(No Model.) 2 Sheets—Sheet 1.

J. S. MERKINS.

TROLLEY SWITCH.

No. 481,503. Patented Aug. 23, 1892.

Fig. 1.

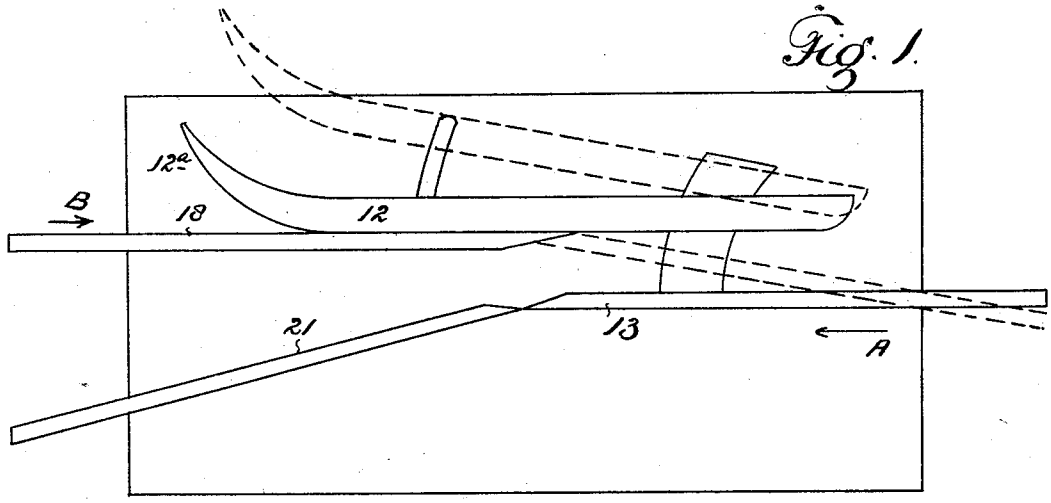


Fig. 2.

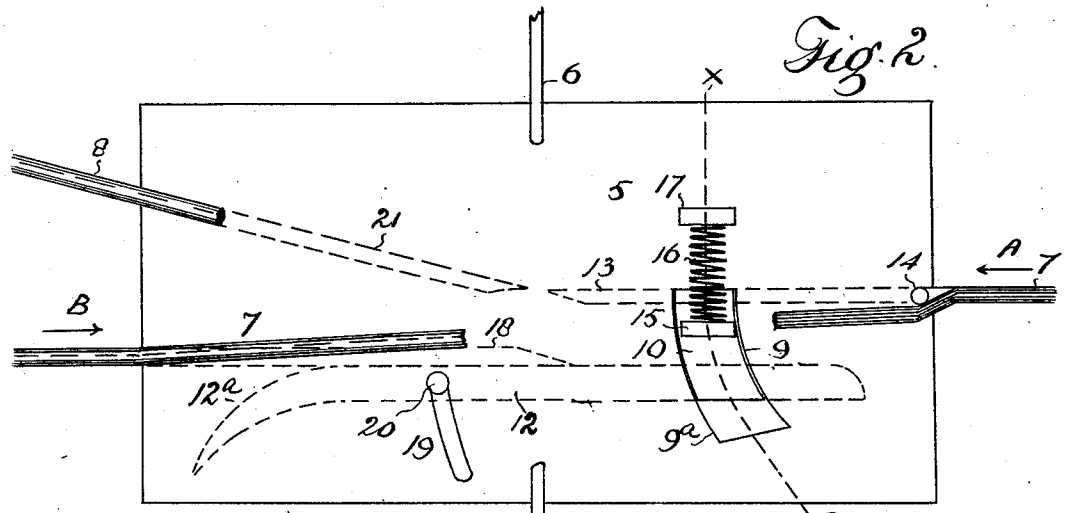
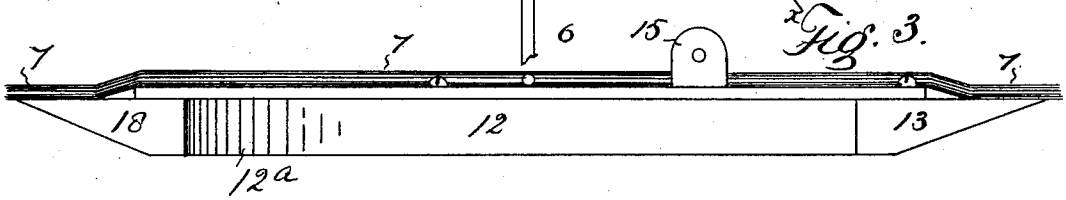


