

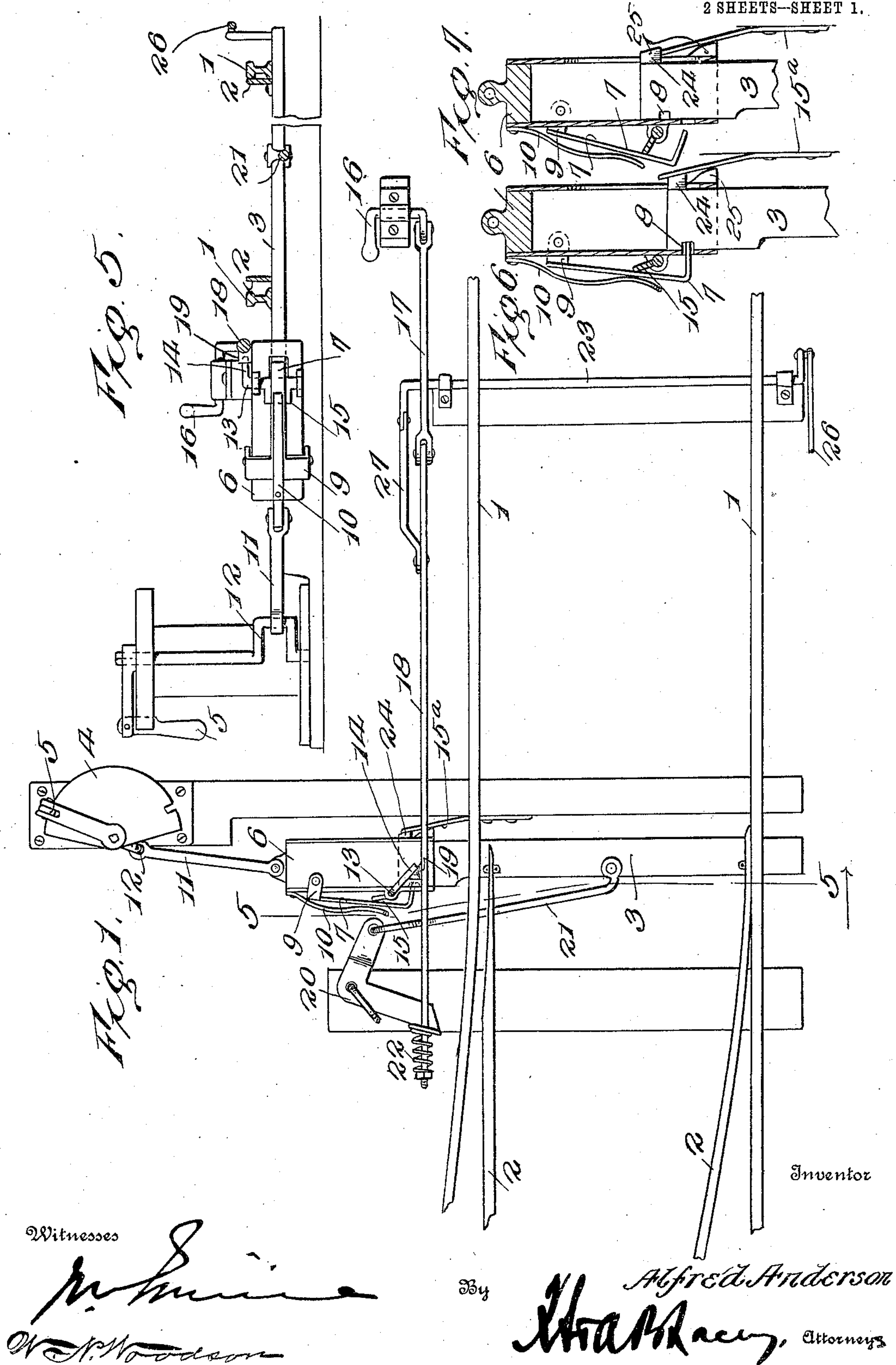
A. ANDERSON.  
RAILWAY SWITCH.

APPLICATION FILED DEC. 30, 1908.

Patented Dec. 28, 1909.

944,249.

