

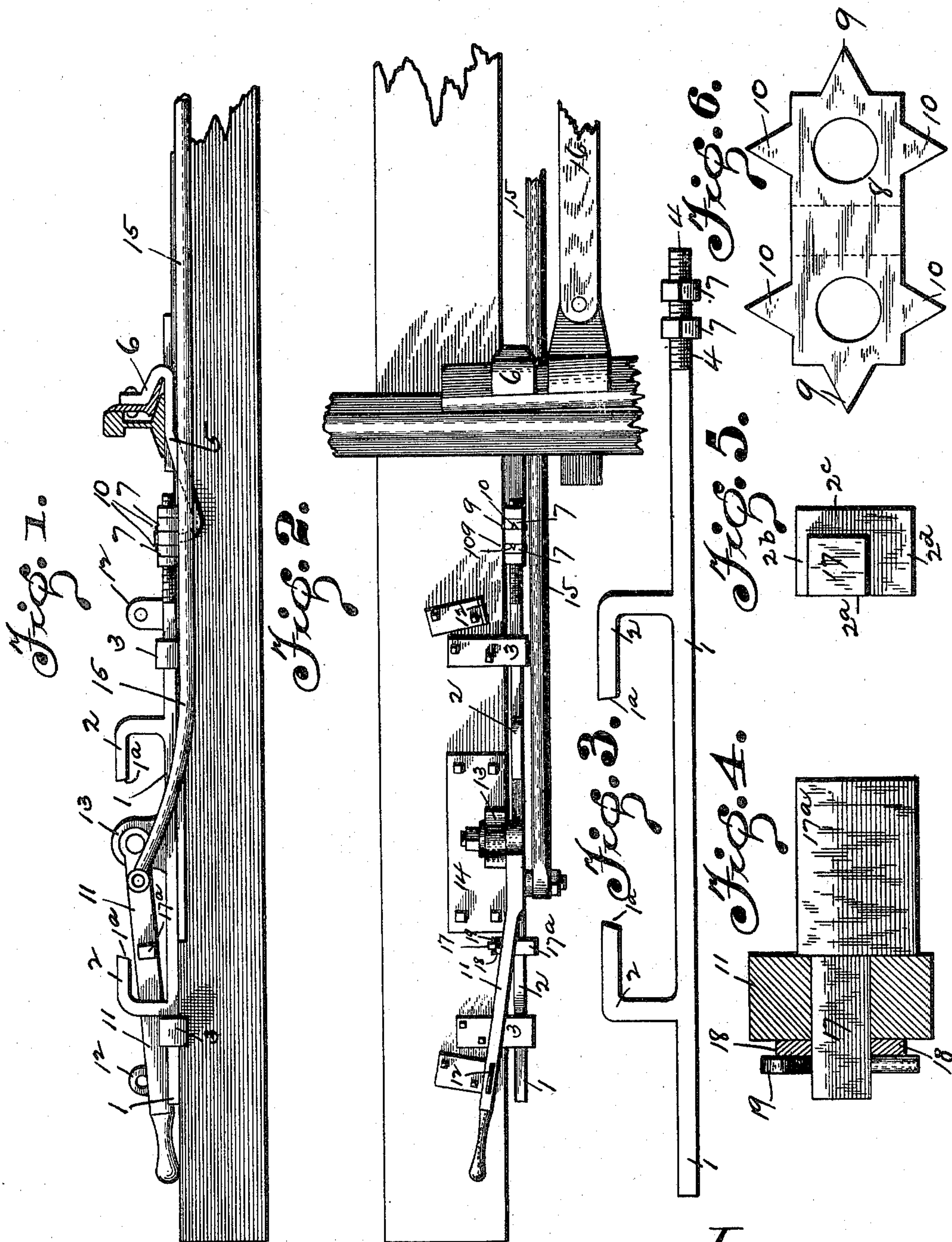
(No Model.)

A. KEISER.

RAILWAY SWITCH DETECTOR OR INDICATOR.

No. 586,041.

Patented July 6, 1897.



Witnesses:  
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# UNITED STATES PATENT OFFICE.

