(No Model.) 2 Sheets—Sheet 1.

C. E. R. CHRISTENSEN.

DEVICE FOR OPERATING STREET RAILWAY SWITCHES.

No. 524,540. Patented Aug. 14, 1894.

FIG: 1.

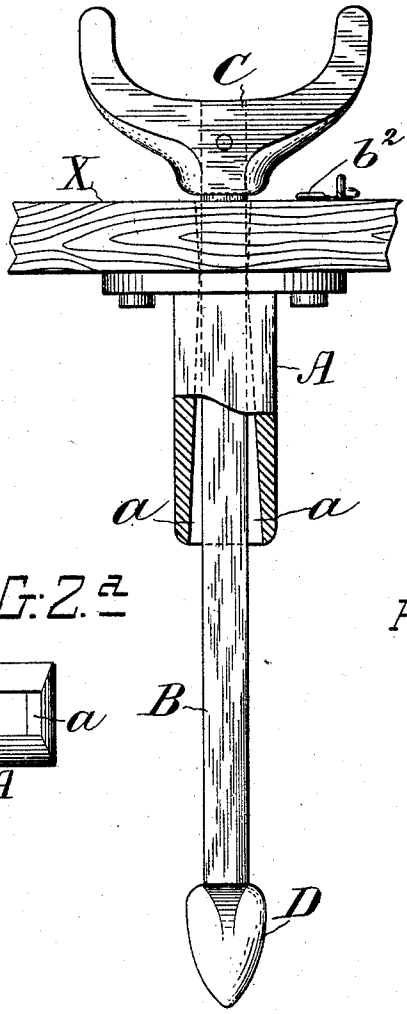


FIG: 2.

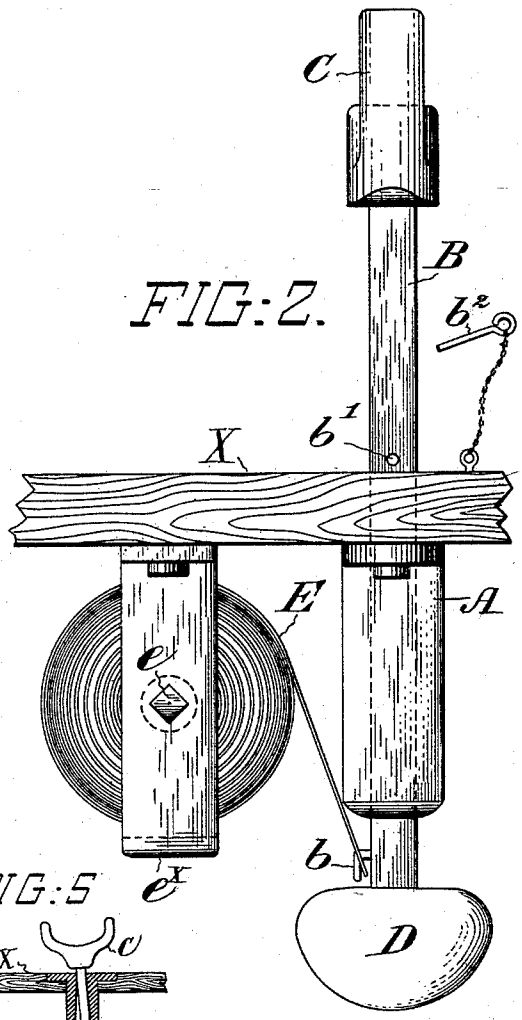


FIG: 2ª

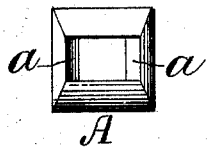
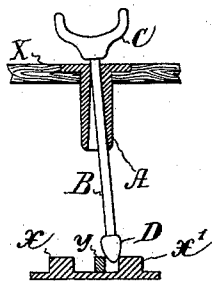


FIG: 5



INVENTOR:

Carl E. R. Christensen

By Henry Connett

Attorney.

WITNESSES:

F. B. Kinnan

Peter A. Ross.

(No Model.) 2 Sheets—Sheet 2.

C. E. R. CHRISTENSEN.

DEVICE FOR OPERATING STREET RAILWAY SWITCHES.

No. 524,540. Patented Aug. 14, 1894.

FIG. 3.

