(No Model.)

C. W. ROBINSON.

RAILWAY SWITCH.

No. 423,084. Patented Mar. 11, 1890.

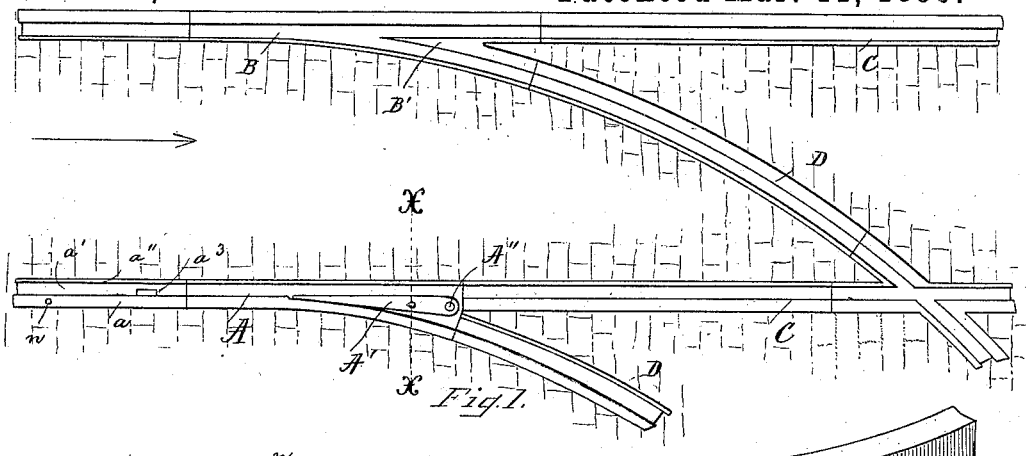

Fig. 1.

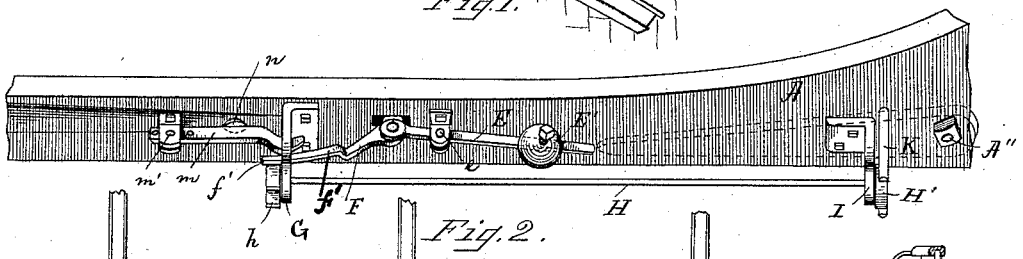

Fig. 2.

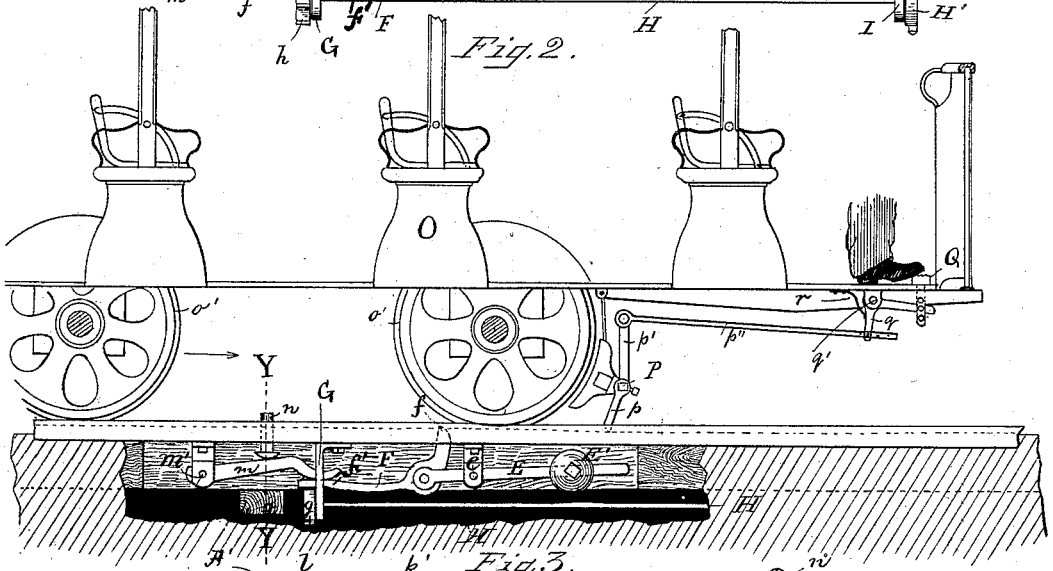

Fig. 3.

