

J. C. LAKE.
Spring Shade-Roller.

No. 210,337.

Patented Nov. 26, 1878.

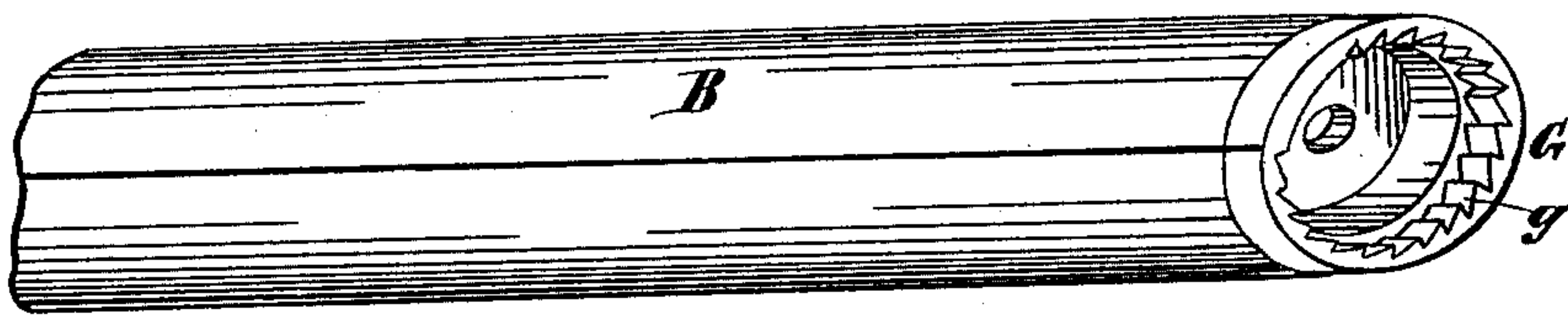
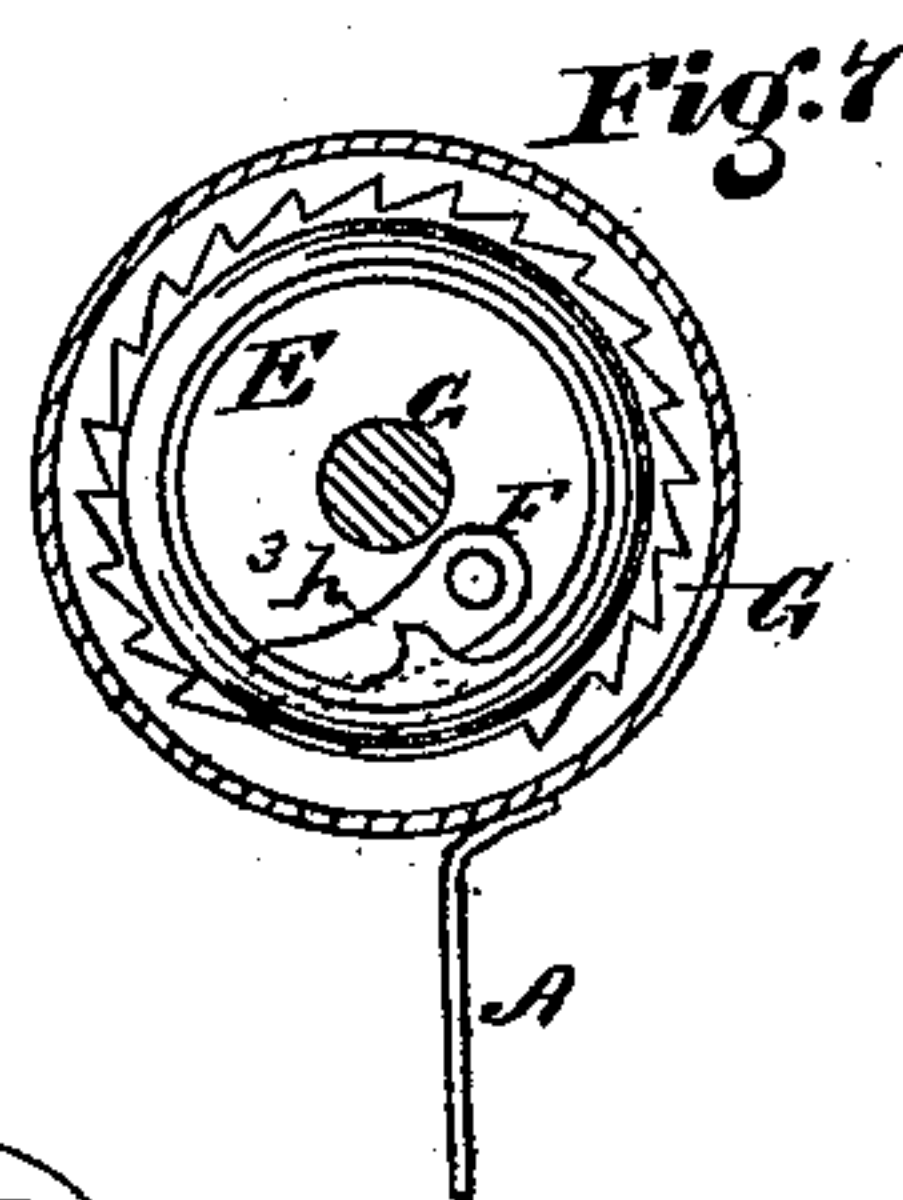
