A. B. COLLINS.

SHADE ROLLER OPERATING MECHANISM.

APPLICATION FILED OCT. 27, 1919.

1,348,928.

Patented Aug. 10, 1920.

2 SHEETS—SHEET 1.

Fig. 1.

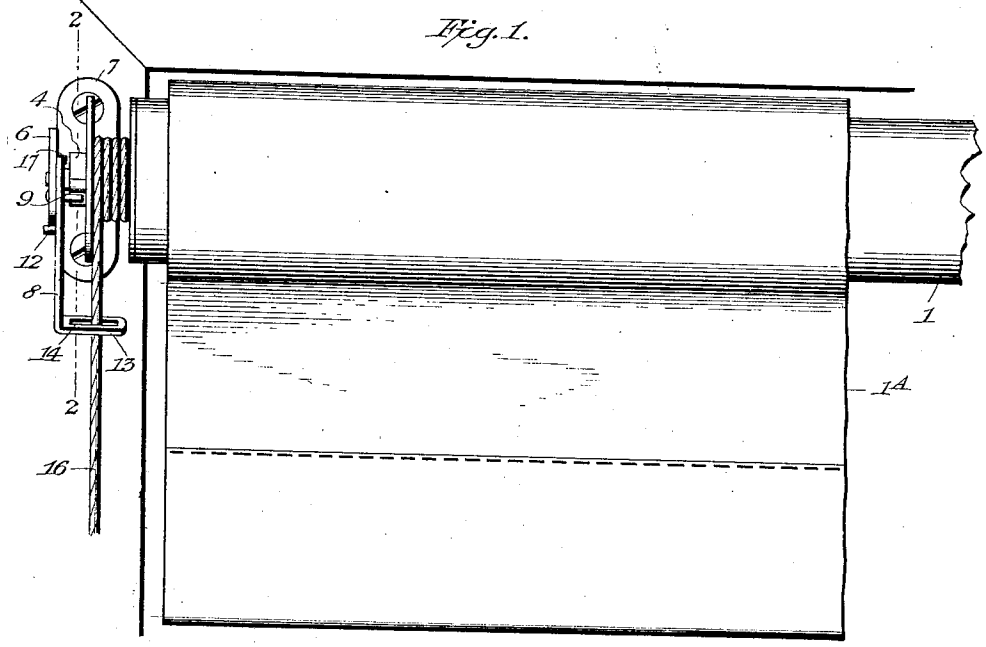


Fig. 2.

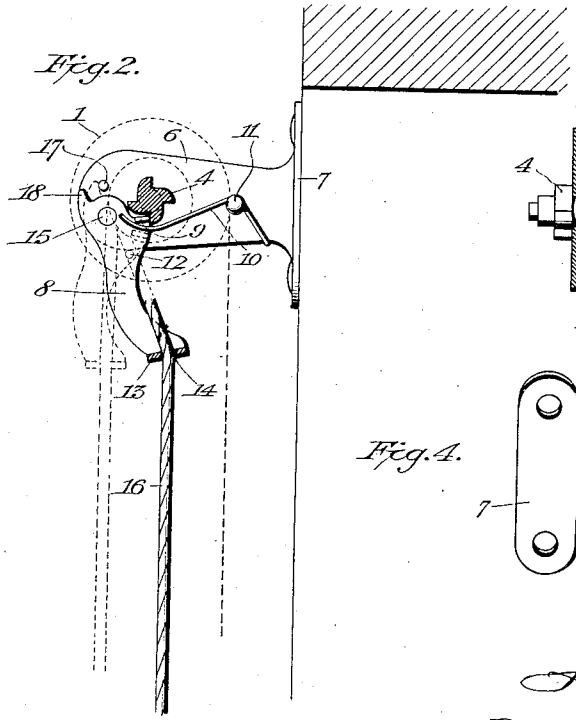


Fig. 3.

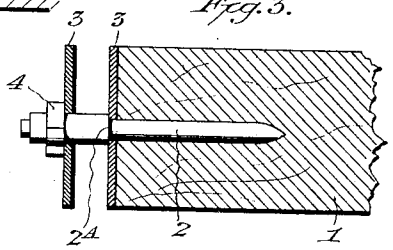
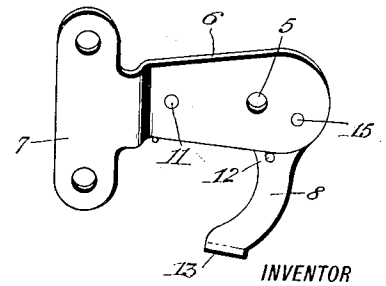


Fig. 4.



