

B. F. BELL.
CURTAIN ROLLER.

(Application filed Aug. 13, 1900)

(No Model.)

2 Sheets—Sheet 2.

Fig. 8.

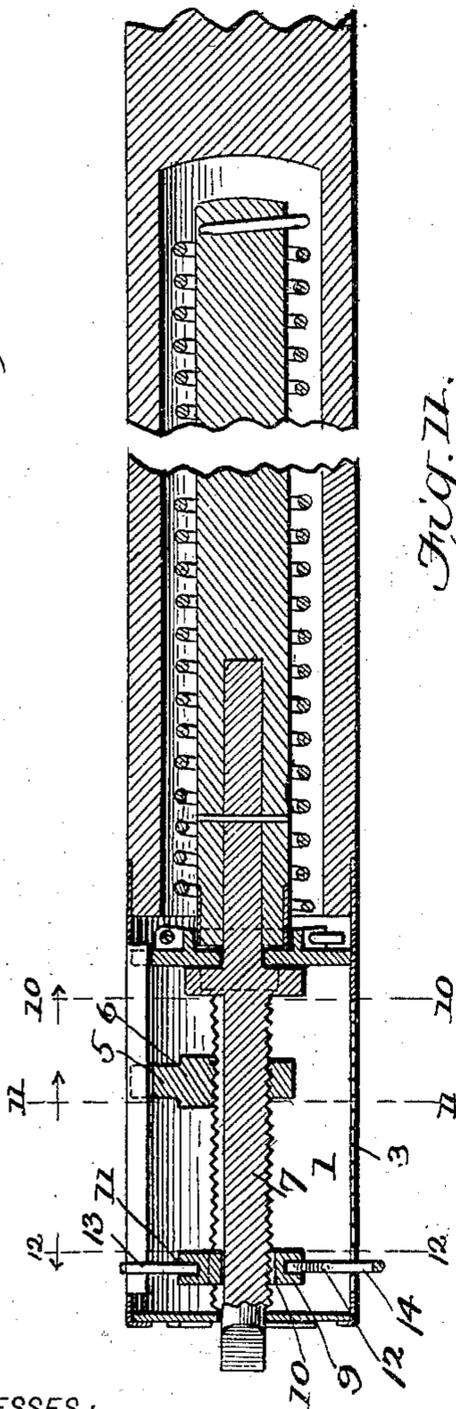


Fig. 11.

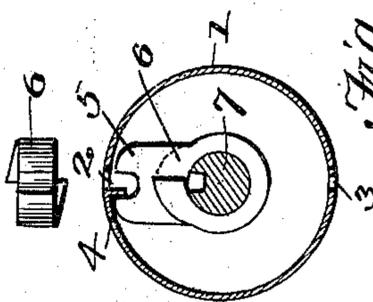


Fig. 12.

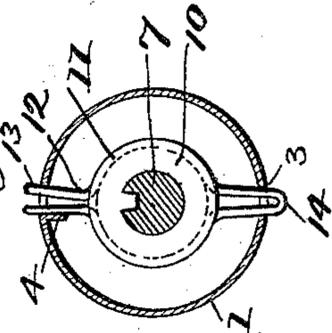


Fig. 13.

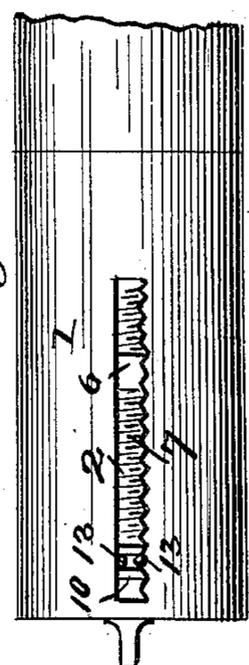
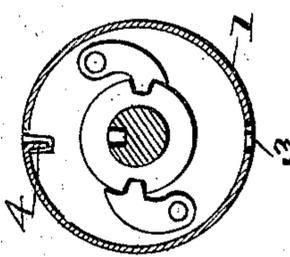


Fig. 10.



WITNESSES:

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INVENTOR

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BY *Munn & Co.*

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UNITED STATES PATENT OFFICE.

BENJAMIN FRANKLIN BELL, OF NASHVILLE, TENNESSEE, ASSIGNOR OF
ONE-HALF TO JOSEPH WOLF, OF SAME PLACE.

CURTAIN-ROLLER.

SPECIFICATION forming part of Letters Patent No. 662,753, dated November 27, 1900.

Application filed August 13, 1900. Serial No. 26,753. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN FRANKLIN BELL, residing at Nashville, in the county of Davidson and State of Tennessee, have made
5 certain new and useful Improvements in Curtain-Rollers, of which the following is a specification.

My invention is an improvement in curtain-rollers, and has for an object to provide an
10 improved construction by which to prevent the overwinding of the shade as well as the drawing of same too far down in the use of the curtain; and the invention consists in certain novel constructions and combinations of
15 parts, as will be hereinafter described, and pointed out in the claims.

