

D. E. KEMPSTER.
Spring Shade-Roller.

No. 224,596.

Patented Feb. 17, 1880.

Fig. 1.

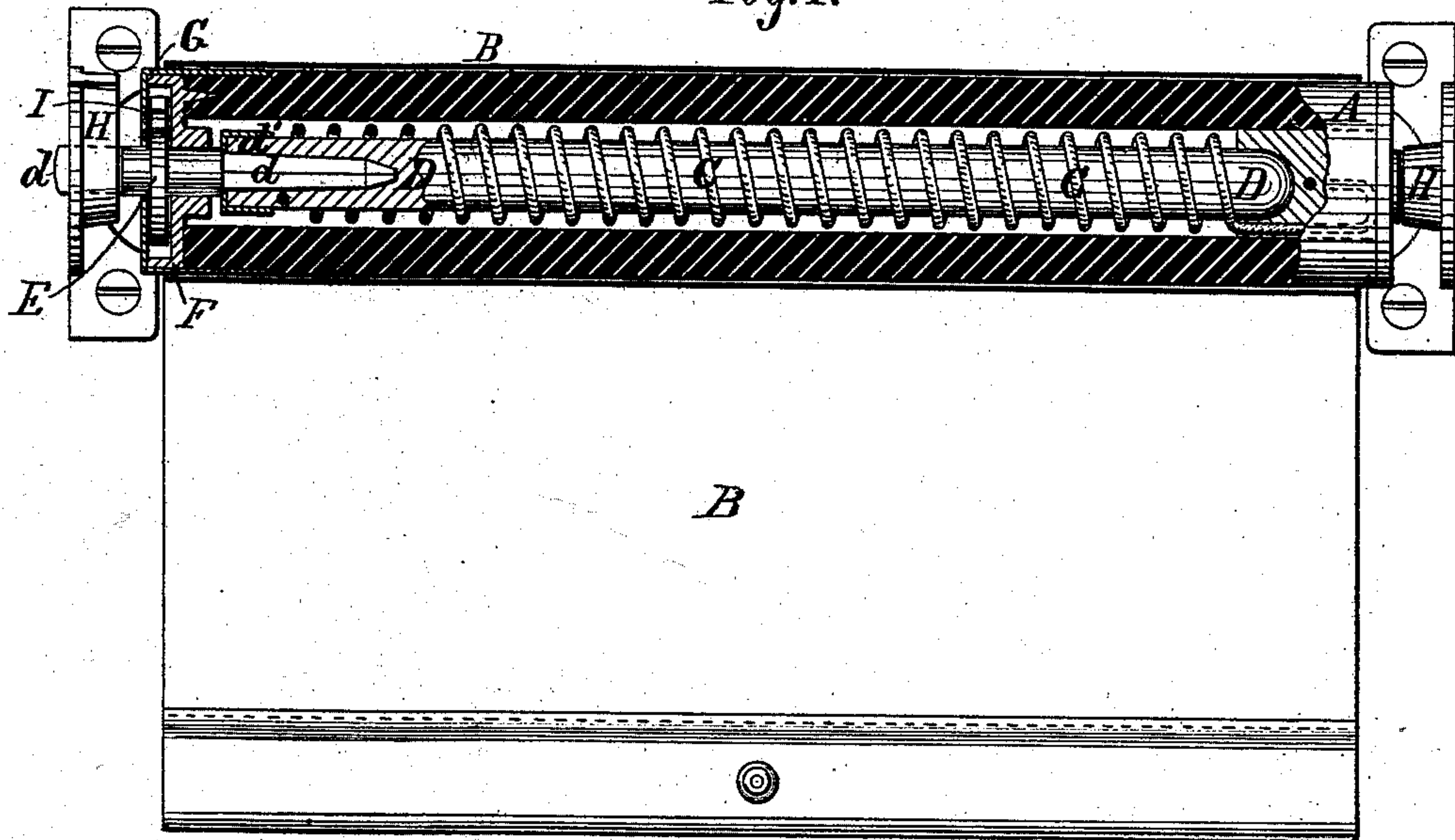


Fig. 2.