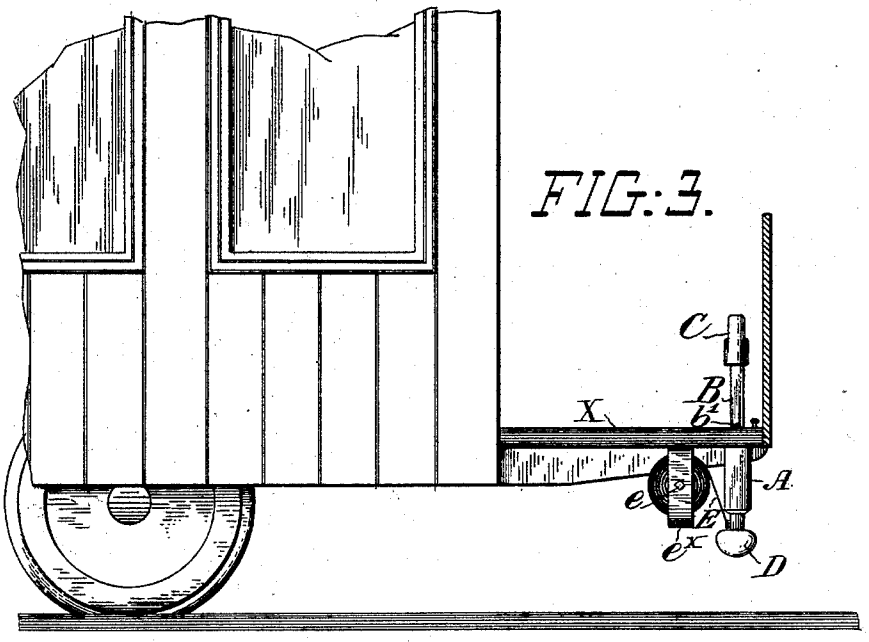
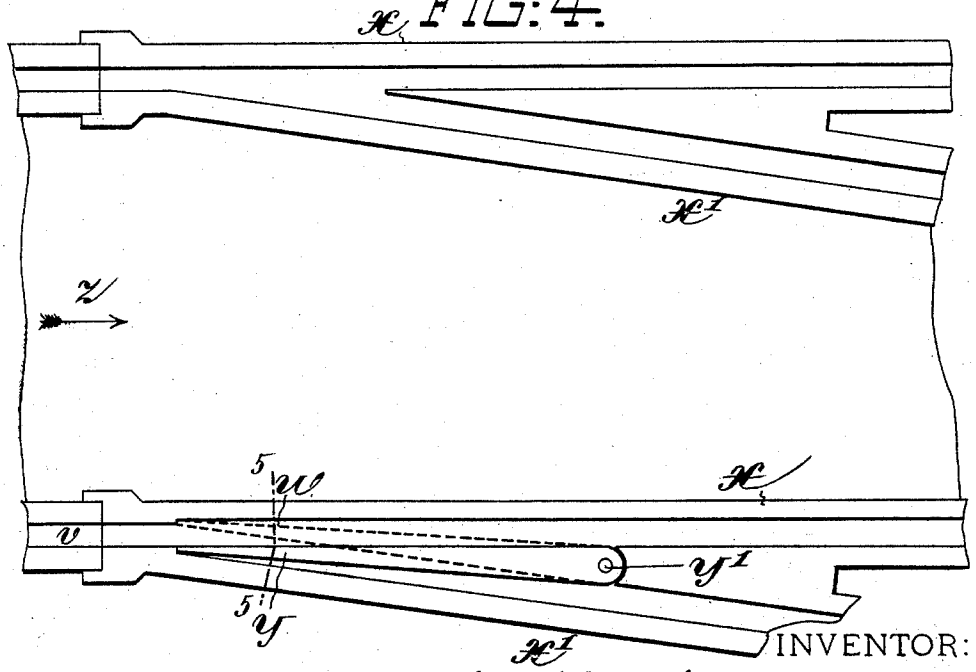


FIG. 4.



INVENTOR:
Carl E. R. Christensen

WITNESSES:
J. W. Kinnan
Peter A. Ross.

By Henry Connett
Attorney.

UNITED STATES PATENT OFFICE.

CARL E. R. CHRISTENSEN, OF BROOKLYN, NEW YORK.

DEVICE FOR OPERATING STREET-RAILWAY SWITCHES.

SPECIFICATION forming part of Letters Patent No. 524,540, dated August 14, 1894.

Application filed November 15, 1893. Serial No. 490,972. (No model.)

To all whom it may concern:

Be it known that I, CARL E. R. CHRISTENSEN, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Devices for Operating Street-Railway Switches, of which the following is a specification.

My invention relates to the class of devices whereby the driver or motorman of a car is enabled to shift the pivoted point or tongue of a switch when the car is approaching the latter, thus obviating the necessity of employing a switch tender to look after this work; and the object of the invention is to so simplify the device that the cars may be fitted up with the same economically, and so that the mechanism shall be staunch and durable.

The object is further to provide means whereby the switch point may be shifted from either position at the will of the operator, as will be described.

This invention will be fully described hereinafter and its novel features carefully defined in the claims.