Fig. 3.



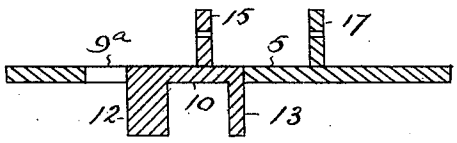


Fig. 6.

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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 2 Sheets—Sheet 2.

J. S. MERKINS.

TROLLEY SWITCH.

No. 481,503. Patented Aug. 23, 1892.

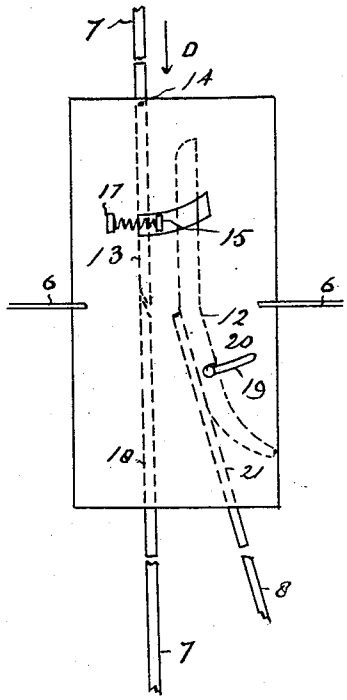


Fig. 4.

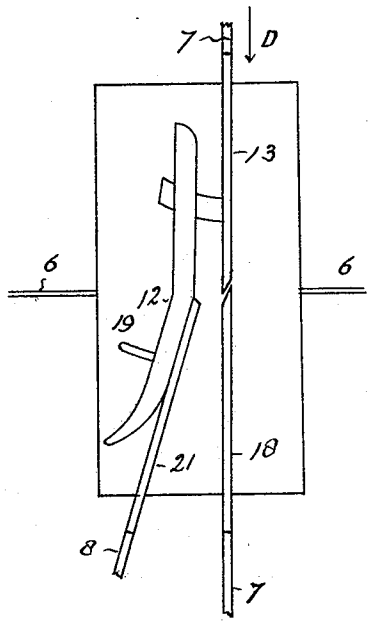
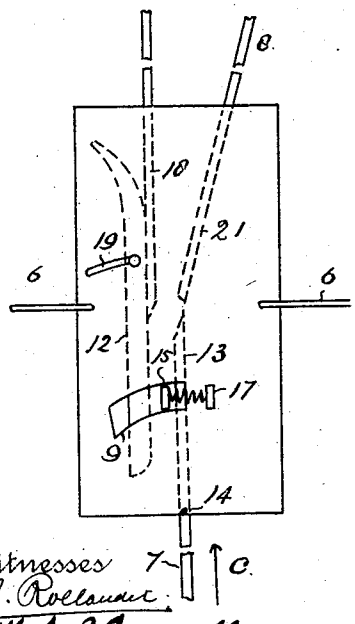
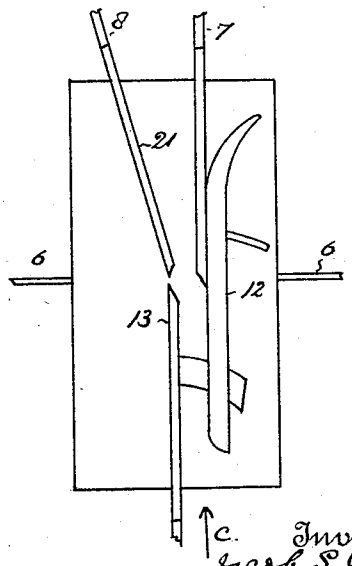


Fig. 5.





