

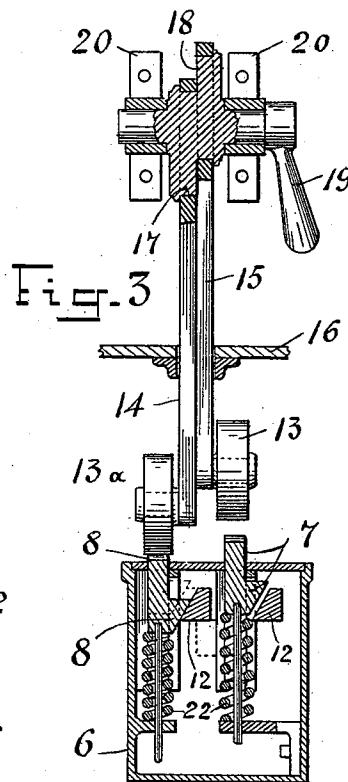
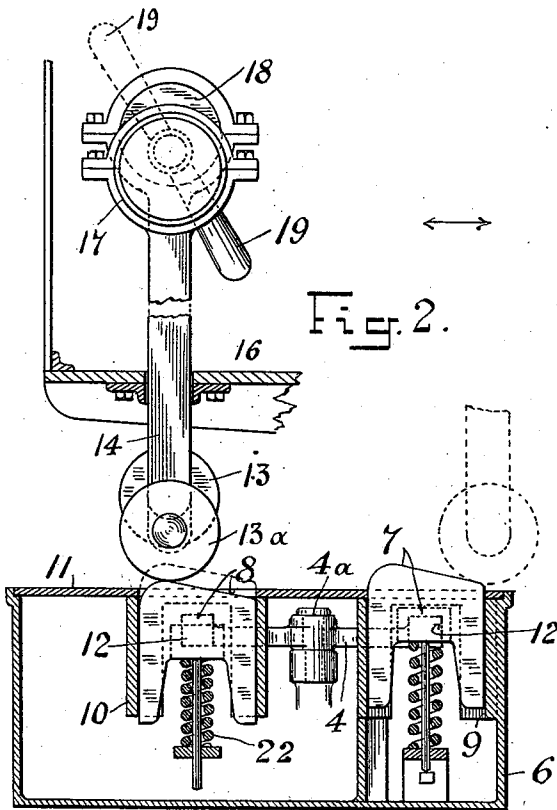
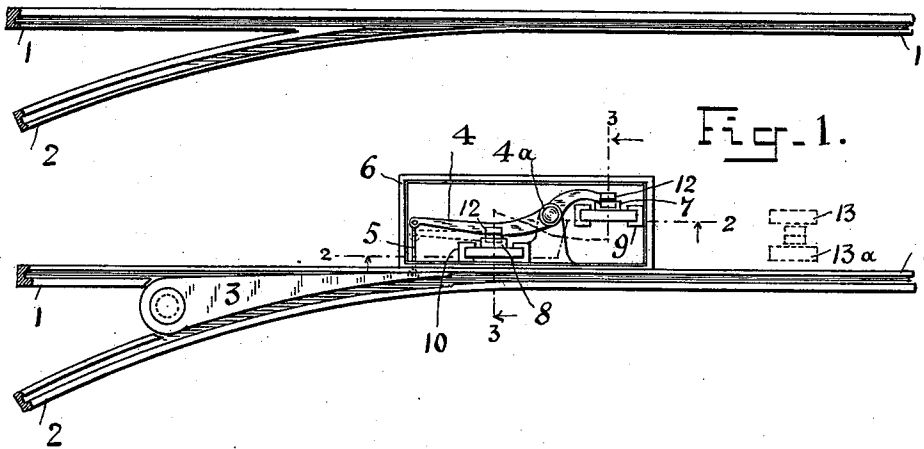
(No Model.)

2 Sheets—Sheet 1.

I. OLMSTED.
SWITCH OPERATING APPARATUS.

No. 568,542.

