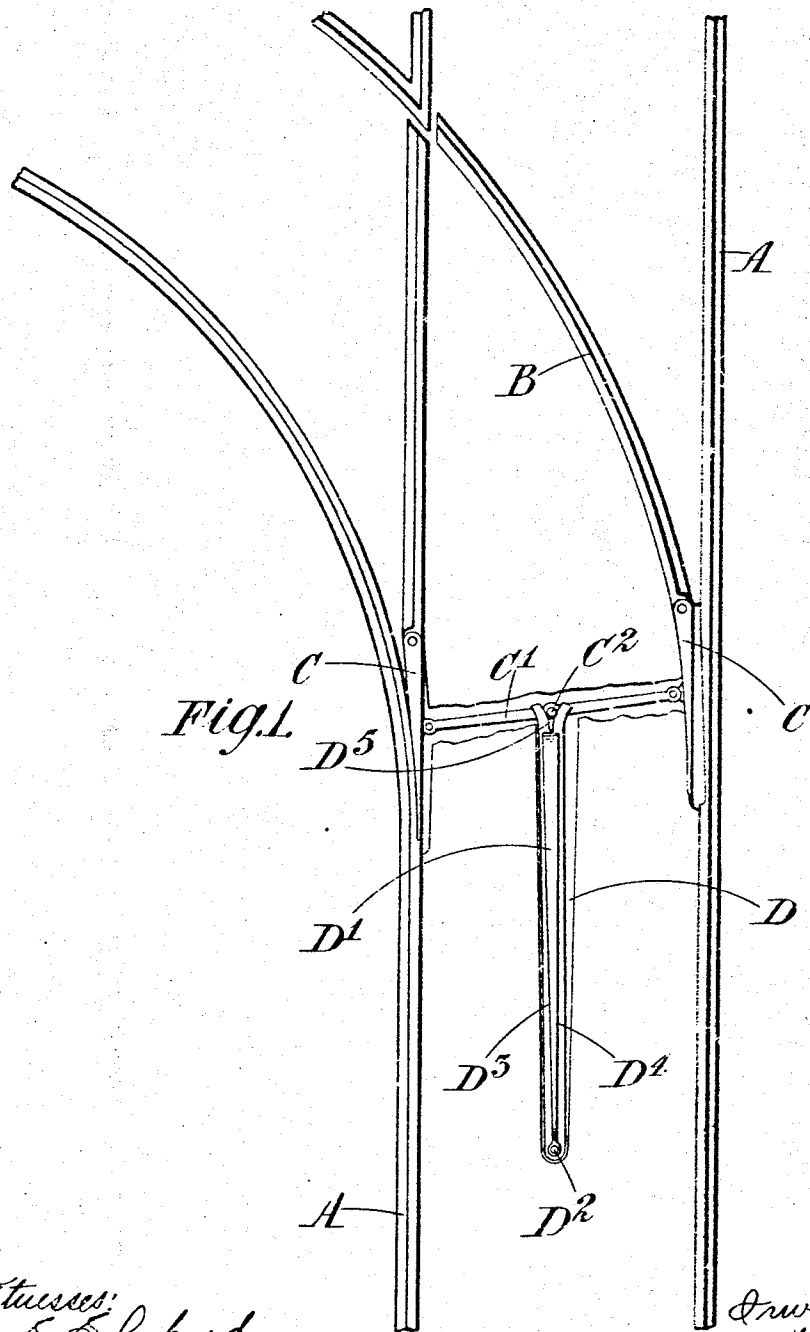


T. N. ATKINSON.
POINT OPERATING MECHANISM FOR TRAMWAYS.
APPLICATION FILED NOV. 17, 1908.

939,939.

Patented Nov. 9, 1909.
2 SHEETS—SHEET 1.



