

H. MARSHALL.

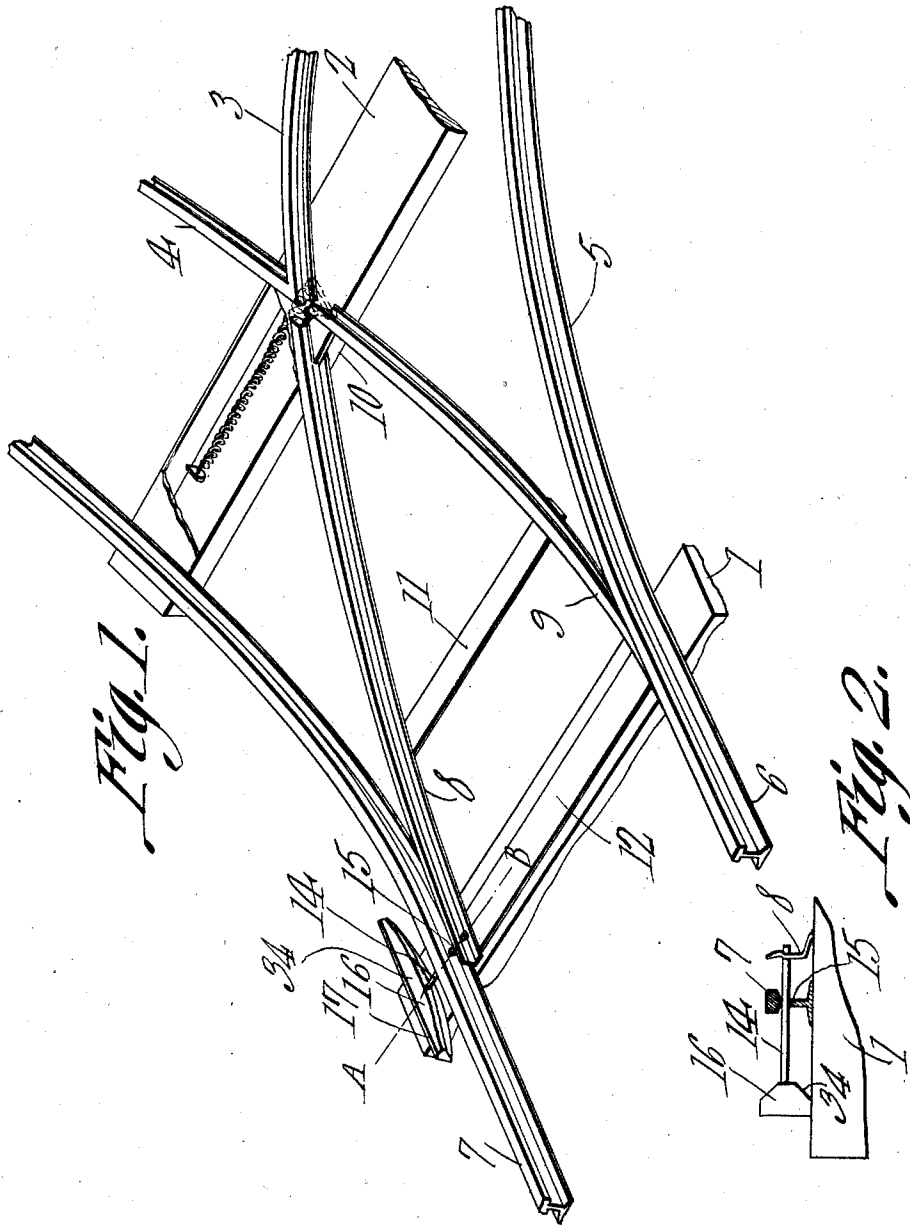
SWITCH.

APPLICATION FILED FEB. 3, 1911.

1,009,677.

Patented Nov. 21, 1911.

