

A. L. BISHOP & T. F. KIDD.
SAFETY APPLIANCE FOR RAILWAY SWITCHES.
APPLICATION FILED MAY 6, 1908.

912,064.

Patented Feb. 9, 1909.

2 SHEETS—SHEET 1.

Fig. 1.

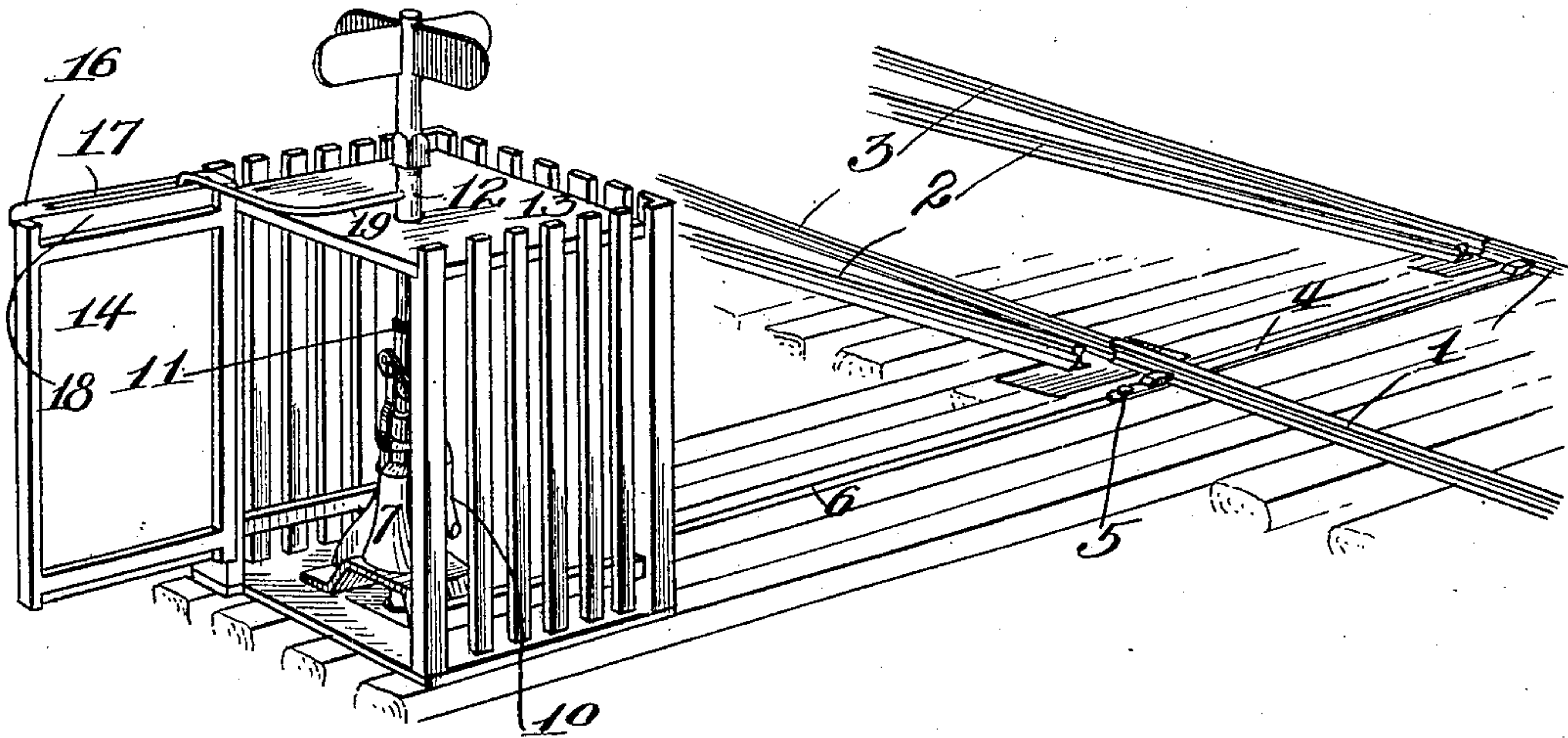


Fig. 2.