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UNITED STATES PATENT OFFICE.

JACOB S. MERKINS, OF HIGHLANDS, COLORADO, ASSIGNOR OF ONE-THIRD TO EMERY C. DYE, OF SAME PLACE.

TROLLEY-SWITCH.

SPECIFICATION forming part of Letters Patent No. 481,503, dated August 23, 1892.

Application filed October 17, 1891. Serial No. 409,059. (No model.)

To all whom it may concern:

Be it known that I, JACOB S. MERKINS, a citizen of the United States of America, residing at Highlands, in the county of Arapahoe and State of Colorado, have invented certain new and useful Improvements in Trolley-Switches; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in trolley-switches; and the object of the invention is to provide an automatic device whereby the trolley engaging the main overhead conductor in electric railroad systems may be guided to the branch conductor of the side track or a branch line of road when the car is moving in one direction, while the trolley of the car moving in the opposite direction shall invariably keep the main-line conductor corresponding with the main line of track.

A further object of the invention is to provide a device of the class stated which shall be of simple and economical construction, reliable, durable, and thoroughly practical in use.

The invention will be fully understood by reference to the accompanying drawings, in which is illustrated an embodiment thereof.

In the drawings, Figure 1 is an underneath view of a single switch-plate provided with the necessary guide and track flanges for the trolley. Fig. 2 is a top view of the same, the flanges being indicated by dotted lines. Fig. 3 is a side elevation of the same. Fig. 4 is a top view of the switch-plates located on the main-line conductor and connecting the extremities of the side-track conductor. Fig. 5 is an underneath view of the same. Fig. 6 is a vertical cross-section taken on the line *x x*, Fig. 2.

In the views, similar reference characters indicating corresponding parts or elements of the mechanism, let the numeral 5 designate a metal plate suspended above the car-track by the transverse supporting-wires 6 6 and in line with the main current-supply wire 7, which is attached thereto. Wire 7 is preferably continuous and is soldered or otherwise suitably secured to the plate, as shown in the drawings. It lies above the plate and therefore interferes in no way with the movable flanges underneath. The branch wire 8 is also secured to the plate. If wire 8 belongs to a side track, it leads back to another plate 5 and guides or returns the trolley to the main line, as shown in Figs. 4 and 5, while if it simply belongs to a branch line of road only one switch-plate is employed, as shown on an enlarged scale in Figs. 1, 2, and 3. Plate 5 is provided with a curved slot 9, in which is located the correspondingly-shaped movable plate 10, formed integral with or rigidly secured to the movable flanges 12 and 13. Plate 10 is allowed sufficient movement for the proper adjustment of the track-flange 13 when the guide-flange 12 is acted upon by the trolley. Hence normally there is a space 9^a between the end of slot 9 and the adjacent extremity of plate 10. When the flanges 12 and 13 are in the positions shown by dotted lines in Fig. 1, plate 10 is moved into space 9^a, leaving a corresponding space between the opposite end of the plate and the corresponding extremity of the slot. Flange 13 is pivoted to the plate at a suitable point, as shown at 14 in Fig. 2. Plate 10 is provided with an upwardly-projecting lug 15, to which is secured one extremity of a coil-spring 16, the opposite extremity of said spring being made fast to a stationary stop 17, formed integral with or made fast to the plate. This spring 16 normally maintains the movable flanges in the position shown in full lines in Fig. 1 and by dotted lines in Fig. 2. Normally flange 12 is in contact with the stationary track-flange 18, and is outwardly flared, as shown at 12^a, so as to present no obstruction to the engaging-trolley and insure perfect automatic action. Plate 5 is provided with another curved slot 19, through which projects a pin 20, made fast to flange 12. The head of this pin is larger than the slot and affords a support for the flange, the length of the slot being such as to allow flange 12 the movement required for the proper adjustment of flange 13 to bring it in contact or line with flange 18. Another stationary track-flange 21 guides the