Patented Sept. 29, 1896.



Witnesses
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Jacob Neuman

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By his Attorneys
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(No Model.)

2 Sheets—Sheet 2.

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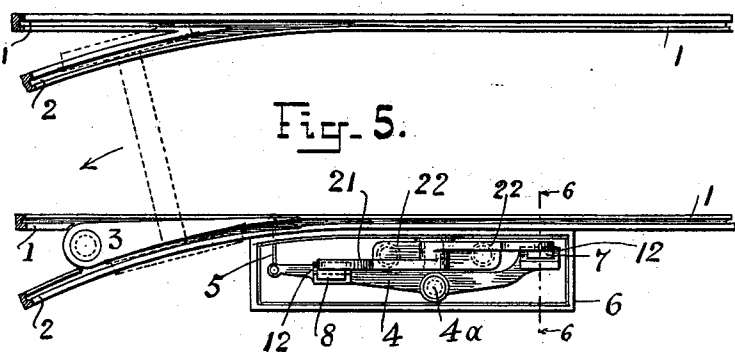


Fig. 5.

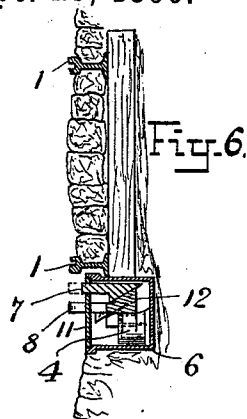


Fig. 6.

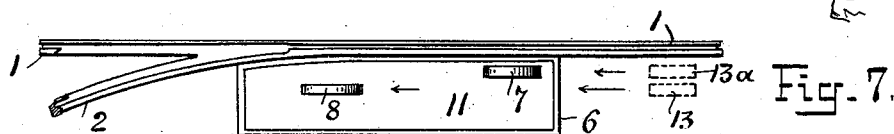


Fig. 7.

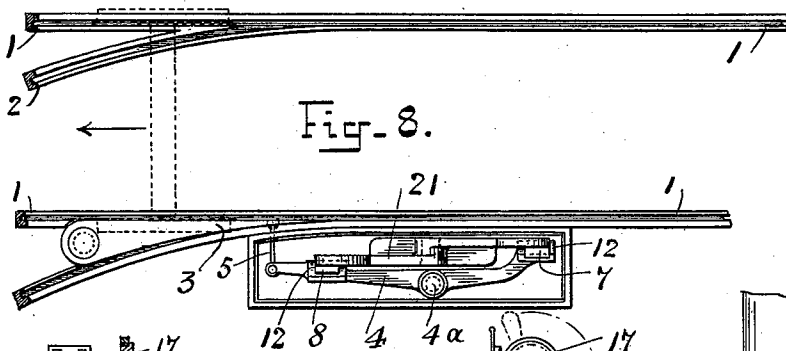


Fig. 8.

