(No Model.)

W. B. S. REED.

SWITCH LOCK AND THROW BAR.

No. 338,441. Patented Mar. 23, 1886.

Fig. 1.

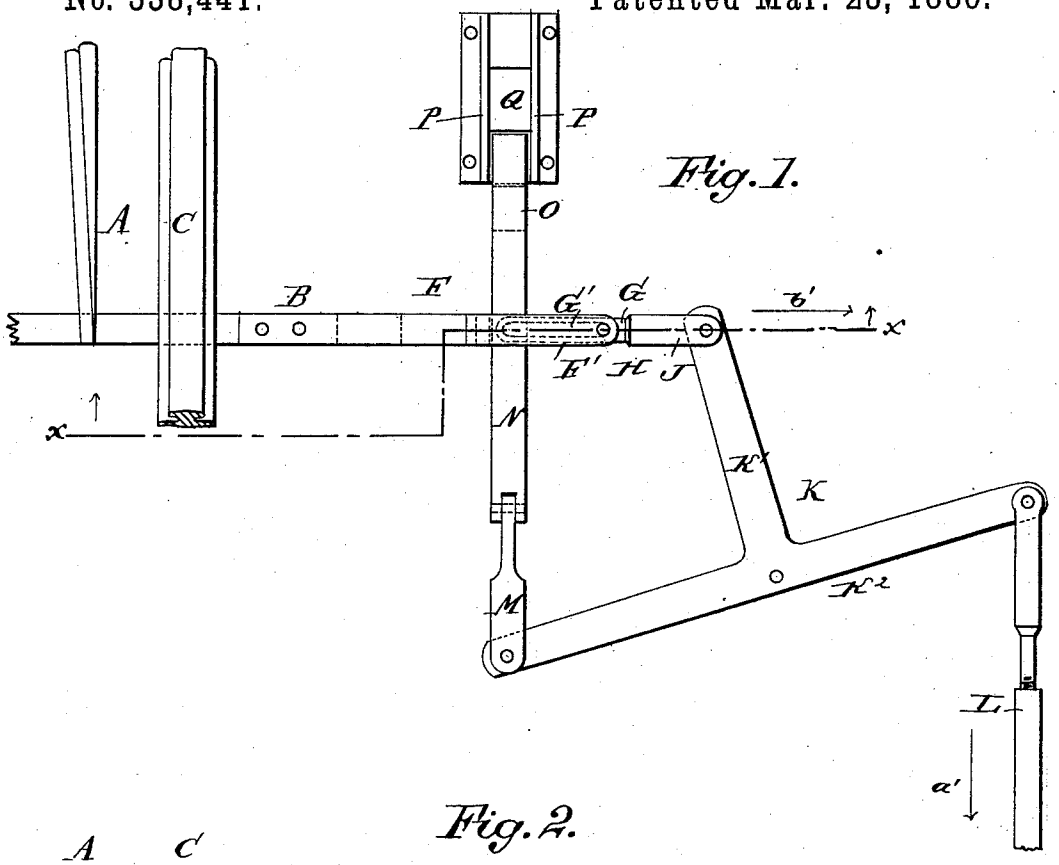


Fig. 2.

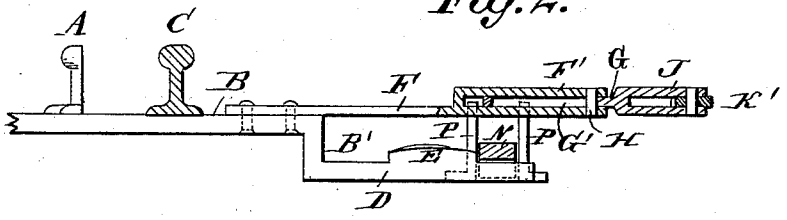
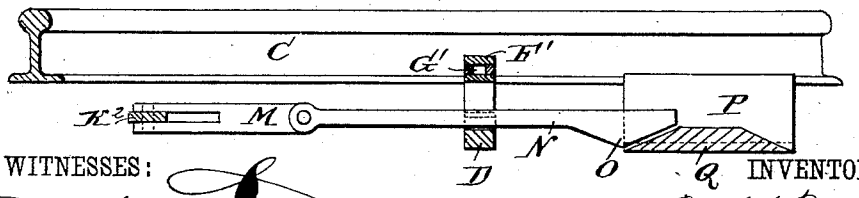


Fig. 3.



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WILLIAM BELL STEPHENS REED, OF BROOKLYN, NEW YORK.

SWITCH-LOCK AND THROW-BAR.

SPECIFICATION forming part of Letters Patent No. 338,441, dated March 23, 1886.

Application filed August 13, 1884. Serial No. 140,428. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM BELL STEPHENS REED, of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Switch-Lock and Throw-Bar, of which the following is a full, clear, and exact description.

The object of my invention is to provide a new and improved device for throwing switches, which at the same time serves as a lock for automatically locking the switch in place both when open and when closed.

The invention consists in the peculiar construction and arrangement of parts, as hereinafter fully described, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a plan view of my improved switch-lock and throw-bar. Fig. 2 is a front view of the same, parts being shown in section. Fig. 3 is a side view, parts being shown in section.

The tongue A or switch-rail is secured on the switch-bar B, which passes under the rail C. The switch-bar is bent downward at B', and has a horizontal part, D, projecting in the direction from the rail C, on the upper surface of which horizontally-projecting part D a lug, E, is formed, the top surface of which is rounded or beveled.

