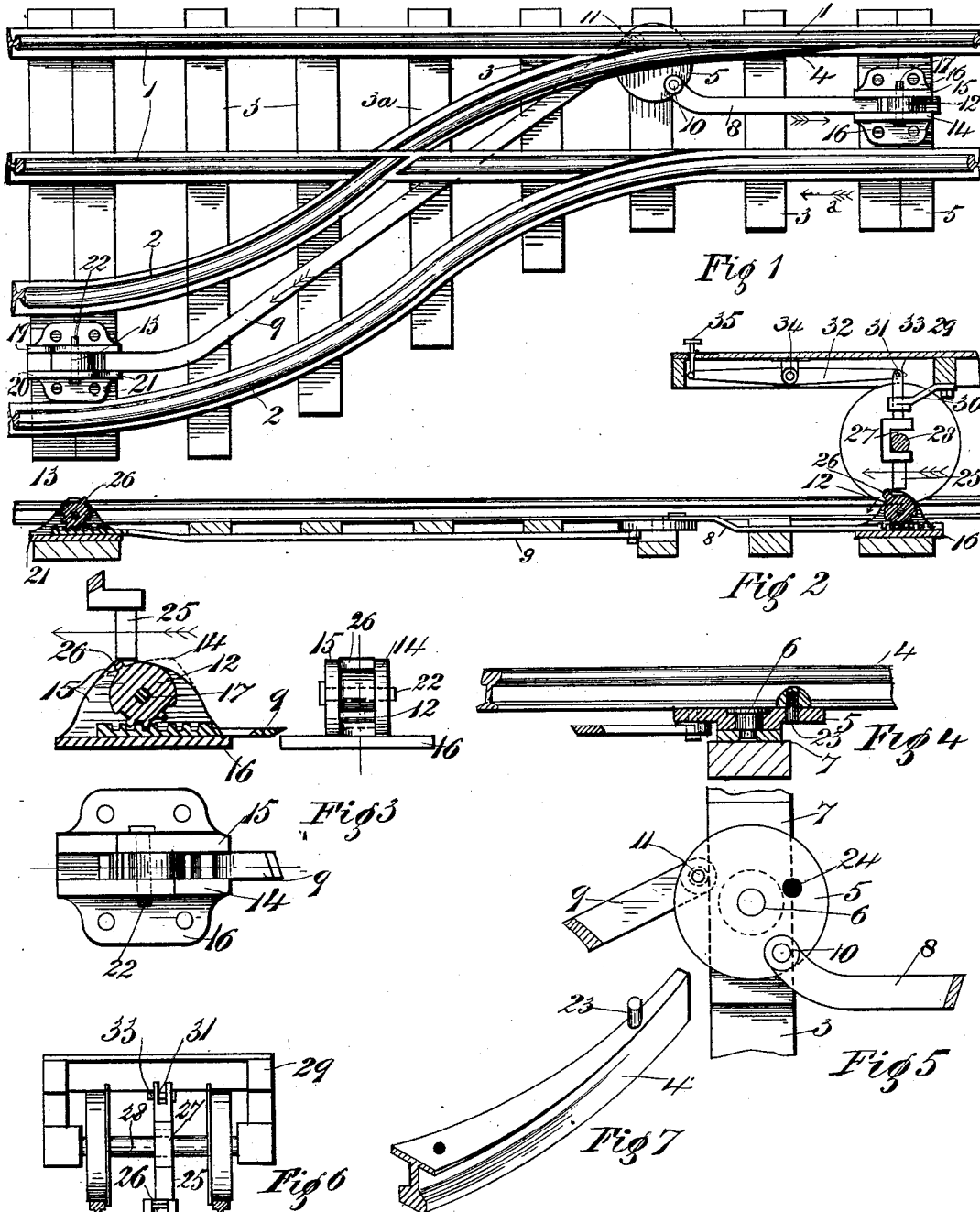


(No Model.)

J. LIPMAN & C. J. RINDERKNECHT.
AUTOMATIC RAILWAY SWITCH.

No. 479,373.

Patented July 19, 1892.



Witnesses

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UNITED STATES PATENT OFFICE.

JOHN LIPMAN AND CHARLES J. RINDERKNECHT, OF INDIANAPOLIS, INDIANA,
ASSIGNORS OF ONE-FOURTH TO FRANK X. BEAUPERE, OF SAME PLACE.

AUTOMATIC RAILWAY-SWITCH.

SPECIFICATION forming part of Letters Patent No. 479,373, dated July 19, 1892.

Application filed November 28, 1891. Serial No. 413,450. (No model.)

To all whom it may concern:

Be it known that we, JOHN LIPMAN and CHARLES J. RINDERKNECHT, citizens of the United States, residing at Indianapolis, in the
5 county of Marion and State of Indiana, have invented new and useful Improvements in Automatic Railway-Switches, of which the following is a specification.

Our invention relates to an improved railway-switch particularly applicable to street-railways; and it consists in improved means whereby the switch may be operated to open and close.

Its objects are to provide means whereby the
15 switch may be thrown open or closed automatically by a trip-bar secured on the car; also, to provide means whereby the trip-bar will be maintained at a uniform distance from the rails when lowered to operate the switch;
20 also, to provide means whereby said trip may be raised out of or lowered into operating position at the pleasure of the operator. We attain these objects by means of the mechanism illustrated in the accompanying drawings,
25 in which—

Figure 1 is a plan of a railway-track, showing our switching attachment applied thereto. Fig. 2 is a part sectional elevation of the same. Fig. 3 represents a sectional, an end elevation,
30 and a plan view of the trip-wheel and its stand. Fig. 4 is a sectional elevation of the throw-out disk of the switch. Fig. 5 is a plan of the same with the switch-rail removed. Fig. 6 is an end view of the car, showing the tripping-bar attached thereto; and Fig. 7 is a detail
35 perspective view of the switch rail or tongue.

