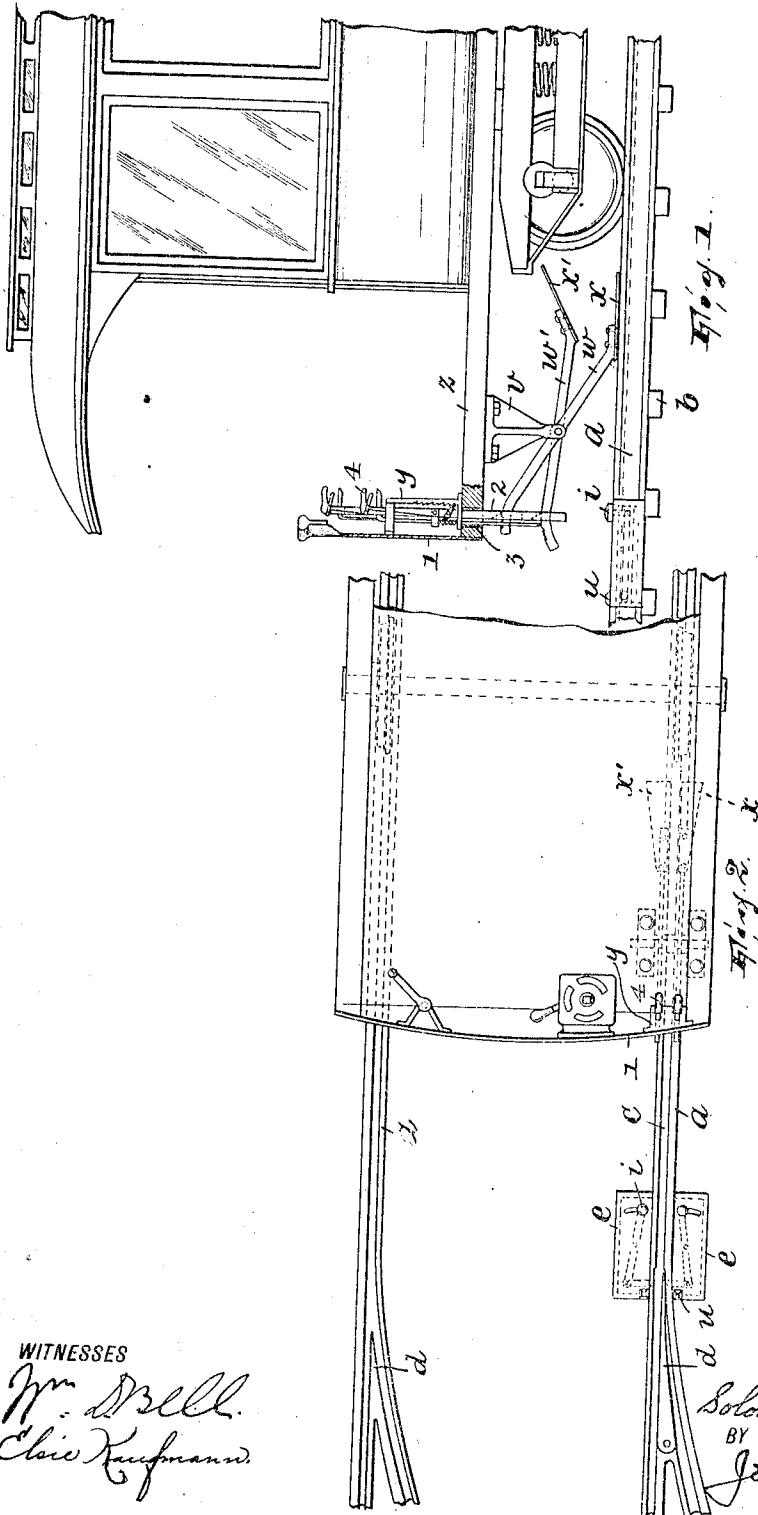


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TROLLEY CAR SWITCH CONTROLLER.
APPLICATION FILED NOV. 28, 1908.

926,150.

Patented June 29, 1909.
2 SHEETS—SHEET 1.



WITNESSES
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TROLLEY-CAR SWITCH-CONTROLLER.

No. 926,150.

Specification of Letters Patent.

Patented June 29, 1908.