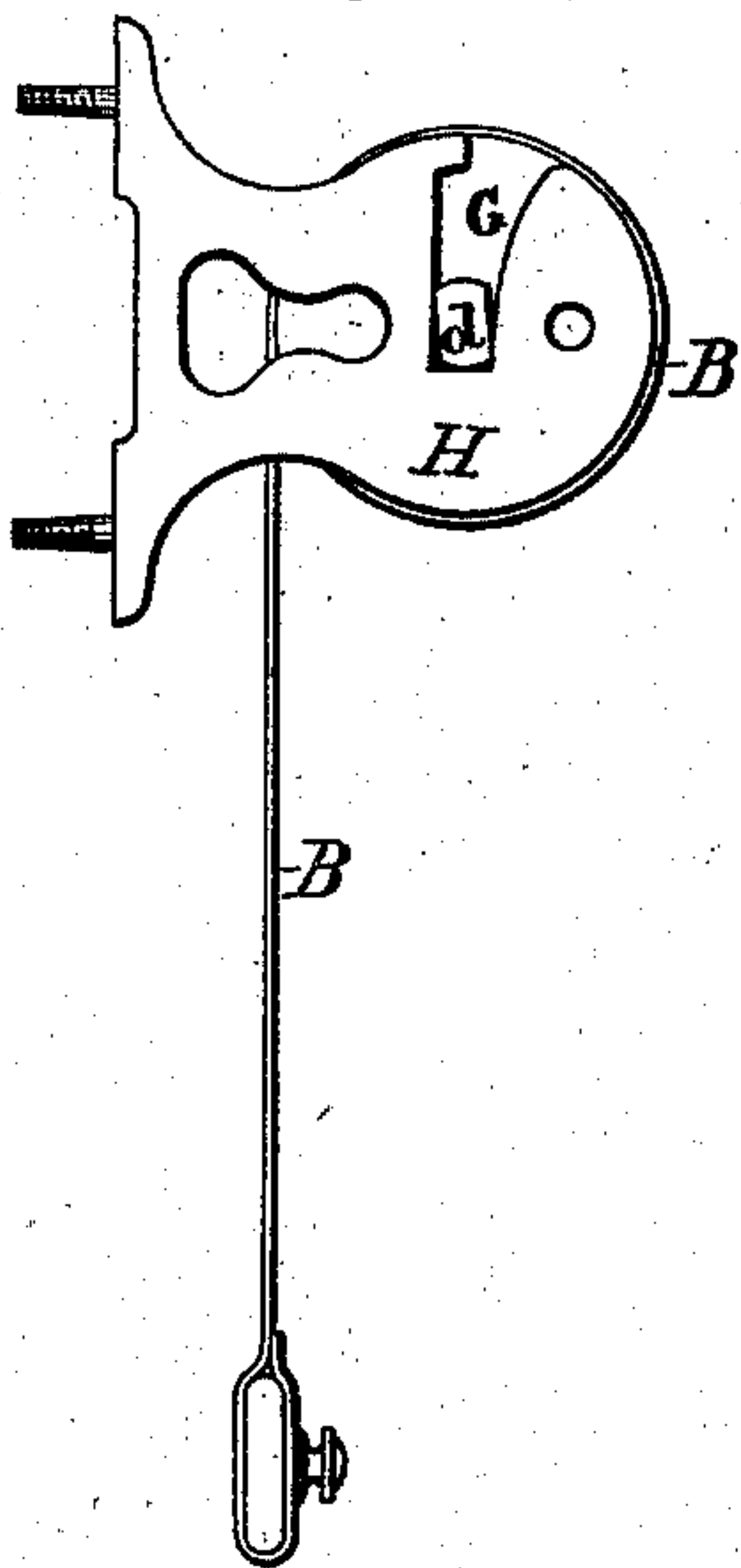


Fig. 3.