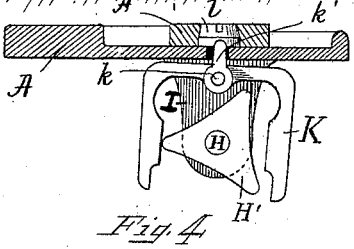

Fig. 4.

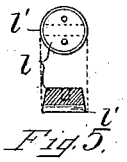

Fig. 5.

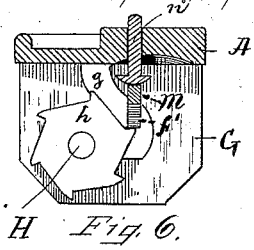

Fig. 6.

Witnesses

Mattie Jackson.

Geo. W. White

Inventor.

Charles W. Robinson.

by Wm. Andrew his atty.

UNITED STATES PATENT OFFICE.

CHARLES W. ROBINSON, OF ROSLINDALE, MASSACHUSETTS.

RAILWAY-SWITCH.

SPECIFICATION forming part of Letters Patent No. 423,084, dated March 11, 1890.

Application filed June 6, 1889. Serial No. 313,275. (No model.)

To all whom it may concern:

Be it known that I, CHARLES W. ROBINSON, a citizen of the United States, and a resident of Roslindale, in the county of Suffolk and State of Massachusetts, have invented new and useful Improvements in Railway-Switches, of which the following, taken in connection with the accompanying drawings, is a specification.

This invention relates to improvements in railway-switches for the purpose of operating the switch from the car without the need of employing extra hands for this purpose or leaving the car to set the switch.

The invention is carried out as follows, reference being had to the accompanying drawings, wherein—

Figure 1 represents a plan view of a pair of converging tracks provided with my improved railway-switch. Fig. 2 represents a bottom view of the switch mechanism. Fig. 3 represents a partial side elevation of a car, showing a portion of the track and switch mechanism. Fig. 4 represents an enlarged cross-section on the line X X, shown in Fig. 1. Fig. 5 represents in plan and section the adjustable disk by means of which the movable switch-tongue is connected to or disconnected from the switch mechanism; and Fig. 6 represents an enlarged cross-section on the line Y Y, shown in Fig. 3.

Similar letters refer to similar parts wherever they occur on the different parts of the drawings.

In Fig. 1, A and B represent the switches for the purpose of guiding cars onto either of the converging tracks C C D D, as may be desired.

A′ is a movable switch-tongue, which is pivoted at A″ to the plate *a*, as shown in Fig. 1.

In switches of this kind only one tongue is movable, and therefore I have shown the tongue B′ on the opposite track as a stationary one; but I do not wish to confine myself to this precise arrangement, as both tongues may be made movable, if so desired, without departing from the essence of my invention.

a is the wheel-tread, *a′* the wheel-flange groove, and *a″* the side guard-lip, of the switch-plate A, as usual.

Below the plate A is pivoted at *e* the weighted lever E, having secured to it the weight E′, which is preferably made adjustable thereon, as shown in Figs. 2 and 3. To the forward end of the lever E is pivoted the knee-lever F, the vertical end *f* of which projects upward through a perforation a^3 in the groove of the plate A, as shown in Fig. 1.

f′ is the horizontal end of the said knee-lever, which, after passing through the curved perforation *g* in the plate G, as shown in Figs. 2, 3, and 6, is made to engage in the teeth of the ratchet-wheel *h*, that is secured to the shaft H, that is journaled in bearings in the plates G and I, as shown in Fig. 2.

To the end of the shaft H is secured the cam H′, which is preferably made three-sided, as shown in Fig. 4. As the said cam is turned around its axis it imparts a rocking motion to the forked rocker K, which is pivoted at *k* and provided with an upwardly-extending peg *k′*, passing loosely through a perforation in the plate A, and having its upper end projecting into a groove *l′* in the disk *l*, which is connected to the tongue A′ in such a manner as to be capable of being turned around by means of a key or otherwise, which is done for the purpose of connecting and disconnecting the movable tongue A′ from the switch mechanism whenever so desired. Thus, for instance, by turning the said disk *l* so that its groove *l′* is parallel, or nearly so, with the shaft H, the rocker K as it is actuated will impart a corresponding rocking-motion to the tongue A′, the position and movements of the latter being thus controlled by the position and movements of the former. By turning the disk *l* so that its groove *l′* is at a right angle, or nearly so, to the shaft H, the rocker K may be actuated without imparting any movement to the tongue A′, and the latter is consequently left free to be moved to the right or left, as may be desired, in case of accidents or injuries to the switch mechanism.