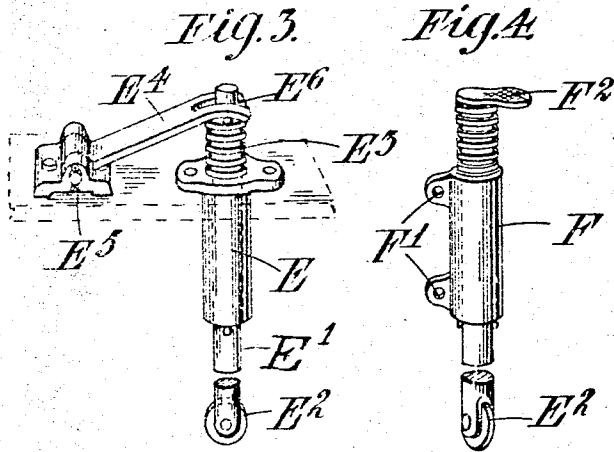
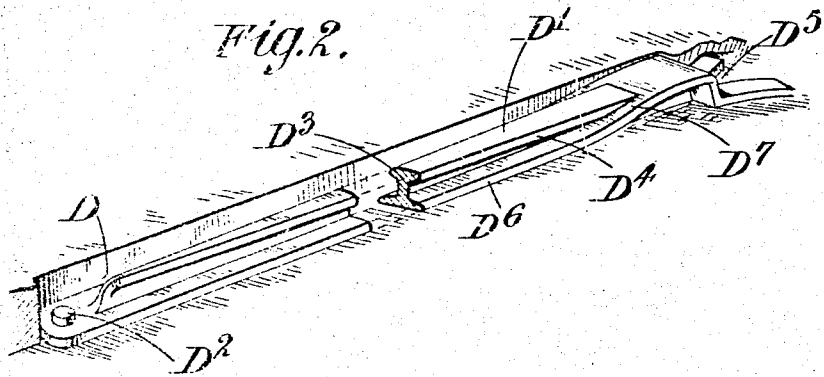
Witnesses:
H. E. Shepard
H. M. Baldwin

Inventor:
Thomas N. Atkinson
By Bakewell, Rymer & Parmelee

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3 SHEET 1—SHEET 2.



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UNITED STATES PATENT OFFICE.

THOMAS NICHOLSON ATKINSON, OF ST. MARGARETS-ON-THAMES, ENGLAND, ASSIGNOR
OF ONE-HALF TO OTTO LIST, OF ST. PETERSBURG, RUSSIA.

POINT-OPERATING MECHANISM FOR TRAMWAYS.

939,939.

Specification of Letters Patent.

Patented Nov. 9, 1909.

Application filed November 17, 1908. Serial No. 463,099.

To all whom it may concern:

Be it known that I, THOMAS NICHOLSON ATKINSON, a subject of the King of England, residing at St. Margarets-on-Thames, Surrey, England, have invented certain new and useful Improvements in Point-Operating Mechanism for Tramways, of which the following is a specification.

This invention is for improvements in or relating to point operating mechanism for tramways, railways and the like, and has for its object to provide mechanism for more readily effecting the shift of the points than has heretofore been possible.

The invention has more particular application to tramways, although it may be used with any rail system over which vehicles travel. According to the present methods of controlling the points for trams an operator is either placed at the points for shifting them as required, or the tram conductor has to alight and shift his points before the tram can proceed.

According to this invention the points are controlled from the vehicle itself by mechanical means which do not necessitate stopping the vehicle.

According to one method of carrying out this invention the vehicle carries an operating member which may be displaced by the driver or conductor to bring it into the path of a co-operating switch member disposed on the track, and connected with the point mechanism. The member on the track is preferably sunk in a trough, and is pivoted about a vertical axis. The switch member has on it one or more lateral cam faces wherewith the operating member comes into contact with the result that the switch member is displaced laterally. The switch member on the track also may have another cam face for guiding the operating member out of the trough.