ANDREW KEISER, OF PITTSBURG, PENNSYLVANIA.

## RAILWAY-SWITCH DETECTOR OR INDICATOR.

SPECIFICATION forming part of Letters Patent No. 586,041, dated July 6, 1897.

Application filed October 31, 1896. Serial No. 610,731. (No model.)

*To all whom it may concern:*

Be it known that I, ANDREW KEISER, a citizen of the United States of America, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Railway-Switch Detectors or Indicators, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to certain new and useful improvements in railway-switch detectors or indicators, and has for its object to construct a device whereby the switch-lever when operated will not complete its full movement unless the switch-rails have likewise completed their full movement and assumed their proper position.

The invention further aims to construct a device of the above character that should any object become lodged between the switch-rail and the full rail, thus preventing the switch-rail from assuming its proper position, it will be instantly detected by the operator by reason of the inability to complete the throw of the switch-lever.

A still further object is to construct a device that in case the movable or switch rail should from any cause become loose or bent on the bridle, thus causing the same to incline away from the full rail after the movement has been made by the bridle, it will be instantly detected by reason of the switch-lever failing to complete its full movement, the device in this connection operating in the same manner on opening the switch by reason of its preventing the lever from being operated.

Still further objects of my invention reside in the novel construction, combination, and arrangement of parts and in the simplicity of construction, strength, durability, effectiveness, and in the comparative small cost to manufacture.

The invention will be hereinafter more specifically described, and particularly pointed out in the claims, and in describing the same in detail reference is had to the accompanying drawings, forming a part of this specification, and wherein like letters and figures of reference indicate similar parts throughout the several views, in which—

Figure 1 is a side elevation of my improved

switch-detector, showing same in position in connection with a portion of a switch to illustrate the same. Fig. 2 is a top plan view of the same. Fig. 3 is a side view of the main bar or detector. Fig. 4 is a transverse vertical sectional view of the operating-lever, showing detecting-pin in position. Fig. 5 is an end view of the detecting-pin, and Fig. 6 is a plan view of the lock employed for securing the nuts on the main bar or detector.

Referring to the drawings by reference letters and figures, 1 denotes the main bar or rod, which has formed on its upper face angular standards 2 2, having their free ends inclined rearwardly, as shown at 1<sup>a</sup>, said standards extending in alinement with the bar *a*, and the bar *a* operating in carriers 3 3, attached to the cross-tie. The bar is further provided at its inner end with a screw-thread 4, which engages one end of a plate or bar 5, passing under the full rail and bent inwardly and upwardly to form a clamp 6, which is rigidly secured to the switch-rail as near the top of the same as possible. This bar 5 is secured to the main bar or rod by nuts 7 7 on each side on the engaging end by a plate 8, which is apertured to receive the screw end of the bar or rod and doubled when placed in position to engage the end of the plate 5, said plate 8 being further provided with lips 9 9 on the ends and on the side edges with lips 10 10, which are bent over after the nuts have been placed in position to lock the same.

The switch-lever 11 is of the ordinary construction, slotted to receive the keepers 12 12, secured to the cross-tie, said lever being pivoted to the journal 13 of the plate 14, also secured to the cross-tie. Near the pivoted end of the switch-lever is attached the operating-rod 15, secured to the bridle 16, and the latter being attached to the switch-rail, as in the ordinary construction of a switch. The switch-lever 11 is provided with a square hole to receive the securing end 17 of the detecting-pin, which is formed with an enlarged head 17<sup>a</sup>, having differential sides 2<sup>a</sup>, 2<sup>b</sup>, 2<sup>c</sup>, and 2<sup>d</sup>, the securing end of said pin passing through the switch-lever sufficiently far to receive the washer 18 and key 19.