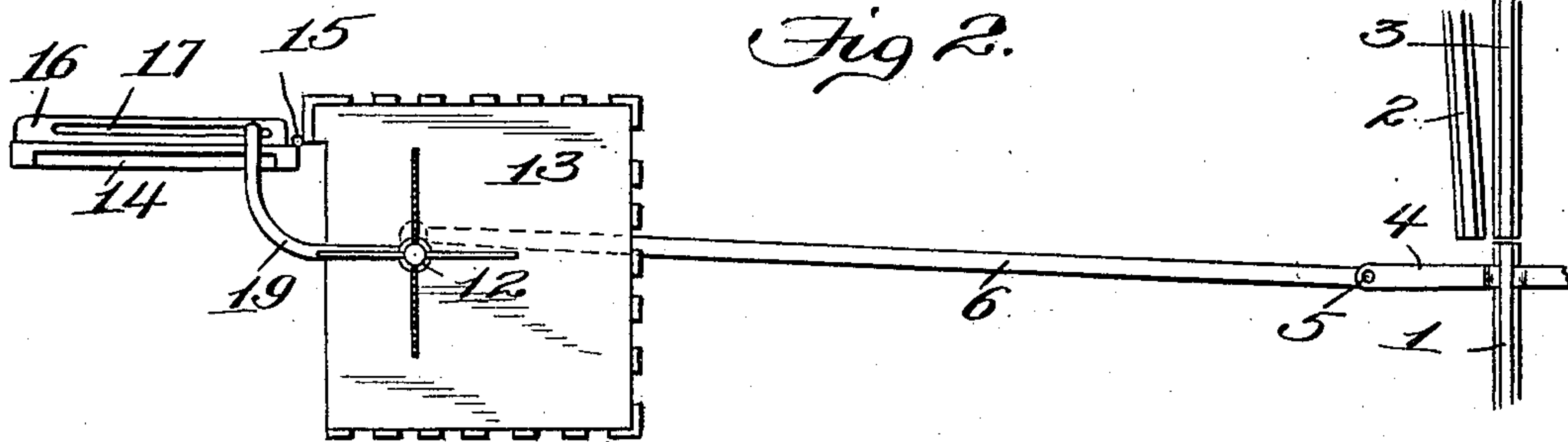
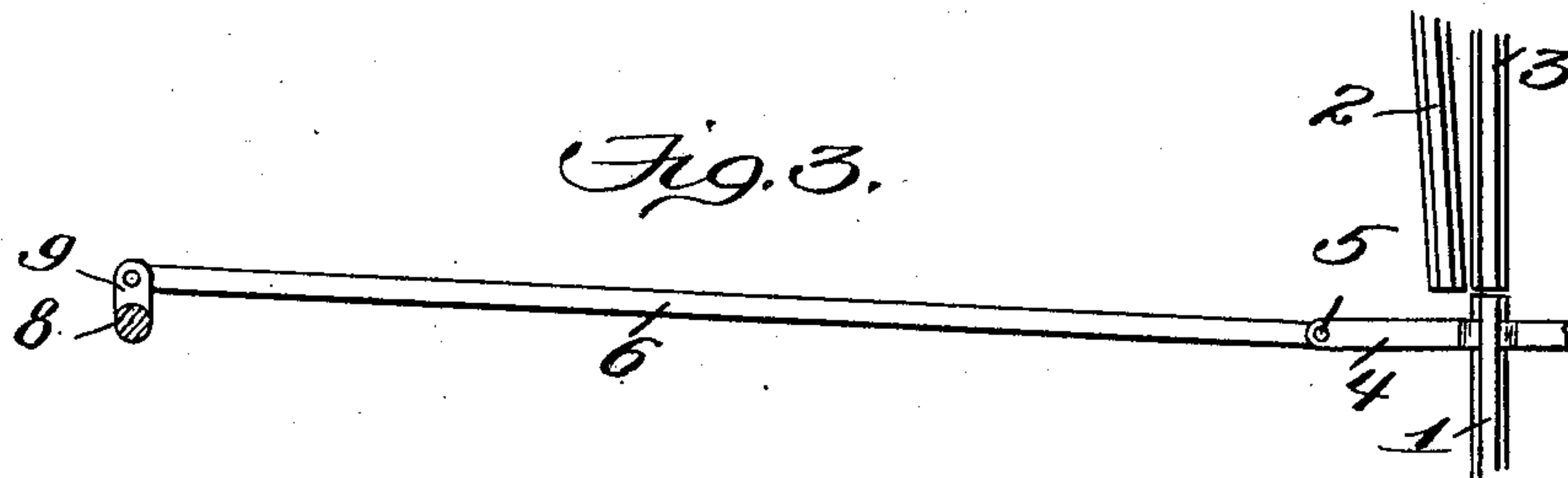


