(No Model.)

D. E. KEMPSTER.

CURTAIN FIXTURE.

No. 302,568. Patented July 29, 1884.

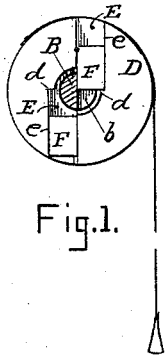

Fig.1.

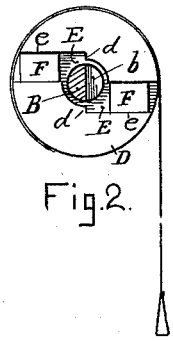

Fig.2.

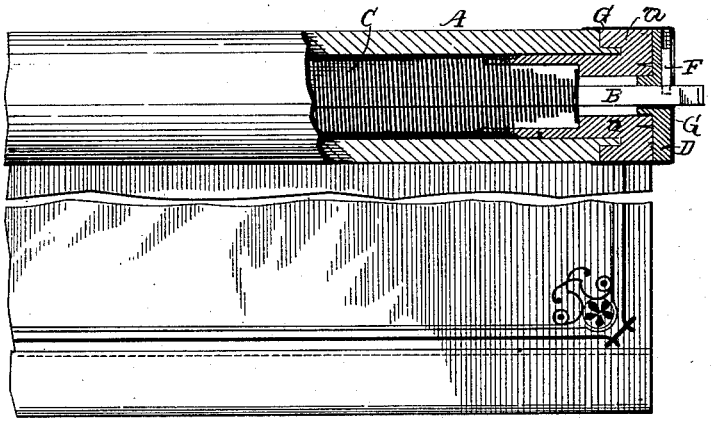

Fig.3.

Fig.4.

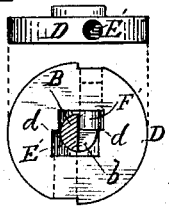

Fig.5.

Witnesses.
C. G. Keyes.
Ethan G. Loomis.

Inventor.
Daniel E. Kempster,
by A. H. Spencer
his attorney.

UNITED STATES PATENT OFFICE.

DANIEL E. KEMPSTER, OF BOSTON, MASSACHUSETTS.

CURTAIN-FIXTURE.

SPECIFICATION forming part of Letters Patent No. 302,568, dated July 29, 1884.

Application filed October 11, 1883. (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 Curtain-Fixtures; and I do hereby declare that the same are fully described in the following specification and illustrated in the accompanying drawings.

The object of this invention is to simplify and improve curtain-fixtures of the class known as "stop-fixtures," having an internal spring to draw up the shade and an automatic lock to secure it at any desired point.

My present invention is in the nature of an improvement upon that for which Letters Patent of the United States No. 261,159 were granted to me July 18, 1882, for spring shade-rollers. In said patent the wooden cap for the roller end had a transverse groove containing a single slotted locking-piece hung upon a notched part of the spindle, an angular projection in one corner of the slot engaging with the notch or flattened side of the spindle when the shade was being slowly raised to lock the parts together. With quick rotation of the roller, centrifugal force would prevent locking the device. By my present improvements I provide the end of the roller, or of its wooden cap, with a thick metal plate having two deep grooves extending outwardly in opposite directions from the opening at the center for the spindle, and in each of these grooves I place a loose sliding metal locking-piece arranged to engage with a notch in the spindle located in the plane of this grooved plate. A collar on the spindle, or the ferrule on the roller end, if fitting snugly to the grooved plate, keeps the locking-pieces in their working position. By these improvements I obviate a tendency to bind the locking-piece by reason of dampness causing a swelling of the wooden cap in which my former locking-plate moved, and I provide means of locking the device at every half-revolution, instead of every complete revolution, as in my former invention. With rollers of large diameter three locking-pieces may be employed. I also greatly reduce the cost of the locking devices.

In the drawings, Figure 1 is an end view of the roller with the end flange of the ferrule removed, and the spindle in transverse section at the locking-point, showing the position of the parts when the roller and spindle are locked. Fig. 2 is a similar view with the parts unlocked, as when rapidly rotating. Fig. 3 is a front view of shade and roller, the latter partly in section; and Fig. 4 is a plan of the spindle. Fig. 5 is a modification.