On the switch-bar B a link-bar, F, is riveted, which projects over the horizontal part D and is provided at its free end with a fork, F', between the prongs of which a link, G, is held, to slide in the direction of its length, the said link being provided with a longitudinal slot, G', through which a pin, H, passes, which also passes through the outer ends of the prongs of the fork F'. The link G terminates in the fork J, between the prongs of which the end of the shank K' of a T-shaped lever or double bell-crank lever K is pivoted, which lever K is pivoted on a suitable base at the middle of the cross-piece K^2 and inner end of the shank. That end of the cross-piece farthest from the rail C is connected with a pipe or rod, L, connected directly or by means of intermediate pipes, rods, elbow-levers, &c., with the switch-stand. To that end of the cross-piece K^2 of the lever K nearest the rail C a link, M, is pivoted, to which a bar, N, is pivoted, which is held parallel with the rail C, and passes over the horizontally-projecting part D of the switch-bar, the said bar N being provided at its free end with a beveled or V-shaped lug, O, on its bottom surface. The said lug and the free end of the bar N are held between two upright plates, P, parallel with the rail C, the bottom plate, Q, between the two guide-plates, being beveled toward both ends. The bevels of the bottom plate, Q, correspond with the bevels of the lug O on the bar N.

The operation is as follows: As shown in Fig. 1, the switch is closed—that is, the tongue A is not in contact with the rail C. If the switch is to be opened, the tongue A must be moved toward the rail C. This is accomplished by pulling the rod or pipe L in the direction of the arrow *a'*, thereby swinging the end of the shank K' of the T-lever K in the direction of the arrow *b'*. That end of the cross-piece K^2 to which the link M is pivoted is moved in the inverse direction of the arrow *a'*, and the bar N is moved in a like direction. Its beveled lug O slides up the bevel of the bottom plate, Q, whereby the bar N is raised sufficiently to clear the end of the lug E on the projection D of the switch-bar. By this time the link G has been moved in the direction of the arrow *b'* such a distance that the end of the slot G' strikes against the pin H, thus pulling the switch-bar B in the direction of the arrow *b'* and swinging the switch-rail A against the rail C. At the same time the bar N has been moved such a distance in the direction of the arrow *a'* that its beveled lug slides down the rear bevel of the bottom plate, Q, whereby the bar N is lowered upon the part D of the switch-bar, but is now at the opposite end of lug E from that at which it was before the switch was thrown, the bar N thus serving as a lock by engaging with the end of the lug E. To open the switch, the parts are moved in the inverse direction. The beveled lug O is thus drawn up the inclination of the bottom plate, Q, whereby the locking-bar N is raised, the switch-bar B and the rail A thereon are moved in the inverse direction of the arrow *b'*, the lug O slides down the

front bevel of the bottom plate, Q, and the bar N drops upon the part D of the switch-bar, thus locking the switch-bar in place.

In place of providing the switch-bar with a lug, E, it may be provided with two notches or recesses corresponding in position with the ends of the said lug, and when the switch-bar is locked the locking-bar N will rest in the said notches or recesses.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination, with a switch-bar provided with lugs or notches in its top edge, and carrying both switch rails or tongues, of a T-shaped lever having one arm connected by a lost-motion link with the said switch-bar, and a locking-bar connected with said T-shaped lever that actuates the switch-bar, substantially as herein shown and described.

2. The combination, with a switch-bar having lugs or notches, of a locking-bar crossing the switch-bar and connected with devices for throwing the switch-bar, of beveled projections on the locking-bar, and of fixed beveled projections on which the beveled projections of the locking-bar rest, substantially as herein shown and described.

3. The combination, with a switch-bar having lugs or notches, of the locking-bar N, crossing the switch-bar and connected with the devices for throwing the switch-bar, of the V-shaped or beveled lug on the locking-bar, and of the plate Q, having its ends beveled in opposite directions, on which plate Q the beveled ends of the locking-bar rest, substantially as herein shown and described.

4. The combination, with the switch-bar B, having the lug E, of the pivoted T-shaped lever K, the link G, pivoted to the same and to a link-bar on the switch-bar, the locking-bar N, having a beveled lug, O, the link M, connecting the locking-bar with the cross-piece of the lever K, and the block Q, having its ends beveled in opposite directions, on which block the beveled ends of the switch-bar rest, substantially as herein shown and described.

5. The combination, with the switch-bar B, having a lug, E, of the link-bar F, connected with the switch-bar, the link G, having longitudinal slot G′, through which a pin, H, of the link-bar passes, the pivoted T-shaped lever K, connected with the link G, the locking-bar N, crossing the switch-bar and connected with the cross-piece of the lever K by the link M, the beveled lug on the locking bar, the guide-plates P, and the bottom plate, Q, having its ends beveled in opposite directions, substantially as herein shown and described.

6. The combination, with a switch-bar provided with lugs or notches in its top edge, and carrying both switch-rails or tongues, of a locking-bar extending over the switch-bar, which locking-bar is actuated by the same device that actuates the switch-bar, and is combined with devices for raising and lowering it during its movements, substantially as herein shown and described.

7. The combination, with the switch-bar B, of the part D, secured to the same, and having the lug E, the link F, secured on the switch-bar above the part D, which link F is connected with a T-lever, and of a locking-bar passed over the part D, substantially as herein shown and described.

WILLIAM BELL STEPHENS REED.

Witnesses:
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