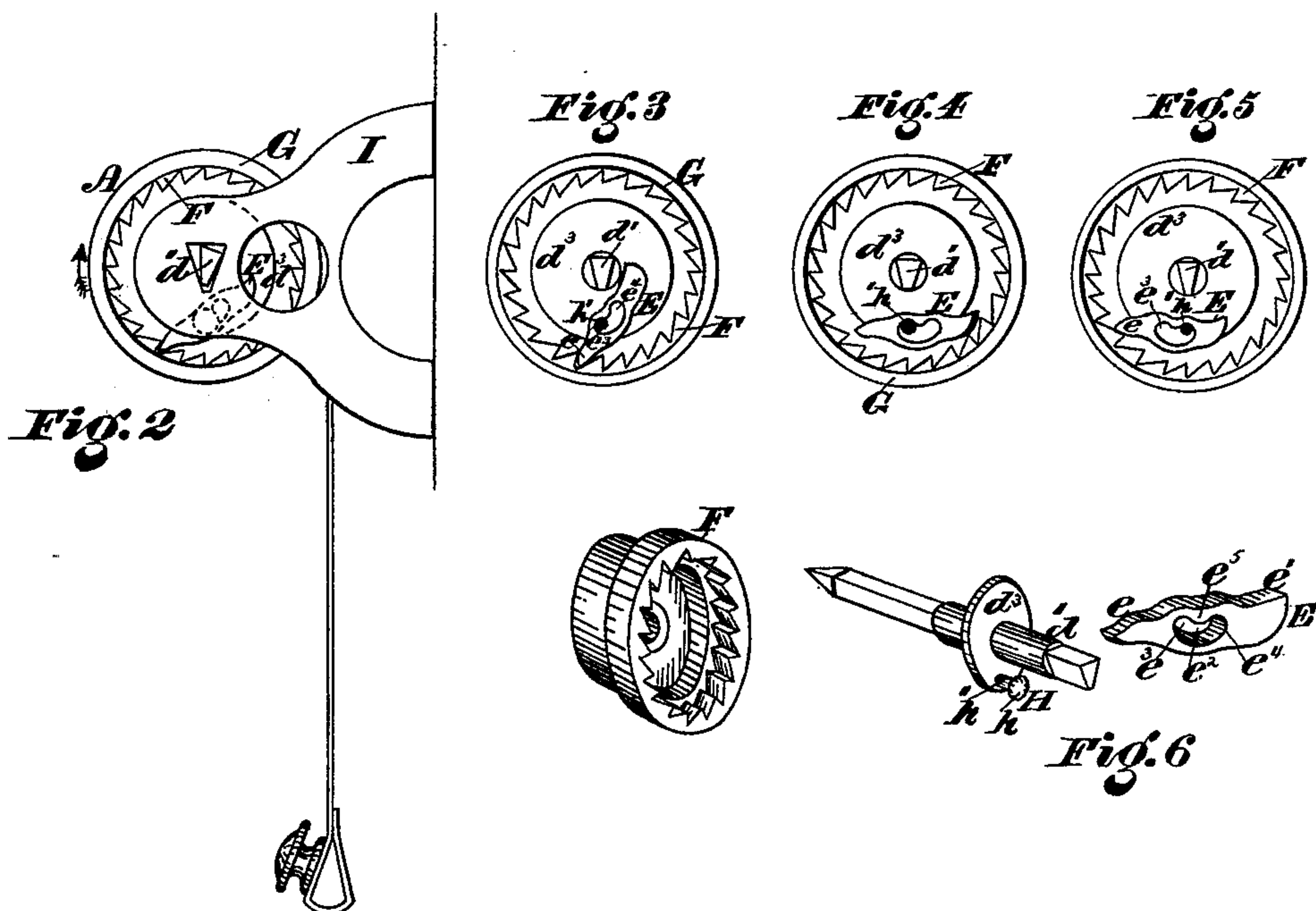