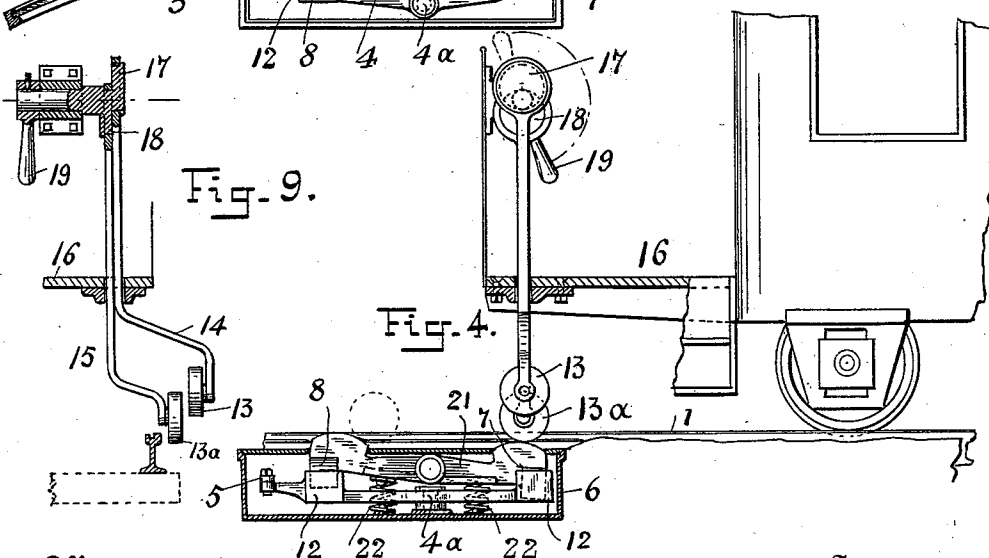


Fig. 9.

Fig. 4.

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UNITED STATES PATENT OFFICE.

INGERSOLL OLMSTED, OF NEWARK, NEW JERSEY.

SWITCH-OPERATING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 568,542, dated September 29, 1896.

Application filed December 3, 1895. Serial No. 570,898. (No model.)

To all whom it may concern:

Be it known that I, INGERSOLL OLMSTED, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Switch-Operating Apparatus; 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.

My invention consists of an improved form of apparatus for the automatic operation of the switches of cable and trolley railroads and other forms of street-tramways.

Heretofore various forms of mechanism have been designed for the purpose of doing away with a special switchman for operating switches, but the same have been, as a rule, liable to get out of order on account of their complication. They have always been subject to the destructive action of vehicles passing in the street and to choking up of the operative parts by dirt, snow, and ice. I have avoided these difficulties by designing an apparatus which is simple and positive in its operation and which is almost completely covered, exposing but a small portion of its operative mechanism to the action of the wheels of passing vehicles and which presents substantially no opening for the admission of dirt.

The preferred form of my apparatus is disclosed in the accompanying two sheets of drawings, in which—

Figure 1 is a plan view of a portion of a railroad-track, showing a switch connecting a branch track thereto and with the covering-plate of the switch-operating mechanism removed. Fig. 2 is an enlarged vertical section of the switch-operating mechanism, showing the wipers carried by the car for operating the same. Fig. 3 is a vertical cross-section of Fig. 2. Fig. 4 is a view similar to Fig. 2, showing a modification in the switch-operating mechanism. Fig. 5 is a plan view of a portion of the track and, with Fig. 6, shows clearly the relative position of the switch-operating mechanism thereto. Fig. 7 is a detail view of the switch-operating mechanism with the cover in place and showing the relative position of the wedges and wipers.

Fig. 8 is a similar view to Fig. 5, except that the switch is shown closed to the branch track, whereas in Fig. 5 it is shown open. Fig. 9 is a detail view of one form of wipers.

Throughout the drawings like reference-figures refer to like parts.

1 1 are the rails of the main track.

2 2 are the rails of the branch track. 60

3 is the ordinary form of pivoted switch-point, which may be oscillated so as to send the car along the main track or switch it onto the branch track.

4 is a switch-operating lever pivoted at 4^a in a recess at the side of the track, and 5 is a link connecting one end of said lever with the oscillating switch-point. 65

6 is a frame surrounding and inclosing the mechanism of the switch-operating device. This frame would preferably be made of cast-iron. 70

7 and 8 are wedges moving up and down in vertical guides 9 and 10, connected to the rail 1. These wedges engage with correspondingly-beveled facings 12, Fig. 3, on the pivoted lever 4. The upper beveled portions of the wedges 7 and 8 protrude through openings in the top plate 11 of the frame or casing 6 and fit said openings closely, so that no dirt can pass down into the casing. 75 80