In the drawings, Figure 1 is a perspective view, and Fig. 2 a longitudinal section partly broken away, of a curtain-roller provided with
20 my invention. Fig. 3 is a cross-sectional view on about line 3 3 of Fig. 2. Fig. 4 is a detail perspective view of the nut-holding sleeve. Fig. 5 is a detail perspective view of the nut. Fig. 6 is a detail perspective view of the stop-
25 ring. Fig. 7 is a detail perspective view of the connecting-sleeve; and Fig. 8 is a longitudinal section, partly broken away, showing a somewhat different construction within the broad principles of my invention. Fig. 9 is
30 a detail cross-section on about line 9 9 of Fig. 2. Figs. 10, 11, and 12 are cross-sections on about lines 10 10, 11 11, and 12 12 of Fig. 8; and Fig. 13 is a plan view of the construction shown in Fig. 8.

35 The roller A may in general respects be of the ordinary construction, and the curtain or shade B may be secured thereto in any well-known or desired manner. The roller A is provided in one end with a longitudinal bore
40 C, in the inner end of which is secured a block D, to which is fixed the screw E, which extends, preferably, to a point beyond the outer end of the roller, as shown in Fig. 2, and is provided at such end with a tenon e, which is
45 adapted to fit in the bracket F, as shown in Figs. 1 and 2.

Upon the outer end of the roller A, I secure a casing G, in tubular form, having its end
50 plate G' perforated at g to form a bearing for the nut-holding sleeve, the opposite end of

the casing G being held upon the roller A by screws, as shown, or in other suitable manner. The casing G is provided at g' with slots in which operate the lugs of the stop-ring, as shown in Fig. 2.

55 An annular cap-plate H is secured upon the end of the roller A within the casing G and supports the pawls I, which may be of the ordinary construction and operate at their points within the slot j of the nut-holding
60 sleeve J, as shown in Fig. 3. The cap-plate H also supports a pin or stud K, preferably forming the extensions of one of the pivots of the pawl and arranged to strike against the radially-projecting portion L' of the nut L to
65 stop the downward movement of the curtain or shade in the operation of the device.

The nut-holding sleeve J is shown in detail in Fig. 4 and is supported, as best shown in Fig. 2, at its outer end in the bearing g of the
70 end plate G' of the casing G and at its inner end in a bearing h in the cap-plate H.

The sleeve J extends inwardly beyond the cap-plate H and supports on such extension
75 the connecting-sleeve M, which is provided at its inner end with returned portions, forming rings M' to hold the outer end of the spring N, and also provided with inwardly-projecting lugs M², which enter openings M³ in the
80 sleeve J, and thus secure the connecting-sleeve upon the nut-holding sleeve, as will be understood from Figs. 2, 4, and 7. The opposite end of the spring N is secured to the block D, as shown in Fig. 2.

85 The sleeve J has a longitudinal slot j and is provided at its outer end with the inwardly-turned perforated ears J' and J², which form bearings for the outer end of the screw-shaft E, and it also has at its outer end the outwardly-turned arms J³, whose ends J⁴ are
90 arranged to engage the bracket F and prevent the rotation of the sleeve J in either direction.

The nut L fits within the sleeve J and is threaded on the screw E so the turning of the
95 latter will feed the nut back and forth in the sleeve J, and such nut is provided with a radially-projecting arm or portion L', which projects through the slot j beyond the sleeve J in position for engagement by the pin K when
100 such arm L is adjusted into the path of the

pin K in the operation of the invention. The pin K, as before suggested, stops the movement of the roller in one direction. To stop the movement of the roller in the opposite direction, which in the construction shown is the upward movement of the shade to prevent overwinding, I provide the stop-ring O. (Shown in detail in Fig. 6.) This ring O is provided with the lugs O', which project through the slots g' in the casing G and operate to hold the ring O to the casing and yet permit it to be adjusted in the casing in the direction of length of the latter. The ring O also has an inwardly-projecting lug or portion O², which projects with such relation to the lug L' of the nut L that it will strike such lug when the latter is moved into the path of the projection O² by the operation of the screw E at the upper end or part of the upward movement of the curtain. It will be noticed that in the operation of my invention the curtain is stopped by the striking of some portion attached to the revolving roller against a portion of the nut as the stop portion on the roller revolves. By this means I avoid any jamming of the nut upon the threads of the shaft, so the nut will not become bound upon the shaft or screw in such manner as to prevent or hinder the raising or lowering of the curtain from its stopped position.

By arranging the stop-ring O for adjustment within the casing G such ring may be set to stop the roller at different points, so the height to which the curtain can be raised may be conveniently regulated.

Manifestly the invention can be used as a combination with the spring shade-roller, as shown in Fig. 2 and before described, or the improvements can be attached to the opposite end of the roller from that containing the spring and be used as a separate attachment.

In Figs. 8 and 10 to 13, inclusive, I show a construction which can be used on the largest or smallest sizes of rollers and which, like that shown in Fig. 2, can be used as a combination with or on the opposite end of the roller from the roller-actuating spring.