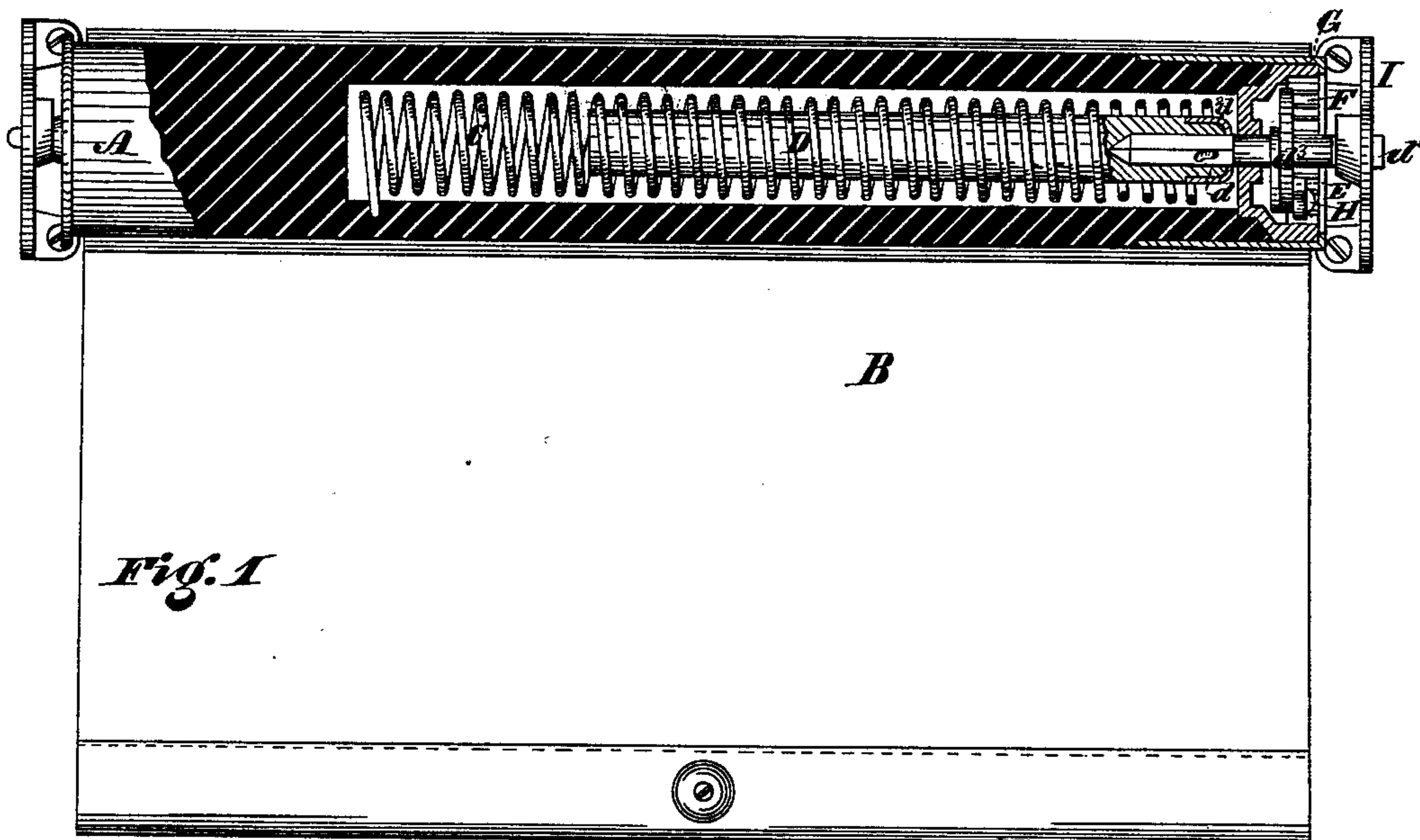