In the accompanying drawings wherein is illustrated an embodiment of the invention, Figure 1 is a front view and Fig. 2 a side view of the device on a comparatively large scale. Fig. 2^a is an end view of the guide A. Fig. 3 is a general view, on a smaller scale, showing the device mounted on the platform of a car. Fig. 4 is a plan view of a switch in the track, the tongue or point of which is adapted to be shifted by the device. Fig. 5 is a diagrammatic view illustrating the operation of the device.

X represents the platform of a street car of any kind.

x represents, in Fig. 4, the main track rails, and *x'* the side track rails.

y is the usual switch tongue or point, pivotally mounted at *y'*, and its point or free end adapted to be brought over to and against the adjacent rail of the main track, as seen in dotted lines in Fig. 4, when a car approaching the switch from the direction of arrow *z* is designed to leave the main track and go onto the side or branch track. If a car approaching from the direction indicated by arrow *z* is designed to keep the main track, the switch point *y* must be thrown over to or toward the position indicated in full lines in Fig. 4, so that the flange on the car wheels may pass between its free extremity and the adjacent main track rail, and if it is designed to take the side-track the point *y* must be shifted in the other direction.

To enable the driver, gripman, or motorman to so shift the switch point or tongue from the front platform of the approaching car, is the object of the device which embodies this invention.

On or in the platform X is secured a socket-guide, A, which may be of cast metal and have a square or rectangular bore through it. Extending down through the platform and the socket-guide A, and capable of playing longitudinally therethrough, is a square stem, B, which may be of wrought iron. This stem has on its upper end a crescent-like head-piece, C, to receive the foot of the operator, and on its lower end a peculiarly shaped wedge, D, having nearly the form of a clam-shell. This wedge may be of cast iron and should be securely fixed to the stem. The stem and wedge are normally upheld, as seen in Figs. 2 and 3, by a volute spring, E, one end of which is secured to the stem B, at *b*, and the other end to an arbor, *e*, fixed in a protecting stirrup, $e^{\times}$, secured to the platform.

The device is mounted on the platform in such a position that, as the car moves over a switch the wedge D, will be suspended vertically about over the axis of the groove, *v*, (Fig. 4) in the switch plate, or in other words, it will pass about over the point which the tip of the switch point will occupy when at the middle point of its travel. If the car, moving in the direction of the arrow *z*, is to go off on the side track, the switch point *y*, must be shifted over to the position seen in dotted lines in Fig. 4, and when the car shall have advanced until the wedge D, is suspended over the track at about the point *w* (or line 5, 5,) in Fig. 4, the operator puts his foot in the head-piece C, and presses down the wedge, at the same time so swinging it over by a sidewise movement of his foot, as to cause the wedge to enter the crevis be-

tween the tongue y, and the rail of the side-track and wedge the tongue over and allow the wheel flange to pass its tip. This lateral swing of the wedge and its stem is illustrated in Fig. 5. If the switch is open to the side track and the car is to keep the main line, the operator swings the wedge over to the other side, as will be understood. In order to allow the stem B, to swing laterally for the purpose above described, the bore in the guide is made to flare downward, laterally, as seen at a in Fig. 1, and in Fig. 5, but not at the other sides, in front and behind. When the operator removes the pressure the spring E lifts the wedge to the position seen in Figs. 2 and 3.

The volute spring E, is better than a spiral spring in that it is not likely to get a "set."

Where cars run indifferently, either end in front, a shifting device or devices will be needed on both platforms; and to prevent the device on the rear platform from being operated, there may be a pin-hole, b', in the stem B, (see Fig. 2) to receive a stop-pin, b^2, which can be chained to the platform.

Fig. 1 has the guide A, partly broken away to show the flaring bore.

The stem B, is made square or angular in cross-section to keep it from rotating axially; but some other known means may be employed to effect this result.

The flange of the guide A, may be set in the upper surface of the car platform, as seen in Fig. 5, if preferred. The head-piece C, is made of the form shown in order to allow the operator to swing the stem B, sidewise, as described.

Having thus described my invention, I claim—

1. A switch operating device adapted to be mounted on the platform of a car, comprising a guide-socket A, with a laterally flared bore, a stem B, mounted non-rotatively in the bore of the guide, a head-piece C, on the upper end of said stem, a wedge D, of clam-shell form on the lower end of said stem, and a retracting spring, substantially as set forth.

2. A switch operating device adapted to be mounted on the platform of a car, comprising a guide-socket A, provided with a flared bore as set forth, a stem B, mounted non-rotatively in said bore and provided with a head-piece on its upper end, a wedge D, on the lower end of the stem, and a volute spring E, to hold the stem and wedge normally elevated.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

CARL E. R. CHRISTENSEN.

Witnesses:

HENRY CONNETT,

JAMES KING DUFFY.