

No. 670,366.

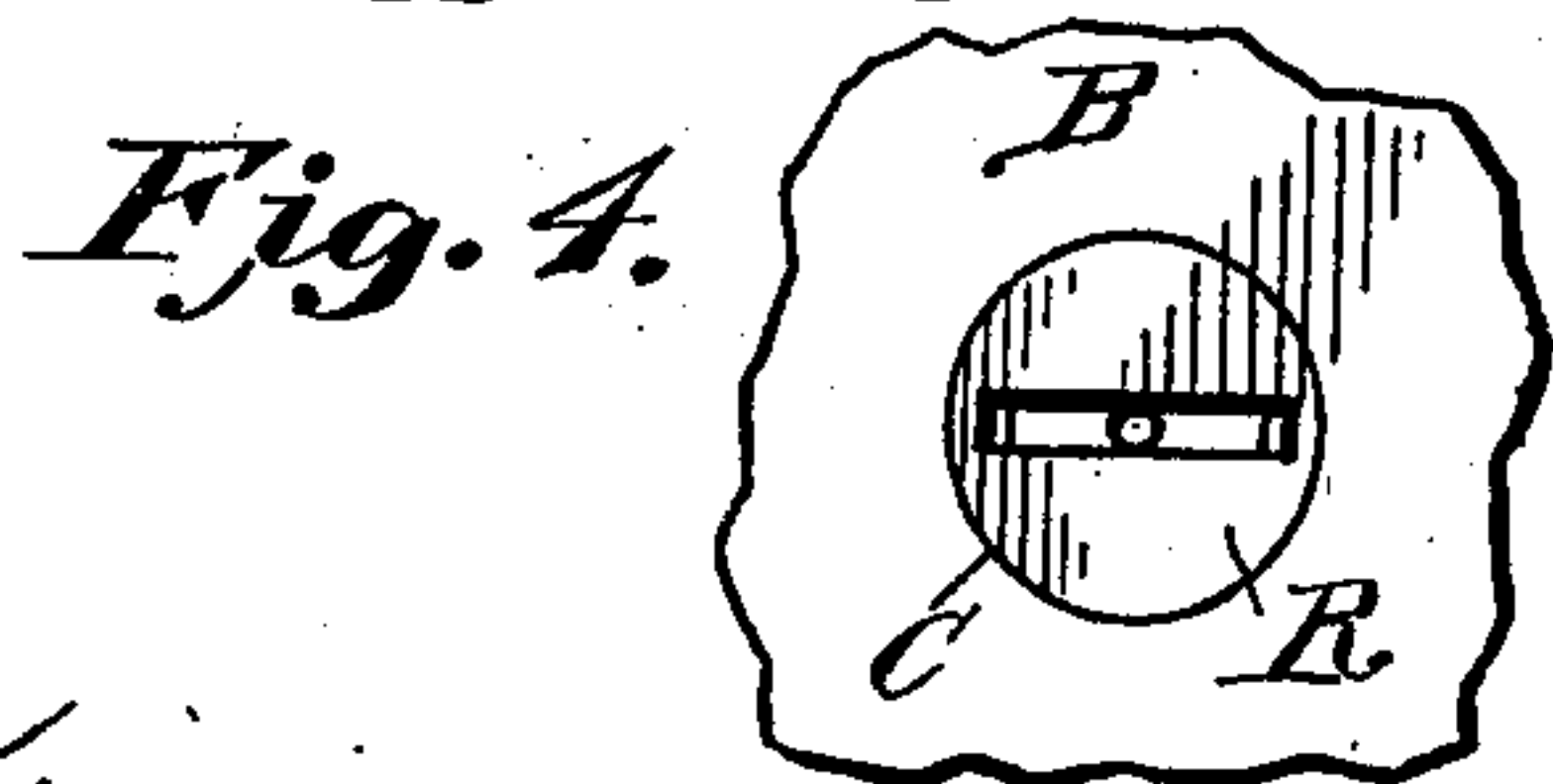