2 SHEETS—SHEET 1.



Witnesses

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Inventor

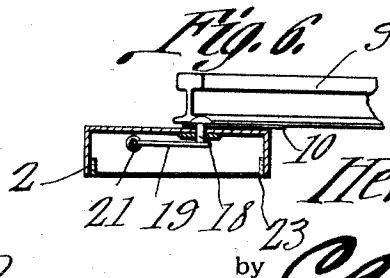
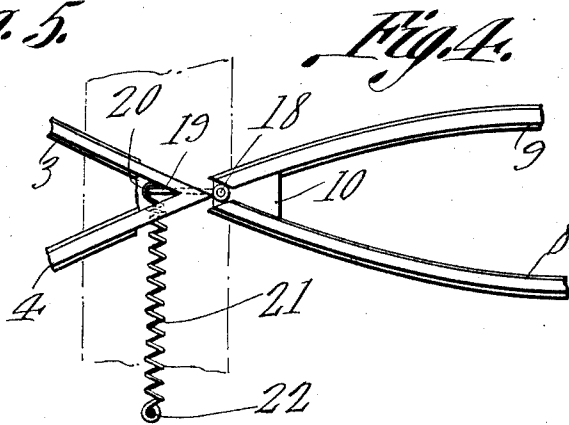
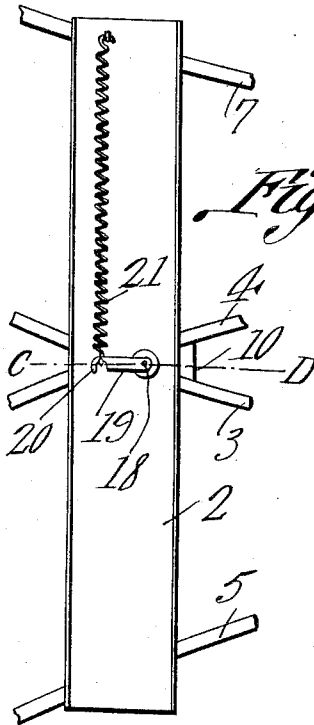
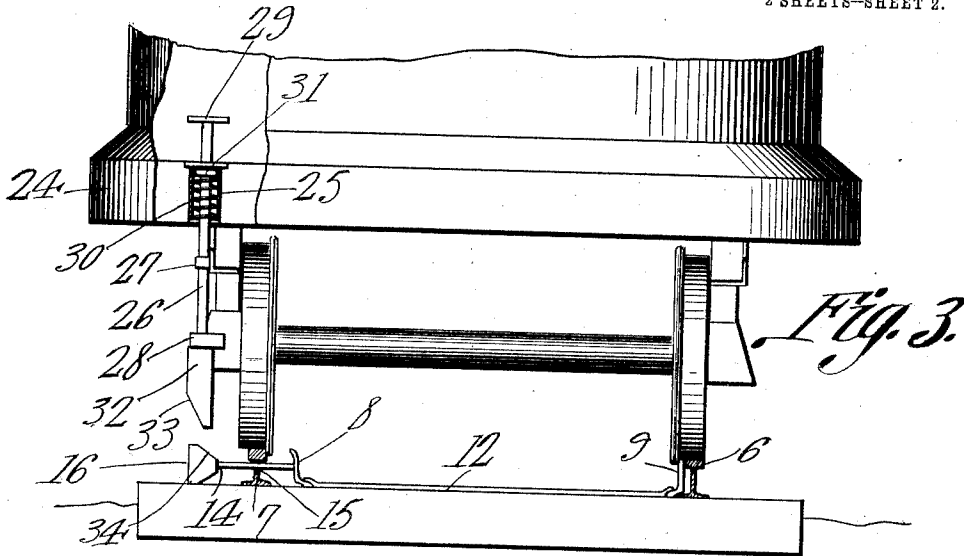
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UNITED STATES PATENT OFFICE.

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SWITCH.

1,009,677.

Specification of Letters Patent. Patented Nov. 21, 1911.

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To all whom it may concern:

Be it known that I, HENRY MARSHALL, a citizen of the United States, residing at Lincoln, in the county of Lancaster and State of Nebraska, have invented a new and useful Switch, of which the following is a specification.

It is the object of this invention to provide a switch, the point of which is yieldingly held by novel and improved mechanism.

A further object of the invention is to provide a novel form of car-carried means for throwing a switch point.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of invention herein disclosed can be made within the scope of what is claimed without departing from the spirit of the invention.

In the drawings,—Figure 1 shows the switch mechanism in perspective; Fig. 2 is a fragmental section on the line A—B of Fig. 1; Fig. 3 is an elevation of the car-carried means for throwing the switch point, parts being broken away; Fig. 4 is a top plan of the switch mechanism, adjacent the frog point; Fig. 5 is a fragmental bottom plan of the switch mechanism, showing the means whereby the switch points are yieldably held; and Fig. 6 is a section on the line C—D of Fig. 5, parts being removed.

Referring particularly to Fig. 1 of the drawings, the numerals 1 and 2 denote ties upon which the switch rail mechanism is mounted. The numeral 3 denotes one of the siding rails, uniting with one of the main and line rails 4 to form the frog point, the frog point being supported upon the tie 2. The other siding rail 5 merges into one of the main line rails 6, the other main line rail being denoted by the numeral 7. The switch points 8 and 9 converge toward the frog point, and are united at their points of closest approach by a retaining member 10, the latter being preferably a triangular block or plate, to which the extremities of the switch points 8 and 9 are secured in any desired manner. The switch points 8 and 9 are united by braces 11 and 12, the latter brace preferably sliding upon the tie

