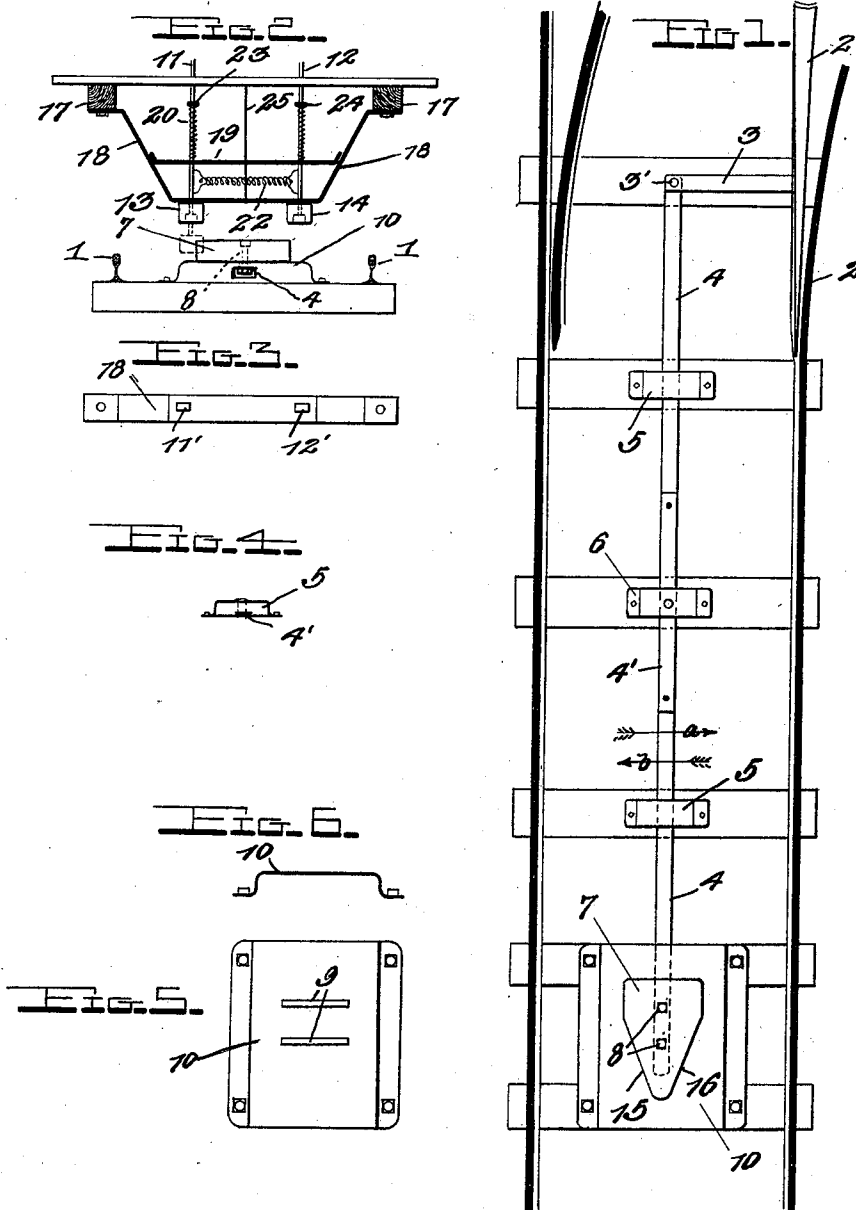


J. MENTO.
 AUTOMATIC STREET RAILWAY SWITCH.
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1,008,660.

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WITNESSES:

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AUTOMATIC STREET-RAILWAY SWITCH.

1,008,660.

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To all whom it may concern:

Be it known that I, JOSEPH MENTO, a citizen of the United States, residing at Sacramento, in the county of Sacramento and State of California, have invented a new and useful Automatic Street-Railway Switch, of which the following is a specification.

This invention relates to railway switches, and more particularly to such devices as are used for switch-throwing in connection with street railways and traction systems, and has for its object to provide means, whereby the throwing of rail switches can be done directly from the car, while the car is in motion, said switch being arranged to be turned by an improved device attached to the car, and operated by the motorman or other person controlling the car without requiring him to dismount therefrom.

Another object of the invention is to have this device arranged with a simplicity of parts, and so arranged as to be easily inspected and repaired, when the same should be desirable.