2 SHEETS—SHEET 1.



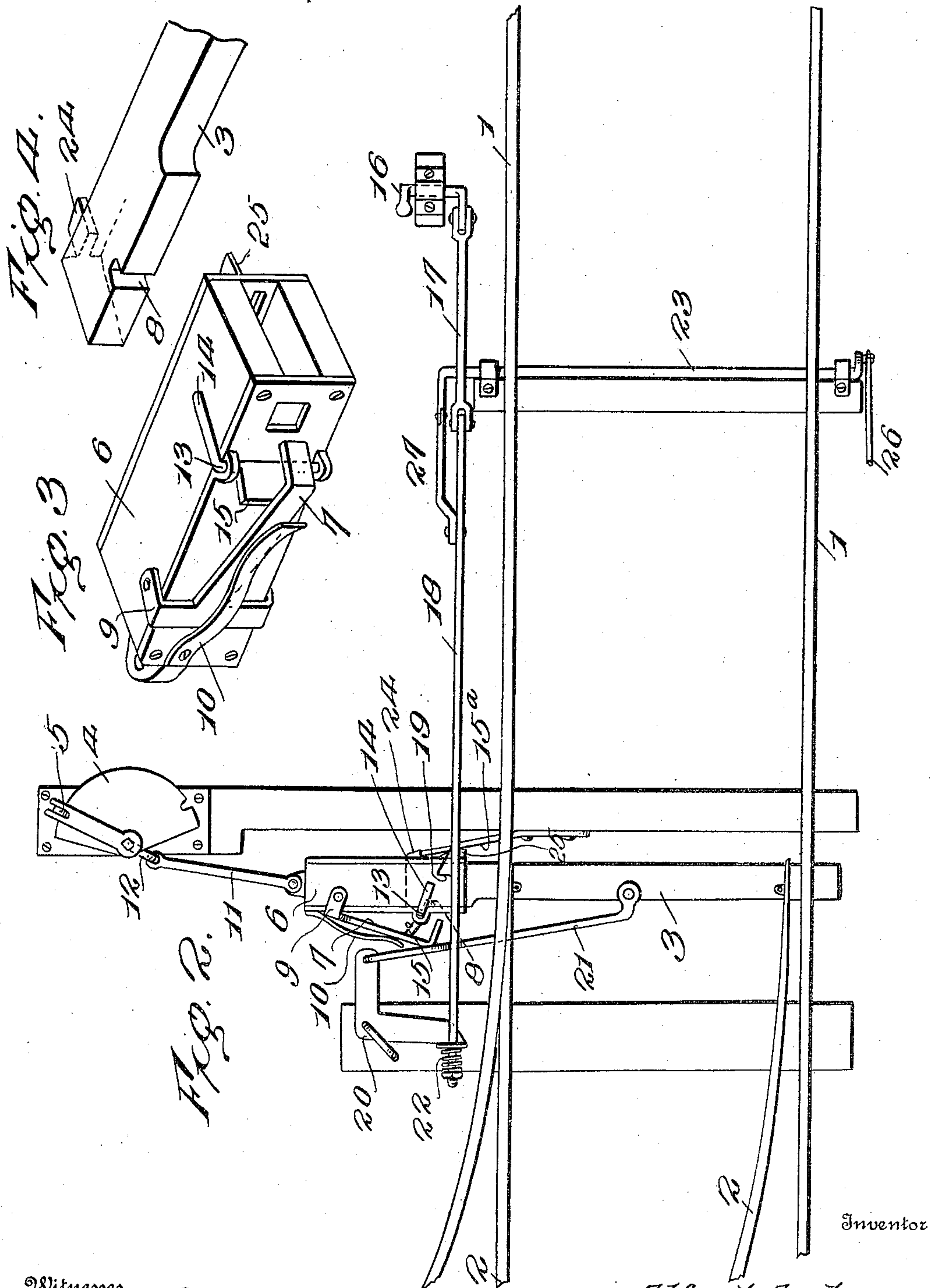
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Witnesses

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# UNITED STATES PATENT OFFICE.

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## RAILWAY-SWITCH.

944,249.

Specification of Letters Patent.

