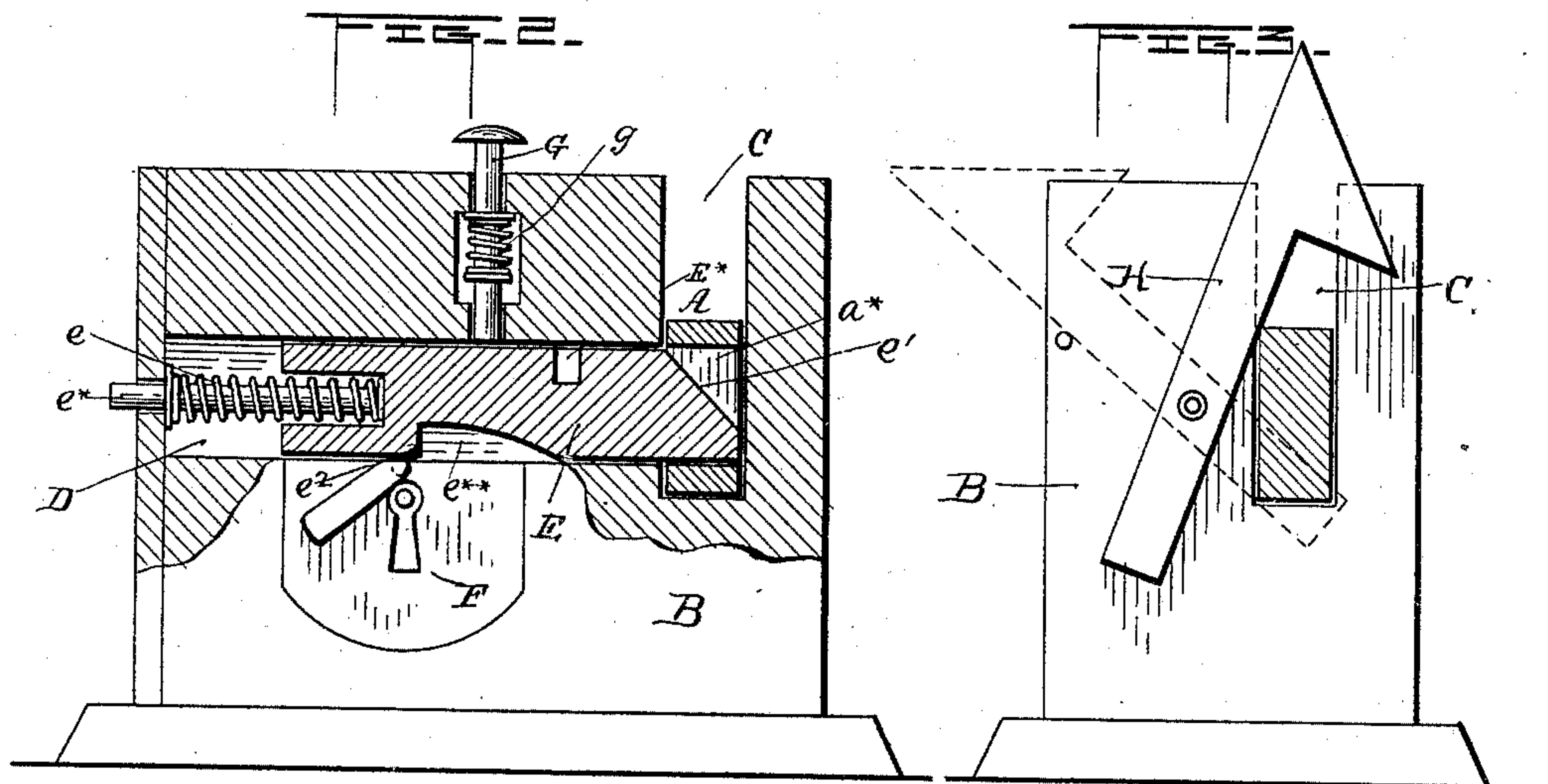
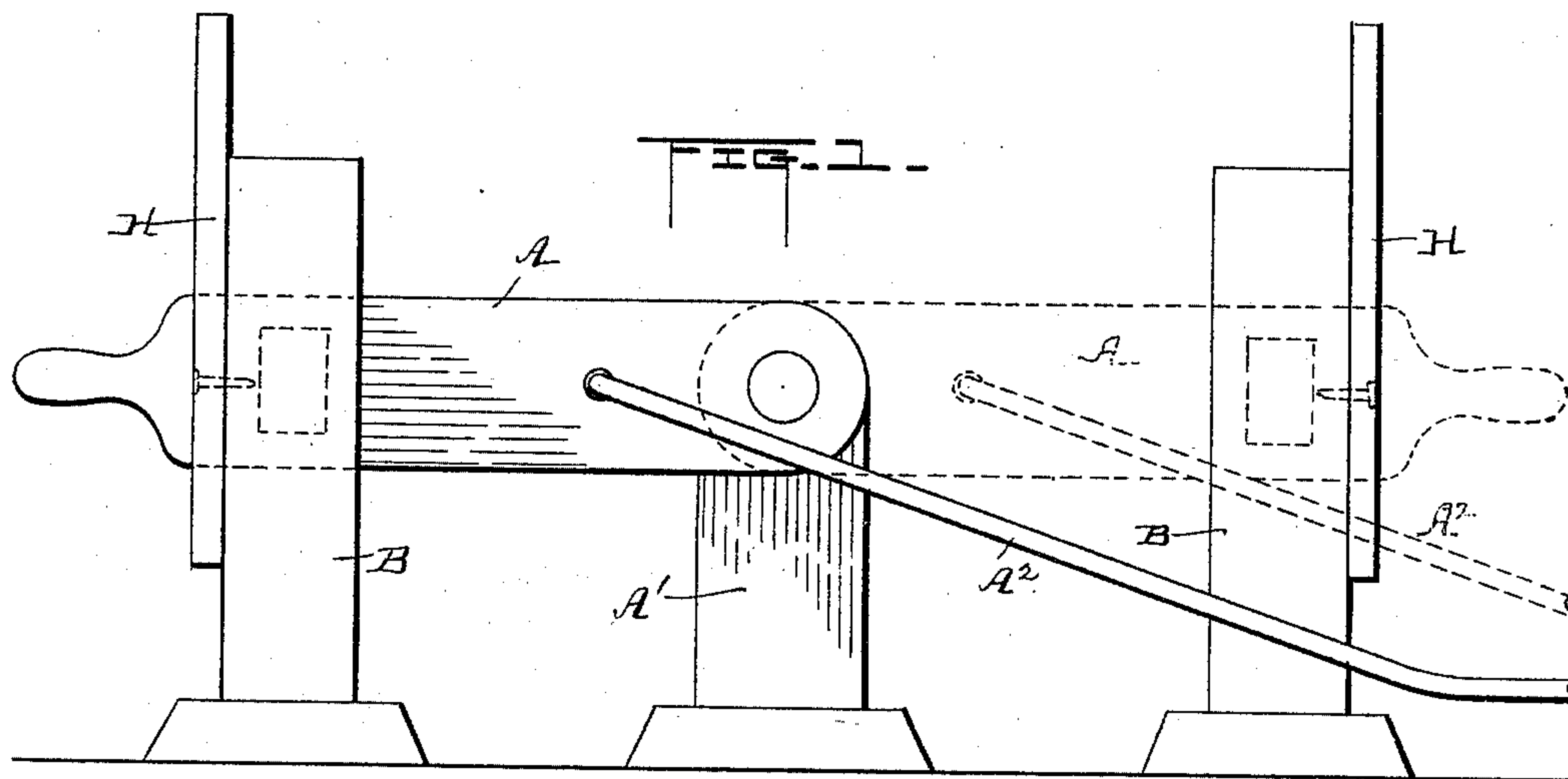