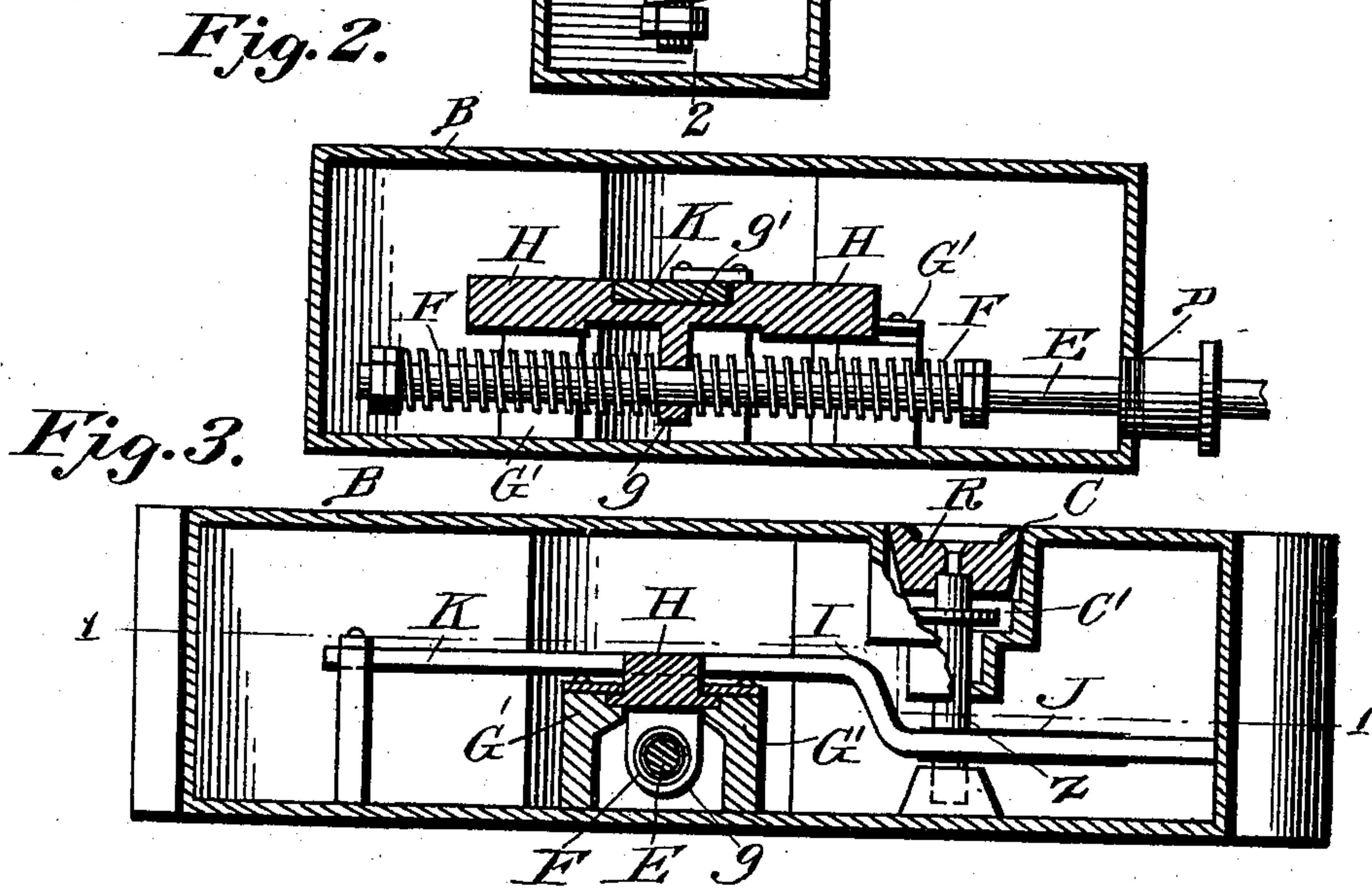
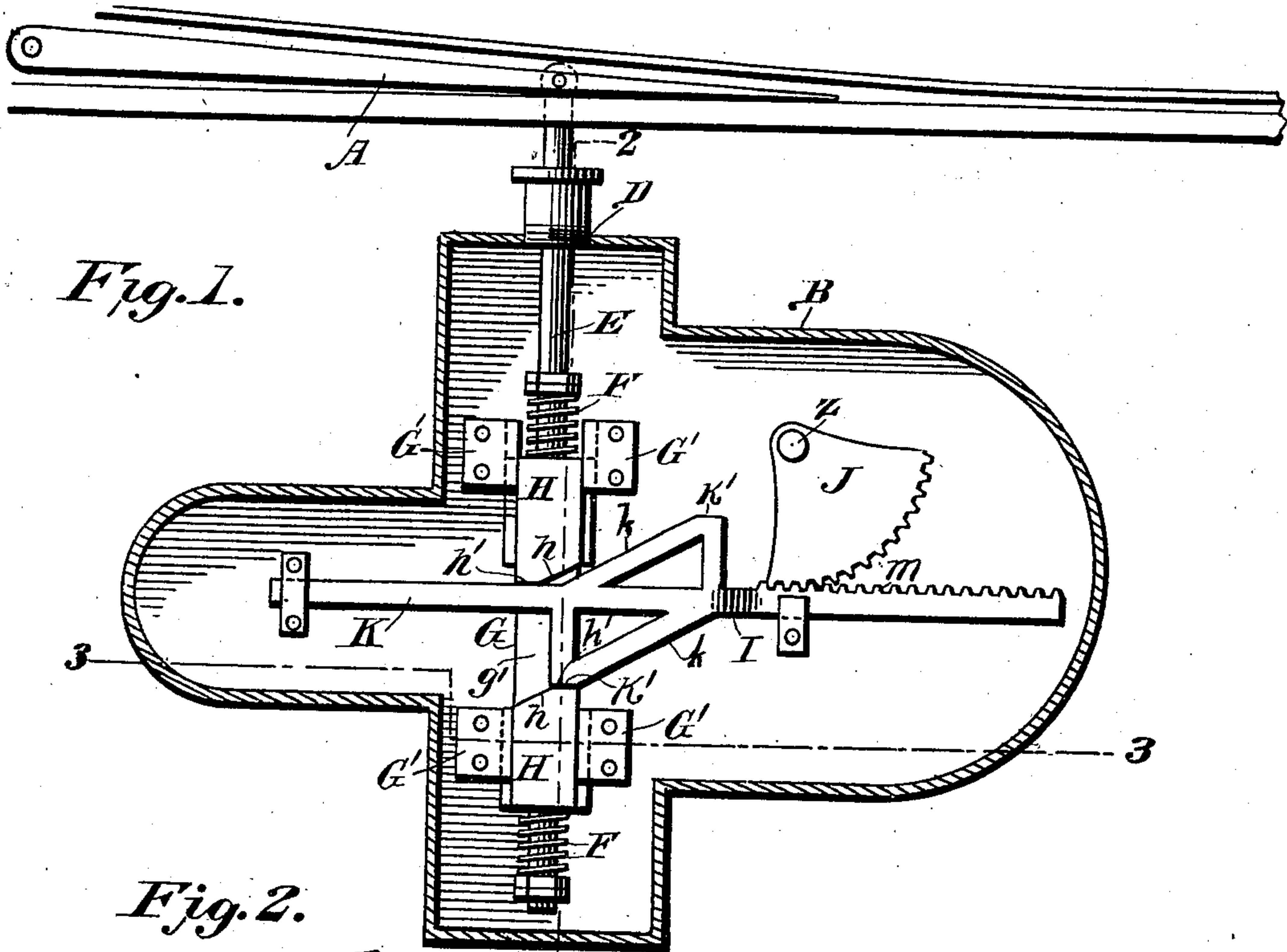
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E. E. BURKE.