In the accompanying drawings:—Figure 1 is a plan showing the track and its co-operating parts constructed according to one method of carrying out this invention. Fig. 2 is a perspective view of a detail. Fig. 3 is a perspective view of the parts carried by the vehicle, and Fig. 4 is a perspective view of an alternative form of the same parts.

Like letters indicate like parts throughout the drawings.

The track A is branched at B and provided with points C. The points are connected by a link C' that carries a pin C².

Sunk in a trough D in the track is a switch member D'. This is pivoted about a vertically disposed pin D² and has on each side a cam face D³, D⁴ respectively. The pivot D² is situated at that end of the switch member that lies toward the vehicle as it approaches and the opposite end is forked at D⁵ to form a seat for the reception of the pin C² on the link C'. In addition to the two laterally disposed cam faces D³, D⁴ the switch member D' is provided with side flanges D⁶ that lie level with the base of the member at that end occupied by the pivot pin D², but which rise at the other end and provide vertically operating cam faces D⁷.

Secured to the floor of the vehicle is a socket E that carries a sliding rod E' that constitutes the operating member. The lower end of the rod has on it a roller E² and at its upper end is a spring E³ that tends to maintain the rod in a raised position. Engaging with the upper end of the rod E' is a pedal plate E⁴ whereof one end is hinged at E⁵ to the floor of the vehicle while the other end is forked at E⁶ to receive the end of the rod E'. The rod has on it a shoulder or collar whereon a forked end E⁸ bears.

The operation of this mechanism is as follows:—The operating member E' is so situated on the vehicle that it lies in a vertical plane that is just to one side (say to the left) of the narrow end of the switch member D' and it can be depressed against the action of its spring E³ sufficiently to bring it into engagement with the cam face D³. As the vehicle approaches the points the conductor depresses the pedal E⁴ and if the points C are to the left of Fig. 1, as shown, so as to convey the vehicle along the direct line A, whereas he desires to turn off on to the line B, the member E' coming into contact with the cam face D³ will displace the switch member D' to the right carrying with it the points C. This movement is effected before the front wheels of the vehicle reach the points, and thus a safe transfer from the lines A to B is effected. If the vehicle is intended sometimes to continue along the track and at other times to turn off to the line B,

two pedals may be provided one situate in a vertical plane to the left of the switch member D' as before, and the other in a vertical plane to the right of the switch member; the conductor would then select which pedal to depress according to the route he had to take.

The roller E² on the base of the operating member E' engages a flange D⁶ on the switch member so as to hold the member down, and as it approaches that end of the member remote from the pivot D² it rises on the cam face D⁷. The end of the cam face D⁷ is level with the track, so that should the pedal not be released before the end of the trough D is reached the operating member will be guided safely out of the trough.

In Fig. 4 an alternative form of pedal is shown, the socket F being provided with lugs F' for securing it to a vertical member, and instead of the hinge plate E⁴ a push piece F² fixed to the operating rod F³ is provided.

Although this invention has been mainly described as applicable to tramways, it will be understood that it can be used with any railed track for vehicles.

The details of this invention may be variously modified without departing from the spirit of this invention, for instance, the operating member E' may have a yielding lateral control if desired, and again instead of two operating members one only may be employed, and the points may be provided with a spring control that always brings them into the reverse position to that given to them by the operating member.

Obviously any number of sets of points with their operating mechanism may be arranged in series, and one set may be placed as close to the adjacent set as practicable if it is desired to pass rapidly across one or more tracks intermediate of that upon which the vehicle has been running and that to which it is to be transferred.

The flanges D⁶ on the member D' may have cam faces corresponding to the face D⁷ at the pivoted end of the switch member if it is desired, so that the operating member can be gradually brought down into the trough D.

Preferably the mechanism described above is independent of ordinary signal and switching devices, but if desired it may be arranged for control by means other than that at the disposal of the driver or conductor. For example, the spaces at the sides of the switch arm D' that admit the operating member E' may be provided with covering plates that can be shifted by any responsible person so as to prevent the operating member E' from entering the trough. Thus if one line was blocked the vehicles could be made to take another line irrespective of any

effort on the part of the driver or conductor to operate the points.