A further object of this invention is to have arrangements made so that the legs of the car that actuate the switch will not be damaged in any way, in case of obstructions becoming wedged in parts of the switch.

Another object of this invention is to provide means whereby the switching bar itself will not become damaged in case of obstructions becoming wedged in parts of the switch.

Other objects of this invention will become apparent as it is more fully set forth.

It is well known that difficulty is experienced in operating the railway switches for cars, especially those used in the streets of cities, because of the fact that the motorman or conductor, has in most cases to get down, to actuate the switch when the same is not turned in the proper direction, in order to guide the car properly, thereby causing great inconvenience to all concerned. Of course in many cases the street railroad companies provide a man especially for this purpose, or use an electrically controlled switch, in which case, the turning point of the tracks becomes a special source of expense and trouble. It is the intention of this invention to avoid such expense, and the extra trouble placed on the crew of the car in order to actuate the switch, and at the same time to obviate the necessity of stopping or slowing

up of the car when the same approaches a switch or frog to be operated by the car.

This invention also provides means whereby undue strains will not be put upon the frog in its operation, by providing guide plates to control the amount of throw of the lever which actuates the switch.

In the accompanying drawings, which illustrate by way of example the simple modification of this invention, Figure 1 represents a diagrammatic plan view of rails with switch provided with devices embodying this invention; Fig. 2 represents a view in elevation showing the operating mechanism mounted on a car for actuating the switch; and its relative position to the rail and the actuating lever; Fig. 3 is a detail view of the operating mechanism on a car, looking upward, embodying this invention; Fig. 4 is a detail view of the pivoting plate; Fig. 5 is a plan view of the plate on which the actuating cam rests; and Fig. 6 is an end elevation of Fig. 5.

Similar reference characters refer to similar parts throughout the drawings.

Referring particularly to Fig. 1, 1 represents the rails of a railway track, which have a switch or point 2' at 2 for diverting traffic to a side line. Attached to the point 2' is a member or straight bar 3 which is pivotally connected at 3' to a bar 4 that slides in guide plates 5 and is pivoted in the plate 6. 4' is a center piece for the bar which is removable and changeable, and permits the bar 4 to be easily disconnected and thereby the other parts for operating the switch. The plates 5 can be secured in any suitable manner to the road bed or ties of the track. Disposed over the end of bar 4 is a cam piece 7 which is provided with spurs or bolts 8 arranged to slide in slots of a supporting plate 10 for the cam, which is of a somewhat U shape and has its side end portions bent and drilled for securing it to the ties or roadbed. For actuating this device the car is provided with movable legs 11 and 12, which have shoes 13 and 14 that engage with either side 15 or 16 of the cam piece 7, as the case may be and thereby push the lever 4 in the direction of arrow *a* or arrow *b* respectively, thereby actuating the point 2' and opening and closing it, so that the desired track may be used, by the car, that is running toward the switch.

Referring particularly to Fig. 2, 17 are blocks suitably secured to the bottom of a car which have mounted on them a hanger 18 preferably constructed of flat iron and to which is secured an inner hanger plate or cross piece 19 arranged to guide the legs 11 and 12 in their upward and downward movement and thereby the shoes 13 and 14 secured thereto. In order to actuate these rods or legs 11 and 12 there may be provided on the upper portion rests on which the motorman or conductor can place his foot, for actuating them above the platform floor 21 or they may be provided with extensions so as to permit them to be worked by hand. When one of these legs is pushed downwardly, its shoe is disposed in alinement with an edge of the cam piece 7, and as the car moves along, this shoe engages with its respective side, and pushes the lever or bar 4 to one side and thereby actuates the switch 2' in the desired direction. As soon as this is done, the motorman raises his foot and a spring 20 or 21, as the case may be, returns the leg to its normal position, and the car continues and goes in the direction in which the switch or frog is turned to direct it. In order to give the legs 11 a somewhat resilient action, there is provided a spring 22 suitably attached to the legs 11 and 12 below the plates 19, as shown in the drawings, which takes up the jar as the leg hits the cam piece 7, and gives an easier action to the mechanism on the car and on the track. Slots 11' and 12' are provided in the hanger 18, so that when the shoes 13 strike the cam 7, when the same is prevented from moving because of some obstruction in the switch, the leg that holds the respective shoe will move outwardly in the slot and thereby be prevented from being bended or becoming broken. The spring 22 having sufficient action on the respective leg to cause it to return to its proper position after it has ridden by the cam piece 7. At the same time the resiliency of this leg will prevent it from acting rigidly on the cam piece and the bar 4 secured thereto, and not put it to too great a strain which would otherwise be the case. The shoes 13 and 14 can be of any suitable shape but are preferably of a rolling kind, so that they will move easily over the cam piece 7. 25 is a bar or rod for pressing the hanger 18 and is suitably secured to the hanger and the bottom of the car. 23 and 24 are collars with set screws arranged for graduating the position of the springs 20 and 21, the legs 11 and 12, in order to give a strong return action to them.