J. C. LAKE.  
Curtain Roller and Bracket.  
No. 201,023.      Patented March 5, 1878.



WITNESSES:  
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INVENTOR.



# UNITED STATES PATENT OFFICE.

J. CHRISTOPHER LAKE, OF CAMDEN, NEW JERSEY.

## IMPROVEMENT IN CURTAIN-ROLLERS AND BRACKETS.

Specification forming part of Letters Patent No. **201,023**, dated March 5, 1878; application filed November 9, 1877.

*To all whom it may concern:*

Be it known that I, J. CHRISTOPHER LAKE, of Camden, in the county of Camden and State of New Jersey, have invented certain new and useful Improvements in Spring Shade-Rollers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification, in which—

Figure 1 is a longitudinal vertical section of my invention. Figs. 2, 3, 4, and 5 are end views, showing different positions of the pawl. Fig. 6 is a detail perspective.

The object of my invention is to provide a spring shade-roller which will lock automatically when the shade is being drawn down by merely letting go of the latter, and which will not lock when the shade is permitted to ascend slowly under the influence of the spring, but will lock automatically when the spring causes the shade to wind up rapidly.

My improvement consists in the combination, with a spring curtain-roller, of a pawl and ratchet, constructed as hereinafter described, whereby the roller will be locked automatically on letting go of the shade when drawing it down, either vertically or at any inclination, and when the shade is wound up rapidly, and which will not lock the roller when the shade is permitted to ascend slowly.

Referring to the accompanying drawing, A designates a roller; B, its shade; C, the spring, and D the shaft or spindle. Said shaft has an angular end,  $d^1$ , by which it is fitted fast in a bracket, I, so that the roller A will revolve around it under the influence of the spring C, the opposite ends of the latter being secured to said parts respectively. Said shaft is preferably made in two sections, D and  $d^1$ , the section D being of wood, having a socket in its outer end, in which the squared inner end  $d$  of the section  $d^1$  fits, said socket being protected by a metallic cap,  $d^2$ . The section  $d^1$  is of metal, and is formed or provided with a fast collar,  $d^3$ . E is a pawl pivoted on said collar, and F is an annular rack or ratchet, fastened to the roller A inside its cap G. The pawl E is double-ended, having a point,  $e$ , and

tail  $e^1$ , and is formed about midway between its ends with an elongated slot,  $e^2$ , curved to form two rounded recesses,  $e^3$   $e^4$ , and an inverted arch,  $e^5$ . The pivot H has a head,  $h$ , its shank  $h'$  passing through the slot  $e^2$ , said shank being of such thickness or diameter that the pawl E can slide lengthwise upon it, as hereinafter set forth.

The operation is substantially as follows: The parts described occupying the relative positions shown in Fig. 3, the roller will be locked, the point  $e$  of the pawl engaging with a tooth of the ratchet F, and said pawl being forced back thereby, so that the shank  $h$  of the pivot H occupies the forward recess  $e^3$  of the slot  $e^2$ .

To cause the shade to descend, it is merely pulled down at any desired rate of speed. On starting the shade downward the roller is caused to move upward on its outer side, as indicated by the arrow in Fig. 2, thus lifting the then engaged tooth of the ratchet F out of engagement with the pawl E. The larger portion of the pawl being at the moment of disengagement on the rear side or back of the rivet H, the tail of said pawl drops by gravity, and comes in contact with a tooth of the ratchet F. The ratchet moving forward, as shown by the arrow in Fig. 2, the tooth on which the tail  $e^1$  falls passes like a wedge under said tail, moving the pawl E forward until the shank  $h$  of the pivot H enters the recess  $e^4$ . This position of the pawl is shown in Fig. 5, the forward part of the pawl being then the heaviest, and dropping by gravity, so as to cause the point  $e$  to rest on the ratchet F. While the shade is being drawn down the pawl occupies this position, each succeeding tooth of the ratchet F gently lifting said pawl, but not sliding it back on its pivot. To cause the roller to be locked, the shade is merely let go. The action of the spring immediately reverses the motion of the roller, and the ratchet F instantly engages with the point of the pawl E, causing said pawl to be slid back into the position shown in Fig. 3, thus effecting a lock.