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To all whom it may concern:

Be it known that I, SOLOMON USLIANER, a subject of the King of England, residing in Paterson, Passaic county, New Jersey, have invented a certain new and useful Improvement in Trolley-Car Switch-Controllers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same; reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

The object of this invention is to provide means whereby the operating of switches on trolley systems and the like may be positively controlled under all ordinary conditions by the motorman without his leaving the car; in carrying out my invention I have had in mind to make the entire mechanism as simple as possible and so to construct it that it will not be likely to get out of order or be temporarily incapacitated as by freezing snow, ice, etc.

In the accompanying drawings, Figure 1 is a side view of a trolley railway, including a part of a car, and showing my improved switch controlling mechanism; Fig. 2 is a top plan view of what is seen in Fig. 1; Fig. 3 is a view on a larger scale of a part of what is shown in Fig. 2; Fig. 4 is a plan view of so much of the rail as includes a switch for turning a car from the main line to the right; Fig. 5 is an enlarged view in side elevation, partly in section, of so much of the mechanism as is carried by the car; Fig. 6 shows what is seen in Fig. 5 in front elevation; Fig. 7 is a sectional view on the line *a-c* of Fig. 6; and, Fig. 8 is a detail of Fig. 3.

The rails *a*, arranged on the ties *b*, are of the type, common in street railways, which are grooved at the top, as at *c*, for the reception of the wheel flanges; at the necessary points they are provided with the pivoted-switch points *d*, for directing a car either to the right or to the left relatively to the main line. With their top walls flush with the tops of the rail, closed boxes *e* are arranged against opposite sides of the rail adjoining the free end of the switch point. In these boxes, each on a vertical pivot *f*, are fulcrumed between their ends the levers *g*; by springs *h* these levers are normally held in the position shown in full lines in Fig. 3,

so that they converge toward the direction from which the traffic over the railway proceeds.

Each lever carries at the end thereof which is normally the closer to the other a knob *i* whose head *j* projects above the top of the box *e* and whose stem *k* is adapted to play in a slot *l* formed arc-shaped around the point *f* as a center. For a purpose to be indicated, the heads *j* of the knobs are formed with undercuts *m* on their adjoining sides. At the other end each lever carries a push pin *n* pivoted thereto and projecting laterally through an opening *o* in the rail which acts to guide the push pin. The push pins *n* are adapted to impinge against the switch point to displace it the one way and the other the other.

The foregoing describes switches for directing cars to the left from the main line; in order that cars may be directed to the right from the main line, as shown in Fig. 4, the boxes *e* and the parts *g* and *n* contained therein may be arranged at the right side of the track to operate the right switch, but in this instance the knobs *i* will remain at the left side of the track. Each knob *i* is connected with its lever *g* by a rod *q* extending through a suitable casing *r* terminating at the left side of the track in a box *s* formed with slot *t* in the top thereof to allow the lateral play of the knob *i*. Beyond each knob *i*, relatively to the direction from which traffic proceeds, and in alignment therewith, is placed a hump *u*, whose purpose will be hereafter indicated.

The actuation of the push pins, which is accomplished through the lever *g*, is effected by the motorman without his leaving the car, as follows: Depending from the front platform of the car is a bracket *v* in which are fulcrumed parallel levers *w*, *w'*. The working position of these levers is indicated by the lever *w* in Fig. 1, in which position a blade *x*, *x'*, having its outer edge oblique, will trail flat along the rail. The levers are arranged closely enough together so that the point of either blade will assuredly impinge against the inside of the corresponding knob *i*.

Standards *y*, secured side by side against platform *z* and the dash board 1 of the car, form guides for two push rods 2 each of which slides vertically in its standard through an opening 3 in the platform and has its upper end crooked to form a handle

4 and its lower end forked, at 5, and receiving one of the levers w, w' . Detent rods 6 are arranged to slide vertically in the standards y , each being arranged in front of a push rod 2 and having its upper end turned back, through a slot 7 in the push rod (whereby it is kept from turning), to form a handle 8 which lies normally within convenient reach of the handle 4. A strap 9 projects from each push rod 2 and is penetrated by the detent rod 6, a spring 10 being interposed between the strap and a collar 11 on the detent rod, which spring acts to press the detent rod downwardly. The lower end of each detent rod is beveled, being adapted to engage teeth 12 in the corresponding lever $w, (w')$. Each standard y is formed as a vertical rack 13 with which a spring actuated pawl 14, pivoted on the corresponding push rod 2, is adapted to engage, said pawl being connected with a lever 15, fulcrumed between the handles 4 and 8 on the push rod 2, by a link 16.