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2 SHEETS—SHEET 2.

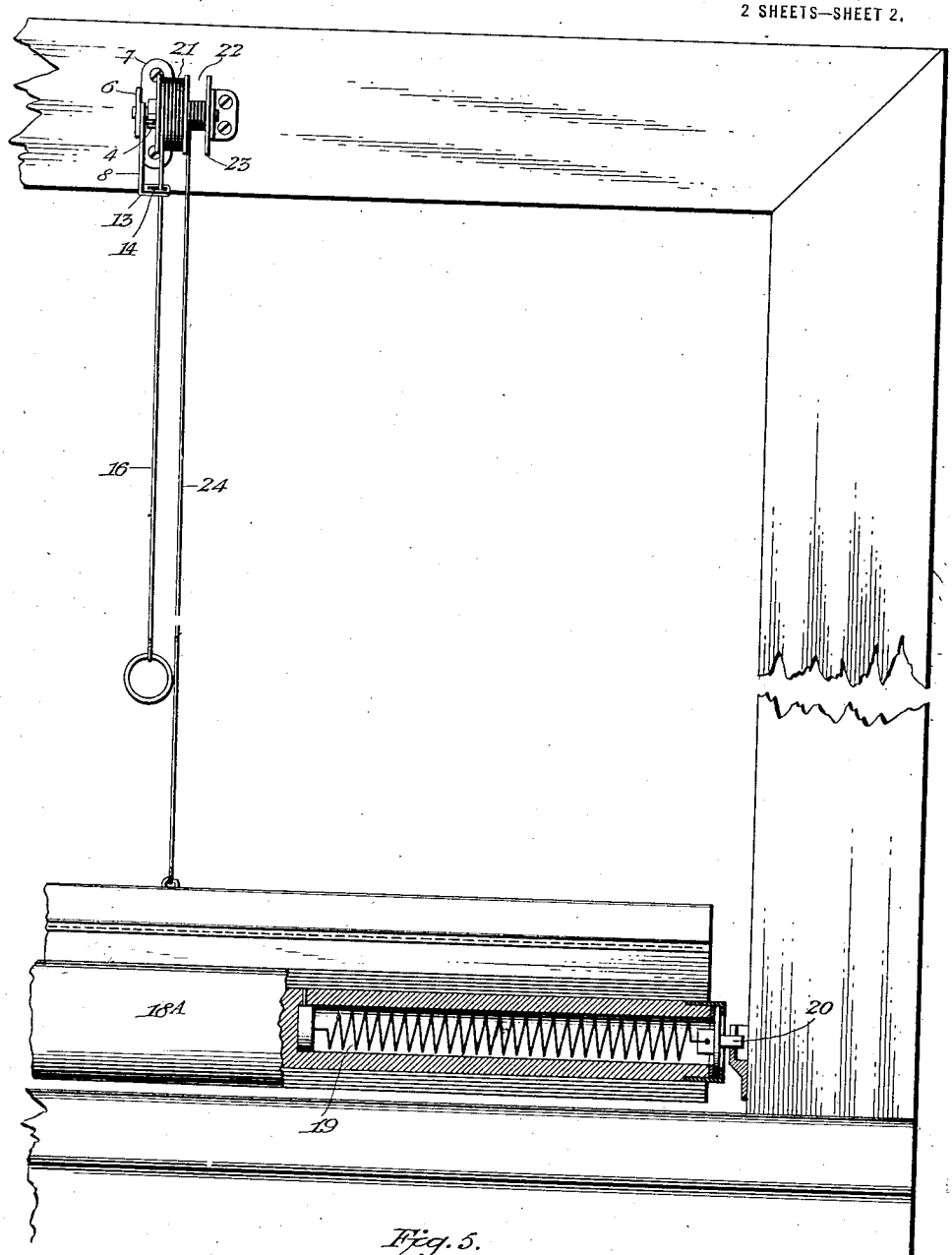


Fig. 5.

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UNITED STATES PATENT OFFICE.

ALLISON B. COLLINS, OF DENVER, COLORADO.

SHADE-ROLLER-OPERATING MECHANISM.

1,348,928. Specification of Letters Patent. Patented Aug. 10, 1920.

Application filed October 27, 1919. Serial No. 333,745.

To all whom it may concern:

Be it known that I, ALLISON B. COLLINS, a citizen of the United States of America, residing at the city and county of Denver and State of Colorado, have invented a new and useful Shade-Roller-Operating Mechanism, of which the following is a specification.