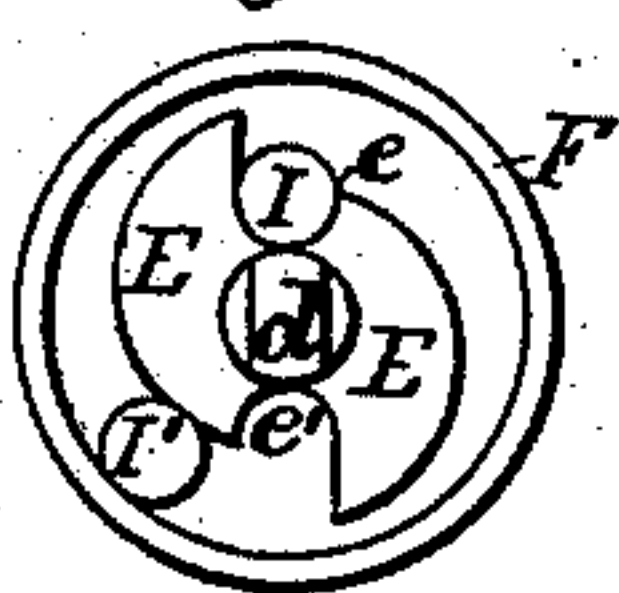


Fig. 5.

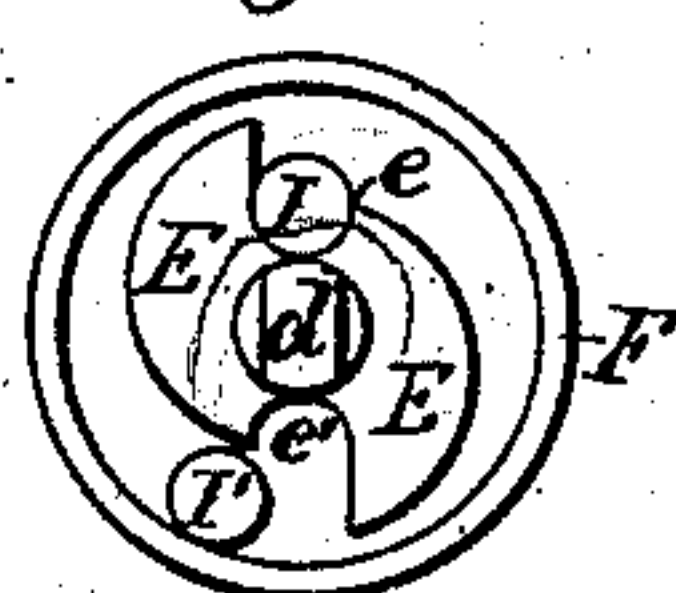


Fig. 4.

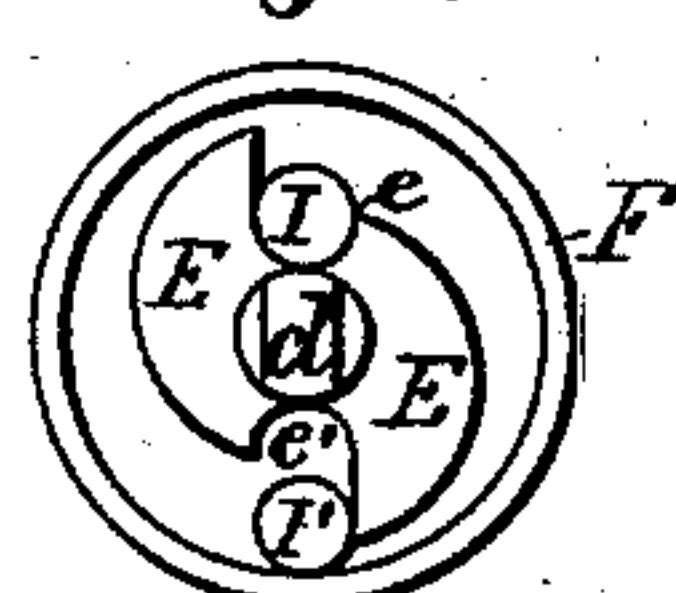


Fig. 6.

