(No Model.) 2 Sheets—Sheet 1.

H. S. PFEIL.

RAILWAY SWITCH AND LOCK APPARATUS.

No. 463,543. Patented Nov. 17, 1891.

Fig. 1.

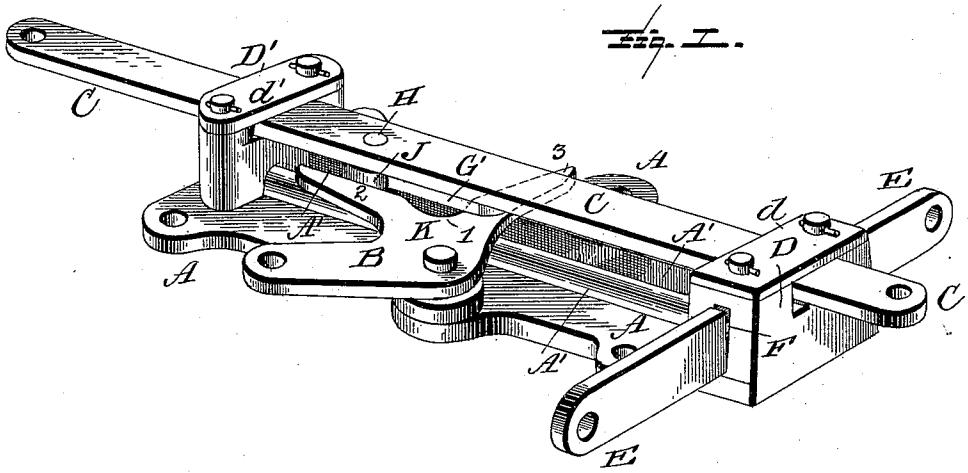
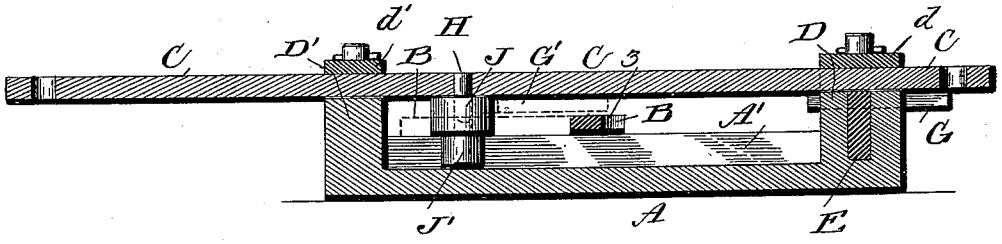


Fig. 2.



Witnesses:
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Ewell Dirk

Inventor
Henry S. Pfeil
by Munn & Co
his Attorneys

(No Model.) 2 Sheets—Sheet 2.

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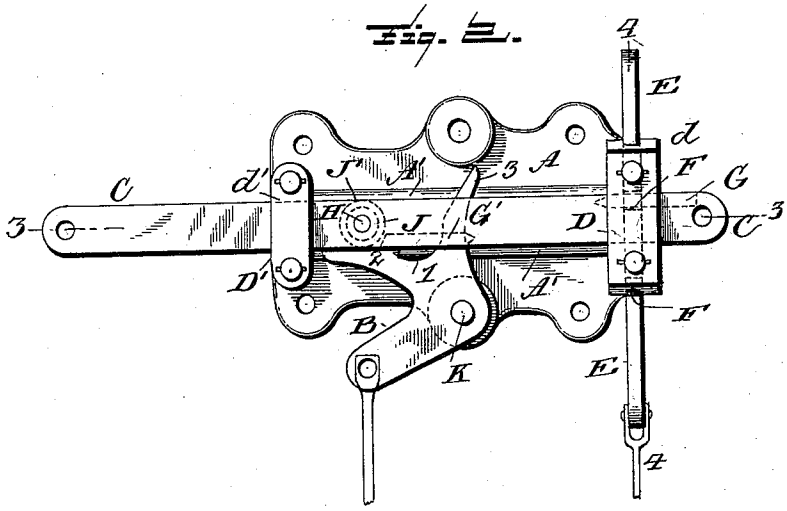
Fig. 2.



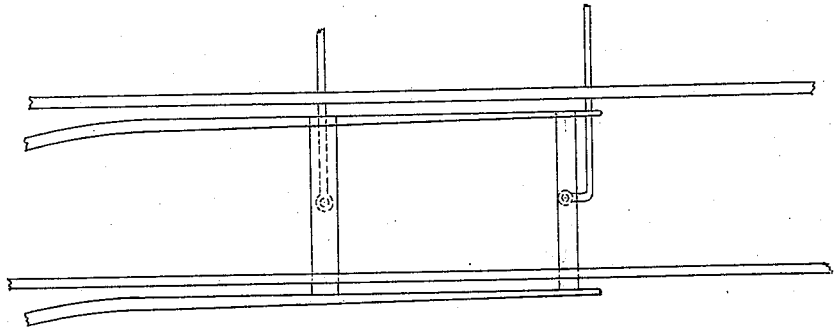
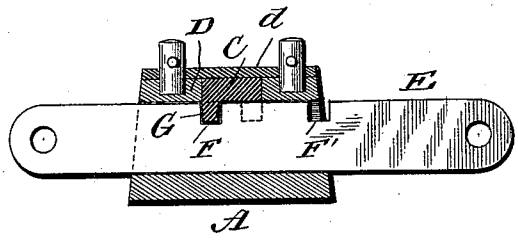


Fig. 3.



