

J. C. LAKE.
Curtain-Rollers.

No. 223,594.

Patented Jan. 13, 1880.

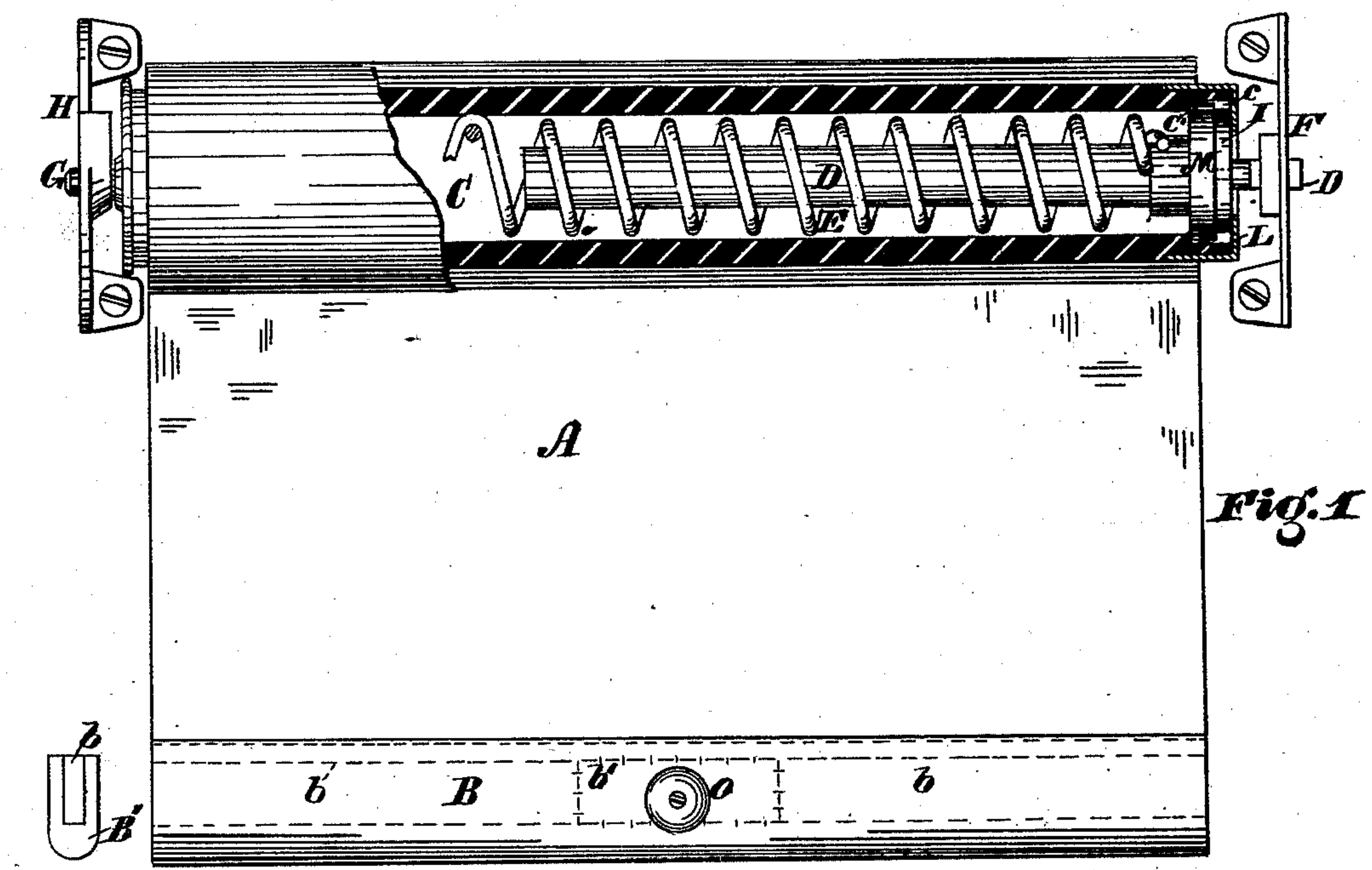


Fig. 9

Fig. 1

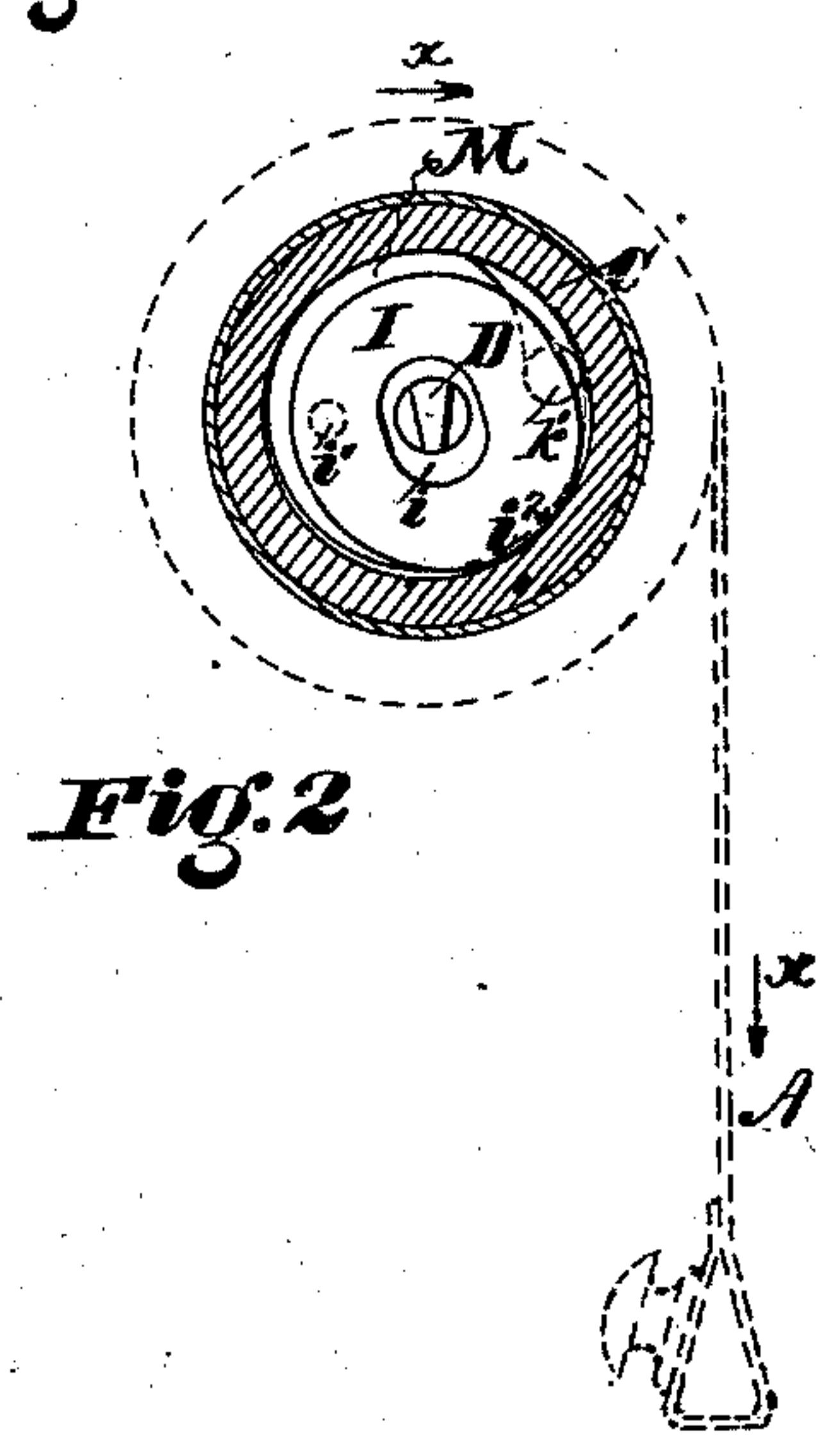


Fig. 2

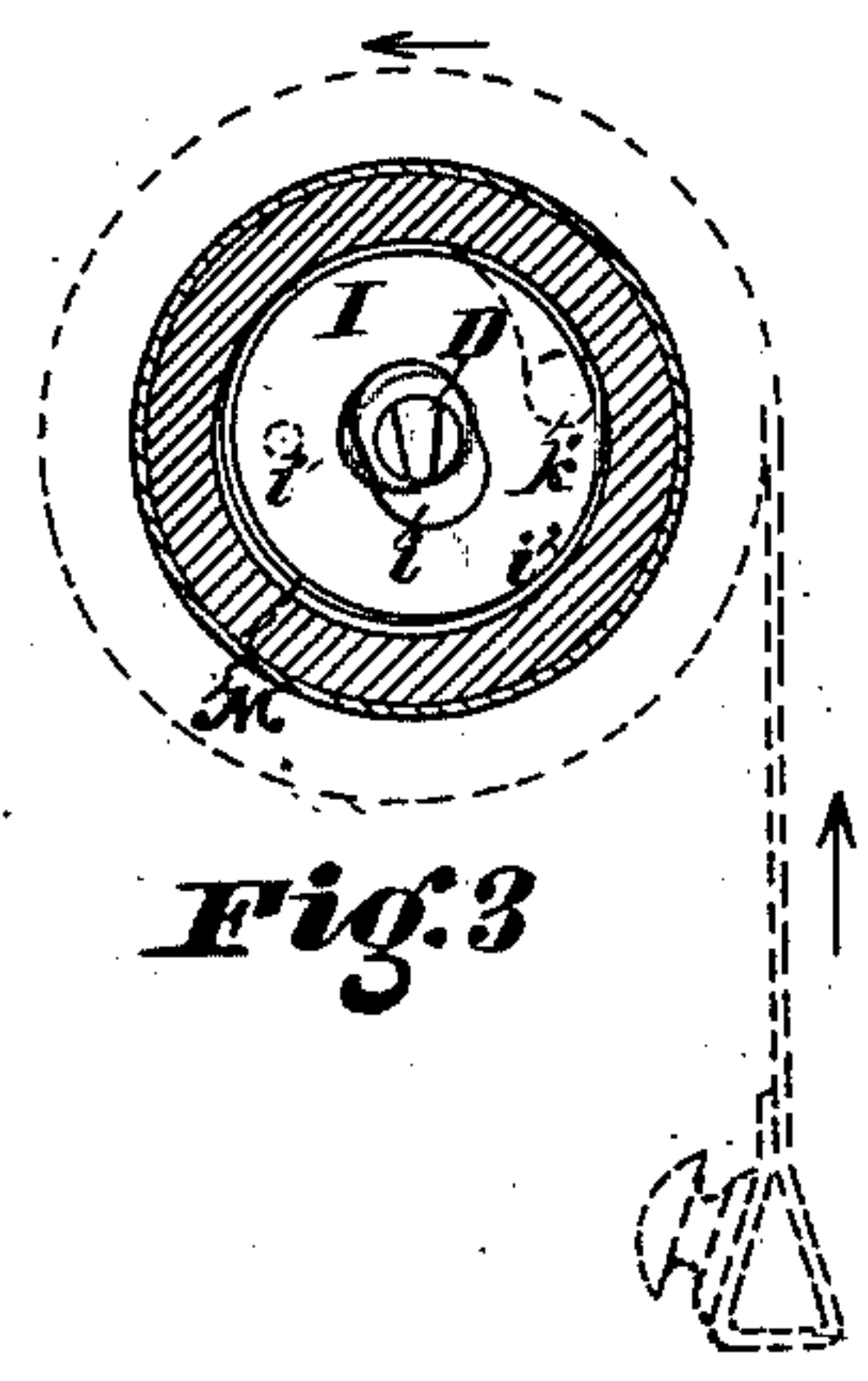


Fig. 3

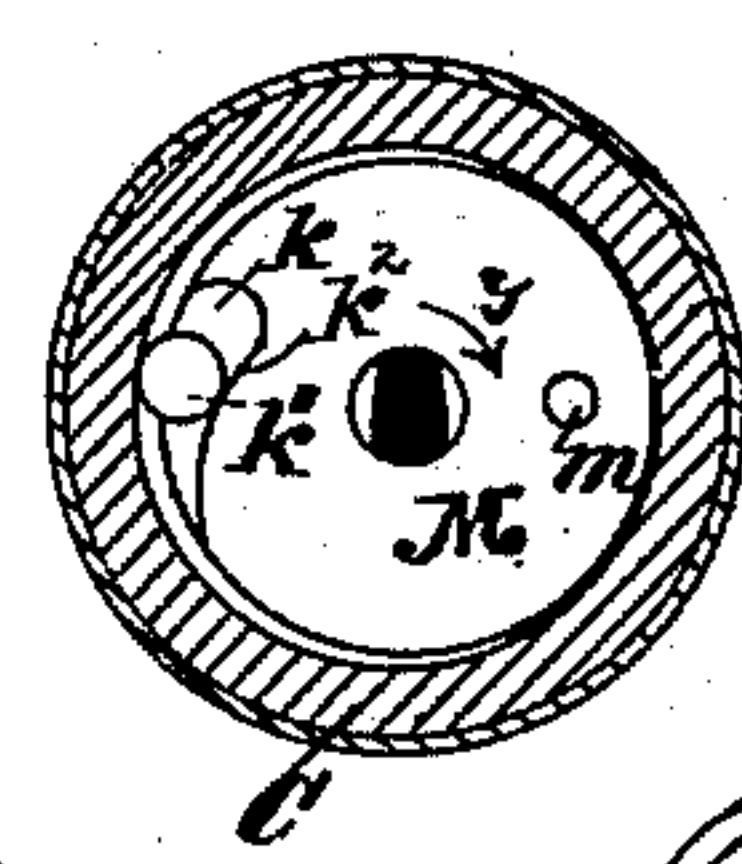


Fig. 4

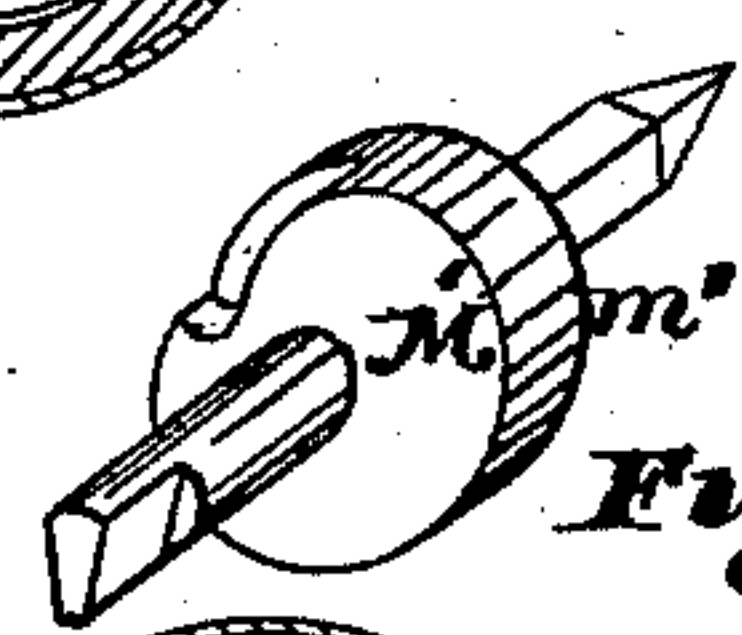


Fig. 8

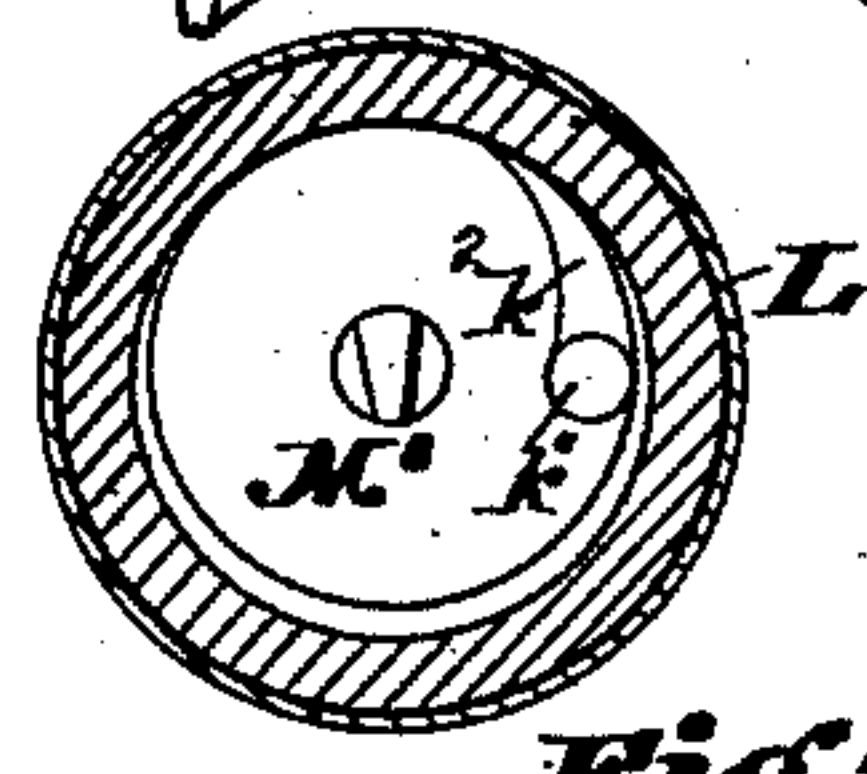


Fig. 7

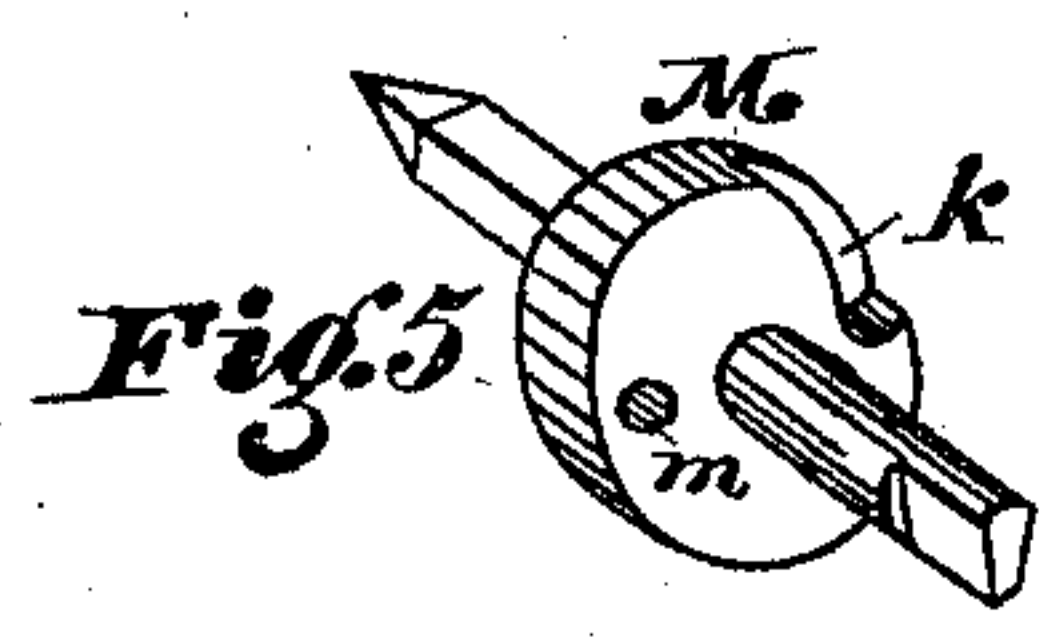


Fig. 5

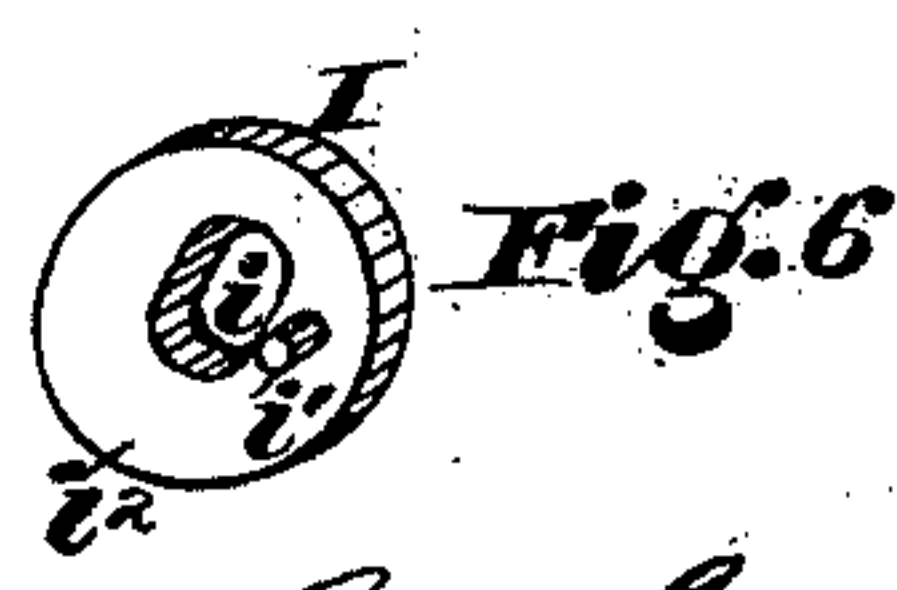


Fig. 6

WITNESSES:

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UNITED STATES PATENT OFFICE.

J. CHRISTOPHER LAKE, OF CAMDEN, NEW JERSEY.

CURTAIN-ROLLER.

SPECIFICATION forming part of Letters Patent No. 223,594, dated January 13, 1880.

Application filed March 4, 1878.

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