For the purpose of illustration we will now assume that the parts have been secured in their respective positions, as shown, with the



switch-rail in the position to pass the car or train to the side-track, and it is desired to operate the switch to allow the train to continue on the main track. The switch-lever is thrown  
 5 in the reverse direction, or rather position, from that shown in both Figs. 1 and 2, causing the rod 15 to operate the bridle or bar 16, connected to the switch-rail, withdrawing the same from its engagement with the full rail.  
 10 As the switch-rail moves from its former position it retracts the main bar 1 or the detector, moving the same a like distance in its carriers and allowing the detecting-pin to pass the end 1<sup>a</sup> of the angular standards 2 and beneath the same, when the switch-lever may be  
 15 locked on its keeper. To return the switch-rail from this position, the operation will be the reverse from that heretofore given, and in case any obstruction should become lodged  
 20 between the full rail and the switch-rail the detecting-pin will engage on the upper face of the angular bar 2, preventing the operator from completing the throw of the lever, indicating at once that the switch-rail has not  
 25 completed its full movement and is therefore not in position to receive the train. This applies, of course, to either movement of the lever, and to allow for the variable movement of the switch-rails on different switches I have  
 30 provided the detecting-pin with the enlarged head having differential sides, as is fully shown in Fig. 5 of the drawings, so that in case the movement of the switch-rail is greater or less the detecting-pin can be removed from  
 35 the lever and reinserted with the side toward the angular standard that conforms to the throw of the switch-rail. In this manner the device can readily be regulated so as to be applied to any of the ordinary switches employ-  
 40 ing a ground-lever without requiring any change whatever in the device. I also wish to call attention to the fact that the bar 16 frequently becomes bent from various causes, and by reason of the connection of the bar 16  
 45 with the switch-rail it serves to incline the same away from the full rail, so that when the lever is operated and has made its full movement the switch-rail would still not have assumed its proper position to receive the train.  
 50 With my improved detector applied in position this would be impossible, as the switch-lever would be prevented from assuming its proper position by the detecting-pin engaging the angular standards, as heretofore de-  
 55 scribed.

It will be observed from the drawings that the head of the detecting-pin is square on each side thereof, so that were the ends of the standards 2 not inclined, as shown at 1<sup>a</sup> and  
 60 as described heretofore, the head in describing its movement with the switch-lever would pass the first point of contact with the standard, but would engage the face of the end be-

fore it passed underneath the standard. Likewise, when the switch-lever is in its normal  
 65 position the head of the pin would engage the lower face of the standard and prevent the lever from being operated. Furthermore, in case the bridle has become bent or for any other cause the switch-rail has been caused  
 70 to incline away from the full rail the detecting-bar would be moved in its carriers a like distance and cause the detecting-pin to engage the angular standards and prevent the moving of the switch-rail.  
 75

In connection with a device of this character it is also necessary to provide an adjustment for the bar or plate connected to the switch-rail and to the detector-bar to accom-  
 80 modate the variable distances in the different switches from the switch-rail to the journal of the switch-lever, and by providing the inner end of the detecting-bar with the screw-thread for some distance on said bar the nuts  
 85 carried by the same can be adjusted to conform to the length of the bar or plate attached to the switch-rail, and as may be required by the different switches.

It will be noted that various changes may be made in the details of construction with-  
 90 out departing from the general spirit of my invention.

Having fully described my invention, what I claim as new, and desire to secure by Letters  
 95 Patent, is—

1. In a switch, the switch-lever, and a detective pin applied thereto, and having a head provided with differential sides, combined with an endwise-moving bar or rod, having the angular projections upon its outer end, an  
 100 adjustable connection secured to its inner end for attaching it to the switch-rail, and a rod connected to the switch-lever for moving the switch-rail, substantially as shown.

2. In a switch-detector a main bar operating in keepers angular standards formed on said bar, said bar having the free end inclined rearwardly, a bar connecting said main bar to the switch-rail, and a detecting-pin se-  
 105 cured in the switch-lever, said pin having a head with differential sides, substantially as shown and described.  
 110

3. In a switch, the switch-lever, provided with a perforation, and a detective pin that is removably applied to the lever, and pro-  
 115 vided with a head having differential sides, combined with an endwise-moving rod having the angular projections upon its outer end, and which rod is connected to the switch-rail, substantially as set forth.  
 120

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

ANDREW KEISER.

Witnesses:

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