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UNITED STATES PATENT OFFICE.

HENRY S. PFEIL, OF PHILADELPHIA, PENNSYLVANIA.

RAILWAY SWITCH AND LOCK APPARATUS.

SPECIFICATION forming part of Letters Patent No. 463,543, dated November 17, 1891.

Application filed August 3, 1891. Serial No. 401,519. (No model.)

To all whom it may concern:

Be it known that I, HENRY S. PFEIL, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a new and useful Improvement in Railway Switch and Lock Apparatus, of which the following is a specification.

My invention relates to apparatus for operating and locking railway-switches, such apparatus being commonly known as a "switch-and-lock movement."

The apparatus is one in which the switch is operated by a wide-mouth-jaw bell-crank lever, which is moved and controlled by a slide connected to the switch-lever and having a pin or friction-roller which plays between the prongs of the jaw of the lever, the locking device also being operated from or by the slide. This, broadly considered, is not new with me.

My invention consists of a novel construction and arrangement of the operative parts of the apparatus in order to secure compactness, simplify and cheapen the construction, facilitate the assembling and removal or taking apart of the devices which make up the apparatus, and place the locking devices proper in a safe position and out of harm's way.

The invention can best be explained and understood by reference to the accompanying drawings, in which—

Figure 1 is a perspective view of that portion of the apparatus in which my invention is comprised. Fig. 2 is a plan of the same, showing also the connections of the lever and the lock-bar to the switch-points. Fig. 3 is a longitudinal section on line 3 3, Fig. 2. Fig. 4 is a transverse section on line 4 4, Fig. 2.

A is the principal casting, which forms the base. It has end lugs D and D′, in which are formed guideways for the slide C, and in the lug D below the guideway for the slide is formed a transverse guideway or passage for the sliding lock-bar E. Caps *d d′*, removably connected to the lugs, cover from above the portions of the slide C, which are in the guideways in the lugs and render it easy to insert the slide in place or to remove it.

The slide C is provided with a pin H, which extends downwardly and has mounted on it two anti-friction rollers J J′. The roller J′ runs in a guide-groove A′, formed for it in the base A. The other roller J is to operate upon the lever B. This lever is of the bell-crank or elbow kind and is pivoted to the base A. One of its arms is connected in the usual way to the switch-points, as seen in Fig. 2. The other arm terminates in a jaw, which, as customary, is formed with a central curved recess 1, in which the roller J operates in throwing the lever, and with two prongs 2 3, against the straight edge of one or the other of which the roller J travels after the throw of the lever and while the slide C is still moving in order to lock the switch.

Upon the under side of the slide C are riveted or otherwise secured locking-dogs G G′, placed at the proper interval apart and arranged one near one edge and the other near the other edge of the slide C. When the slide is at either extreme of its movement, one of the locking-dogs is in engagement with the lock-bar, and the interval which separates the dogs is such that the slide in traveling to the opposite extreme will have time to first disengage one dog from the lock-bar and then throw the lever B before the other dog reaches and engages the lock-bar. The lock-bar is provided with notches F F′ in its top edge, which are intended to receive the dogs G G′, respectively. It is connected to the switch-points in the usual way, as seen in Fig. 2, and derives its movement from these switch-points, which, as they are shifted by lever B, move the lock-bar in one direction or the other, according as they are thrown. It will be noted that by this arrangement all parts of the locking mechanism are underneath and out of harm's way as far as possible.

The operation is as follows: In Fig. 2 the parts are in the position they occupy when the main track is clear, the dog G being in the notch F of the lock-bar E and the slide C at one extreme of its movement. To reverse the switch the switch-lever in the tower is reversed, thereby drawing slide C (which is connected to that lever by usual or suitable connection) to the other extreme of its movement. The first portion of its movement withdraws dog G from notch F, thus unlocking the switch. The second portion of its movement throws the lever B, thus reversing the switch and moving the lock-bar so as to bring its notch F′ into line with dog G′, and the concluding part of its movement brings

the dog G′ into notch F′ of the lock-bar, thus again locking the switch.

What I claim herein as new, and desire to secure by Letters Patent, is—

1. The combination of the base, the wide-mouth-jaw bell-crank lever for throwing the switch-points, the slide moving in guideways in the base and provided with a stud or roller to operate the said lever and with locking-dogs on its under side, and the lock-bar contained in a guideway beneath and crosswise of the slide and provided with notches to receive the locking-dogs on the slide, these parts being constructed and arranged together substantially as and for the purposes hereinbefore set forth.

2. The base provided with a longitudinal guide-groove and end lugs having guideways for the slide covered by removable caps and the slide mounted in said guideways and provided with locking-lugs on its under side and with two anti-friction rollers, one to enter the guide-groove in the base and the other to engage the lever B, in combination with the lever B, and the notched lock-bar E, contained in a guideway beneath the slide, substantially as and for the purposes hereinbefore set forth.

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

HENRY S. PFEIL.

Witnesses:
EDGAR TAYLOR,
J. BRUNNER.