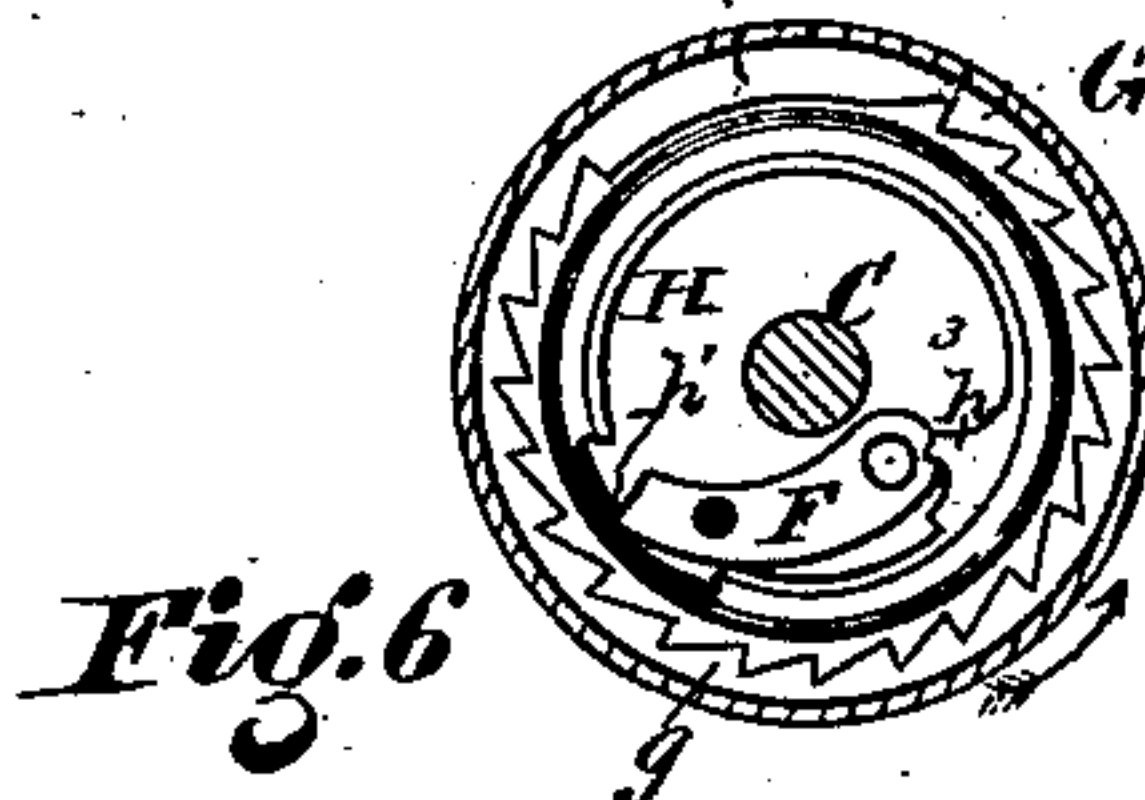
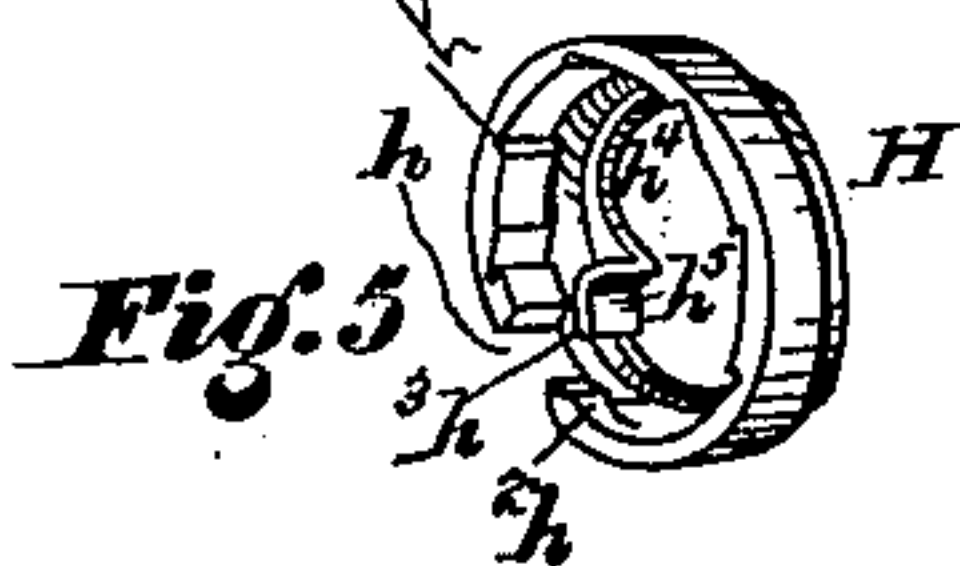
