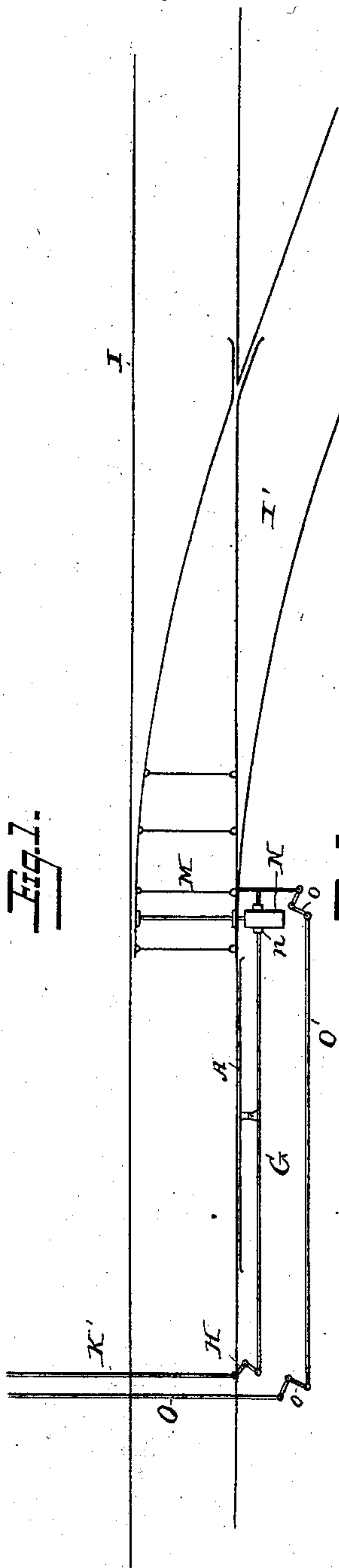


(No Model.)

G. N. REIFF.
RAILWAY SWITCH.

No. 389,716.

Patented Sept. 18, 1888.



WITNESSES:
Wm. G. Shinkel, Jr.
J. S. Barker

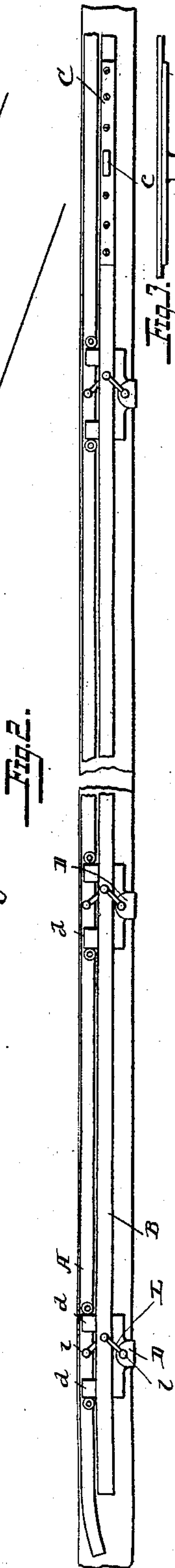
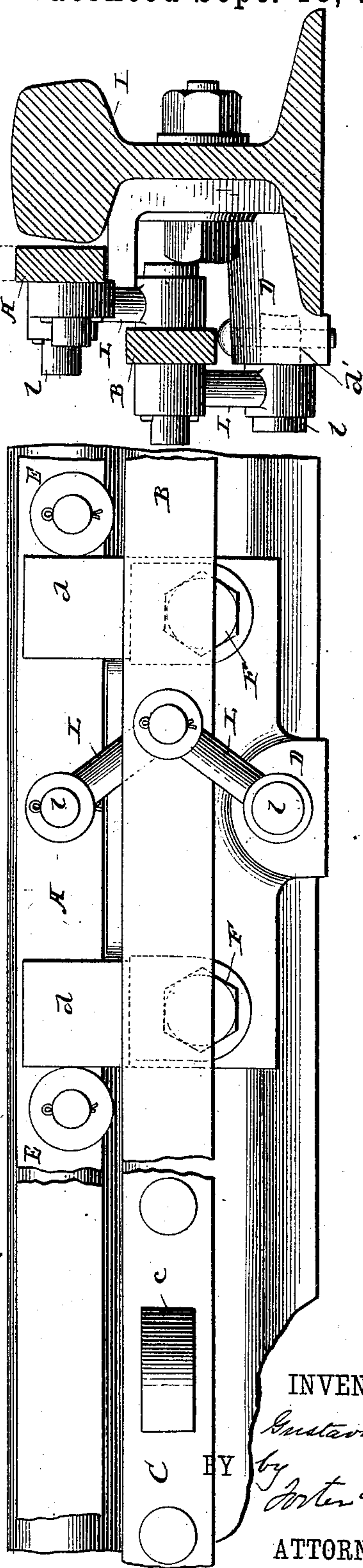


Fig. 3.

Fig. 4.

Fig. 5.



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UNITED STATES PATENT OFFICE.

GUSTAVUS N. REIFF, OF READING, PENNSYLVANIA.

RAILWAY-SWITCH.

