No. 814,278. PATENTED MAR. 6, 1906.

O. J. DU VERNAY.

SWITCH OPERATING DEVICE.

APPLICATION FILED MAR. 20, 1905.

Fig. 1.

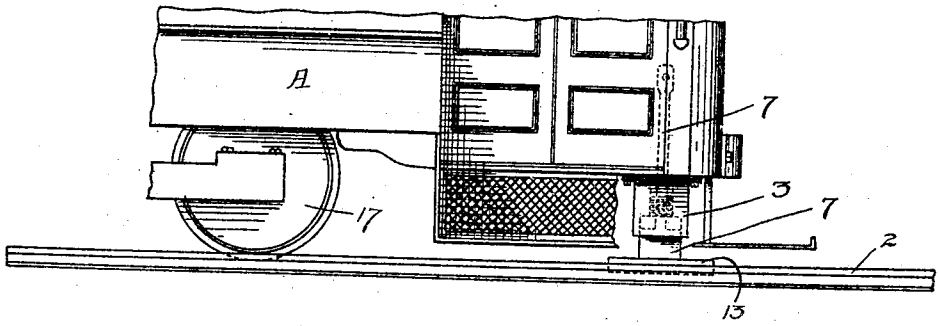


Fig. 2.

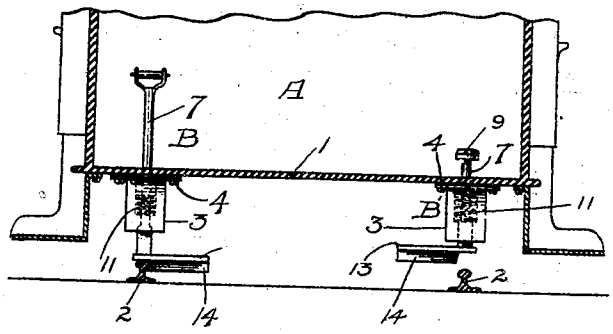


Fig. 3.

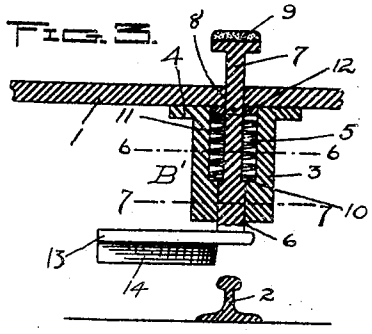


Fig. 4.

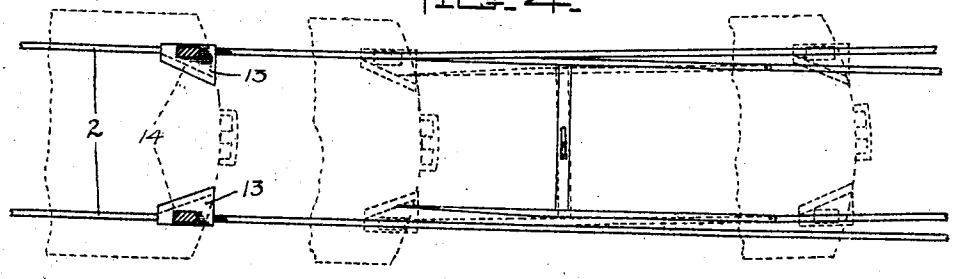


Fig. 5.

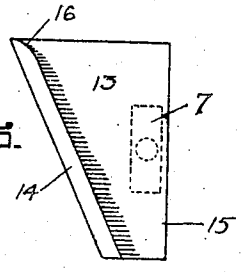


Fig. 6.

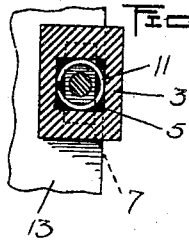
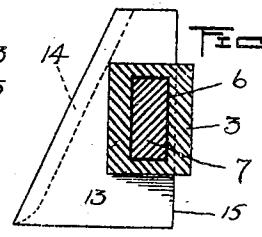


Fig. 7.



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UNITED STATES PATENT OFFICE.

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SWITCH-OPERATING DEVICE.

No. 814,278. Specification of Letters Patent. Patented March 6, 1906.

Application filed March 20, 1905. Serial No. 250,986.

To all whom it may concern:

Be it known that I, OLIVER J. DU VERNAY, of Leominster, in the county of Worcester and Commonwealth of Massachusetts, have invented certain new and useful Improvements in Switch-Operating Devices; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention relates to an improvement in switch-operating devices, and more particularly to those devices which are carried by the vehicle or car and technically termed "car devices," whereby the car or vehicle upon approaching a switch can be caused to take either track desired without necessitating the attendance of a switch tender at that point.

Another object is the provision of a simple inexpensive device which can be applied to any car now on the market and one which will be efficient, serviceable, and durable.

It will be understood that although devices of the nature of my invention can be carried by steam-railroads it is primarily adapted for use on trolley-cars on urban and interurban lines, for instance; and in this connection a further object is the provision of a car device operable by the motorman without necessitating the removal of his hands from the controller-lever or brake-handle.

To these ends my invention consists in certain novel features of construction and combination of parts, such as will be more fully described hereinafter and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a view in side elevation of an end of a car, showing the arrangement and position of my invention relative to the wheels. Fig. 2 is a vertical sectional view showing my car device in position in side elevation. Fig. 3 is a detail vertical sectional view through one of the car devices, the foot thereof being shown in full lines. Fig. 4 is a diagrammatic view of a track-switch, showing the application of the switch-operating means thereto, the forward end of a car being shown in dotted lines in three positions—approaching the switch, passing the switch, and after its passage over the switch. Fig. 5 is a bottom plan view of the foot of the device, and Figs. 6 and 7 are cross-sectional views on lines 6 6 and 7 7 of Fig. 3.