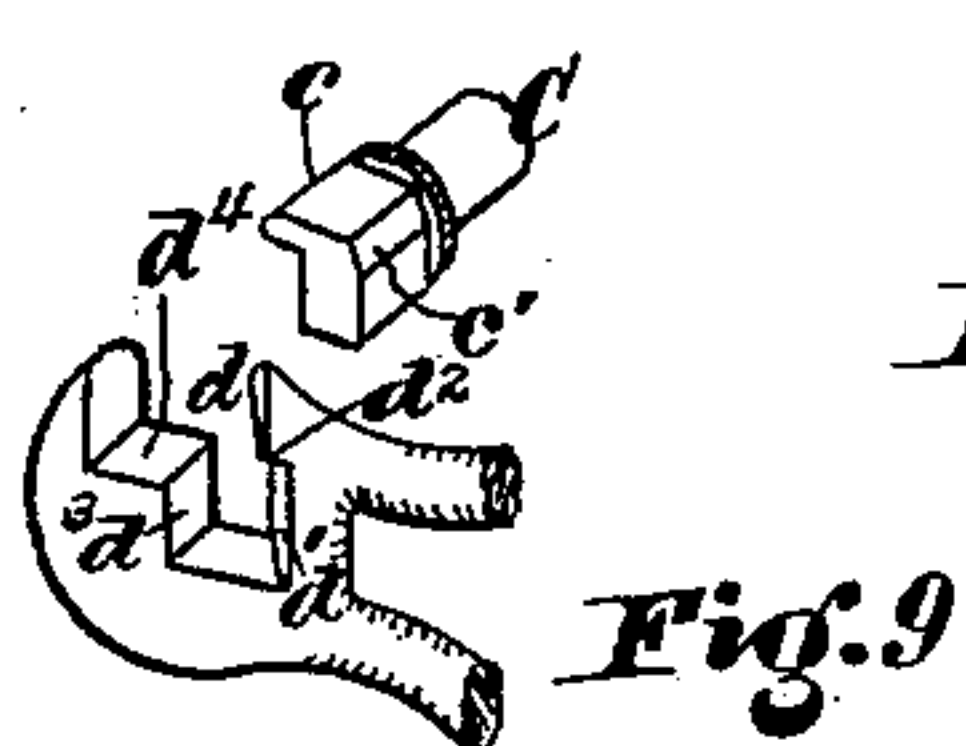