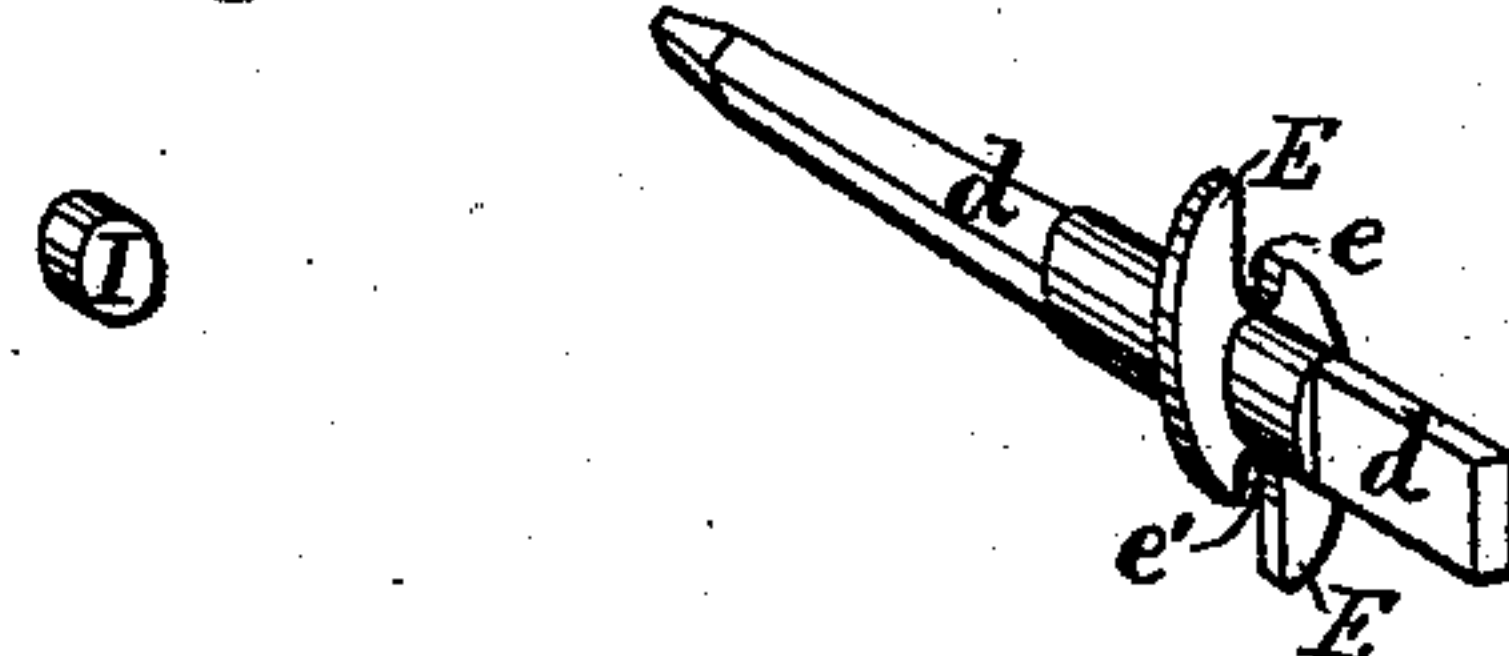
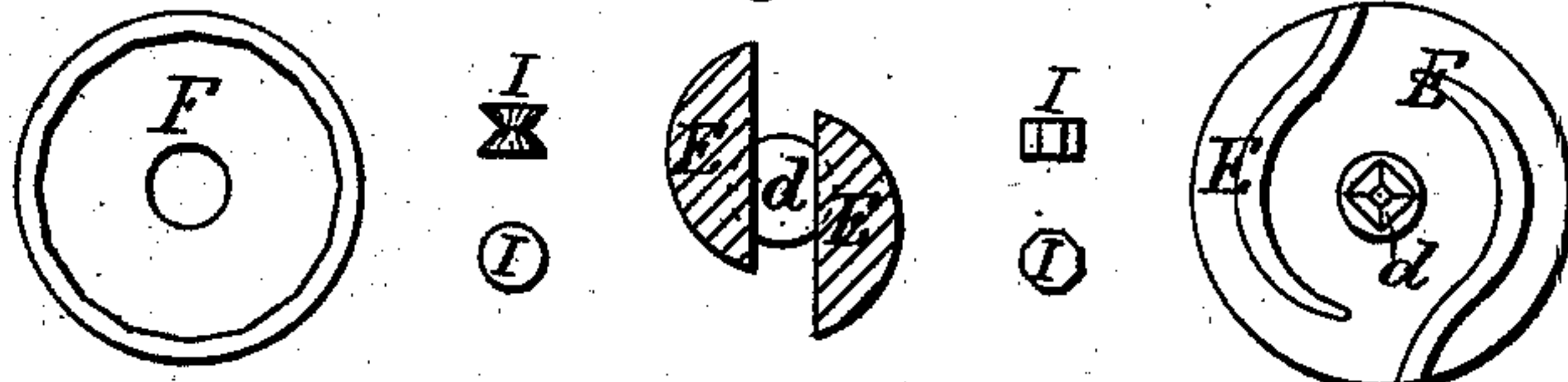