SPECIFICATION forming part of Letters Patent No. 389,716, dated September 18, 1888.

Application filed April 17, 1888. Serial No. 270,976. (No model.)

To all whom it may concern:

Be it known that I, GUSTAVUS N. REIFF, a citizen of the United States, and a resident of Reading, Berks county, Pennsylvania, have invented certain new and useful Improvements in Railway-Switches, of which the following is a specification.

My invention relates to what is termed a "detector-bar" for switches and signals, and has for its object to provide means whereby to prevent the switch or signal from being moved or displaced by the operator while a train is passing over or standing on the switch; and it consists in the construction and arrangement of said bars and the means for operating them, substantially as hereinafter described.

In the drawings, Figure 1 is a plan view of a portion of the main track and the switch-rails of a railway, showing an operative arrangement of my invention. Fig. 2 is a side view of the invention. Fig. 3 is a detail view. Fig. 4 is a side view enlarged. Fig. 5 is an end view enlarged.

The rails of the main line are indicated by the letters I and those of the switch by the letters I'; the latter being shifted by any desired or preferred mechanism; but, since the details of such mechanism form no part of this invention, I have merely illustrated one form of operative mechanism, wherein M is the switch-bar, which is connected to move the switch-rails through sliding bars or rods O and levers o, worked from the operating-tower, and N is a lock, the bolt n of which must first be withdrawn before the switch can be operated. The detector-bar and lock-rod are connected with the lever K' from the operating-tower through a bell-crank, H, and a rod or bar, G, which carries at its end the bolt n of the lock. These connections are only shown to illustrate an operative device and may be variously changed, it being only necessary that there should be some connection between the lock-rod and the detector-bar, so arranged that the former cannot be moved without simultaneously moving the latter.

The detector-bar A may lie along either the outer or inner side of one of the rails, and is supported by a series of toggle-levers, so that its upper edge will be elevated above the tread

of the rail when an outside bar is employed, as indicated by the dotted lines in Fig. 4, or, in case of an inside bar, above the bottom of the flange of the wheel whenever the lock is moved.

The bars L L, which form the supporting toggle-levers, are fulcrumed at their outer ends at l l, respectively, to the detector-bar and to stationary supports or brackets D, and at their inner ends are pivoted to a slide-bar, B, lying beside the track parallel with the bar A and below it.

The slide-bar B is provided with an eye, c, preferably carried by a separate plate, C, as shown in Fig. 3, or other suitable device by which it is connected with the rod G, which operates the bar when the switch is unlocked.

In order to necessitate the conversion of the rectilineal motion of the bar B into a vertical motion of the bar A, I provide the latter with anti-friction rollers E, bearing against vertically-arranged stationary guides d d.

I provide a support for the fulcrum-pin l of the lower bar, L, of the toggle-lever, and also the vertical guides d for the rollers E, by means of the bracket-piece D, which is preferably secured to the web of the rail by the bolts F. The socket d', in which the fulcrum-pin l is mounted, rests upon or just beyond the rail-flange, and from either side of this socket project arms carrying the guides d.

The detector-bar is of such length that one or more of the wheels of a train standing on or passing over a switch will always be above it until the train has entirely passed or moved away from the switch, from which it will be seen that it is impossible to operate the switch until the train is at a safe distance therefrom—no matter whether it is passing off or onto the switch or is keeping the main track—because all movements of the lock-bar are communicated to the detector-bar, and the latter cannot be moved so long as a car-wheel rests upon the rail above the detector-bar, which thus serves as an effective safety switch-lock during such time.

The operative parts of the device are all situated above the ground, and hence may be easily put in place, inspected, and kept free from any matter tending to interfere with their movements.

What I claim is—

1. The combination of a detector-bar arranged by the side of a railway-rail, the toggle-levers supporting the same, and vertical guides for the detector-bar, with a switch-operating device and connections between the same and the toggle-levers to move them when the switch is unlocked, substantially as described.

2. The combination of a detector bar arranged by the side of a railway-rail, the toggle-levers supporting the same, and a slide-bar, to which the toggle-levers are connected, with a switch-operating mechanism and connections between the same and the said slide-bar, substantially as set forth.

3. The combination of a detector-bar arranged by the side of a railway-rail and carrying the anti friction rollers E, the pivoted supports for the bar, the guides with which the said rollers engage, and means for moving the supports for the bar when the switch is unlocked and before the switch is operated, substantially as set forth.

4. The combination of a vertically-movable

detector-bar arranged by the side of a railway-rail, the toggle-levers, the bars of which are fulcrumed, respectively, to the detector-bar and to stationary supports below the said bar, and a slide-bar, to which the inner ends of the lever-bars are pivoted, substantially as set forth.

5. The combination of the vertically-movable bar A, carrying the rollers E, arranged by the side of a railway-rail, the brackets D, secured to the rail and having the vertical guides d, with which the said rollers engage, the toggle-levers, fulcrumed, respectively, in the said bar and bracket, and the slide-bar B, to which the toggle-levers are pivoted, substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

GUSTAVUS N. REIFF.

Witnesses:

BENTON O. SEVERN,
THOS. NICHOLSON.