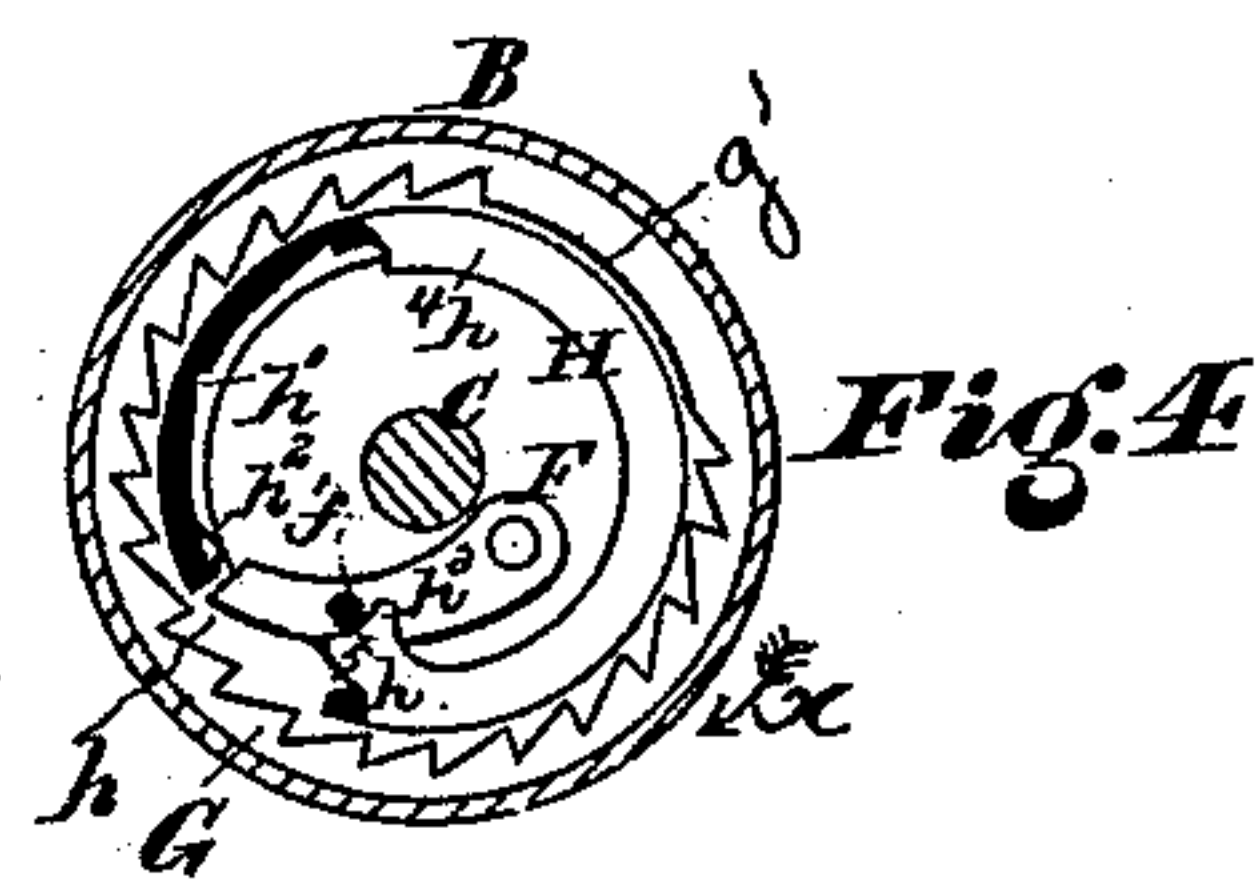
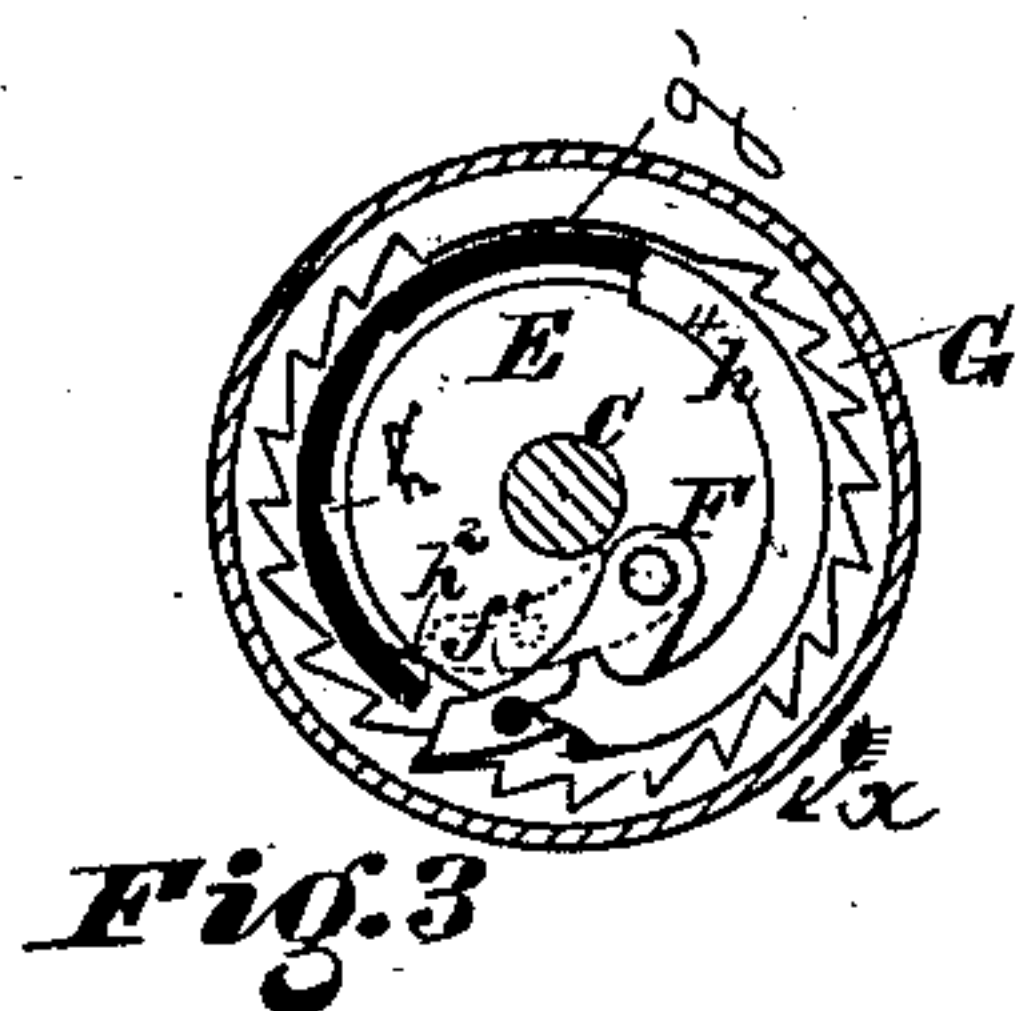