(No Model.)

S. GROVE.
AUTOMATIC SWITCH LOCK.

No. 475,740.

Patented May 24, 1892.



Witnesses

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J. J. Johnson

Inventor

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UNITED STATES PATENT OFFICE.

SAMUEL GROVE, OF COALPORT, PENNSYLVANIA.

AUTOMATIC SWITCH-LOCK.

SPECIFICATION forming part of Letters Patent No. 475,740, dated May 24, 1892.

Application filed November 28, 1891. Serial No. 413,395. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL GROVE, a citizen of the United States, residing at Coalport, in the county of Clearfield and State of Pennsylvania, have invented certain new and useful Improvements in Automatic Switch-Locks; and I do 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, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to automatic switch-locks, and has for its object the provision of a safe and reliable locking device to be used in connection with a rocking switch-lever which is capable of turning one hundred and eighty degrees and carrying the switch-rod to any length of throw, according to the position at which it is secured upon the lever. The lever is pivoted at one end to a suitable support central between two switch-stands, in one or both of which is provided the automatic locking mechanism. I may provide the locking mechanism in each of the stands. The lever is provided with a transverse opening, into which a spring-actuated bolt is automatically thrust when the lever is brought to rest in either of the stands. This bolt is capable of being withdrawn by the operation of a suitable key, which is to be used by the switch-man in a lock provided in the switch-stand. In connection with the lever-bolt I also provide a check-bolt, which is set at right angles to the lever-bolt and is also spring-actuated and is capable of engagement with the lever-bolt at the extremities of the latter's throw. The check-bolt will not, however, prevent the automatic action of the lever-bolt.