Fig. 7.



Witnesses:

Henry Chadbourne.
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Inventor:

Daniel E. Kempster
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his atty.

UNITED STATES PATENT OFFICE.

DANIEL E. KEMPSTER, OF BOSTON, MASSACHUSETTS.

SPRING SHADE-ROLLER.

SPECIFICATION forming part of Letters Patent No. 224,596, dated February 17, 1880.

Application filed July 15, 1878.

To all whom it may concern:

Be it known that I, DANIEL E. KEMPSTER, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Spring Curtain or Shade Rollers; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

The object of my invention is to provide a spring curtain or shade roller which will lock automatically, without any manipulation whatever, by merely letting go of the shade either in its descent or ascent, and which will not lock if the shade is permitted to ascend slowly under the influence of the spring.

This my invention consists in the combination, with a spring curtain or shade roller, of a frictional locking device constructed as hereinafter described, whereby the roller will be locked automatically on letting go of the shade, either in its descent or ascent, without any manipulation, such as drawing the shade out at an inclination from the window to engage the locking device or checking the rotation of the roller and the upward movement of the shade under the influence of the spring to cause the engagement of the locking device, and also without the rapid rotation of the shade-roller under the influence of the spring to generate centrifugal force for causing the engagement of the locking device, and which will not lock the roller when the shade is permitted to ascend slowly under the influence of the spring.

On the accompanying drawings, Figure 1 represents a longitudinal section of my improved spring curtain and shade roller. Fig. 2 represents an end view of the roller. Figs. 3, 4, and 5 represent end views, showing different positions of the loose frictional locking-rollers. Fig. 6 represents detail perspectives of the several parts, and Fig. 7 represents modifications of each of the pieces.

Referring to the accompanying drawings, A designates a roller; B, its shade; C, the spring, and D the shaft or spindle. Said shaft has an

angular end, *d*, by which it is fitted fast in the bracket H, so that the roller A will revolve around it under the influence of the spring C, the ends of the latter being secured one to the roller and the other to the shaft. Said shaft is preferably made in two sections, D and *d*, the section D being of wood, having a socket in its outer end, in which the squared inner end of the section *d* fits, said socket being protected by a metallic cap, *d'*.

The section *d* is of metal, and is formed or provided with a fast double-cam disk, E, with pockets *e e'* near the spindle *d*; and F is an annular flanged disk fastened on the end of the shade-roller A inside its cap G. I I' are the two frictional locking rollers or balls.

I do not confine myself to the particular shape of the several parts of the locking mechanism, as the frictional surfaces of the parts may be increased by making them V-shaped, or otherwise; also, a single cam and one single roller may be used, if preferred, some modifications of the parts being shown in Fig. 7, and this may all be done without departing from the spirit of my invention.

The operation is substantially as follows: The parts described occupying the relative positions shown in Fig. 3, the roller will be locked. The fixed central cam-disk, E, having a cam and pocket on each side of the spindle, with a loose locking-roller for each pocket, the shade-roller may be placed in its brackets either side up. As shown, one locking-roller, I, remains in its pocket *e*, the other locking-roller, I', engaging with the annular flanged disk F on one side and the fixed central cam-disk, E, on the other side, thus forming a frictional lock.