Fig. 3.



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2 SHEETS—SHEET 2.

Fig. 4.

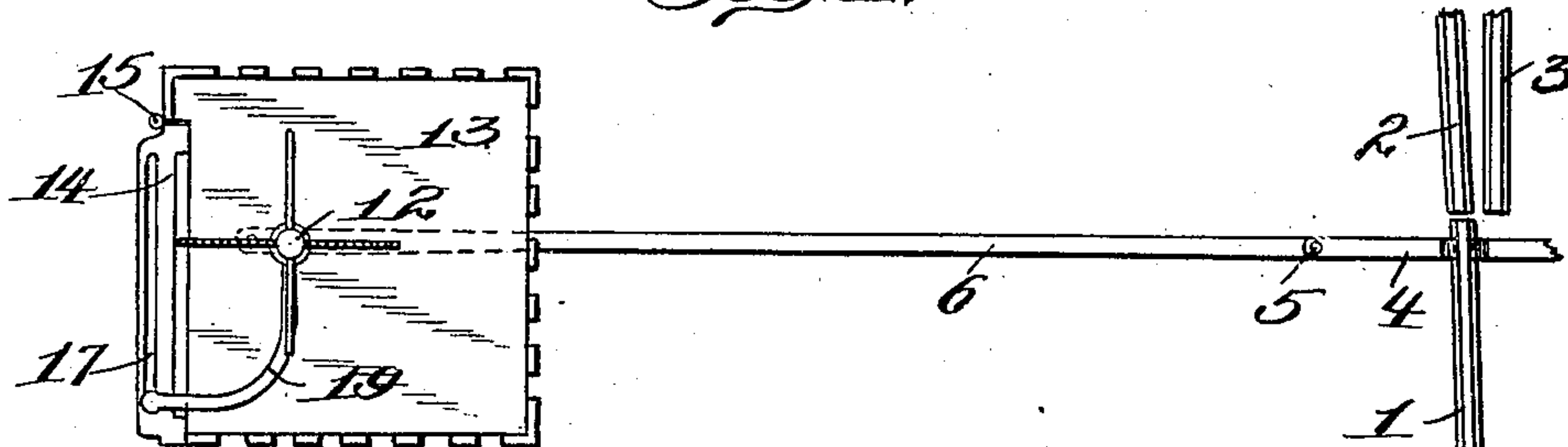
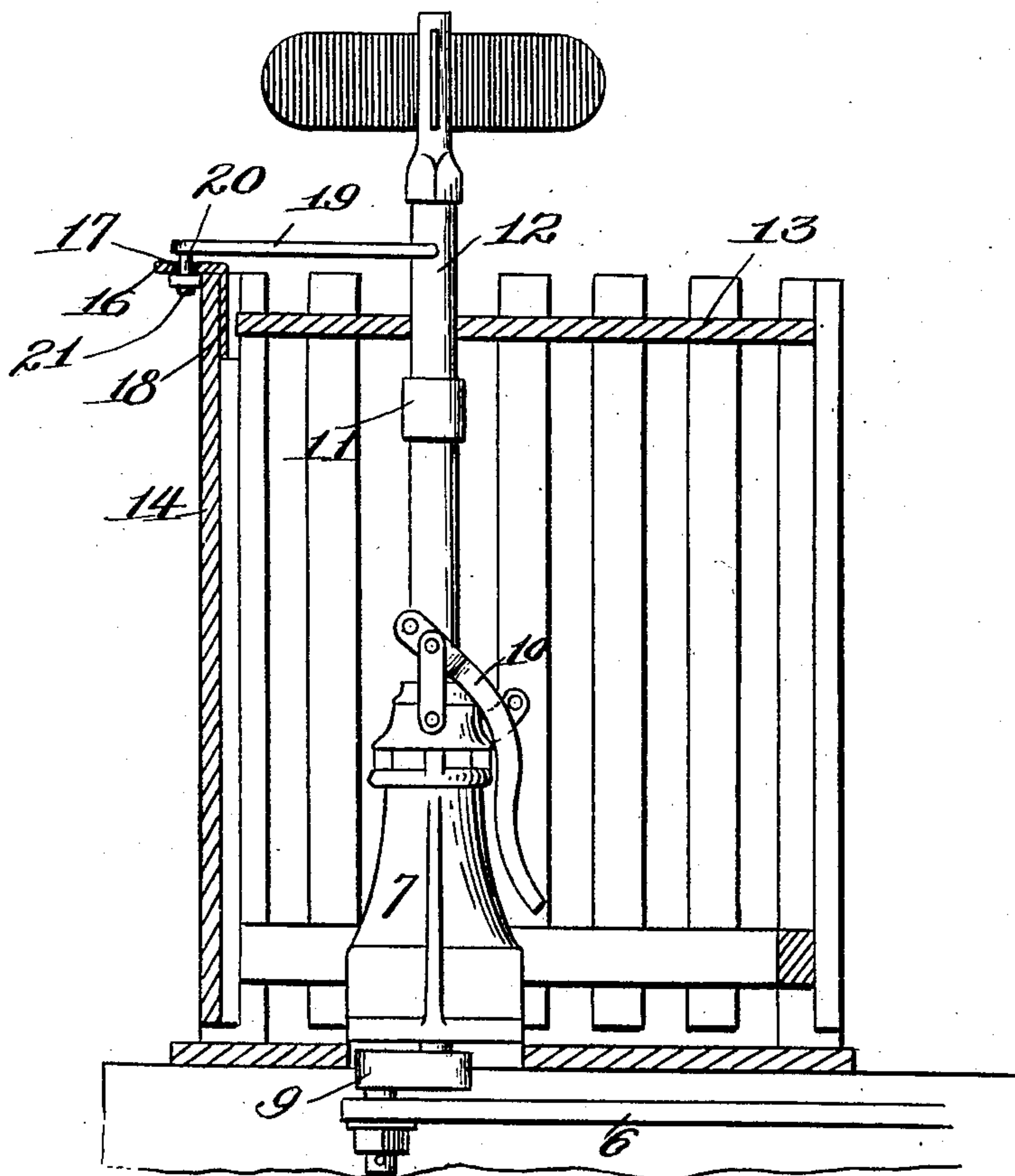