Patented Dec. 28, 1909.

Application filed December 30, 1908. Serial No. 469,916.

*To all whom it may concern:*

Be it known that I, ALFRED ANDERSON, citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Railway-Switches, of which the following is a specification.

The present invention appertains to railway switches and more particularly to the means whereby an engineer of a train may throw a split, open or misplaced switch into operative position and thereby prevent any casualty.

A further purpose of the invention is to combine with a switch and its actuating means, a lock device and operating means for releasing the lock device and admitting of the switch being actuated by the engineer or operator of the train notwithstanding the fact that the switch lever may be moved to a given position and locked.

For a full understanding of the invention and the merits thereof and also to acquire a knowledge of the details of construction and means for effecting the result, reference is to be had to the following description and accompanying drawings, in which:

Figure 1 is a top plan view of a railway switch embodying the invention, showing the switch closed to the main line to permit a car to pass from the right onto the branch; Fig. 2 is a view similar to Fig. 1, the switch being open so that a car coming from the right will continue along the main line; Fig. 3 is a detail perspective view of the coupling head and coöperating lock and release devices between it and the switch bar; Fig. 4 is a perspective view of an end portion of the switch bar; Fig. 5 is a transverse section on the line 5-5 of Fig. 1 looking in the direction of the arrows; Fig. 6 is a detail view of a portion of the coupling head and switch bar, showing the relation of the lock devices when the switch is closed to the main line; and, Fig. 7 is a detail view of the parts shown in Fig. 6 when the switch is adapted to be operated by hand in the ordinary way.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

The numeral 1 indicates the rails of the main track and 2 the movable switch rails,

which are connected by means of a switch bar 3. The switch stand at one side of the track may be of ordinary construction and comprises a notched plate 4 and a lever 5, the latter having its outer portion pivoted and adapted to be turned into a vertical position so as to engage notches in the plate 4 and lock the switch in an adjusted position in the well known manner. A coupling head 6 is fitted to the end of the switch bar 3 adjacent the switch-stand and is held thereto by means of a spring actuating catch 7 fitted to a side of said coupling head. The bent end of the catch 7 operates through an opening in a side of the coupling head 6 and is adapted to enter a notch 8 formed in a side of the switch bar 3, it being understood that any number of notches 8 may be provided to admit of the coupling head being adjusted. The catch 7 is formed with or provided at its pivot end with a cross head 9, whose end portions are bent and embrace opposite sides of the coupling head and are pivoted thereto. A spring 10 secured at one side of the coupling head bears upon the catch 7 at its opposite end to normally hold the bent end of said catch in engagement with the selected notch 8. A link 11 connects the coupling head 6 with an arm 12 projected from the shaft of the switch-stand to which the operating lever 5 is attached. A shaft 13 is mounted in bearings in one side of the coupling head and is provided at its upper end with a trip arm 14 and intermediate of its ends with a projection 15, which is adapted to engage with the catch 7 and effect release of said catch from the switch bar when it is required to release the switch from its operating means to admit of said switch being moved by the engineer or other operator of the train. The projection 15 normally lies between the coupling head and the catch 7 and upon turning the shaft 13, by means of the trip arm 14, the bent end of the catch 7 is moved outward, thereby releasing the coupling head, so that the switch may be moved. The spring 15<sup>a</sup> secured at one end to a tie exerts a lateral pressure upon the switch bar 3, so as to hold the same in given position and admit of a limited movement.

At a convenient point and at a safe distance from the switch is located a trip 16 which is adapted to be operated by the engineer or other operator of the train to both release and throw the switch when required.



A rod or like connection 17 joins a crank portion of the arm 16 with a rod or bar 18 which extends lengthwise of the main track and is provided upon one side with a cam 19 adapted to engage with the trip arm 14 and effect release of the coupling head 6, when it is required to throw the switch from the train. A bell crank 20 is located upon the same side of the track as the switch operating means and the rod or bar 18 has yielding connection with one arm or member thereof, whereas a link 21 connects the other member or arm of the bell crank with the switch bar 3. A spring 22 is mounted upon an end portion of the rod or bar 18 and is confined between a stop fitted thereto and the arm or member of the bell crank 20, with which the part 18 has direct connection. A shaft 23 is arranged transversely of the track and is provided at opposite ends with crank arms, one of which is connected to the rod or bar 18.