REVERSIBLE SPRING LOCK ATTACHMENT FOR RAILROAD SWITCHES.

(No Model.)

(Application filed Nov. 24, 1900.)



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# UNITED STATES PATENT OFFICE.

EDWARD E. BURKE, OF ANDERSON, INDIANA.

REVERSIBLE SPRING-LOCK ATTACHMENT FOR RAILROAD-SWITCHES.

SPECIFICATION forming part of Letters Patent No. 670,366, dated March 19, 1901.

Application filed November 24, 1900. Serial No. 37,641. (No model.)

*To all whom it may concern:*

Be it known that I, EDWARD E. BURKE, a citizen of the United States, and a resident of Anderson, in the county of Madison and State of Indiana, have made a certain new and useful Invention in Reversible Spring-Lock Attachments for Railroad-Switches; and I declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it appertains to make and use the invention, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

Figure 1 is a section on the line 1 1, Fig. 3. Fig. 2 is a section on the line 2 2, Fig. 1. Fig. 3 is a section on the line 3 3, Fig. 1. Fig. 4 is a detail view of head R.

The invention relates to means for operating railroad-switches, especially on street-railways; and it consists in the novel construction and combinations of parts, as hereinafter set forth.

In the annexed drawings, illustrating the invention, the letter A designates the switch-tongue, and B the incasement of the mechanism whereby the tongue is to be moved to the right or left, according to requirement. The incasement is provided with an opening at C on its upper surface and with an opening D at the side. These openings should be arranged in the form of stuffing-boxes to prevent as far as possible the access of moisture.

E indicates the switch-rod, which is connected to a lug of the switch-tongue. This rod extends outward through the opening D from the incasement, within which it is provided with oppositely-acting spiral springs F F, which engage by their proximate ends the lug *g* of the reciprocating locking-slide G. This slide, which is straight throughout its length, as is also the switch-rod, works in slideways G' of the incasement and is provided with a slot therein having lateral cam-walls *h*, which are parallel and face each other and are of an inclination to the longitudinal axis of the slide. Such cam-surfaces have at opposite ends thereof each a locking-shoulder *h'*, which is of a right-angular relation to the longitudinal axis of the slide. Seated in the slot *g'* of the locking-slide is the operating-bar K, also straight throughout its length and running or reciprocating at right

angles to the direction of movement of such slide. Such bar is provided with lateral extensions at opposite sides thereof, which extensions have cam-surfaces *k k*, designed to engage the cam-surfaces *h h* of the slide and of an inclination to the axis of such rod. These cam-surfaces of the operating-rod are also provided with locking-shoulders *k'*, which are parallel to the longitudinal axis of such rod.

The operating-bar K is usually provided with a bend at *l*, and the part beyond the bend is provided with teeth to form a rack *m*, which engages a quadrant-gear J, the shaft *z* of which passes upward through the opening C and is provided with a head R, which is formed with a slot or other bearing to receive the end of the turning bar or key which the motorman uses to shift the switch. The top of the head R is made flush with the surface of the top of the incasement, and it is made of sufficient diameter to be readily operated from a car in motion. The side of the head is beveled, and its upper rim fits the upper margin of the opening neatly to prevent the access of obstructive matter into the chamber C' of said opening. Suitable bearings are provided on the incasement for the various parts, and the construction is designed to be such as to render the incasement as nearly water-tight as possible. The operating parts therefore being all concealed within the casing and kept well oiled will not be liable to get out of order from rust or other obstructive causes.

When the motorman on a car approaching the switch desires to change the direction of the switch-tongue, he operates the quadrant-gear by applying his key or turning-lever to the head R of the shaft *z*. This shifts the rack-bar K and causes its parallel inclined bearings to engage the cam-surfaces of the locking-slide, moving the latter easily with the aid of the springs until the locking-shoulders of the slide become engaged with those of the bar K. By the engagement of these shoulders of the locking-slide and operating-bar the switch becomes locked in the position to which it is moved and is so held until some other motorman turns the quadrant-gear in the reverse direction, unlocking the operating-bar, moving it in the opposite direction, and locking it in the new position. The



springs will while holding the switch elastically in locked position in either direction cause the locking-shoulders of the locking-slide and operating-bar to be forcibly engaged in such a manner that the vibrations caused by the passage of the wheels through the switch will not produce casual disengagement.