m is a lever, pivoted at *m′* to the under side of the switch-plate A, and having its free end resting loosely on top of the horizontal knee-lever F, as shown in Figs. 2 and 3.

n is a pin passing loosely through a perforation in the tread portion *a*, its upper end, when set for operation, being made to project slightly above the rail, as shown in Figs. 3 and 6, and its lower end being supported on the lever *m*, as shown in Figs. 2, 3, and 6.

O in Fig. 3 represents a street-car, as usual, of any desired construction, and *o o'* represent the front and rear wheels thereon in the ordinary manner.

In connection with the aforesaid improved switch mechanism and said car I use an arm hung on the under side of said car or any of its connections, and adapted to be operated, preferably, by means of foot-pressure, as will now be shown and described.

p is an arm preferably secured in an adjustable manner to the shaft P, that is supported in bearings in a suitable manner on the under side of the car, as shown in Fig. 3.

p' is an arm secured to the shaft P, and having pivoted to its upper end the link or rod *p''*, the forward end of which is connected, preferably, to a knee-lever *q*, hung at *q'*, and having connected to its other end a treadle or equivalent device Q, adapted to be depressed against the influence of the spring *r*, as shown in Fig. 3. When the treadle Q is not depressed, the lever *p* is automatically swung out of operative position relative to the projection *f* on the lever F by the influence of the spring *r*, thus allowing the car to pass on without rocking the lever F, and consequently without changing the position of the switch-tongue A'. If, however, the driver of the car should desire to change the position of the said tongue A', he depresses the treadle Q as he approaches the switch, thus causing the lever *p* to be swung to such a position that its lower end will come in contact with and actuate the end *f* of the lever F, and in so doing the latter is rocked on its fulcrum, causing its horizontal end *f'* to swing upward in the curved slot *g*, and thus set it for engagement with the ratchet-wheel *h*, as shown in Figs. 3 and 6. As said lever F is rocked it causes the lever *m* to swing upward on its fulcrum *m'*, thereby causing the pin *n* to be raised above the track, and as the next car-wheel passes over said pin it depresses it, causing the lever *m* to depress the horizontal end of the lever F, and thereby causing the ratchet-wheel *h*, its shaft H, and cam H' to be turned a part of a revolution, (preferably one-sixth, if the cam H' has three projections, as shown in Figs. 4 and 6,) by which the forked piece K is rocked on its fulcrum *k* sufficiently to set the switch-tongue A' for either one of the tracks C and D, as the case may be, and locking it in such position.

The lever F can only be set for operation, as above stated, by means of the lever *p* and its connection to the treadle Q, and is not affected by the passing over it of car or vehicle wheels, which only tend to depress it slightly, causing the lever E to rock on its fulcrum without causing the end *f'* of said lever F to rise.

After a car or vehicle wheel has passed by the projection *f* it will be automatically raised to its normal position by the influence of the weighted lever E.

Having thus fully described the nature, construction, and operation of my invention, I wish to secure by Letters Patent, and claim—

1. The herein-described railway-switch mechanism, consisting of the knee-lever F, pivoted to the weighted lever E, and having one end projecting upward through the rail and its other end adapted to engage with the ratchet-wheel *h*, combined with the lever *m* and vertically-movable pin *n*, projecting upwardly through the rail, the shaft H, having ratchet-wheel *h* and cam H', the forked rocker K *k'*, and pivoted tongue A', substantially as and for the purpose set forth.

2. In a railway-switch mechanism, the tongue A', pivoted to the rail, as described, in combination with the adjustable disk *l*, having a groove *l'* on its under side adapted to receive the upper end of the rocker K *k'*, by means of which the switch-tongue is operated, substantially as and for the purpose set forth.

3. The switch mechanism, as described, consisting of the levers *m*, F, and E, pin *n*, shaft H, ratchet and cam wheels *g* H', forked rocker K, and movable tongue A', and the car O, having a lever *p* and connecting mechanism to a treadle-lever on said car, all combined and arranged for operation substantially as specified.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 25th day of May, A. D. 1889.

CHARLES W. ROBINSON.

Witnesses:

ALBAN ANDRÉN,

MARTHA JANE JACKSON.