop rotation of the roller in a shade wind-up direction when the shade is at a desired level, said shade is first pulled down—or allowed to raise—to such level. The spindle 12 is then released from bracket 16 by tilting the adjacent end of the roller somewhat, and said spindle is next turned by hand or by a suitable tool until washer 19 abuts against the end wall 11 of tube 10. The spindle 12 is thence restored to its original held position.

When the shade is pulled down from said desired level, the washer and nut will move away from wall 11, and will return to said wall when the roller is subsequently released to wind up the shade, and will thus form a stop preventing further raising of the shade above said level. After the shade has been lowered, it is thus only necessary to pull the cord 24 and hold the same pulled until the shade stops in its upward movement.

From the foregoing description it will be readily seen that there has been produced such a device as substantially fulfills the objects of the invention, as set forth herein.

While this invention sets forth in detail the present and preferred construction of the device, still in practice such deviations therefrom may be resorted to as do not form a departure from the spirit of the invention as defined by the appended claims.

Having thus described the invention, the following is claimed as new and useful, and upon which Letters Patent are desired.

1. In a shade roller, which includes a rotatable roller on which to mount a flexible shade for rolling and unrolling movement to raise and lower the shade upon rotation of the roller in one direction and the other respectively, and a support for the roller at one end thereof; an adjustable unit at the other end of the roller to limit the rotation of the same in a shade roll-up direction, said unit comprising a cylindrical member fixed on the other end of the roller, a closed-end tube fixed on said member and projecting into said other end of the roller, a rotary spindle extending axially through the tube and journaled in the end walls thereof, a nut threaded on the spindle within the tube and non-turnably slidable therein between said end walls, a plate turnably mounted on the spindle and in said cylindrical member, and releasably connected to said member at its outer end, a hub projecting from the outer face of the plate and having a non-circular outer periphery, the spindle projecting beyond the hub and having a non-circular outer end and being manually rotatable, a supporting bracket having one arm provided with a slot to removably and non-turnably engage the outer end of the spindle, and another arm longer than said one arm having a slot parallel to and extending in the same direction as the first named slot and removably and non-turnably supporting the hub; the spindle end being disengageable from its slot while the hub is still retained within its slot.

2. A unit, as in claim 1, in which the hub includes axially spaced outwardly projecting flanges to project on opposite sides of said other bracket arm to prevent axial shifting of the roller when the spindle is disengaged from its bracket arm.

3. In a shade roller, which includes a rotatable roller on which to mount a flexible shade for rolling and unrolling movement to raise and lower the shade upon rotation of the roller in one direction and the other respectively, and a support for the roller at one end thereof; an adjustable unit at the other end of the roller to limit the rotation of the same in a shade roll-up direction, said unit comprising a closed-end tube fixed on and projecting into said other end of the roller, a rotary spindle extending axially through the tube and journaled in the end walls thereof, a nut threaded on the spindle within the tube between said end walls, the spindle projecting outwardly from the tube and means at its outer end facilitating manual rotation thereof, means to turnably support the roller at said other end, and separate means included in part with said supporting means and releasably engaging the outer end of the spindle to prevent rotation thereof when engaged.

References Cited in the file of this patent

Number	Name	Date
105,854	Shorey	July 26, 1870
1,187,077	MacCune	June 13, 1916
1,568,379	Hartley	Jan. 5, 1926
1,725,285	Lalonde	Aug. 20, 1929
1,783,002	Simpson	Nov. 25, 1932
2,020,595	Weber	Nov. 12, 1935