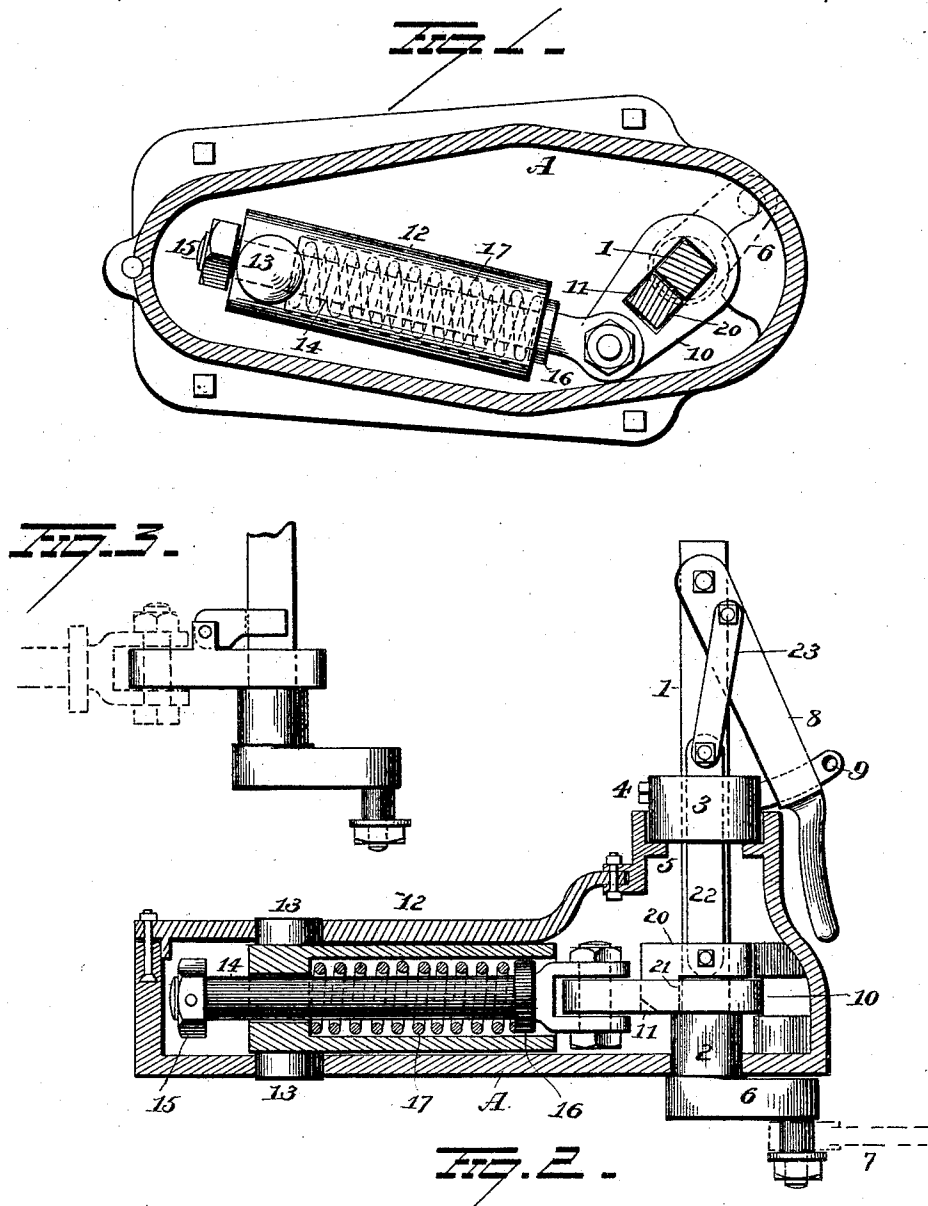


(No Model.)

J. B. SUFFERN & W. C. KIDD.
SWITCH STAND.

No. 463,007.

Patented Nov. 10, 1891.



Witnesses
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UNITED STATES PATENT OFFICE.

JAMES B. SUFFERN AND WILLIAM C. KIDD, OF HILLBURN, NEW YORK.

SWITCH-STAND.

SPECIFICATION forming part of Letters Patent No. 463,007, dated November 10, 1891.

Application filed March 17, 1891. Serial No. 385,398. (No model.)

To all whom it may concern:

Be it known that we, JAMES B. SUFFERN and WILLIAM C. KIDD, of Hillburn, in the county of Rockland and State of New York, have invented certain new and useful Improvements in Switch-Stands; and we 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 appertains to make and use the same.

Our invention relates to an improvement in switch-stands, the object being to provide mechanism for throwing a switch by hand and locking it against being accidentally or unauthorizedly changed manually, and at the same time to provide one capable of being thrown and locked automatically by a passing train; and with this end in view our invention consists in certain novel features of construction and combinations of parts, as will be hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a horizontal sectional view. Fig. 2 is a vertical section, parts being in elevation; and Fig. 3 is a view of a modification.