The roller A has within its tubular end the usual spindle, B, held a given side up, and kept from rotation with the roller by the bracket. The inner end of the spindle rests in a socket in the spring-chamber, which serves to maintain its central position. The spring C is of the refolded or overlap kind patented by Knapp, and applied heretofore in balance-fixtures, and I use it by preference with my new locking devices because less depth of chamber and a shorter spindle are required for a given length of shade.

D is the metal end plate, fixed upon the end of the roller or of its cap *a*, to revolve with them around the spindle. This plate may be thickened centrally, as shown, for a broader bearing upon the spindle.

E E are deep grooves in the outer face of the plate D. They run outwardly from opposite sides of its central aperture, about as shown, one wall of each groove being radial in Figs. 1 and 2, and the other, *e*, parallel thereto, and far enough therefrom to permit free movement of the locking-piece F, which is arranged to slide in its groove and drop into the notch or recess *b* in the spindle. When the spindle is held by the brackets in working position, the bottom or inner face of this recess is a vertical plane, with which the radial wall of the groove E coincides when the parts are in position to lock. (See Fig. 1.) When the locking-piece is wider than the depth of the spindle-recess *b*, the grooves E E will extend laterally beyond the central aperture in the plate—that is, the wall *e* will terminate not in such central aperture, but at a shoulder, *d*, adjacent thereto. This shoulder forms a stop for the piece F and prevents it dropping too far. It will be seen that when the locking-piece has dropped down alongside of the verti-

cal wall of the spindle-recess *b*, to the shoulder *d*, the roller cannot turn backward under the influence of the spring to roll up the shade, but remains locked, the recoil of the spring holding the locking-piece against said vertical wall until the shade is drawn slightly downward, carrying the locking-piece away from the spindle. There is no locking on the downward movement, since the pieces F continually move away from the vertical recess after dropping into it successively with slow rotation of the roller. Rapid rotation either way throws them centrifugally outward against the ferrule G and to the outer limit of the grooves E, as in Fig. 2, thus avoiding contact with the spindle; but when the shade is rising, if the speed is slight, the locking-piece, which is at the moment vertically above the center, will drop into the notch *b*, lock the fixture as described, and retain the shade at the desired height. This lock is also effectual to retain the tension of the spring when the spindle is removed from the bracket, since it prevents the spindle from rotating within the roller to relax the spring.

The flange of the ferrule may be strengthened by a washer or thin plate of metal inserted in it before it is slipped over the end of the roller, in order to guard against bending out of place by the action of the locking-pieces.

In the modification, Fig. 5, the cast-metal end plate is drilled edgewise, as shown by dotted lines, from notches in its periphery to a central recess or a shoulder, and cylindrical pins are inserted as locking-pieces, with the same effect as follows the use of the flat pieces F F in the grooves E E.

Various locking devices working by gravity and centrifugal force have heretofore been used to engage with and disengage from the spindle; but I believe I am the first to cut a vertical recess from top to bottom of the spindle parallel with the vertical notch in the bracket, which, as explained in my former patent, can be done simultaneously with the sawing of the spindle end to enter said notch, and hence at a saving of expense as compared with fixtures in which the spindle is forged, cast, or drilled to fit the locking-piece.

I claim as my invention—

1. An automatic lock for spring curtain-rollers, consisting of the spindle B, having a vertical walled recess, *b*, extending from top to bottom of the spindle, and the end plate, D, formed with two grooves or recesses, E E, and carrying the sliding locking-pieces F F, revolving about the spindle with the roller, and operated centrifugally thereby, for the purposes set forth.

2. The roller A and the end plate, D, having grooves or recesses E E, one wall of each being radial and the other parallel thereto, and terminating at a shoulder, *d*, in combination with two locking-pieces reciprocating in said recesses to engage with or disengage from the vertical recess *b* of the spindle, for the purpose set forth.

3. In a curtain-roller provided with an overlap-spring, the spindle having a locking-recess, with a vertical inner wall extending from top to bottom of the spindle, in combination with a rotating end plate carrying two headless reciprocating pawls adapted to engage in said recess, for the purpose set forth.

4. The roller A, provided with a wooden end cap, *a*, a ferrule, G, and a metallic end plate carrying two locking-pieces adapted to engage with a vertical walled recess in the spindle, in combination with the overlap-spring C, substantially as set forth.

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

DANIEL E. KEMPSTER.

Witnesses:
A. H. SPENCER,
E. A. PHELPS.