(No Model.)

C. S. HOENES.

AUTOMATIC RAILWAY SWITCH.

No. 511,425. Patented Dec. 26, 1893.

Fig. 1.

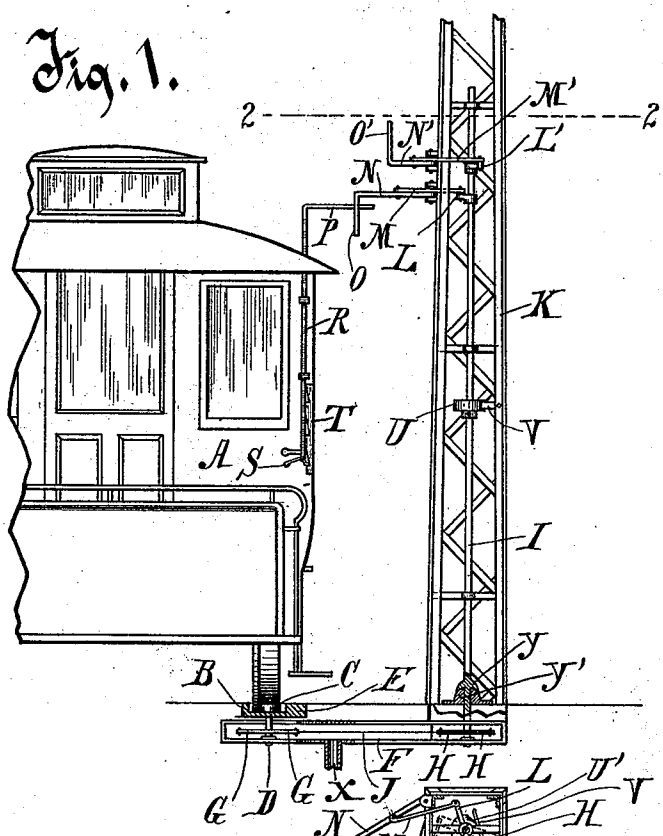


Fig. 3.

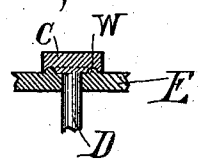


Fig. 4.

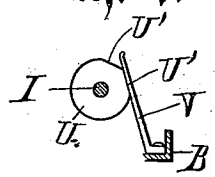
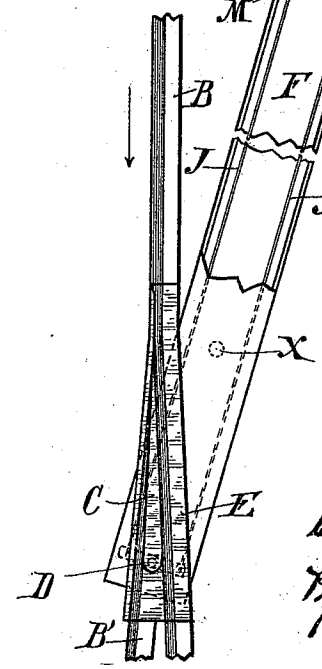


Fig. 2.



Witnesses.

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CHARLES S. HOENES, OF MILWAUKEE, WISCONSIN.

AUTOMATIC RAILWAY-SWITCH.

SPECIFICATION forming part of Letters Patent No. 511,425, dated December 26, 1893.

Application filed December 17, 1892. Serial No. 455,512. (No model.)

To all whom it may concern:

Be it known that I, CHARLES S. HOENES, of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented a new and useful Improvement in Automatic Railway-Switches, of which the following is a description, reference being had to the accompanying drawings, which are a part of this specification.

The object of my invention is to provide means whereby a car running on a track can be made automatically to shift a switch in the track.

The invention is in the devices hereinafter described by which this result is accomplished, and is especially adapted for use on those street railways on which cars are run by electricity by the overhead trolley line system.

