

C. E. ESTES.
RAILWAY SWITCH.
APPLICATION FILED JUNE 18, 1910.

1,029,349.

Patented June 11, 1912.
2 SHEETS—SHEET 1.

Fig. 1.

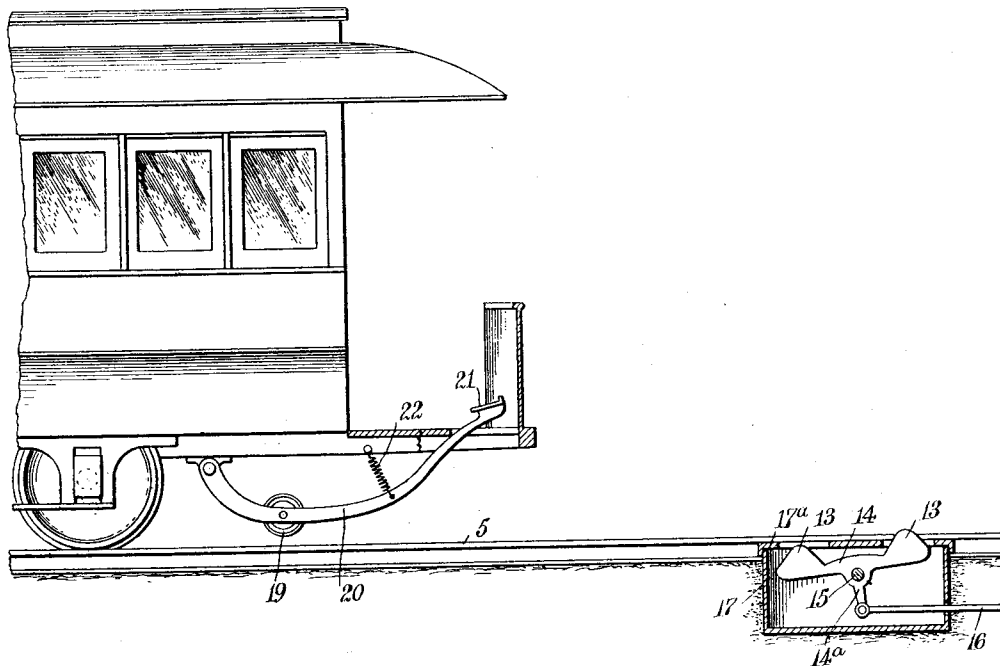
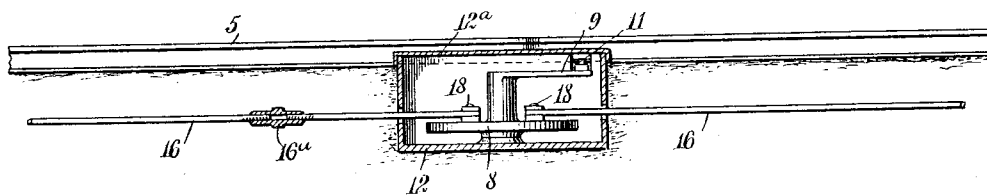


Fig. 2.