5 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
10 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 vertical longitudinal section of my invention. Figs. 2, 3, and 4 are vertical
15 transverse sections, the latter showing the roller removed from the brackets. Figs. 5 and 6 are detail views. Fig. 7 is a transverse vertical section; Fig. 8, a perspective of a modification, and Fig. 9 end view of weighted slot.
20 My invention has relation, primarily, to means for creating friction or binding between the roller and spindle of a spring shade-roller, so as to cause a balance or weighted shade to remain exactly in the position to which it may
25 be adjusted.

In the annexed drawings, A indicates a shade weighted at B; C, the roller; D, the spindle, and E the spring, said spindle resting in a bracket, F, and a journal, G, on the opposite end of the roller finding a bearing in
30 another bracket, H.

The foregoing parts constitute an ordinary spring-balance or weighted shade and fixtures. The weight is designed to equalize the spring;
35 but as the tension of the spring is increased by drawing down the shade, and decreased by raising the latter, it follows that such equalization with the foregoing parts simply is not obtainable. Hence, where a strong spring is
40 employed, or one which will equalize the weight when the shade is raised to a considerable extent is employed, the shade will have a tendency to draw up when lowered to, or nearly to, its full extent, and on the other
45 hand, where a weak spring is employed, when the shade is considerably elevated, such spring will be insufficient to balance the weight, and the latter will draw down such shade from its adjusted position.