What I claim as my invention and desire to secure by Letters Patent is:—

1. The combination with a switch point, of a swinging actuating member connected to the point and provided with a longitudinal cam and a lateral flange below the cam, and a car member arranged to travel on the flange and against the cam to move the actuating member and throw the switch point.

2. The combination with a switch point, of a swinging actuating member connected to the point and provided with an elevated longitudinal cam portion having its opposite edges diverging toward the free end of the member, and an actuating member having a lateral longitudinal flange below and at each side of the cam, and a car member arranged to travel upon one of the flanges and against the cam to move the actuating member and throw the switch point.

3. In point mechanism for railways the combination of, a switch-member that can be displaced laterally in relation to the direction of travel of the vehicle, means operatively connecting such member with the points, an operating member carried by the vehicle and that can at will be depressed, such member being so alined that when depressed it is in the path of the switch member, one of these members presenting to the other a cam-face that is disposed laterally in relation to the direction of travel of the vehicle, and the switch-member having a vertical cam-face to receive the foot of the operating member and rising to the level of the track at that end last passed over by the vehicle, for the purpose set forth.

4. In point mechanism for railways the combination of, a switch member pivoted at one end and having on each side a cam-face that is disposed laterally to the direction of travel of the vehicle, an operating member on a vehicle so disposed relatively to the switch-member as to strike one of the cam-faces as the vehicle passes and thus displace the switch-member laterally, a second operating member on a vehicle so disposed as to strike the other cam-face to displace the switch-member in the opposite direction, and means operatively connecting the switch-member with the points, the switch-member having at each side a flange upon which the respective operating members are adapted to travel, substantially as set forth.

5. The combination with a switch point, of a swinging actuating member connected to the point, and a car member arranged to engage and move the swinging-actuating member, the latter having a vertically-disposed cam portion to lift the car member as it leaves the swinging member.

6. An actuating member for switch points

having one end provided with a pivot portion, an upstanding cam extending longitudinally of the member and having one of its upright faces disposed obliquely of the member, and a longitudinally extending transversely-disposed flange below the cam.

7. An actuating member for switch points provided at one end with a pivot portion for swinging movements on a vertical axis and at its opposite end with a cam portion inclined upwardly toward the free end of the member.

8. An actuating member for switch points provided at one end with a pivot portion, and at its opposite end with a cam portion inclined upwardly toward the free end of the member, and a longitudinal cam lying between the pivot portion and the first-mentioned cam and having a face disposed obliquely of the member.

9. A swinging actuating member for switch points provided at one end with a pivot portion and at its opposite end with a cam portion inclined upwardly toward the free end of the member, a longitudinal cam lying between the pivot portion and the first-mentioned cam and having its opposite upright sides diverged toward the free end of the member, and a longitudinally-extending laterally-disposed flange at each side of and below the longitudinal cam.

10. A swinging actuating member for switch points provided at one end with a

pivot portion for swinging movements on a vertical axis and at its opposite end with a seat, there being a cam portion inclined upwardly toward the free end of the member and located adjacent the inner side of the seat.

11. A swinging actuating member for switch points provided at one end with a pivot portion and at its opposite free end with a seat, a cam inclined upwardly toward the free end of the member and located at the inner side of the seat, an upstanding longitudinally-disposed cam lying between the first-mentioned cam and the pivot portion and having its opposite sides diverged toward the free end of the member, and longitudinally-extending transversely-disposed flanges at opposite sides of and below the longitudinal cam.

12. An actuating member for switch points provided at one end with a pivot portion and at its opposite end with a cam, the axis of the pivot portion and the inclination of the cam being in substantially the same directions.

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

THOMAS NICHOLSON ATKINSON.

Witnesses:

ALFRED J. BOULT,
HARRY B. SLIDGE.