In order to illustrate by an example the operation of the mechanisms in actuating a switch, the following illustrations are given. Assuming that the car is coming toward the frog 2', and that it is desired to switch

the car to the right, that is, the direction in which the side track is pointed. The motorman presses on the leg 11 or one on the left hand side, and thereby puts the shoe or engaging piece 13 that is disposed on the end of it, in alinement with the edge 15 of the cam piece 7. As this shoe engages with the side of the cam piece, it pushes it, and that end of the bar 4 toward the right, see arrow *a*, which pushes the arm 3 toward the left, and thereby opens the switch, and directs the car to the right hand track. The bar 4 is limited in its movement by the sides of the guide plates 5 which prevent the tongue of the frog being jerked too far out. The actuation of the right hand leg 12 causes its shoe 14 to engage with the side 16 of the cam piece 7 and push the frog 2' to a straight-track position. Thus it can be easily seen that the car can be guided to either track with but little effort on the part of the motorman, and without stopping the car. The length of time that the legs are kept down in order to engage with the cam piece 7, is of such short duration as to be practically insignificant.

In installing the mechanism that belongs directly to the switching of the frog, arrangements can be made to cover up the parts entirely, except the cam piece 7, which must be disposed above the track a certain amount, in order that the engaging legs on the car can easily hit it when desired.

In the construction of this mechanism especial attention has to be paid to make the same easily accessible for inspection and repair, at the same time the wearing parts are made removable so as to avoid the difficulties and expense experienced with devices of a like nature constructed up to the present.

This invention by its arrangement permits the mechanism on the track in general, to be covered up and concealed if desired, the only projecting part being the cam piece 7, which for obvious reasons must be above the road bed.

By the use of the supporting plate 10, a smooth surface is provided for the cam piece 7 to move on, at the same time by providing the slots 9 therein, in which the bolts 8 can be guided the pressure of the shoe on the cam tending to push the bar and frog backward is reduced, because the sides of the slots will take it up as the bolts 8 press against them, and transmit the strain to the sleepers to which the support 10 is secured and thereby relieve the frog from the pushing action referred to, although the pivoting movement on the bar will not be restrained at all.

Obviously while there is shown but one modification of this invention, it is not desired to limit it in any way otherwise than necessitated by the prior art, as many modifications in the construction of this inven-

tion can be made without departing from the principles thereof.

Having thus described the invention it is claimed:—

- 5 1. In combination with a railway switch of a lever disposed midway between the rails, a bar for actuating said switch secured to said lever, and the switch, a pivot for said lever, plates for controlling the movement of said lever disposed on each end portion of said lever, a cam piece disposed on said lever, a supporting plate for said piece having slots therein, and over said lever, bolts for connecting said lever to said cam piece passing through and movable in said slots, a shoe for actuating the cam piece, a movable leg for supporting said shoe, resilient means for returning said leg to its normal position, a hanger for guiding said leg, 10 a hanger plate secured to said hanger for supporting said means, a car body, and means for securing said hanger to said body.
- 20 2. In combination with a railway switch of an adjustable lever disposed midway be-

tween the rails, a bar for actuating said switch pivotally secured to an end portion of said lever, plates for controlling the movement of said lever disposed on each end portion of said lever, a supporting plate for said piece having slots therein, a cam piece having its sides converging outwardly to its center line, for actuating said lever, bolts or the like for connecting said lever to said cam passing through and guided in said slots, a plurality of shoes for actuating the cam piece, movable legs for supporting said shoes, springs disposed on and secured to said legs and arranged to return said legs to their normal positions, a hanger for guiding said legs, a hanger plate secured to said hanger for supporting said springs and guiding said legs, a car body and means for securing said hanger to said body.

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Witnesses:

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."