A represents the switch-stand frame, the same consisting of a hollow shell of any approved form and construction. The usual target-shaft 1 is vertically supported in one end of this frame. This shaft is preferably angular or square in cross-section, and at its lower end, where it passes through the shell of the frame, it is rounded to form a bearing 2. Near its upper end it is provided with a bearing-collar 3, which is held to the shaft by a set-screw 4 or equivalent means, and this collar rests in a bearing 5, formed in the frame, upon which the entire weight of the shaft is supported. At its extreme lower end the target-shaft is provided with a crank 6, which is connected to the switch-operating rod 7. The shaft is provided with the usual operating-lever 8, pivoted at or near its upper end. This lever is arranged to receive or straddle a tongue 9 when in its lowered position, and provision is made for the attachment of a pad-lock or other means to this tongue, whereby the lever may be locked against unauthorized displacement.

A link 10, provided with an oblong slot 11, is mounted loosely on the target-shaft, and opposite the free end of this link a cylinder

12 is located. The outer end of this cylinder is furnished with trunnions 13 13, which bear in the frame of the switch-stand, forming centers upon which the opposite or free end of the cylinder swings. A rod 14 extends loosely through this cylinder, and at one end it is pivoted to the link 10. At the opposite end it is provided with a nut 15 or similar means to prevent the rod from being drawn out of the cylinder. The nut may of course be screwed on or off different distances, as required, for an effectual operation of the device. The rod 14 is provided with a collar 16 near the point where it joins the link, and a stiff spiral spring 17, mounted on the rod, is confined between this collar and the end of the cylinder. This is an expansible spring, and its tension holds the parts normally in the position shown in Fig. 1, from which position it is impossible to remove it by hand against the tension of the spring. It is for this reason that the oblong slot 11 is used, for when this is open and unobstructed the link slips endwise upon the shaft as the latter is swung, so that the tension of the spring is not brought into play when the switch is operated by hand. To lock this mechanism against being operated by hand, means is provided for filling slot 11 and preventing the link from sliding on the shaft. This consists, preferably, of a block 20, which straddles the shaft, and is provided on its lower face with a lug 21, adapted to fit the slot. A pair of links 22 22 are pivotally connected with this block and pass loosely through guide-slots formed in collar 3, which preserve a vertical movement to the links. Secondary links 23 23 are pivotally connected to the upper ends of links 22 and also to the hand-lever.

In the modification the block is pivoted to the link and is constructed to block the shaft when dropped. The links are connected to this block in the same manner as in the construction described or in other convenient manner.

To operate the switch by hand the hand-lever is raised, carrying with it the block and removing it from the slot 11, and then by swinging the lever around the switch is thrown. Thus it will be seen that the spring is not compressed in the least; but when the block is in the slot the link cannot slide on the shaft

and the shaft can only be rocked by compressing the spring, and as the spring is very stiff it can only be compressed by the flanges of the wheels of a passing train wedging between the rails of the main track and switch. This throws the crank 6 on the opposite side of the center of the shaft, thus compressing the spring, and the spring by its expansible power throws the crank around until the switch is locked, where it must remain until manually closed again.

It is evident that slight changes might be resorted to in the form and arrangement of the several parts described without departing from the spirit and scope of our invention, and hence we do not limit ourselves to the exact construction herein set forth; but,

Having fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In a switch-stand, the combination, with a target-shaft and switch-operating rod connected therewith, of a slide-link mounted loosely on the shaft and means for locking said link against sliding, substantially as set forth.

2. In a switch-stand, the combination, with a target-shaft and switch-operating rod connected therewith, of a slide-link mounted loosely on the shaft, means for locking the link to the shaft, and spring mechanism connected with the link, substantially as set forth.

3. In a switch-stand, the combination, with

a target-shaft and switch-operating rod connected therewith, of a link mounted loosely on the shaft, means for locking the latter to the shaft, a swinging cylinder, and a spring-actuated rod in said cylinder pivotally connected with the link, substantially as set forth.

4. The combination, with a frame, a target-shaft, and switch-operating rod, of a link constructed to slide on the shaft, spring mechanism connected with the link, means for locking the link against sliding movement, and means for raising and lowering the locking device and for swinging the lever, substantially as set forth.

5. The combination, with a frame, a target-shaft therein having a crank, and a switch-operating rod, of a link provided with an oblong slot and mounted loosely on the shaft, a cylinder pivoted at one end in the frame, a spring-actuated rod passing loosely through the cylinder and pivotally connected with the link, a locking-block, and an operating-lever connected therewith, substantially as set forth.

In testimony whereof we have signed this specification in the presence of two subscribing witnesses.

JAMES B. SUFFERN.
WILLIAM C. KIDD.

Witnesses:

CHAS. N. HOGAN,
GEORGE FREEMAN.