Fig. 5.



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UNITED STATES PATENT OFFICE.

ARTHUR L. BISHOP AND THEODORE F. KIDD, OF PETERSBURG, VIRGINIA.

SAFETY APPLIANCE FOR RAILWAY-SWITCHES.

No. 912,064.

Specification of Letters Patent.

Patented Feb. 9, 1909.

Application filed May 6, 1908. Serial No. 431,181.

To all whom it may concern:

Be it known that we, ARTHUR L. BISHOP and THEODORE F. KIDD, citizens of the United States, residing at Petersburg, in the county of Dinwiddie and State of Virginia, have invented new and useful Improvements in Safety Appliances for Railway-Switches, of which the following is a specification.

Our present invention relates to improvements in appliances for preventing wrecks or collisions at railway switches, and it has for its object primarily to provide means for preventing a switchman or other operative from leaving a switch without having first set the switch in the proper position, thereby avoiding the possibility of a wreck because of the switchman or other operative having left the switch while the latter was set for a siding.

More specifically, the invention consists in providing a cage or housing for the switchstand or other part which must be operated in order to set the switch, the cage or housing having a door or other part which must be opened or operated to permit the exit of the switch operator from the cage or housing, and as this door or part is so connected to the switchstand that it will stand in a closed position or in such a position as to prevent exit of the switch operator while the switch is set for the siding, it will be impossible for the switch operator to leave the cage or housing until after the switch has been properly set for the main track.

To these and other ends, the invention consists in certain improvements, and combinations and arrangements of parts, all as will be hereinafter more fully described, the novel features being pointed out particularly in the claims at the end of the specification.

In the accompanying drawing: Figure 1 is a perspective view of a railway switch equipped with a safety appliance constructed in accordance with our present invention, the door of the housing being shown in open position and the switch set for the main track; Fig. 2 is a top plan view of the switch and safety appliance; Fig. 3 is a sectional view showing the operative connection between the vertical staff of the switchstand and the movable rail of the switch; Fig. 4 is also a plan view showing the door of the cage or housing in closed position and the switch set for the side track; and Fig. 5 represents a vertical sectional view through

the cage or housing, the door being shown in closed position.

Similar parts are designated by the same reference characters in the several views. 60

Safety appliances constructed in accordance with our present invention are capable of use generally in connection with railway switches of various kinds, and are adapted for use in various connections, the invention being especially applicable to the switches of side tracks. According to the present manner of operating trains, the local or freight trains are usually side-tracked in order to permit the passage of a through or express train following it, it being necessary for one of the employees to throw the switch for the side track and after the train has passed upon the siding, it is necessary to replace the switch for the main track. It sometimes happens through forgetfulness or negligence that the employee fails to reset the switch for the main track, and such a failure usually results in a rear end collision between the two trains, or a wreck at the switch. According to the present invention, it is impossible for the employee to leave the switch without having first reset the switch for the main track. 65 70 75 80

In the present instance, we have shown one particular embodiment of our invention which is capable of use in connection with switches of various forms, it comprising in the present instance a pair of movable switch rails 1, the rails 2 for the side track and the rails 3 for the main track, the movable switch rails being connected by a rod 4 which is pivotally connected at 5 to an operating rod 6. In the present instance, a switchstand of ordinary form is provided for operating the switch, this switchstand comprising a stationary frame or casing 7 which is suitably fixed in position and provided with a vertical staff 8, the lower end of which is provided with a crank 9 to which the outer end of the operating rod 6 is attached. The vertical staff is provided with a lever 10 by means of which it may be rotated, a rotation of the staff in one direction causing the switch to be set for the main track, while a rotation in the opposite direction will set the switch for the side track in the usual manner. The upper end of the vertical switch staff is provided with a coupling 11 by means of which a signal standard 12 is connected to rotate therewith, this signal standard being adapted to carry 85 90 95 100 105 110

the usual switch signals, such as the semaphore blades or the usual colored lamp.

Surrounding the switchstand is a cage or housing 13 which may be of any suitable construction and shape, it being preferably of a size to conveniently accommodate the switch operator, an opening being provided in a suitable part of the cage or housing which is controlled by a door or other part 14 which, when in an open position, will permit the exit of the switch operator from the cage or housing. It is generally preferable to provide a door which is connected to the cage or housing by means of hinges 15 which permit the door to swing on a vertical axis. This door is so connected to the switch staff that it will be retained in a closed position to prevent the exit of the switch operator from the cage or housing while the switch is set for the side track, and the resetting of the switch for the main track will automatically open the door and permit the exit of the switch operator. In the present instance, the door is provided preferably at its upper edge with a cam track, that shown in the present instance comprising a plate of metal having a horizontally extending strip 16 projecting outwardly over the top edge of the door and having a slot 17 formed therein which extends horizontally and parallel to the vertical plane of the door, a down-turned portion 18 being formed on the inner edge of the horizontal strip and is adapted to overlap the inner side of the door and to be bolted or otherwise secured thereto. A crank 19 is mounted to turn with the vertical switch staff, this crank being attached in the present instance to a portion of the signal standard 12 at a point above the top of the cage or housing, and the outer end of this crank is provided with a pin or projection 20 which is adapted to operate in the longitudinal slot of the cam track on the top of the door, a nut or other equivalent device 21 being preferably secured to the lower end of this pin to cooperate with the under side of the cam track and thus prevent disengagement between it and the operating pin on the crank. The ends of the operating crank preferably extend at right angles to one another, as shown in Figs. 2 and 4, these ends being connected by a curved intermediate portion.