50 To provide means for effecting such equalization, I produce a construction which lends

to the spring the aid of friction or binding, so as to equalize the weight when the shade is at rest, such friction or binding operating also when the shade is being drawn down, and being relieved when the weight is lifted, to permit the shade to be wound up by the spring. 55

M represents a collar or other projection fast on the spindle D, and I a cam-shaped disk provided with a pin, *i'*, which projects
60 through an opening, *m*, in said collar, forming a pivotal connection between the latter and the said disk. When the disk I is rocked or swung upwardly on said pivot, as hereinafter described, it is concentric with the collar M, 65 or at least no part of its periphery projects beyond that of said collar. When, on the contrary, the disk I is swung or rocked downwardly on its said pivot, it is eccentric to the collar M, and a shoulder or swell, *i*², projects
70 beyond the periphery of the latter. The spindle D passes through a centrally-located opening, *i*, in the disk I, which is of larger diameter than said spindle.

The operation is as follows: The parts being arranged relatively as shown in Fig. 2, 75 the disk I drops or rocks on its pivot until it is eccentric to said collar M. The gravity of the weight B drawing upon the shade will produce a tendency on the part of the roller to
80 revolve in the direction of the arrow *x* in Fig. 2, and will cause the cam or disk I to bind against the wood of the roller or wedge between the roller and the collar M, such binding or wedging offering, with the resilience or
85 tension of the spring, sufficient resistance to prevent the shade from unwinding by reason of the gravity of the weight alone, and hence maintaining the shade in the position in which it has been adjusted. If the shade be drawn
90 down, the cam will continue in the same position and produce friction against the roller, such friction, however, being so slight that it is easily overcome by the drawing action on the shade. When, however, the weight is
95 lifted, allowing the spring to reverse the motion of the roller and wind up the shade, the cam or disk I is thereby lifted or rocked out of its eccentric into its already-described concentric position, where it no longer opposes
100 any, or any appreciable, resistance to the rotation of the roller.