WITNESSES:
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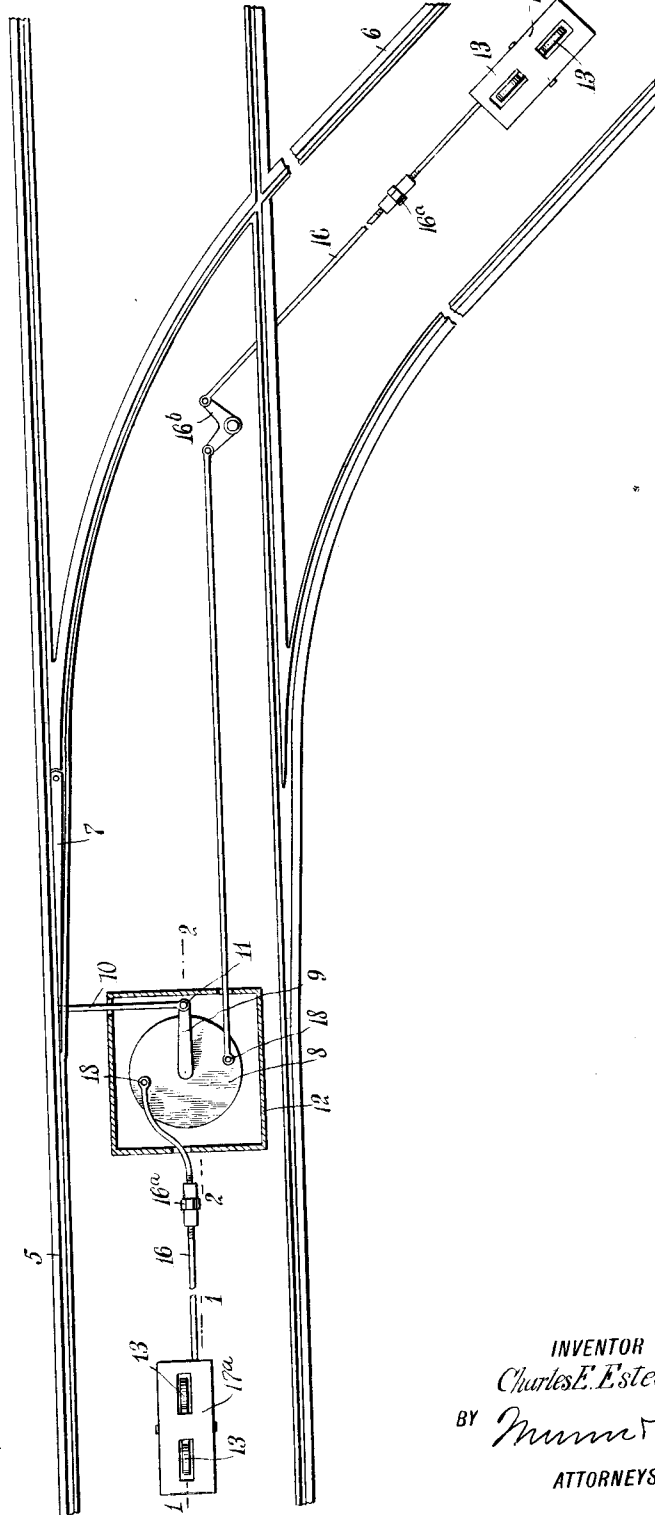
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Fig. 2.



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UNITED STATES PATENT OFFICE.

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RAILWAY-SWITCH.

1,029,349.

Specification of Letters Patent.

Patented June 11, 1912.

Application filed June 18, 1910. Serial No. 567,586.

To all whom it may concern:

Be it known that I, CHARLES E. ESTES, a citizen of the United States, and a resident of Medusa, in the county of Albany and State of New York, have invented a new and Improved Railway-Switch, of which the following is a full, clear, and exact description.

The invention is an improvement in switches particularly designed for street railways, and has in view a simple positively-acting device of this character operable from the car, the switch being thrown by the motorman or other operator to either of its positions by the mere depression of an operating member carried by the car, the member in each instance at either side of the switch being adapted to work one of two alining operating cams as the car passes thereover, which cams are rigidly connected together and ordinarily arranged between the rails, one of these cams being thrown up to operative position when the other is depressed to throw the switch.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a side elevation, partly in section, showing one set of the operating cams, and the car having the controller applied thereto; Fig. 2 is a vertical sectional view taken longitudinally of the rails, showing the operating mechanism at the switch point; and Fig. 3 is a plan, partly in horizontal section, showing the switch complete.