The operating crank is so connected to the switch staff that the operating pin therein will occupy a position in that end of the slot 17 adjacent to the free edge of the door while the switch is set for the side track, and when the switch is set for the main track, this operating pin will occupy a position toward the opposite end of the slot, as shown in Figs. 1 and 2. Ordinarily, the switch will be set for the main track, and when the switch is in this position, the door

will stand in an open position, as shown in Figs. 1 and 2. In order to set the switch for the side track, it will be necessary for the employee to enter the cage or housing, and in turning the switch staff by means of the lever 10 to set the switch for the side track, the operating crank 19 which is rotatable with the switch staff will turn also, causing the pin on the free end thereof to traverse the horizontal slot of the cam track in a direction from the hinged edge of the door toward the free edge thereof, and when the switch has been fully thrown for the side track, the door will occupy a closed position, thereby preventing exit of the employee from the housing. After the train has been shifted to the side track, the employee within the housing may then return the switch to its initial position by rotating the switch staff in a reverse direction, and when the switch has been fully reset for the main track, the door of the housing will stand in an open position, thus permitting the employee to leave the switch. As the employee will be confined within the housing while the switch remains set for the side track, it will be obvious that the possibility of the employee leaving the switch without properly resetting it is eliminated.

If so desired, the door of the cage or housing may be utilized as a signal to the engineer on an approaching train, the door in the present instance standing in an open position or a position transversely of the track when the switch is set for the main track, and to this end, it may be painted white or otherwise so as to render it more readily visible as a signal for a clear track.

We claim as our invention:—

1. A safety appliance for railway switches comprising a stationary cage having a door pivoted to swing inwardly and outwardly relatively thereto for controlling exit from the cage, a switch operating part inclosed within and accessible for operation from the interior only of said cage, and a direct operative connection between said switch operating part and said door comprising an arm rigidly attached to said part and operatively connected to the door for retaining the latter in closed position until the switch operating part is reset to a predetermined position.

2. A safety appliance for railway switches comprising a rotatable switch staff having an operating part thereon, a stationary housing inclosing the operating part of said staff and having a door for controlling the exit therefrom, and a direct operative connection between said staff and door involving a part rigidly attached at one end to said staff and slidingly connected at its other end to the door for retaining the latter in closed position until the switch has been re-

set to a predetermined position, and for moving said door into an open position transverse to the direction of the track to serve as a signal.

5 3. A safety appliance for railway switches comprising a rotatable switch staff having an operating part thereon, a stationary housing inclosing the operating part on said staff and having a door pivoted at one side thereof, an operating crank connected to rotate with said staff, and a part on said door having a sliding connection with said crank for causing opening and closing movements of the door according to the direction of rotation of the staff.

10 4. A safety appliance for railway switches comprising a vertical rotatable switch staff having an operating part thereon, a stationary housing inclosing the operating part on said staff and having a door pivoted at one side thereof, a crank arranged above the top of the housing and connected to turn with said staff, the outer end of said crank having an operating pin, and a cam track secured to the top edge of said door and having a horizontal slot to slidably receive the operating pin on said crank whereby the

door will be opened or closed according to the direction of rotation of the switch staff.

5. A safety appliance for railway switches 30 comprising a stationary housing having a door pivoted to open or close an opening in one side thereof, a vertically arranged rotatable switch staff having an operating part accessible for operation only from the interior of said housing, a signal standard coupled to the upper end of said staff and adapted to support a signal above the top of the housing, a crank connected to rotate with the staff and arranged above the top of the housing, and a cam track extending from the pivoted to the free edge of the door and arranged to cooperate with the free end of said crank during the rotation of the switch staff to open or close said door. 45

In testimony whereof we have hereunto set our hands in presence of two subscribing witnesses.

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THEODORE F. KIDD.

Witnesses:

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