13 and 13^a are rollers or shoes mounted on vertically-sliding pieces 14 and 15, which are attached to the passing car and protrude downwardly through the platform 16 thereof. These constitute wipers, which engage, respectively, with the wedges 7 and 8, as shown, and depress one or the other of said wedges. These wipers may be operated in any desired manner, but preferably by means of eccentrics 17 and 18, journaled in bearings 20 20 on the car and operated by the handle 19 so as to throw one or the other of the wipers down. The eccentric gear is preferred because it is positive in its action and self-locking. After the wipers have passed over the switches the springs 22 22 act to force the wedges up again and withdraw whichever one has been depressed from engagement with the switch-operating lever. 85 90 95 100

In the modification shown in Fig. 4 the wedges 7 and 8 are mounted on a centrally-pivoted lever 21 instead of being mounted in vertical guides. The springs 22 22 serve to

hold said lever in the central position in which neither of the wedges is in engagement with the switch-lever.

The mode of operation of my invention is evident from the above description.

As the car approaches the switch the motorman throws the handle 19 down if he wishes to turn to the left, and the right-hand wiper 13^a is forced down upon the plate 11 and it passes over and depresses wedge 7. This throws the right-hand end of the lever 4 outwardly (looking at Fig. 1) and throws the pivoted switch-point 3 into the position shown in Fig. 1, so that the switch is open to the branch track. If he wishes to proceed upon the main track, the motorman throws the handle 19 up, which depresses wiper 13 and the wedge 7 is undisturbed, but the wedge 8 is forced down with the result that the switch-point is thrown into the position shown in Fig. 8 and the car proceeds on the main track.

The advantages of this construction consist in its simplicity and positiveness of action resulting from the use of the wedges, the complete inclosure of the mechanism whereby little dirt can get into it, and the fact that the normal retention of the wedges out of engagement with the oscillating lever leaves the switch-point free to adjust itself in case a car should be run back over the switch. It will be seen that if a locking device is used the switch-operating device would have to be duplicated in order to provide for this contingency of a car running back over the switch for any reason.

It is evident that various trains of mechanism could be employed for conveying the motion from the wedges to the switch-point which might differ from that which I have illustrated. These might be more or less direct methods of transmission than the one shown in the drawings, but all would be included in my invention, which is not restricted to any particular form of connecting mechanism, so long as the wedges are used with any proper form of mechanism for transmitting motion to the switch-point.

In the construction shown in Figs. 1, 2, and 3 the switch-operating mechanism is placed on the inside of the rail 1, and the wipers 13 and 13^a can accordingly be operated on said

plungers 14 and 15, passing down vertically through the car-platform. When the switch mechanism is on the outside of the rail, as shown in Figs. 5, 6, 7, and 8, the platform of the car as ordinarily built will not overhang the wedges 7 and 8, and the plungers 14 and 15 must be bent outwardly, as shown in Fig. 9, in order to bring the wipers over said wedges.

Having therefore described my invention, what I claim as new, and desire to protect by Letters Patent, is—

1. In a switch-operating device the combination of the railroad-rail, the pivoted switch-point, the lever pivoted on a vertical axis and adapted to actuate the switch-point, the system of wedges which can be inserted intermediate of the lever and the rail on either side the fulcrum of the lever; and the covering-plate provided with openings through which upwardly-extending portions of the wedges protrude, and which they fill closely, substantially as described.

2. In a switch-operating device the combination of the railroad-rail, the pivoted switch-point, the lever pivoted to a rigid extension of the rail and adapted to actuate the switch-point, the system of wedges which can be inserted intermediate of the lever and the rail at points on either side of its fulcrum by pressure from the passing car, and the springs which positively retract said wedges from engagement on removal of the pressure, substantially as described.

3. In a switch-operating device the combination of the railroad-rail, the pivoted switch-point, the lever centrally pivoted to a rigid extension of the rail and adapted to actuate the switch-point, and the system of wedges which can be inserted intermediate of the lever and the rail on either side the fulcrum of the lever by pressure from the passing car, whereby the switch can be automatically and positively operated in either direction, substantially as described.

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

INGERSOLL OLMSTED.

Witnesses:

WARREN W. FOSTER,
A. PARKER SMITH.