In addition to the automatic locking devices, or where no locking device is employed, I may provide upon each switch-stand a swinging safety-hook, which is pivoted to one side of the switch-stand slot and can be thrown over the switch-lever to hold it temporarily while the automatic lock is held out of action or may be used as an additional holding means to be used in connection therewith.

The following detailed description will more fully explain my said invention:

The accompanying drawings illustrate my said invention.

Figure 1 is a side elevation of the switch device complete. Fig. 2 is a sectional view of a switch-stand taken longitudinally of the locking-bolt. Fig. 3 is a face view of a foot-block.

Similar letters of reference indicate corresponding parts in all the figures where they occur.

A is the switch-lever, which is pivoted at one end to a suitable support A' centrally between two switch-stands or locking-stands. The switch-rod A² is secured to the switch-lever at any desired point between the pivoted end and the locking-stands to give it the proper throw to move the switch as required. The switch-lever is provided with a handle *a*, by which it is thrown.

B B are the switch or locking stands set equidistant from the lever-pivot. They may be both alike in their construction and locking devices; but, if desired, the locking devices may be omitted from one of them and one may be a simple foot-block, as shown in Fig. 3 and at the right hand of Fig. 1. This use of only one locking-stand is preferable where the switch is to be held normally in only one position and temporarily in the other, as is the case with most switches. Vertical slots C, open at top, are provided in the stands to receive the switch-lever.

In the locking-stand a transverse slot or opening D is provided, which meets the vertical slot at suitable height and contains the lever-bolt E, which is held normally in the path of the lever in slot C by means of an actuating-spring *e* at its rear. The bevel *e'* of the bolt E is placed on its upper face to meet the descending switch-lever, to the pressure of which the actuating-spring yields and causes the bolt to automatically engage the switch-lever, an aperture *a** being provided in said lever to accommodate the bolt.

In order to get the proper effect of the actuating-spring *e*, I provide a bolt-guide *e**, extending out from the rear of the bolt around which the spring is coiled, and to give greater length and force to the spring a recess is made

in the rear of the bolt into which the guide and spring project. The guide is preferably unattached to the bolt and provided with a head on its inner end against which the spring abuts, in order to protect the bolt from outside interference through the medium of the guide; or, if desired, the guide may be held entirely within the confines of the stand.

F is a lock, into which a key is inserted for withdrawing the bolt from engagement with the switch-lever when it is desired to shift the switch. A notch e^{**} is provided in the under side of the lever-bolt E, which forms a shoulder e^2 , against which the key operates in withdrawing said lever-bolt.

A check-bolt G is let through the top of the stand, and is provided with a coil-spring g , which keeps it normally pressed upon the lever-bolt E. When the lever-bolt is thrown to its rearward limit by means of the operation of the key, this check-bolt will drop into a recess E^* in the top of the lever-bolt; but when the switch-lever is thrown into the slot in the stand the lever-bolt will not be pressed far enough back to permit the check-bolt to enter the recess; or, if it is desired that the check-bolt should enter the recess and hold the lever-bolt out of engagement with the switch-lever when the latter is dropped into the slot the recess E^* may be located to permit this, in which case the check-bolt will have to be raised by hand when it is desired to lock the lever. The check-bolt is intended to be used for withholding the lever-bolt from action when the switch is to be shifted frequently, so as to obviate the necessity of unlocking the stand at each change.

The foot-block shown in Fig. 3 and at the right of Fig. 1 is provided with a safety-hook h , which is pivoted at the side of the slot and can be turned over to hold the switch-lever down. Such a safety-hook may also be provided on the locking-stand, as shown at h , to the left of Fig. 1.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. The combination of a switch-lever to which the switch-rod is attached with a locking-stand having a vertical slot open at the top to receive said lever, a transverse slot or channel meeting said vertical slot, and a lock beneath said transverse slot, and a spring-actuated locking-bolt working in said transverse slot and provided with a notch or shoulder to be operated upon for withdrawing said bolt by a key inserted in the lock of said stand, as set forth.

2. The combination, with a switch-lever to which the switch-rod is attached, of a switch-stand having a vertical slot open at the top for receiving said lever, an automatic bolt for engaging said lever, and a check-bolt for holding said automatic bolt out of action when desired, as set forth.

3. A switch-stand having a vertical open slot and a transverse opening provided with a spring-actuated bolt having a rear guide and a key-recess, as described, in combination with a pivoted swinging switch-lever, as set forth.

4. In a device of the kind described, the combination of a switch-stand having a slot open at the top, an automatic locking-bolt projecting into said slot, and a safety-hook pivoted to the face of said stand, and a foot-block having a vertical open slot and provided with a safety-hook pivoted to the face of said foot-block, with a switch-lever to which the switch-rod is attached, pivoted between said stand and foot-block, and adapted to rest in the open slot of either of said parts, as set forth.

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

SAMUEL GROVE.

Witnesses:

JONAS STETLER,

J. M. ELLIOTT.