

UNITED STATES PATENT OFFICE.

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SPRING SHADE-ROLLER.

SPECIFICATION forming part of Letters Patent No. 251,244, dated December 20, 1881.

Application filed August 26, 1881. (No model.)

To all whom it may concern:

Be it known that I, DANIEL E. KEMPSTER, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Spring Shade-Rollers; and I do hereby declare that the same are fully described in the following specification and illustrated in the accompanying drawings.

My invention relates to that class of curtain-fixtures in which a coiled spring located in the roller is employed to raise and sustain the curtain or window-shade; and it consists in an improvement on the construction and arrangement of the locking devices shown and described in United States Patents Nos. 161,243 and 183,809, granted to A. H. Knapp. In the above patents one or more pins or projections are driven in or attached to the end of the shade-roller and a sliding lock operated by gravitation, or a pivoted pawl operated by centrifugal force, engages the aforesaid pins or projections and locks the spring from unwinding when the roller is removed from its brackets. In the former patent the gravitating lock has projections on its outer face, which engage corresponding projections on the inner face of the brackets. When the roller is placed therein the projections cause the lock to lift and disengage itself from the pins or projections on the roller end. In the latter patent the plate, which is attached to the spindle, and on which the centrifugal pawl is pivoted, is provided on its outer face with a projection. A corresponding projection is arranged on the inner face of the bracket. The former is arranged to strike the latter, and thereby prevent the insertion of the spindle into the bracket-notch, except when the spindle is right side up, to bring the pawl into a self-gravitating position for keeping it out of contact with the stops on the roller end. It will be seen that in both cases here referred to the disengagement of the lock and the proper adjustment of the roller in its brackets are dependent wholly on projections on the lock itself or pawl-plate and on the bracket. Now, this necessitates great care and accuracy in the making and putting together of the several parts, for if the brackets vary in thickness, or the notches in the spindles vary in width, the projections on the bracket and on the lock or pawl

plate are very liable to either be so far away from each other, or so close to each other as to completely destroy the object for which they were intended. Also, a very great objection is the locking device arranged on the outside of the roller, as it is very liable by the ordinary handling to become broken or bent out of shape, so as to be inoperative. Also, rollers having projections or pins driven into their ends for the lock to strike or catch against by the force of the spring are very liable to split out the end of the rollers, especially after the rollers have been up to the windows some time and have become thoroughly dry and brittle, and more especially if the spring is a moderately heavy one.

Now, my improvement has for its object to overcome these objections and to cheapen the construction of the rollers, which I accomplish in the following manner, reference being had to the accompanying drawings, on which—

Figure 1 represents a sectional elevation of the roller resting in its brackets. Fig. 2 represents a perspective view of the tubular cap in one end of the roller. Fig. 3 represents a cross-section on the line A B shown in Fig. 1, the centrifugal pawl being shown as locked. Fig. 4 represents an end view seen from C in Fig. 1; and Fig. 5 represents an end view of a roller provided with a modification of my improvement, as will now be more fully described.

In the drawings, *a* represents the curtain-roller of a spring curtain-fixture. *b* is the tubular roller end cap. *c* is the fixed spindle at the spring end of the roller, and *d* is the bracket in which said spindle is mounted.

The tubular end cap, *b*, is preferably made of hard wood, and is bored through with a loose-running fit for the spindle *c*. The bore is enlarged on the inner side of the cap at *b'*, and extends in, leaving a sufficient thickness, *b''*, of cap for the spindle bearing. The shell *b''*, or portion of the cap which has the enlarged bore *b'*, enters into and is inclosed in the bore of the roller *a*. In the shell *b''* of the cap *b* are made one or more openings, *b''' b'''*, radially through it. Said openings can be made of any desired form, preferably bored round. On the spindle *c* is a fixed plate, *e*, on which a loose pawl, *f*, is pivoted. The spindle *c* rests in the bracket *d*, with the pawl *f* uppermost, as shown in Fig.

3, so that said pawl by its own gravity may drop away from the opening b''' in the shell b'' , and remain out of contact therewith as long as the roller is mounted in the brackets, and thus not interfere with the revolution of the roller therein. The pawl f rests over the spindle in this position. The end of the spindle c is provided on one side with a lip, c' , which fits a corresponding cavity, d' , in one side of the notch on the bracket d , thus insuring its being put in only one way—right side up. When the spindle c is taken from the bracket by removing the roller, the spring g in the roller immediately tends to revolve the former, whereby centrifugal action is at once imparted to the pawl f , causing it to fly out and enter one of the openings b''' b''' in the cap b , and to prevent any further uncoiling of the spring g . This spring, as will be seen by reference to Fig. 1, is formed of refolded or redoubled layers, and the ends of the spring are fastened to the cap b and spindle c , respectively. As shown in the drawings, the pawl f or lock, with its pivot-plate e , is a sufficient distance from the end of the spindle to come within the enlarged bore of the cap b and just opposite the openings b''' b''' . A washer, h , is interposed between the plate e and inner side of cap b . As shown in Fig. 1, the roller end is much neater in appearance, and is also stronger, and the rollers can be more cheaply constructed than heretofore.

The modification shown in Fig. 5 is the device adapted as a stop-roller by being turned upside down, the lip on the spindle being made on the opposite side and, thus holds it in the bracket in that position.

What I claim is—

1. In a spring curtain-fixture, the combination of the spindle c , provided with a lip, c' , pawl f , pawl-plate e , washer h , and cap b , all constructed and arranged as set forth.

2. In combination with locking-pawl f and fixed pawl-plate e , arranged inside of the end cap, b , as described, the spindle end having the side lip, c' , and the bracket d , provided with the recess d' , for the reception of said spindle end, substantially as and for the purpose set forth.

3. In combination with a spring curtain-fixture having a centrifugal pawl, f , arranged inside its end cap, b , and adapted to lock into holes b''' b''' in said cap, the spindle end having means for holding said pawl or lock right side up when the roller is in its brackets, substantially as and for the purpose set forth.

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

DANIEL E. KEMPSTER.

Witnesses:

ALBAN ANDRÉN,
FRANCIS ALLEN.