To cause the shade to descend, it is merely drawn down at any desired rate of speed. If drawn down with the rapidity usually employed, the locking-roller I' will take the position shown in Fig. 4, and will have received a rotary motion from the frictional contact of the annular flanged disk F, on which it rests, sufficient to cause it, on letting go or stopping the downward motion of the shade, to automatically start forward and roll in between the annular flanged disk F and the convergent side of the central cam-disk, E, as shown in Fig. 3, thus forming a lock without any ascen-

sion of the shade other than the more closely settling together of the frictional parts under the influence of the spring. If the shade is drawn down slowly, the locking-roller I' will take the position shown in Fig. 4, but does not have sufficient rotary motion to ascend and engage in the manner before described.

To cause the shade-roller to be locked, the shade is merely let go. The action of the spring immediately reverses the motion of the shade-roller, and the locking-roller I' instantly engages with the convergent side of the central cam-disk, E, thus forming a frictional lock between the latter and the annular flanged disk, as shown in Fig. 3.

To wind up the shade, it is first drawn down sufficiently to release the locking-roller I' from engagement, when it returns by its own gravity to the position shown in Fig. 4. If the shade be now permitted to slowly ascend, the locking-roller I' will take the position shown in Fig. 5, being caused to ascend, and there rotate in about that position by the frictional contact of the revolving annular flanged disk F, its own gravity being sufficient to keep it from engaging with the central cam-disk, E, while the shade is slowly ascending under the influence of the spring.

To lock the shade-roller upon or after the ascent of the shade, the latter is merely let go without any manipulation, when the locking instantly occurs by the locking-roller I' being drawn by the frictional contact of the annular flanged disk F under the recoil of the spring from the position shown in Figs. 4 and 5 into the position shown in Fig. 3, which is from one to two twelfths of a revolution of the shade-roller and from one-quarter to one-half inch rise of the shade, according to the amount of play allowed between the two positions of the locking-roller I' in Figs. 3 and 4.

The advantage of this peculiar manner of engagement of the locking device is, first, on drawing the shade down, dispensing with the necessity of any manipulation, such as drawing the shade out at an inclination from the window to engage the locking device, or checking the rotation of the roller and the upward movement of the shade under the influence of the spring, in order to effect the engagement of the locking device; and, second, dispensing with the necessity of the rapid rotation of the shade-roller under the influence of the spring to generate centrifugal force for caus-

ing the engagement of the locking device, and thus dispensing with the injurious shock on the shade-roller consequent upon the sudden stoppage of the rapid revolution of the roller, as is the case when the locking device is caused to engage by centrifugal force.

Thus it will be seen that with my invention the locking occurs instantly and automatically on letting go of the shade, either in its descent or ascent. Hence the rapid rotation of the shade-roller under the influence of the spring causing the shade to fly up suddenly out of reach can never occur, as certain shades will do upon being drawn down and then released from the grasp without manipulation to effect the locking of the roller. This device may also be used on spring-balance shade-rollers to automatically lock the spring and roller together on the removal of the roller from its brackets, in connection with an improved friction device and the usual counterpoise, and for this kind of shade-roller will form the subject of another application for patent.

What I claim, and wish to secure by Letters Patent, is—

1. The combination, with a spring shade-roller, of a cam-disk fixed to the spindle, a frictional locking-roller, and a continuous annular flange, arranged for operation substantially as described.

2. For application to a shade-roller, A, and its spindle D, provided with a winding-spring, C, as described, the cam-disk E, fixed to the spindle d, constructed and arranged as set forth, in combination with the loose frictional locking-rollers I I', and with the continuous annular flanged disk F, all being arranged to operate substantially as described.

3. In combination with a shade-roller having a spiral spring for winding up the shade, and an annular flanged disk, F, and locking-rollers I I', a double-cam disk, E, fixed to the spindle d, and formed with two pockets, e e', whereby the uppermost one of the loose frictional locking-rollers I I' will always be held out of engagement, substantially as described.

In testimony that I claim the foregoing as my own invention I have affixed my signature in presence of two witnesses.

DANIEL E. KEMPSTER.

Witnesses:

ALBAN ANDRÉN,
HENRY CHADBURN.