This invention relates to improvements in shade-roller-operating means. The object of the invention is to provide mechanism for this purpose, whereby the shade or curtain is manually raised, but lowered by gravity said mechanism being adapted to stop and hold the shade at any desired point, as it is raised or lowered.

Further, to provide mechanism for operating shade rollers, comprising a bracket or support for one end of the roller, a dog and ratchet mechanism, and operating cord connected to said roller and said dog and ratchet mechanism whereby the shade is manually raised, but drops by gravity, the pulling action on said cord causing the dog to release the ratchet, and thus permit the free movement of the shade either up or down; the dog being thrown to engage the ratchet when the cord is released, the said construction obviating the use of the commonly employed roller actuating spring.

In the accompanying drawings;

Figure 1 is a front view, showing one end portion of a shade and its supporting roller, and the combined supporting and operating mechanism at this end of the roller.

Fig. 2, is a vertical, sectional view on the line 2—2 of Fig. 1.

Fig. 3, is a sectional view through one end portion of a shade roller, showing the reel and ratchet device which is attached to this end of the roller.

Fig. 4, is a side elevation of the roller bracket as shaped to support the roller between the side members of the window frame, and

Fig. 5 is a front view, showing the adaptation of the device to a shade roller when it is desired to mount the said roller at the lower end of the window frame.

Referring to the accompanying drawings: The numeral 1, indicates a shade roller, one end portion only of which, is shown, it being unnecessary to illustrate the complete roller, as the other end thereof is provided with the usual fixture, which is supported in the usual form of bearing bracket. To this roller a shade 1^A is secured in the usual manner. Upon the end of the roller illustrated, is secured the reel and ratchet mechanism, which is arranged and constructed as follows:

A pin 2, is driven into the end of the roller, and this pin has secured thereon, two spaced disks 3, one of which lies against the adjacent end of the roller. The pin is enlarged in diameter between these disks, to form a shoulder 2^A, which rests against the inner disk and clamps the same against the end of the roller, the enlarged part of the pin forming the spindle portion of the reel. A ratchet wheel 4, is formed on the pin adjoining the outer face of the outer disk 3, and the outer end of the pin is slightly reduced in diameter, and is supported in a hole 5, in a bracket 6, which may be secured either upon the outer face of the window, as shown in Figs. 1 and 2, or upon one of the side faces of the said frame. When secured upon the outer face of the frame, the part 7 of the bracket, through which the securing screws or nails pass, is bent at right angles to the part 6; but when it is desired to support the shade roller, between the side members of the window frame, the bracket is formed as shown in Fig. 4, the parts 6 and 7 being substantially in line.

Upon the inner face of the bracket 6 and between its outer end and the hole 5, is pivotally mounted a depending arm 8, and the upper part of this arm, is formed with an inwardly projecting dog 9, which engages the teeth of the ratchet wheel 4 and normally holds the same, and likewise the shade roller, against rotation, the dog being held to engage the ratchet wheel, by a spring 10, which, about midway of its length, is given a few turns around a pin 11, one end of this spring being extended under and against the dog 9, while the other end thereof, is bent under the lower edge of the bracket 6. The free end of this spring, being under tension, exerts an upward pressure against the dog which normally holds it in engagement with the teeth of the ratchet wheel 4. A stop pin 12, which is secured in the arm 8, and engages the under edge of the bracket 6, limits the swinging movement of the arm 8, under the action of the spring 10.

The lower end portion 13 of the arm 8, is bent inwardly at right angles to the arm, so as to lie on a horizontal plane, and this horizontal portion is formed with a slot 14.

By reference to Fig. 2, it will be seen that the slotted portion 13, of the arm 8 is not in vertical line with the pivot 15 of said arm, but on one side of the pivot, and on the side next the window. The object of this arrangement of the arm 8, will be presently stated. The disks 3, together with the pin 2, constitute a reel. A cord 16, is secured at one end to the axial pin of the reel (the shade being at the limit of its downward movement) and this cord is wound upon the reel in an opposite direction to that in which the shade is wound upon the roller, a sufficient length of the cord being wound upon the reel to insure the raising of the shade from its lowest to its highest point, when the cord is drawn upon. The free end of the cord is passed through the slot 14, in the horizontal member 13, of the arm 8, and extends to within convenient reach of a person operating the same. When the shade is unwound, the cord is wound, and vice-versa, and by drawing down on the cord when the shade is down the roller is rotated as the cord is unwound from the reel, and the shade is thereby raised. By reference to Fig. 2, it will be seen that the arm 8, lies at an inclination to the vertical, its pivot 15, being on one side of the axis of the roller, while its slotted portion, through which the operating cord 16 passes, is substantially in a vertical line with the axis of the roller. From this it will be seen that when the cord 16, is drawn upon, the arm 8, is swung to the position shown in dotted lines, in which position, the dog 9, is out of engagement with the ratchet wheel 4, and the shade, if down, is raised to the desired point, and upon releasing the cord, the spring 10, throws the dog into engagement with the ratchet wheel, and the roller is held against backward rotation.