In the construction shown in Fig. 2 the stop-ring O is movable longitudinally in the casing G and is held from turning. In Fig. 8 the casing 1 is provided with longitudinal slots 2 and 3, the slot 2 being serrated at one edge and having at its other edge an intumed flange 4. The flange 4 is engaged by the slotted end 5 of the nut 6, which is threaded on the screw-shank 7, so said nut 6 will be caused to travel in and out as the roller is turned in opposite directions on said screw-shank.

The stop 9 in Fig. 8 is also movable within the casing and preferably has a portion operating in the longitudinal slot of such casing, as is also the case with the construction shown in Fig. 2. The stop 9 includes a center block 10, keyed on and movable along the screw 7, and has a circumferential groove 11, in which is held the stop-frame 12, having the radially-opposite projections 13 and 14, operating in

the slots 2 and 3, the projection 13 having two arms which spring apart and cause one of them to engage in the serrations at one side of slot 2, as will be understood from Figs. 8, 12, and 13. It will be noticed that the frame 12 is so held in the groove 11 of the block 10 that it can turn on said block as on an axis. By this construction the stop 9 can be adjusted within the casing to stop the roller at any desired point.

In both constructions described the nut will be fed longitudinally along the screw-shaft, in one instance, Fig. 1, by the turning of the shaft through its connection with the roller and in the other case, Fig. 8, by the turning of the nut on the screw-shaft, so the raising and lowering of the roller will adjust the nut to position to engage the projections which are arranged in the path of the nut to stop the same, and thus stop the turning of the roller.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a curtain-roller the combination substantially as described, of the roller, the cap-plate at the end thereof, and provided centrally with an opening or bearing, the pawls carried by said cap-plate, the projecting pin or portion arranged to revolve or travel with the roller as the latter is turned, the casing provided with longitudinal slots having one end fitting and held upon the roller and its other end provided with a cap-plate having a central opening or bearing, the nut-holding sleeve having a longitudinal slot and fitting within the central opening in the cap-plate and in the end plate of the casing and provided at its outer end with an arm to abut the bracket and limit the turning of the sleeve, said sleeve being also provided at its outer end with inwardly-projecting ears perforated to receive the end of the screw-shaft, the screw-shaft suitably connected at its inner end with the roller and extended within the nut-holding sleeve, the nut in said sleeve and threaded on the screw-shaft and provided with an arm or portion projecting through the slot in said sleeve and beyond the latter, the stop-ring fitted within the casing and having outwardly-projecting portions which operate in the slots of the casing and an inwardly-projecting portion arranged to engage the lug on the nut when the latter is adjusted to set its lug into the path of said projection, the connecting-sleeve held upon the inner end of the nut-holding sleeve, and the roller-actuating spring secured at one end to the roller and at its other end to the connecting-sleeve all substantially as set forth.

2. The combination of the curtain-roller, the screw-shaft held to and turning with the roller, the nut-holding sleeve held from turning with the roller and provided with a longitudinal slot and fitting over the screw-shaft, and the nut threaded on the screw-shaft within said sleeve and having a lug or arm extend-

ing through the slot in the sleeve in position for engagement by projections or portions carried by the roller, and the said projections or portions.

5 3. The combination of the curtain-roller, the screw-shaft turning with the roller, a projection or portion moving with the roller as the latter is turned, a nut threaded on the screw-shaft and having a projecting lug or
10 portion arranged for engagement by the projection or portion carried by the roller, and means for holding the said nut from turning with the screw substantially as set forth.

15 4. The combination substantially as described of the roller, the casing secured on the end thereof, the stop-ring held in and to said casing and adjustable therein in the direction of length of the casing and provided with the stop portion to engage the nut, the
20 nut and means for adjusting the nut into and out of the path of the projection on the stop-ring substantially as set forth.

25 5. The combination of the curtain-roller provided with a screw-shaft and with means for engagement with a projection on a nut operating on said shaft, the nut having the projection, the sleeve engaged with said nut, and means carried by the sleeve for engagement with the curtain-bracket whereby to

limit the turning of the sleeve substantially 30 as set forth.

6. The combination of the roller having a cap-plate provided with a central opening, the nut-holding sleeve fitting at its inner end in said opening, the casing secured to the
35 roller and supporting the outer end of said sleeve, the nut operating in said sleeve, the screw carried by the roller and engaging said nut, and projections or portions on the casing for engagement by the projection of the
40 nut substantially as set forth.

7. In a curtain-roller the combination of the screw-shaft and the nut traveling thereon, the casing having a longitudinal slot, and the stop-ring having a portion operating in
45 the slot of the casing substantially as set forth.

8. The improvement in curtain-rollers comprising the screw, the nut thereon, the casing fitting over the screw and nut and having
50 diametrically opposite longitudinally-extended slots, and the stop-ring having portions operating in the opposite slots of the casing substantially as set forth.

BENJAMIN FRANKLIN BELL.

Witnesses:

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MOSES RUBEN.