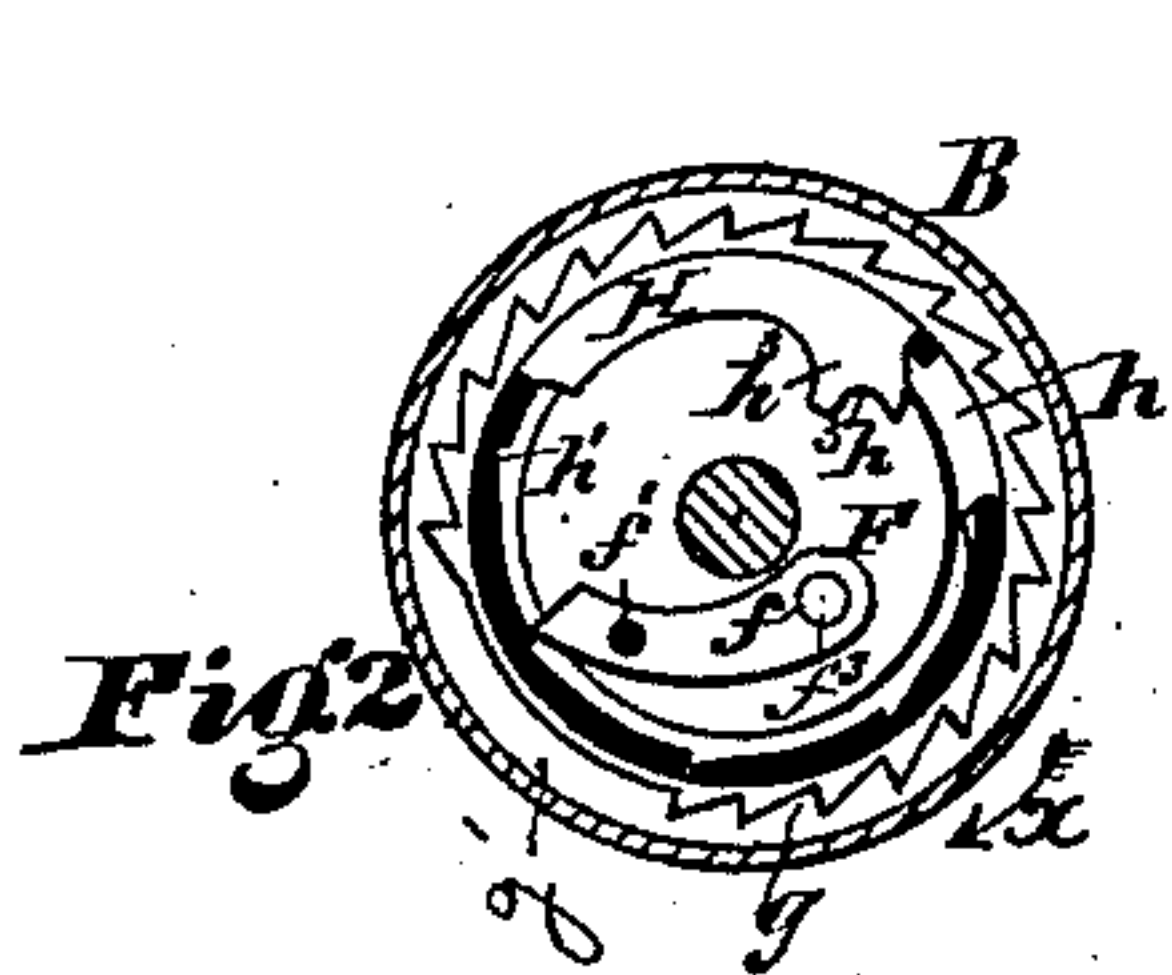
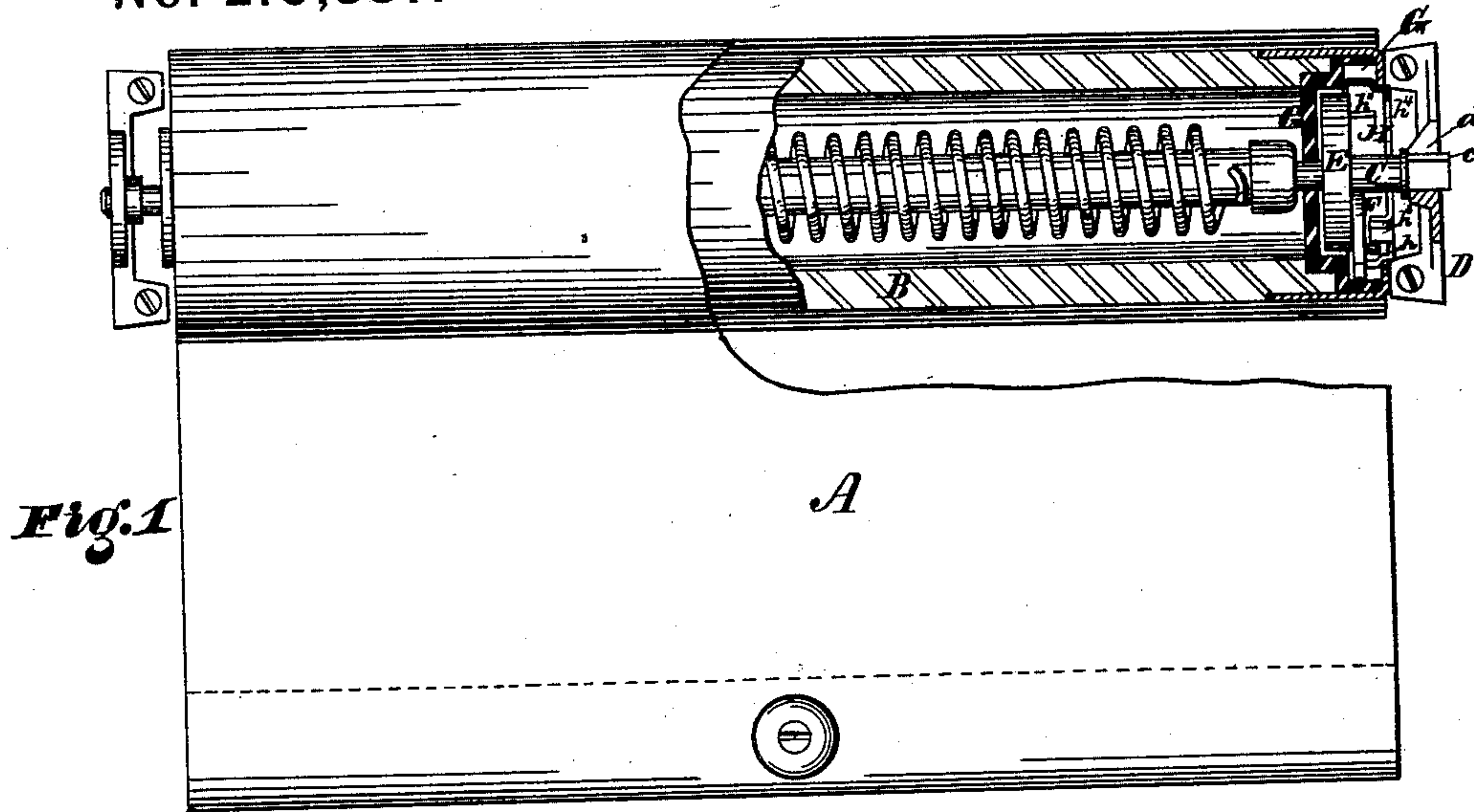