If the shade is raised, and it is desired to lower the same, it is only necessary to draw on the cord, by which the arm 8, is rocked, and the dog 9, thereby disengages from the ratchet wheel; then by letting the cord slip through the fingers, the curtain is permitted to drop by gravity to the desired position, where it will be checked and held, by releasing the cord, which permits the spring-controlled dog to again engage the ratchet wheel. Excessive outward movement of the arm 8, is prevented by a stop 17, on the bracket 6, which engages a projection 18 on the upper end of the said arm 8.

With rollers equipped with mechanism as above described, the shade is raised manually, and lowered by gravity, and positively stopped and held at any desired point in its upward or downward movement, the construction eliminating the usual tension spring with which the roller is provided.

In Fig. 5, is illustrated the application of the mechanism shown in the other figures, to a shade roller supported at the lower end of the window. In this arrangement, I employ a curtain roller 18A, equipped with the usual tension spring 19, which is connected to the roller, and to the rotatable supporting pin 20, in the usual manner; the only difference between this roller, and the common type of roller known as the "Hartshorn" roller, being, that in the present roller, the usual pawl and ratchet mechanism is omitted, the spring 19, serving to roll the shade upon the roller when the said shade is lowered. Upon the upper member of the window frame, is mounted a double reel, comprising the axial pin 2, and ratchet wheel 4, and three spaced disks, which form two reels 21 and 22. One end of the pin is mounted in a bracket 23, and the other end thereof is mounted in a bracket 6, in all respects similar to the bracket shown in Figs. 1 and 2, and having the pivoted arm 8, with the dog 9, which engages the ratchet wheel 4. The operating cord 16, extends from the reel 21, and through the slotted end of the arm 8, as in Figs. 1 and 2, and a cord 24, is secured at one end to the shade, its other end being secured to and wound upon the reel 22, the cord being wound in a counter direction to the cord 16. When the cord 16, is drawn upon, the shade is raised against the tension of the spring 19, the cord 24, being thereby wound upon the reel 22, while the cord 16, is unwound from its reel 21. When it is desired to lower the shade, the cord 16 is drawn upon to release the dog 9 from the ratchet wheel 4, and is permitted to slip through the fingers, as the shade is drawn down by the action of the spring 19, the shade being held at the desired position when the cord 16 is released to allow the spring actuated dog to engage the ratchet wheel 4.

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

1. In shade roller operating mechanism, the combination with a roller having a shade thereon, of a bearing bracket for one end of the roller, a ratchet wheel on the roller, a spring-actuaed depending arm pivoted to said bracket, having a dog in normal engagement with the ratchet wheel, the lower end of said arm being out of vertical line with its pivot, and having a slotted horizontally disposed portion, a cord wound upon said roller in a counter direction to the shade, and extending through the slotted portion of the arm, and adapted to be drawn upon to rotate the roller and raise the shade and at the same time swing the arm and hold the dog out of engagement with the ratchet wheel, the shade being permitted to drop by gravity when the dog is thus

held, and the cord permitted to slip through the fingers, the arm being rocked by its spring to throw the dog into engagement with the ratchet wheel, when the cord is released.

2. In shade roller operating mechanism, the combination with a roller having a shade thereon, of a bearing bracket for one end of said roller, a reel on that end of the roller next the said bracket, and a ratchet wheel thereon, a depending arm pivoted to the bracket on one side of the axis of the roller, having a dog, and a spring for normally holding the dog in engagement with the ratchet wheel, the lower end of said arm being out of vertical line with its pivot and terminating in a slotted horizontal portion; a cord wound upon said reel in a counter direction to the shade and extending through the slotted portion of the arm, and adapted to be drawn upon to rotate the roller and raise the shade and at the same time, swing the arm and hold the dog out of engagement with the ratchet wheel, the shade being permitted to drop by gravity when the dog is thus held and the cord permitted to slip through the fingers, the arm being rocked by its spring to throw the dog into engagement with the ratchet wheel, when the cord is released, and stops for limiting the movement of said arm.

In testimony whereof I affix my signature in presence of two witnesses.

ALLISON B. COLLINS.

Witnesses:
G. SARGENT ELLIOTT,
ELIZABETH SMITH.