In operation, assuming that a car is approaching the switch and it is intended that it should be directed to the left relatively to the switch point: The switch point, say, stands in the position shown in Fig. 3. Both levers being held elevated in the position occupied by the lever w' ; under the weight of the push rods and the pressure of the pawls 14 against the rack 13, the motorman raises the left-hand push rod so that the blade x thereof will trail on the rail; the pawl 14, by engaging the rack 13, will now maintain, the push rod normally elevated. As the car approaches the switch point the oblique side of the blade x will engage the outer knob i in its undercut m and, shifting it to the left and thereby turning lever g on its fulcrum, will cause the push-pin to shift the switch point to the right, in which position the car will be deflected by the switch point to the left. In the meanwhile, the blade x will have engaged hump u , so that the lever w is shifted on its fulcrum; the detent rod 6 then clicks over the rack 12 of lever w to finally hold it in the position to which it is elevated, in which position the blade will be sufficiently out of contact with the ground for the time being to prevent its interfering with obstacles along the track. The motorman, as soon as he can conveniently do so, now releases pawl 14, so that he can push rod 2 down, which, engaging lever w' , moves it to the position normally occupied thereby and shown in Fig. 1, in which position the parts will be held both by the weight of the parts and the pressure of the pawl 14 against the rack 13. In case the car is to take a straight course, or turn to the right, the motorman has to raise the right-hand push-rod.

It will be seen that the construction of the boxes e and their accessory mechanism is

such that they are protected against freezing ice and snow and that, the knobs i are formed with the undercuts m so that the blades x, x' will effectively engage them; the only parts of the switch-point actuating mechanism which protrude are the knobs so that there is no opportunity for heavy wagons or the like to damage or disarrange the mechanism. The motorman can effect the operating of the switch without reducing the speed of the car whatever, it not being even necessary for him to note the position of the switch point.

The part of the mechanism carried by the car, it will be understood, may be arranged at either sides of the platform, according to convenience and available space.

Having thus fully described my invention, what I claim and desire to secure by Letters Patent is:

1. In a railway system, the combination of the rails, a vehicle adapted to move thereon, a switch-point, levers fulcrumed one at one side and the other at the other side of one rail, push-pins guided in the rail one at one side and the other at the other side of the switch-point and each connected to a lever, a knob carried by each lever and protruding upwardly, means for holding the ends of the levers adjoining the push-pins normally outward, and means, adapted to engage either of said knobs and carried by the vehicle, for moving each lever, substantially as described.

2. In a railway system, the combination of the rails, a vehicle adapted to move thereon, a switch-point adjoining one rail, levers fulcrumed one at one side and the other at the other side of said rail, push-pins guided in said rail one at one side and the other at the other side of the switch-point and each connected to a lever, a casing extending transversely of said rails, rods extending through the casing and respectively connected to said levers, knobs carried by the rods and protruding upwardly one at one side and the other at the other side of the other rail, means for holding the ends of the levers adjoining the push-pins normally outward, and means, adapted to engage either of said knobs and carried by the vehicle, for moving each lever, substantially as described.

3. In a railway system, the combination of the rails, a vehicle adapted to move thereon, a switch-point, a closed box arranged beside the switch point with its top substantially flush with the top of the adjoining rail, the top of said box having a slot therein, a knob having a shank projecting through said slot and a head resting on the top of the box and formed with an undercut at one side, means for transmitting motion from the knob to the switch point, and means, comprising a blade adapt-

ed to trail over said box and engage the knob in its undercut, for moving said knob and thereby the vehicle, said last-named means being carried by the vehicle, substantially as described.

4. In a railway system, the combination of the rails, a vehicle adapted to move thereon, a switch-point, a protruding switch-point actuating part, a lever fulcrumed longitudinally of the vehicle and having its rear end movable into trailing relation, a blade carried by the rear end of said lever and movable therewith into actuating contact with said part, and a detent carried by the vehicle and movable vertically therein into engagement with the forward end of said lever, substantially as described.

5. In a railway system, the combination of the rails, a vehicle adapted to move thereon, a switch-point, a protruding switch-

point actuating part, a lever fulcrumed longitudinally of the vehicle and having its rear end movable into trailing relation, a blade carried by the rear end of said lever and movable therewith into actuating contact with said part, said lever having a rack on the upper portion of its forward end, a detent carried by the vehicle and movable downwardly into engagement with the rack of the lever, and a push-rod movable vertically in the vehicle and adapted to engage the forward end of said lever, substantially as described.

In testimony, that I claim the foregoing, I have hereunto set my hand this 27th day of November, 1908.

SOLOMON USLIANER.

Witnesses:

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JOHN W. STEWARD.