Under normal conditions the coupling head 6 is attached to the switch bar by means of the catch 7, thereby admitting of the switch being operated from the switch stand by means of the lever 5 in the well known manner. Should the switch become misplaced from any cause or should it be thrown to a wrong position for an approaching train and locked by means of the lever 5, the engineer or operator of the train may project an arm, not shown, from the engine or motor car, so as to engage with the arm 16 and move the same, and thereby operate the rod or bar 18, so as to bring the cam or trip 19 into engagement with the trip arm 14 and release the coupling head 6 from the switch bar and a continued movement of the arm 16, operating the bell crank 20, throws the switch substantially as indicated in Fig. 2. After the train has passed the switch, the latter may be set by the switchman or station agent for the next train.

The switch bar 3 is provided at its coupling end with a projection 24 which is adapted to be engaged by the spring 15<sup>a</sup> when the switch is closed to the main line, as indicated most clearly in Figs. 1 and 6. The coupling head is provided with a projection 25 which is adapted to engage with the spring 15<sup>a</sup> and disengage the same from the projection 24 to admit of the switch being operated in the usual manner by hand. When the switch is closed to the main line the spring 15<sup>a</sup> engages with the projection 24 and locks the same. Should the engineer or operator of the train approaching the switch upon the main line desire to move or open the switch an arm or other part is projected to as to engage with the trip 16 and move the rod or bar 18 with the result that the cam 19 engages with the trip arm 14 and releases the coupling head from the switch bar, and after the latter has been released it

is moved through the action of the bell crank 20 in the manner stated. After the car has cleared the switch the engineer or operator may close the switch by operating a trip, not shown, which is connected with the shaft 23 by means of a rod 26, said shaft being connected by a crank and link 27 with the rod 18. When the coupling head 6 is operated by means of the switch lever 5, the projection 25 engages with the spring 15<sup>a</sup> and disengages the same from the projection 24, thereby permitting the switch to be operated by hand in the usual manner.

Having thus described the invention, what is claimed as new is:

1. In a railway switch comprising movable switch points, a switch bar and switch operating means, the latter embodying a coupling head detachably fitted to the switch bar, a catch for connecting the coupling head to the switch bar, a trip pivotally mounted on the coupling head and provided with a crank arm operable by the engineer or operator of a train, and engaging said crank arm for releasing the catch and actuating the switch.

2. In a railway switch the combination of a movable switch point, a switch bar, a coupling head, an operating lever connected with said coupling head, a catch for connecting the coupling head to the switch bar, a trip pivotally mounted on the coupling head for releasing the catch and provided with a crank arm, a rod or bar provided with a cam adapted to engage the crank arm for tripping the catch releasing means, and an arm for connection with the rod or bar provided with the cam and adapted to be operated from the approaching train.

3. In a railway switch the combination of a movable switch point, a switch bar connected therewith, a coupling head, switch operating means connected with said coupling head, a catch for connecting the coupling head to the switch bar, a projection for releasing the catch and having a trip arm connected therewith, a rod or bar having a cam portion to engage with said trip arm to effect the release of the coupling head from the switch bar, means for operating said arm or bar, a bell crank having one arm or member connected with the switch bar and yielding means connecting the other member or arm of the bell crank with the said rod or bar provided with the cam.

4. In combination a movable switch point, a switch bar connected therewith, a coupling head detachably fitted to the switch bar, an operating lever connected with the coupling head, a spring actuated catch mounted upon the coupling head and adapted to connect it to the switch bar, catch releasing means mounted upon the coupling head and embodying a trip arm, a bell crank having one member connected to the switch bar, an op-



erating rod having a cam to engage with  
the trip arm of the catch releasing means,  
a yielding connection between said rod and  
the opposite member of the bell crank, and  
5 an arm adapted to be operated from the ap-  
proaching train and having connection with  
the rod provided with the cam.

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

ALFRED ANDERSON.

Witnesses:

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