To wind up the shade, it is first drawn down sufficiently to release the pawl E from the tooth with which it is then engaged, the rear part of the pawl dropping until the tail  $e^1$  meets the ratchet F. If the shade be now permitted to slowly ascend, the pawl will retain this po-



sition, (shown in Fig. 4,) each succeeding tooth of the ratchet gently lifting the tail end, which then falls on the tooth following.

To lock the roller upon or after the ascent of the shade, the latter must be first drawn down. This causes the pawl to slide forward to the position shown in Fig. 5, when the locking will be accomplished by merely letting go of the shade. If the shade be permitted to ascend rapidly, the teeth  $f$  of the ratchet  $F$ , instead of gently lifting the tail of the pawl  $E$ , as they do when the shade ascends slowly, will, by reason of the force due to their swift motion, throw said pawl up into the position shown in Fig. 2, whereby a lock of the roller will be effected. I would remark, however, that this locking of the roller when the shade ascends rapidly is an accident of construction, or a provision for accidental cases only, as in the ordinary usage of the shade the locking of the roller is intended to be effected always by merely letting go of said shade in its descent, and the rapid ascent of the shade is never contemplated, except as the result of accident by its slipping out of hand.

Thus it will be seen that the shade may be drawn down at any rate of speed without locking the roller, and that the locking of the roller is effected by merely letting go of the shade on its descent without any manipulation whatever, the pawl, on such descent of the shade, being always in position for immediate engagement with the ratchet; also, that the shade will ascend slowly under the influence of the spring without locking the roller. Further, it will be observed that the pawl and ratchet are not caused to engage by varying the speed of the roller through a manipulation of the shade, said roller locking, on the descent of the shade at any speed, by merely letting go of the latter, and not locking at all on the ascent of the shade, except in case of rapid motion due to accident.

By "letting go" I do not mean an absolute withdrawal of the operator's hand from the shade, though such withdrawal will be that usually employed, and will effect the result suggested, but only such relaxation or suspension of the downward pull on the shade as will permit the roller to revolve under the recoil of the spring far enough to make the pawl move from the position it occupies in Fig. 5 to that shown in Fig. 3.

It will be noted that, as the pawl engages with its ratchet after the descent of the shade, the latter will never ascend until the roller is first locked. The advantage of this is that

the shade is not liable to fly up out of reach, as in other cases, when drawn down and suddenly let go—a practice which children, careless persons, and those unfamiliar with the manipulation of certain shades are apt to indulge in.

With my invention the roller is always locked before the shade ascends, and hence no such inconvenience as the sudden ascent of the shade, upon being drawn down and then released from the grasp without manipulation to effect the locking of the roller, can ever occur.

What I claim as my invention is—

1. In combination with a shade-roller provided with a spiral spring for rolling up the shade, a pawl and ratchet so arranged that the former will engage with the latter by simply pulling down the shade at any speed, either vertically or at any inclination from the window, and will not engage when the shade is raised slowly either vertically or at such inclination, substantially as set forth.

2. In combination with a shade-roller provided with a spiral spring for rolling up the shade, a slotted two-ended pawl hung upon a fast collar on the spindle, and an annular ratchet secured to the roller and moving therewith, said parts being arranged substantially as described, so that said pawl will, on the descent of the shade at any speed, automatically assume such position that it will engage with the ratchet and lock the roller on merely letting go of the shade without any manipulation, and when the shade is caused to ascend slowly will not engage with said ratchet.

3. In combination with a shade-roller having a spiral spring for winding up the shade, and a ratchet,  $F$ , a double-ended tilting pawl,  $E$ , formed with an elongated slot,  $e^2$ , whereby said pawl may be slid back and forth to bring it into and out of position for engagement of either end with said ratchet, as set forth.

4. In combination with a spring curtain or shade roller, a pawl and ratchet or locking device that will lock the roller on the descent of the shade, before the latter can ascend, by simply pulling down the shade vertically or at any inclination from the window, as and for the purpose set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 7th day of November, 1877.

J. CHRISTOPHER LAKE.

Witnesses:

M. D. CONNOLLY,  
CHAS. F. VAN HORN.