Having described this invention, what I claim, and desire to secure by Letters Patent, is—

1. In a railway-switch, the combination with the transverse slide, having a connection with the point-rail of the switch, and provided with cam-surfaces of an inclination to the axis of such slide and having locking terminations of a right-angular relation to the axis of such slide, of the operating-bar having the double cam-surfaces arranged to coact with the cam-surfaces of said slide to move the point-rail in either direction, and having locking terminations parallel to the axis of such bar, and arranged to coact with the locking terminations of the cam-surfaces of such slide to lock the point-rail in position, substantially as specified.

2. In a railway-switch, the combination with the transverse slide, having a connection with the point-rail of the switch, and provided with a slot therein having lateral cam-walls of an inclination to the axis of such slide, and having locking terminations of a right-angular relation to the axis of such slide, of the operating-bar working in such slot and having lateral cam extensions at opposite sides thereof, and arranged to coact with the cam-walls of such slot to move the point-rail in either direction, the cam-surfaces of such extensions having locking terminations parallel to the axis of such bar, and arranged to coact with the locking terminations of the cam-surfaces of such slide to lock the point-rail in position, substantially as specified.

3. In a railway-switch, the combination with the transverse slide, having a connection with the point-rail of the switch, and provided with cam-surfaces of an inclination to the axis of such slide, and having locking terminations of a right-angular relation to the axis of such slide of the operating-bar having the double cam-surfaces arranged to coact with the cam-surfaces of said slide to move the point-rail in either direction, and having locking terminations parallel to the axis of such bar, and arranged to coact with the locking terminations of the cam-surfaces of such slide to lock the point-rail in position, together with springs for further locking the point-rail in position, substantially as specified.

4. In a railway-switch, the combination with the transverse slide, having a connection with the point-rail of the switch, and provided with a slot therein, having lateral cam-walls of an inclination to the axis of such slide, and having locking terminations, of a

right-angular relation to the axis of such slide, of the operating-bar working in such slot, and having cam extensions at opposite sides thereof, and arranged to coact with the cam-walls of such slot to move the point-rail in either direction, the cam-surfaces of such extensions having locking terminations parallel to the axis of such bar, and arranged to coact with the locking terminations of the cam-surfaces of such slide to lock the point-rail in position, and means for putting such transverse bar under tension to further lock the point-rail in position, substantially as specified.

5. In a railway-switch, the combination with the straight transverse slide having a connection with the point-rail of the switch, and provided with cam-surfaces of an inclination to the axis of such slide, and having locking terminations of a right-angular relation to the axis of such slide, of the straight operating-bar, having cam-surfaces at opposite sides thereof, arranged to coact with the cam-surfaces of such slide to move the point-rail in either direction, and having locking terminations parallel to the axis of such bar, and arranged to coact with the locking terminations of the cam-surfaces of such slide to lock the point-rail in position, together with means for exerting spring-pressure upon said bar to further lock the point-rail in position, substantially as specified.

6. In a railway-switch, the transverse slide, having a connection with the point-rail, the operating-bar, arranged to have a double-cam engagement with such slide to move the point-rail in either direction, the cam-surfaces of such slide and bar having locking terminations of a right-angular and parallel relation respectively to the respective axes of such slide, and bar, and arranged to coact with each other to lock the point-rail in position, and means for exerting spring-pressure upon said slide to further lock the point-rail in position, substantially as specified.

7. In a railway-switch, the switch-rod having a connection with the point-rail, the transverse slide having a perforated lug engaging said rod, springs surrounding such rod, and bearing against such lug, the operating-bar having a double-cam engagement with such slide to move the point-rail in either direction, the cam-surfaces of said slide and bar having locking terminations of a right-angular and parallel relation respectively to the respective axes of such slide and bar, and arranged to coact with each other to lock the point-rail in position, said springs being arranged to be put under tension to further lock the point-rail in position, substantially as specified.

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

EDWARD E. BURKE.

Witnesses:

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