Fig. 8

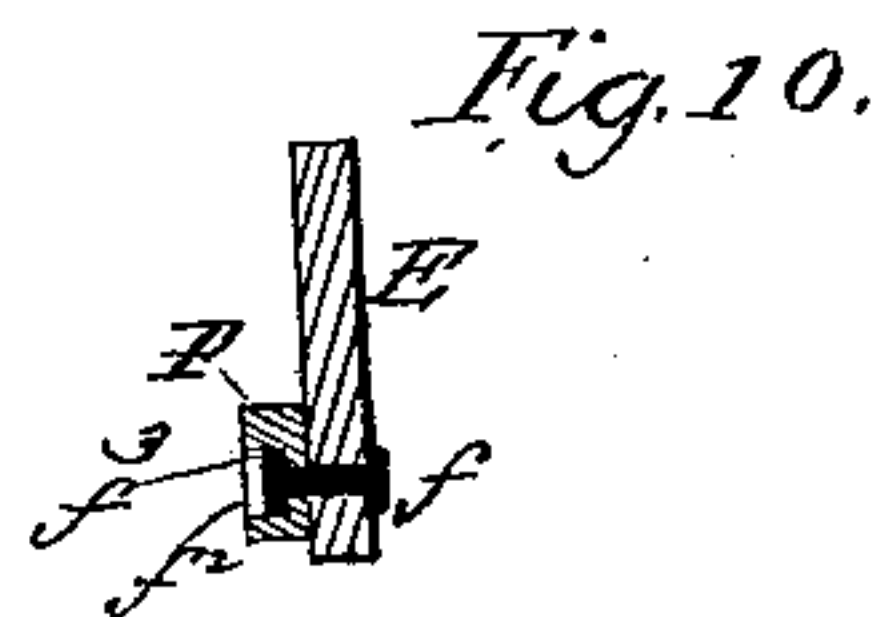


Fig. 10.

WITNESSES:

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UNITED STATES PATENT OFFICE.

J. CHRISTOPHER LAKE, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN SPRING SHADE-ROLLERS.

Specification forming part of Letters Patent No. **210,337**, dated November 26, 1878; application filed September 23, 1878.

To all whom it may concern:

Be it known that I, J. CHRISTOPHER LAKE, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Spring-Rollers for Shades, &c.; 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 front elevation, partly in section. Figs. 2, 3, 4, 5, 6, 7, 8, 9, and 10 are detail views.

My invention has for its object to provide a novel and serviceable locking device for spring shade-rollers; and my improvement consists in the peculiar construction and combination of parts making up such device.

My improvement consists, primarily, in the combination, with the pawl or dog and ratchet or detent of a spring shade-roller, of a sliding ring or band, to prevent engagement between said pawl or dog and ratchet and detent when the shade is ascending and descending.

My improvement also consists in the novel construction and combination of devices, as hereinafter described and claimed.

Referring to the accompanying drawing, A designates a shade, and B a spring-roller, to which said shade is fastened. C is the spindle, and D the bracket which receives the same. The end of said spindle is made substantially of oblong form in cross-section, with a shoulder or projection, *c*, on one of its corners.

The bracket D has a vertical slot, *d*, one side of which, *d*¹, is offset to form a shoulder, *d*², beneath which the corner *c* of the spindle end rests when in proper position.

On a line with the top of the opposite wall, *d*³, is a step, *d*⁴, which forms a rest or seat for the projection *c* on the spindle end. Said spindle end can be inserted in the bracket D only as shown in the drawing, and when the parts are so placed the locking devices will be in their proper position for working, thereby avoiding the annoyance of getting the spindle in the bracket with the locking devices in-

verted and inoperative, as not unfrequently occurs when the spindle is made with a triangular end, and the bracket has a corresponding opening to receive it.

E is a fixed collar or shoulder on the spindle C, and F a pawl or dog pivoted thereto at *f*. Said pawl has a countersink, *f*², and the rivet *f* has a head, *f*³, of less depth than said countersink.

By reason of this construction, when the rivet is being made fast its head will not be upset or caused to spread, and binding between it and the pawl will be thereby avoided.

The pawl F engages, as shown, with an internal annular ratchet, G, fixedly secured to and moving with the roller B.

H is a loose ring or band inserted between the collar E and ratchet G. Said ring is slotted or cut away at *h*, to permit the point or toe of the pawl to come into engagement with the teeth *g* of the ratchet G. The portion of the band which forms one end of said slot is struck up to produce a lug or lift, *h*², while projecting over the middle, or about midway between the ends of said slot, is an ear, *h*³, which proceeds laterally from a flange, *h*⁴, on the ring or band H. Said ear is recessed or indented at *h*⁵, to form a bearing for a pin, *f*¹, which projects laterally from the pawl F.

*h*¹ *h*¹ are notches or teeth formed on the interior surface of the band H, and *g* represents a blank portion of the ratchet G.