In the drawings, Figure 1, is an elevation of my improved device, parts being broken away to show interior construction, in connection with a fragment of a car necessary to show the relation of a car to the device. Fig. 2, is a plan view on line 2—2 of Fig. 1 of so much of my device as is not carried on the car, parts being broken away for convenience of illustration. Fig. 3, is a detail in vertical section, of the switch point. Fig. 4, is a detail of actuating and stop mechanism attached to and connected with the rock-shaft.

The car A of which only one corner is shown, is of such form and construction as is in common use. The single rail B of the railway track in connection with the branch or shunting track B′ and the pivoted and swinging switch point C are substantially such as are in common use, these constituting a sufficient portion of the track and the switch to illustrate my invention.

The switch point C is provided at its end that abuts against the branch track B′ with a rigid pintle or pivot pin D by and through which the switch point is pivoted in position, conveniently and usually by being inserted downwardly through the switch plate E integral with or rigid to the rail B and branch rail B′. Below the switch point and extending to a distance outwardly therefrom and preferably in an oblique direction, is a subway or chamber F. The pintle D, for steadying and supporting its bearing, is preferably stepped or footed revolubly in a block on the bottom of the chamber. The pintle is provided with oppositely extending rigid radial arms G G, and suitable connecting devices J J (rods or chains) connect the extremities of these arms with the corresponding extremities of the oppositely extending radial arms H H secured rigidly to the vertically extending rock-shaft I. The rock-shaft I is stepped or footed in the bottom of the chamber F and projects upwardly preferably to a distance somewhat exceeding the height of a car, and is supported, having bearings, in a suitable post K therefor, which post may be, and as shown in the drawings is, such an open frame steel standard as is now used for supporting the trolley wires, on arms extending there-from over the track or line of travel of the car. At a suitable height above the ground and preferably about as high as the roof of the car, two oppositely extending radial arms L L′ are secured rigidly to the rock-shaft I, one a little above the other, and the extremities of these arms are respectively connected by links M M′, to the swinging arms N N′ medially. The arms N N′ are pivoted and thereby supported at their inner ends on the post K, and are so arranged as to be always at an oblique angle to the axis of the radial arms L L′, the angle of obliquity being greater or less with respect to each swinging arm as the positions of the device are changed in use, by which obliquity of position provision is made for surely and easily transmitting the motion of the swinging arms N N′ to the radial arms L L′ and their rock-shaft. These swinging arms N and N′ are also preferably so arranged that when thrown outwardly toward the railway track they still are somewhat inclined toward the track in the direction of the motion of the car by which they are to be actuated. The post K stands at the side of the track at a little distance therefrom and the arms N N′ extend therefrom toward the track and preferably terminate in downwardly and upwardly turned extremities O O′ respectively.

A laterally projecting arm P is secured to the car adjustable vertically conveniently by means of the rod R of which the arm P is the overturned integral extremity. The rod R is secured in guides or ways therefor on the car and is provided, as a desirable means of locking it in position vertically, with a swinging

gravity latch S arranged to engage a rack T fixed on the car. This rod R and arm P may be secured to the car at its front or rear end so as to be elevated or lowered to contact with the arm N′ or N as desired, either by the motor man at the front of the car or by the conductor at the rear of the car. By reference to Fig. 2, it will be readily understood that the switch point C will be shifted to guide the car on to the main track or to the branch as desired by throwing the arm P on the moving car temporarily into contact with the arm N or N′ as the car passes them.

For obtaining a slight amount of positive movement of the rock-shaft, and resultingly of the switch point, independently of the action of the arm P, and for locking the rock-shaft yieldingly in position, I provide an enlarged collar U on and secured rigidly to the rock-shaft I, which collar has two faces U′ U′ meeting each other at an angle, against which a spring V bears. The spring V is secured at one end rigidly to the post K its free end bearing against a face U′. It will be seen by reference to Fig. 4, that this spring V bearing on a face U′ of the collar U, locks the rock-shaft yieldingly in position revolubly, and when the rock-shaft is rotated to such extent as to shift the angle at the junction of the faces U′ to the other side of the right line projecting from the spring through the axis of the shaft, the power of the spring will act to continue movement of the shaft slightly and will then lock it in its new position, the spring bearing against the other face U′.