Similar numbers of reference designate like parts throughout the several views.

Referring to the drawings, 1 designates any
40 ordinary railway-track, and 2 is a side track, all secured in the usual way or any suitable manner to the ties 3. The switch-rail 4 is pivoted to the tie 3^a, or, if sufficiently long, may be spiked thereto and sprung open or
45 closed.

5 designates the switch-rail opening and closing disk journaled on the pin 6, secured on its supporting-base 7, said base being firmly secured by suitable bolts or screws to the rail-tie to form a firm support for the disk
50 5 and the switch-rail resting thereon.

8 designates the forward, and 9 the rear trip-connecting rods having their inner ends pivoted on the disk-pins 10 and 11, said rods having their opposite ends provided with racks
55 or gear-teeth formed thereon and adapted to mesh with the gear-teeth formed on the under peripheries of the trips 12 and 13. The trip 12 is journaled between the jaws 14 and 15 of the trip-supporting standard 16 and on its pin
60 17, and the trip 18 is journaled between the jaws 19 and 20 of the standard 21 and on the pin 22. On the bottom edge of the switch-rail and at or near its point is secured the engaging pin 23, adapted to neatly fit and to
65 engage in the hole 24, formed in the face of the disk 5, by which said switch-rail is caused to open or close.

25 designates the trip-bar adapted to engage the detents 26, formed on the top of the peripheries of the trips 12 and 13, and having
70 the notch or recess 27 formed at or near its center, adapted to receive the axle 28 of the car 29, said bar having its top end adapted to neatly fit in the supporting-arm 30, secured to
75 the car-frame.

On the top end of the trip-bar is formed the fork 31, adapted to receive the end of the lever 32, to which it is jointed by a suitable pin 33, said lever being fulcrumed on the fulcrum
80 34, secured to the floor of the car, and said lever being provided at its opposite end with a catch-lever 35, which we employ for the convenience of the operator in holding said trip-bar in its disengaging position, as required.
85 The standards 16 and 21 should be placed at a distance from the points sufficient to insure the free operation of the switch-rail when the car approaches or recedes from the switch. By placing the disk 5 under the rails and connecting the switch-rail 4 and the rods 8 and 9
90 to it direct the device is rendered very simple and effective, and is specially adapted for street-car railways, as no part of the device projects above the carriage-way, but is kept
95 wholly between the rails and under the track. The jaws of the standards 16 and 21 are preferably made in the form of cams with their inclines reversed, and will hereinafter be more fully described and particularly referred to.
100

The operation of our invention is as follows:
To cause the car to be transferred from the

main track to the side track, the button 35 is released or disengaged to permit the trip-bar 25 to descend or fall into its operating position, the amount of the descent being limited 5 by the play of the yoke 27 on the car-axle 28. As the car is moved in the direction of the arrow *a* the trip-bar 25 contacts with the detents of the tumbler or trip 12, thus causing the connecting-rods 8 and 9 to move and the 10 disk 5 to rotate in the directions indicated by their arrows, and thereby moving the switch-rail 4 into the position shown in Fig. 1. The trip-bar 25, being still in its engaging position and the car continuing to move along on the 15 side track, approaches and contacts with the detent 26 of the trip or tumbler 13 to open the switch 4 and set it for the cars passing along on the main line.

It will be readily understood from the foregoing that the car on its return-trip will first 20 contact with the detent 26 of the trip 13 to move it to close the switch to permit the said car to proceed to and on the main track, which in its passage contacts with the detent 26 of the trip 12 to open the switch and thereby 25 leave the main track open to traffic.

Referring to Figs. 3 and 6, the action of the trip lever or bar 25 and the cam-formed jaws 14 and 15 will be more readily understood.

30 It will be observed that the trip-bar 25 is placed at one side of or out of center of the car, so that in moving said bar over the trips the end will contact with the throw-out cam on one side of the trips 12 and 13, thus gradually disengaging the trip-bar 25 from the 35 detent 26, and thereby avoiding all jar.

Having thus fully described the construction and operation of our invention, what we claim as novel and useful, and desire to cover by Letters Patent of the United States there- 40 for, is—

1. The combination, with a switch-rail and a pivoted disk provided with a pin for shifting the switch-rail, of a rod pivoted to the said disk and provided with a toothed rack 45 and an oscillatory trip provided with teeth engaging with the said rack and having a detent arranged in the path of the trip-bar on the car, substantially as set forth.

2. The combination, with a switch-rail and 50 a pivoted disk provided with a pin for shifting the switch-rail, of a rod pivoted to the said disk and provided with a toothed rack, a standard arranged in the center of the track and provided with reversely-inclined sides, 55 an oscillatory trip supported in the said standard and provided with a detent and with teeth engaging with the said rack, and a trip-bar carried by the car and arranged to one side 60 of the center of the track, whereby the trip-bar is raised slowly out of contact with the detent after operating it to shift the switch-rail according to the direction of the motion of the car, substantially as set forth.

In testimony whereof we have hereunto set 65 our hands in the presence of two subscribing witnesses.

JOHN LIPMAN.

CHAS. J. RINDERKNECHT.

Witnesses:

THOMPSON R. BELL,

G. S. W. MACK.