For illustrating the nature and application of my improved switch, I have shown two tracks 5 and 6 of a street railway, which are connected and disconnected by the customary movable switch point 7. Near this point, ordinarily between the rails, is a substantially horizontally-disposed crank disk 8, having a crank-arm 9 arranged thereabove and operatively connected to the switch point 7 by a connecting rod 10, the rod being applied to the crank pin 11 of the arm. The crank disk is oscillatorily mounted within a suitable casing 12, which is sunk in the road-bed, ordinarily of a depth so as to not interfere with vehicle traffic across the tracks, and provided with a removable cover

12^a at the top, through which access to the casing may be had.

Along the length of the tracks 5 and 6, at suitable distances from the switch point 7, are switch-operating devices, the switch-operating device of the track 5 being, as a matter of course, along that portion of this track which forms a continuation of the track 6, each device comprising two operating cams 13, which are rigidly connected and arranged in alinement, these cams being preferably carried at the ends of a lever 14, which is fulcrumed centrally, as indicated at 15, to swing in a vertical plane, the lever having a depending arm 14^a at the point of its suspension, which arm is operatively connected to one side of the crank disk 8, by a connecting rod 16. Each operating device is contained in a casing 17, which, like the casing 12, is ordinarily sunk in the road-bed between the rails, and provided with a removable cover 17^a, the cover of each operating device having openings in the top, as shown in Figs. 1 and 3, through which the cams 13 are adapted to alternately protrude one of these cams of each operating device projecting above the cover of the casing into operative position when the other cam is depressed.

The connecting rods 16 connect with crank pins 18 arranged at the opposite sides of the crank disk 8, and each is provided with a turn buckle 16^a in its length, by which it is adjusted to give the crank disk the proper throw under the action of the operating device. The connecting rod of the curved track 6 is also ordinarily made in two sections connected by a bell-crank lever 16^b, which adapts the rod to turn the angle at which the two tracks are arranged. The connecting rods 16 are in practice ordinarily housed or cased in under the road-bed so that their operation is in no wise interfered with. For actuating the operating devices I preferably provide the car with a depressible roller 19, which is mounted to move vertically under the car in a plane with the operating cams 13, the roller in the present embodiment of the invention being carried by a curved operating lever 20, which is fulcrumed at one end, and at its opposite end extends upwardly through the platform of the car, where it is provided

with a foot-actuated member or treadle 21, the lever being normally held in a position to retract the roller from the cams, by a spring 22.

5 With the switch and car attachment constructed as shown and described, it is only necessary for the motorman in approaching the switch to notice if it is thrown to carry the car on the proper track. If the point
10 is not in the proper position, the motorman simply depresses the foot lever before the actuating cams are reached, and as the car carries the roller over the projecting cam it is depressed, which throws the switch
15 point and carries the other cam to operative position. Thus, it is a simple matter to throw the switch point in either direction, the same operation and the same mechanism serving in both instances.

20 Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. The combination of two tracks, a movable switch point to connect and disconnect
25 the tracks, a crank disk substantially horizontally disposed between the tracks and having a crank arm operatively connected to the switch point, an operating lever arranged between each track at distances from
30 the switch point, each operating lever having alining operating cams, each lever hav-

ing a depending arm and fulcrumed at a point to swing in a vertical plane and alternately project the cams into operative position, and connecting rods connecting the
35 arms of the levers to the crank disk at the opposite sides of the crank arm.

2. The combination of two tracks, a movable switch point to connect and disconnect the tracks, a crank disk substantially horizontally disposed between the tracks and
40 having a crank arm operatively connected to the switch point, an operating lever arranged between each track at distances from the switch point, each operating lever having
45 alining operating cams, each lever having a depending arm and fulcrumed at a point to swing in a vertical plane and alternately project the cams into operative position, and connecting rods connecting the
50 arms of the levers to the crank disk at the opposite sides of the crank arm, with one of said rods constructed of two sections and having a bell-crank lever in its length operatively connecting the said sections together.
55

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

CHARLES ELMER ESTES.

Witnesses:

W. G. WRIGHT,
I. B. MAKELY.