To obviate the entry of water from the surface of the street into the chamber F about the pintle D, an annular boss or flange W is raised on the switch plate E about the head of the pintle D which enters a corresponding groove in the under surface of the switch point C. For a similar purpose a circular hood or collar Y, water tight on the rock-shaft I, projects over a boss or flange Y′ on a plate at the surface of the street through which the rock-shaft passes into the chamber F.

As the switch point C is only to be shifted for shunting a car when it approaches it coming toward its sharp pointed end, the car moving in the direction of the arrow on Fig. 2, it is desirable that the post K should be located at a distance in front of the switch point, substantially as indicated in Fig. 2, so that the switch point will be shifted by the contact of the arm P with one or the other of the arms N or N′ before the car arrives at the switch. The chamber F is provided with a discharge duct X for transmitting therefrom any water that may get into it.

What I claim as my invention, and desire to secure by Letters Patent of the United States, is—

1. In an automatic switch, the combination of an oscillating switch-point, a pintle fixed in the larger end of the switch-point, radial arms rigid on the pintle, a vertical rock-shaft located at a distance from the switch-point, radial arms rigid on the rock-shaft, rods or their equivalents connecting the extremities of the arms on the pintle to said radial arms on the rock-shaft, so as to compel their similar and concurrent movement, other radial arms on the rock-shaft, a shaft-supporting post, a swinging arm projecting laterally from the post in the plane of and adapted to be engaged by an arm projecting laterally from the side of a car, and a link connecting the swinging arm on the post to a radial arm on the rock-shaft, substantially as described.

2. In an automatic switch, the combination of an oscillating switch-point, a vertical rock-shaft at a distance from the switch-point, devices connecting the rock-shaft to the switch-point, whereby the rocking of the shaft correspondingly oscillates the switch-point, a shaft-supporting post, a plurality of arms pivoted on and projecting laterally from the post in different horizontal planes, radial arms on the rock-shaft, and links connecting the said radial arms on the rock-shaft to the swinging arms on the post, substantially as described.

3. In an automatic switch, the combination of an oscillating switch point, a vertical rock-shaft at a distance from the switch-point, devices connecting the rock-shaft to the switch-point, whereby the rocking of the shaft correspondingly oscillates the switch-point, radial arms on the rock-shaft at a distance above the device connecting the shaft with the switch-point, a shaft-supporting post, and a plurality of arms hinged on the post arranged and connected at different angles of obliquity to the radial shaft-arms, substantially as described.

4. In an automatic switch, the combination of an oscillating switch-point, a vertical rock-shaft at a distance from the switch point, devices connecting the rock-shaft to the switch-point, whereby the rocking of the shaft correspondingly oscillates the switch-point, a shaft-supporting post, a plurality of arms pivoted on and projecing laterally from the post different horizontal planes, radial arms on the rock-shaft, links connecting said radial arms on the rock-shaft to the swinging arms on the post, and a laterally projecting arm mounted and adjustable vertically on the side of a car, extending as the car passes into the field of and adapted to impinge against one or the other of the swinging arms on the post, substantially as described.

5. In a device for shifting a railway switch, a rod provided with a laterally projecting arm, ways on the side of a car in which the rod is adjustable vertically, a rack, and a gravity latch arranged to engage the rack and lock the rod adjustably to the car, combined substantially as described.

6. In an automatic device for shifting a railway switch, a vertical rock-shaft, means connecting the rock-shaft to the switch point whereby the rocking of the shaft correspondingly oscillates the switch-point, other means

whereby as the car passes the shaft the shaft is rocked by the motion of the car, and a collar on the shaft having intersecting faces in its periphery, and a flat spring secured to a fixed support arranged to bear normally against one or the other of the faces and thus to lock the shaft yieldingly in position and when the shaft is oscillated to force it to a normal position relative to the spring, substantially as described.

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

CHARLES S. HOENES.

Witnesses:
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