A indicates the car provided with the usual vestibule, wherein stands the motorman.

Secured to the floor 1 of the car-vestibule are the switch-operating devices B B′, one being shown on each side of the car and located directly over the rails 2 2 of the track. It will be understood that it is necessary to provide a switch-operating device at each side of the car in order that the switch may be thrown to one side or the other, depending upon the route to be taken by the car. It is also preferable to have a similar pair of devices at the rear end of the car, especially if the car is not reversed before starting upon its return-trip. The device B is arranged to be operated by hand, while the device B′ is operated by the foot of the motorman. Either manner of operation may be used to the exclusion of the other, and I have merely shown both in order that I may not be limited to the one form. A description of one of the devices will suffice for both.

Situated beneath and depending from the floor of the car is a strong boxing or casing 3, preferably of metal, which boxing is provided with an outwardly-projecting flange 4 at its upper end, by means of which it is securely attached to the car in any suitable manner. The boxing incloses a chamber 5 open at its upper end and at its lower end communicating with a restricted rectangular passage 6, extending through the lower end of the boxing. A standard 7 of a contour corresponding to that of the passage-way 6 is received therein and passing upward through the chamber 5 projects loosely through an opening 8 in the floor of the vestibule and is provided at its upper end with an enlargement 9, designed to receive the foot of the motorman or other operator for the purpose presently to be explained. A shoulder 10 is formed at the juncture of chamber 5 and passage-way 6, upon which shoulder rests one end of a coil-spring 11, which surrounds the standard 7, and at its upper end engages a pin or washer 12, secured to the standard. The lower end of the standard carries a foot-piece adapted to engage and operate the switch. This foot-piece consists of an approximately tetragonal plate 13, which extends at right angles to the standard 7 and parallel or horizontal with the ground, and upon the lower or under flat face of the plate is located a rib 14, extending at an angle to the track-rails and to the outer edge of the plate. This rib at the rear end of the plate is spaced apart from the outer edge 15 the distance or width of a track-rail, from which point it gradually diverges, as shown, and at

its forward end is reduced or beveled, as at 16, to facilitate its engagement with the switch-point.

The device is placed a sufficient distance in advance of the wheels of the car so that by the time that the wheels 17 reach the switch-points the latter will have been adjusted or moved to the position which it is intended they shall occupy. The lower face of the plate 13 rests upon the track-rail and limits the downward movement of the car device. Furthermore, the car device will operate the switch when the latter is approached from either direction. The switch-points are moved the distance embraced by the space between the reduced end 16 of the rib and the side edge 15 of the plate. Normally the spring 11, pressing against the washer 12, retains the foot 13 in raised position out of contact with the rail; but when a car approaches a switch from either direction and it is desired to shift the switch-points the motorman presses down upon the standard 7 against the action of the spring until the plate 13 rests upon the rail 2. Should it be desired to move the car to the left in Fig. 4, the car device on the right-hand side is forced downward, and vice versa. The forward or wider end of the plate approaches the open switch-point, which latter is engaged by the reduced end 16 of the rib 14, and as the car proceeds, preferably at a slow speed, the incline of the rib gradually forces the switch-points over to the right or left, as the case may be, until the switch is closed, whereupon the operator releases the car device, which is immediately raised by the action of the spring 11. Should it be preferred, the standard 7 may be extended upward a suitable distance and at its upper end be provided with a handle 18 to afford a means for operating the car device by hand instead of by foot. It will also be observed that by reason of the conformation of the standard and the passage-way the car device is prevented from turning in the boxing.

From the foregoing it will be evident that many changes or alterations might be made in the form and arrangement of the several parts described without departing from the spirit and scope of my invention, and hence I do not wish to limit myself to the exact construction herein set forth; but,

Having fully disclosed my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A car device comprising a suitably-supported standard, a flat plate carried thereby, and a single rib carried on the lower otherwise unobstructed surface of the plate, the rib being set at an incline to the rails.

2. A car device comprising a suitably-supported standard, and a plate carried thereby, the plate being substantially triangular with its wider end forward, and a single rib extending along one inclined side of the otherwise unobstructed lower surface of the plate, the rib extending at an angle to the rails and depending from the plate.

3. The combination with track-rails and a switch-rail, of a car device comprising a suitably-supported standard, a plate carried by the standard, and a rib on the lower otherwise plane surface of the plate, the rib set at an incline to the track-rails and adapted to engage the side of the switch-rail.

4. The combination with track-rails and a switch-point, of a car device, comprising a suitably-supported standard, a plate carried by the standard, the lower surface of the plate adapted to rest and ride upon a track-rail, and a rib depending from the otherwise unobstructed lower surface of the plate, the rib adapted to extend beneath the upper surface of the track-rail and engage the side of the switch-point.

5. The combination with track-rails and a switch-point, of a car device comprising a suitably-supported standard, a plate carried by the standard, a rib depending from the otherwise unobstructed lower surface of the plate, the forward end of the rib being laterally beveled to engage the side of the switch-point, the rib being inclined relative to the track-rail and the plate adapted to rest upon the track-rail.

6. A car device comprising a casing having a chamber formed therein and a passage of less diameter than the chamber communicating with the latter, the chamber being open at that end opposite the passage, a standard passing through the casing, the standard being formed on two diameters, the larger of which is received in and conforms in shape to the shape of the passage, means lying in the chamber and engaging the collar to retain the standard normally at one limit of its movement and a switching-plate secured to the lower end of the standard.

OLIVER J. DU VERNAY.

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