trolley from the main-line conductor 7 to the side-track conductor 8 and back again to the main line at the opposite end of the side track, as shown in Figs. 4 and 5, or in the case of a branch road track-flange 21 guides the trolley to the branch-road conductor when going in one direction and back again to the main-line conductor when going in the opposite direction, one switch-plate only being employed in this last-named case. The outer extremities of the track-flanges 13, 18, and 21 should extend a short distance from plate 5 and taper gradually to the conductor, as shown in Fig. 3, in order to prevent the possibility of the trolley missing the wire when leaving the track, as might be the case if the ends of the track-flanges were cut or fashioned to form right angles with their edges.

From the foregoing description the operation of my improved trolley-switch will be readily understood. I may suppose that Figs. 1 and 2 illustrate the switch placed at the junction at two roads, wire 7 being the main-line conductor and wire 8 the branch-road conductor, the terms "main line" and "branch road" being used for convenience only. In this case, assuming that a car is moving in the direction of arrow A, its trolley passes from conductor 7 to the track-flange 13, thence to track-flange 21 and to the conductor 8, while the movement from the branch road to the main line will be exactly the reverse without shifting any of the movable parts in either case, while the trolley on a car moving on the main line in the direction indicated by arrow B passes from conductor 7 to flange 18, engages flange 12, shifts it, together with flange 13, to the position shown by dotted lines in Fig. 1, passes thence to flange 13, and back to the main-line conductor 7 at the opposite end of the switch-plate.

Referring now to Figs. 4 and 5, the operation is as follows: Assuming that the car is moving in the direction indicated by the arrow C, the trolley passes from the main-line conductor 7 to the flange 13, thence to flange 21, to the conductor 8, back to flange 21 of the opposite plate, engaging flange 12 and shifting 13 so as to allow the trolley to pass to flange 13 and out again upon the main line, while if the car is moving in the direction indicated by arrow D it passes from the main-line conductor 7 to track-flange 13, thence to track-flange 18 and out again upon the conductor and to flange 18 of the second plate, shifting flanges 12 and 13, and thence to the conductor 7 beyond the plate. It will be observed that spring 18 returns flanges 12 and 13 to their normal positions after each movement imparted by the passing trolley.

Having thus described my invention, what I claim is—

1. The combination, with the main and branch overhead conductors, of the trolley-switch consisting of the plate 5, suitably supported and provided with two stationary track-flanges, a movable spring-actuated piece 10, located in a slot formed in plate 5 and carrying the depending guide and track-flanges rigidly secured thereto, said flanges being so arranged and connected on the plate that the trolley of a car moving in one direction passes to the side or branch conductor, while the trolley moving in the opposite direction on the main line keeps the main conductor, substantially as described.

2. The combination, with the main and branch overhead conductors, of the trolley-switch consisting of the plate 5, suitably supported and provided with the stationary track-flanges, a movable piece 10, located in a slot formed in plate 5 and carrying the depending guide and track-flanges and provided with a lug projecting above the plate 5, and a spring connected at one extremity with said lug and at the opposite extremity with a suitable stationary stop secured to the top of the plate, substantially as described.

3. The combination, with the overhead main and branch conductors, of a trolley-switch consisting of two plates 5, suitably supported and each provided with two stationary track-flanges, and a suitable spring-actuated piece located in a slot formed in each plate and carrying the depending guide and track-flanges, the flanges of each plate being so arranged and connected with each other and with the conductors that the trolley of the car moving in one direction keeps the main conductor after passing the plates, while the trolley moving in the opposite direction passes to the branch conductor after passing the first plate and back to the main conductor after passing the second plate, substantially as described.

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

JACOB S. MERKINS.

Witnesses:
WM. MCCONNELL,
G. J. ROLLANDET.