When the shade has attained the desired altitude, the weight being dropped or let go of, the disk I falls by gravity and assumes its normal or eccentric position, and acts as before.

It will be thus observed that the weight is balanced not by the spring alone, nor by a friction-brake, but by the spring and brake acting together, the weight bringing such brake into action, and the friction being relieved when said weight is lifted.

By forming the collar M with a broad periphery or rim, as at m' , Fig. 8, the roller may be made to bind upon the upper side of this rim when the shade is in a state of rest and when descending with such force as, with the assistance of the tension or power of the spring, to offer resistance to the weight. When the weight is lifted the friction of the roller on the rim is so slight as to permit the spring to wind up the shade. I therefore unite two uses in this part of my device—a production of friction and a preventive of the spindle being forced into the roller.

To prevent the spring from uncoiling when the roller is removed from the brackets a locking device may be employed, as follows: Within the collar M or M' is formed a tapering channel or recess, k , in which is placed a ball or small loose roller, k' , which is prevented from moving laterally by the disk I when said disk is employed, and by the cap L when the wide-rimmed collar M' is used. The recess k is widest at its lowest extremity or bottom, and narrows or tapers as it ascends. So long as the shade-roller remains in its brackets the ball or locking-roller k' rests in the lower part of the recess k , where it will not interfere with the free rotation of the shade-roller, whether the shade be ascending or descending. As soon, however, as the shade-roller C is lifted out of its brackets, the recoil of the spring will start the spindle revolving, as indicated by the arrow y in Fig. 4. Said spindle carrying with it the collar M or M' , the recess k is transferred and becomes inverted, as shown in Fig. 4, so that its narrowest is now its lowest part. The small roller or ball k' , which is carried around with the collar, drops by gravity toward such narrowest part and binds between the inner side, k^2 , of the recess k and the adjacent side of the roller C, immediately arresting the rotation of the spindle and producing a lock on the spring, which cannot then further uncoil. When the roller is re-

stored to its brackets the locking device k' assumes its normal non-interfering position.

I have shown and described the device M or M' as a collar or circular disk; but it is obvious that this form may be modified or changed—as, for example, by the substitution for it of a quadrant or segment. I form a shoulder, C' , against which the collar M or M' will abut, thus preventing the spindle, when the roller is stood thereon, from being driven into the latter to the injury of the spring, &c.

To facilitate the insertion of a thumb or pull-down screw, O, in the lower part of the shade or in the slat which carries the weight, I make such weight in two sections, $b b$, and between their adjacent ends I place a short piece of wood, b' , the several parts $b b b'$ being fitted in a groove in the slat B' . The thumb-screw may be readily inserted in the wooden piece b' , this arrangement permitting the use of iron for a weight, where heretofore lead was considered necessary.

What I claim as my invention is—

1. The combination, with a weighted shade and an internally-rabbeted spring-roller, of a spindle, D, having a collar, M, arranged to rest within the rabbet, whereby the spindle is prevented from being forced onto the roller, and friction is obtained between the collar and the roller to retard the descent of the latter, substantially as described.

2. The combination, with roller C, of spindle D, having collar or projection M, and pivoted disk I, substantially as shown and described.

3. The combination, with a spring shade-roller provided with a friction device to govern the balancing action of the spring, of a roller or ball fitted in a tapering recess in a disk upon the spindle and operating as a lock when the roller is removed from the brackets, substantially as described.

4. A weight for balance shade-rollers, consisting of two metal sections, $b b$, and a dividing-piece, of wood or equivalent, b' , inserted in a grooved slat, B' , substantially as shown and described.

In testimony that I claim the foregoing I have hereunto set my hand this 1st day of March, 1878.

J. CHRISTOPHER LAKE.

Witnesses:

JOHN RODGERS,
M. D. CONNOLLY.