The operation is as follows: Assuming the parts to be in the position in full lines in Fig. 3, the pawl F in engagement with a tooth of the ratchet G, the roller is locked and the spring unable to move it. Now, upon drawing down the shade the roller is revolved in the direction of the arrow *x*, the band H making one revolution with the roller, and being then arrested by the pin *f*¹ on pawl F. The parts have now assumed the position shown in Fig. 4, the band H having passed under the pawl F, and the latter having been lifted by the lug *h*² into position to oppose the ear *h*³ and drop into the seat *h*⁵. In this position the further revolution of the band H is checked, while the revolution of the roller may proceed as long as the downward pull on the shade is continued. On letting go of the shade the

spring starts the roller revolving in the opposite direction, the latter carrying the band H with it, thereby drawing the ear h^3 away from the pin f^1 , and permitting the pawl F to drop its outward end through the slot h . The pawl F is thus brought into engagement with the ratchet G, and the revolution of the roller under the influence of the spring arrested at its start. The parts have thus again assumed the position shown in Fig. 3.

To permit the spring to wind up the shade, the latter is first slightly drawn down, revolving the roller less than a complete revolution, so that the pawl will ride the band H, as shown in Fig. 2. The shade is now permitted to ascend under the influence of the spring. This reverses the motion of the roller and of the band H, which start to move together; but the band H has but barely started when the shoulder of one of its teeth h^1 meets the toe of the pawl F, as shown in Fig. 6. The roller is yet free to revolve, as before, and to continue winding up the shade, while the band H retains its position checked and holding the pawl out of engagement with the ratchet G.

To lock the roller on the upward motion of the shade, the latter must first be drawn down slightly, thus bringing the band H around until the ear h^3 comes into position, as already described, to be opposed to the pin f^1 . Now, on letting go of the shade the pawl will drop through the slot h and engage with the ratchet G, thereby effecting the lock.

The distance of the pin f^1 from the toe of the pawl F and the space between the lug h^2 and ear h^3 are so related that the moment the toe of the pawl leaves said lug the ear h^3 will be in position to receive said pin f^1 without allowing said toe to drop through the slot h , the entrance of said toe to said slot being after the motion of the roller is reversed and the ear h^3 drawn away from the pin f^1 , as already described. Hence the roller will be always locked after drawing down the shade a single revolution or more of the roller, and must be unlocked before the shade can ascend, the operation in this respect being the same as in the improvements for which Letters Patent of the United States, dated March 5, 1878, were issued to me.

When the shade is fully unwound the parts will occupy the position shown in Fig. 7—the blank portion of the ratchet G back of the pawl-toe. In this position, it will be observed, the pawl must travel the length of the blank before it will find a tooth to engage with in the ratchet G. Now, the line of attachment of the shade to the roller is coincident, or nearly coincident, with the rear terminus of the blank g' . Hence, when the shade is wholly unwound, if it be pulled downwardly

but slightly the blank will be moved forwardly under the toe of the pawl, so that said toe will pass from the front to the back of said blank. In this movement of the blank (or of the ratchet of which it is a part) the band H passes under the pawl, lifting the latter out of engagement and out of position to engage with the ratchet G. Now, on letting go of the shade, the pawl being kept out of engagement with ratchet G, as the band H retains its position, the spring will wind up said shade.

To insure the proper attachment of the shade to the roller, the tacking-line of the roller should be marked on the latter coincident with the rear end of the blank g' , as shown in Fig. 8.

What I claim as my invention is—

1. In a spring shade-roller having a pawl or dog and ratchet or detent, and in combination therewith, a sliding ring or band, operating substantially as described, to prevent engagement between said pawl or dog and ratchet or detent when the shade is ascending and descending, as set forth.

2. In combination with the pawl or dog and ratchet or detent of a spring shade-roller, a ring or band interposed between said parts, and formed with a slot or opening, through which the pawl or dog is permitted to pass in order to engage with the ratchet or detent.

3. The band or ring H, having a slot or opening, h , lug h^2 , and recessed or indented ear h^3 , in combination with the ratchet and pawl, substantially as shown and described.

4. The combination of ring or band H, having slot or opening h , teeth h^1 , lug h^2 , and ear h^3 , with the pawl or dog F, having pin f^1 , and the ratchet, substantially as shown and described.

5. In combination with the pawl or dog F and band H, having the slot or opening h , the annular ratchet G, mutilated at g' to permit the spring to reverse the motion of the roller when the shade has been drawn down its full extent, substantially as shown and set forth.

6. The combination of the roller having the line of attachment of the shade marked thereon with reference to the blank portion of the ratchet with said ratchet, so that when the shade is wholly unwound the roller may be revolved sufficiently by pulling the shade to release the pawl and permit the spring to reverse the motion of the roller and wind up the shade, as set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 19th day of September, 1878.

J. CHRISTOPHER LAKE.

Witnesses:

JOS. B. CONNOLLY,
CHAS. F. VAN HORN.