1. One end of a rod 14 is secured to the switch point 8, this rod extending through an enlarged opening 15 in the main line rail 7, to overhang one of the ends of the tie 1, upon the outside of the rail 7. To the outer extremity of the rod 14, a block 16 is secured, transversely of the rod, the block 16 having a convexed cam face 17 disposed toward the main line rail 7. The block 16 rests slidably upon the tie 1 and, as clearly shown in Fig. 2, owing to the coöperation between the block 16 and the tie 1, the rod 16 is spaced apart from the walls of the opening 15 in the rail 7, so that the rod 14 will slide in the opening 15, without coming into frictional engagement with the main line rail 7. The block 16 is transversely beveled, upon its upper and lower faces, as indicated by the reference character 34 in Fig. 3. Because the block is thus beveled, and owing to the fact that the member 32 is provided with the beveled face 33, the elements 16 and 32 are equipped with relatively large contact surfaces. Moreover, because the block 16 is beveled upon its lower face, the contacting areas of the block 16 and the tie are reduced, thereby reducing the friction when the block 16 is slid. Rigidly mounted in the securing member 10, is a depending shaft 18, rotatably carried by the tie 2, the latter being preferably a channel member. Secured to the lower end of the shaft 18 and extended longitudinally of the tract, is an arm 19, having a hook 20, adapted to engage one end of a retractile spring 21, the other end of which is secured as denoted by the numeral 22, to the under side of the tie 2. If desired, the spring 21 and the elements wherewith the same is assembled, may be housed within a supplemental bottom 23, engaged between the depending flanges of the channel tie 2, or secured thereto in any other desired manner. From the foregoing it will be seen that, under the tension of the spring 21, the free end of the arm 19 will be swung laterally, causing the free extremity of the switch point 9 to bear yieldingly against the main line rail 6, thereby closing the siding.

When a car, equipped with any suitable form of switch-throwing means, approaches the switch point, said switch-throwing means, if depressed, will engage the cam face 17 of the block 16, drawing the switch

point 8 into engagement with the main line rail 7, and withdrawing the switch point 9 from the main line rail 6, whereupon the car or train will enter the siding; whereas, if the switch-throwing means be maintained in elevated position, the blocks 16 will not be engaged, whereupon the switch points will be set for the main line, along which the car or train will of course travel. As soon as the car-carried switch throwing means have passed out of engagement with the block 16, the spring 21 will act to draw the switch point 9 into engagement with the main line rail 6, the switch points 8 and 9 remaining normally set for the main line.

To actuate a spring switch of the type hereinbefore described, the structure outlined in Fig. 3 may be employed. Referring to Fig. 3, a portion of a car is shown and denoted by the numeral 24. In the bottom 24 of the car is disposed a casing 25, in which is mounted for vertical reciprocation, a plunger 26, held for vertical movement in suitable car-carried brackets 27 and 28. At its upper end, the plunger 26 carries a foot plate 29 whereby the plunger may be depressed. The plunger 26 is normally maintained in uplifted position by means of a compression spring 30, the lower end of which is engaged by the lower end of the casing 25, the upper end of the compression spring being engaged by a transverse head 31, secured to the plunger 26 within the casing 25. If desired, any other suitable form of spring means may be employed for upholding the plunger. At its lower end, the plunger 26 is equipped with a head 32, adapted to engage the lower bracket 28, to limit the upward movement of the plunger 26 under the action of the spring 30. The outer face of the head 32, adjacent the lower end of the head, is beveled, as shown at 33, for engagement with the convexed, cam face 17 of the block 16, it being noted that this face 17 is beveled transversely, as shown at 34 for proper engagement with the beveled face 33 of the head 32. When the car approaches the switch points 8 and 9, presupposing that it is desired that the car shall continue along the main line, the plunger 26 is permitted to remain in the elevated position shown in Fig. 3, whereupon there will be no engagement between the head 32 and the block 16, the switch points 8 and 9 remaining in the

positions shown in Fig. 1. When, however, it is desired that the car shall enter the siding, the foot of the motorman is placed upon the plate 29, depressing the plunger 26 until the beveled face 33 of the head 32 engages with the cam face 17 of the block 16 whereupon, owing to the convexed form of the cam face 17, the switch points 8 and 9 will be slid laterally, the point 8 coming into contact with the main line rail 7, and the point 9 moving away from the main line rail 6, whereupon the car will be permitted to enter the siding.

In the drawings, and in the foregoing description, it has been presupposed that the device is to be employed upon a street railway, and the term "car" has therefore been used, but it will be appreciated that the structures herein disclosed, are adapted to be used upon either electric street railway lines, or upon lines the rolling stock of which is steam-impelled.

Having thus described the invention what is claimed is:—

1. In a switch, a tie; switch-points having their converging ends united; a shaft secured in the converging ends of the switch points and journaled for rotation in the tie; and spring means carried by the tie, and operatively connected with the shaft to swing the free ends of the switch points.

2. In a switch, a tie; switch-points having their converging ends united; an arm shaft secured to the converging ends of the switch points and journaled for rotation in the tie; an arm projecting from and secured to the shaft; and a retractile spring fixed at one end, and at the other end secured to the arm.

3. In a switch, a tie; converging switch points; a securing member located upon one side of the tie and uniting the converging ends of the switch points; a shaft rigidly mounted in the securing member and journaled for rotation in the tie; an arm outstanding from the shaft upon the other side of the tie; a spring secured at one end to the arm, and at the other end secured to the tie.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

HENRY MARSHALL.

Witnesses:

R. SPRINGER,
W. F. DAVIS.