

(No Model.)

J. R. TRISLER.
SWITCH MOVEMENT.

No. 541,954.

Patented July 2, 1895.

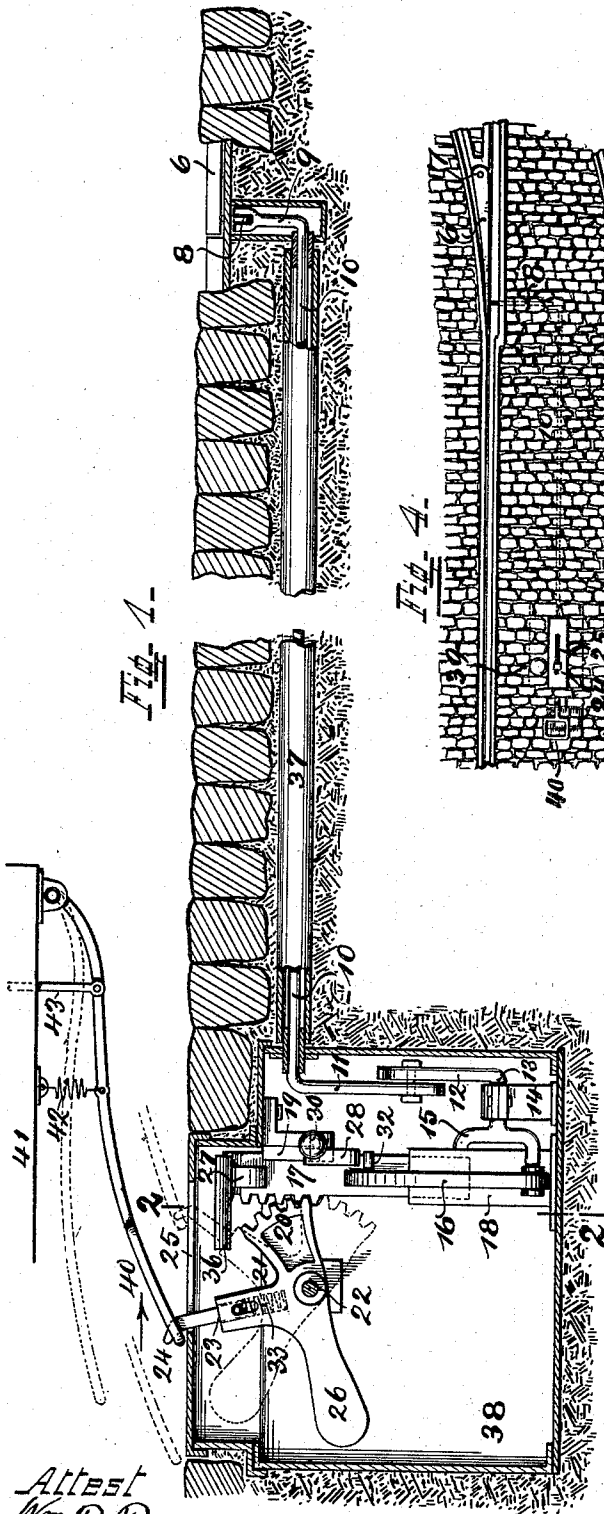


Fig. 1.

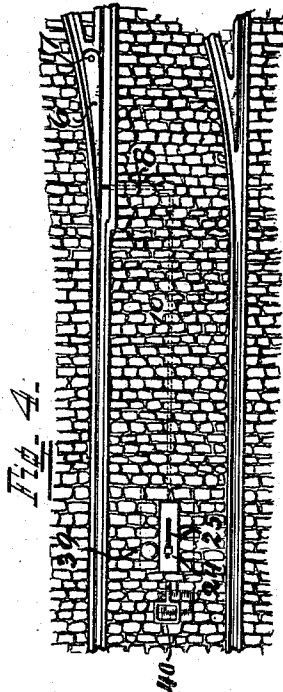


Fig. 4.

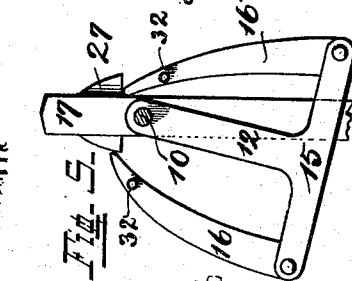


Fig. 5.

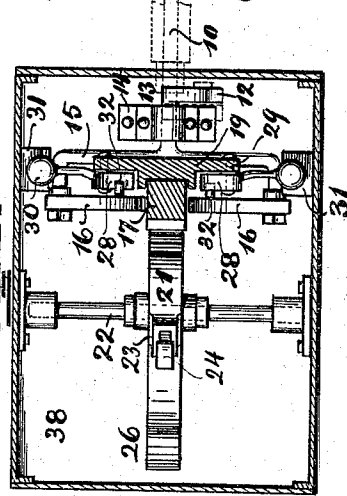


Fig. 6.

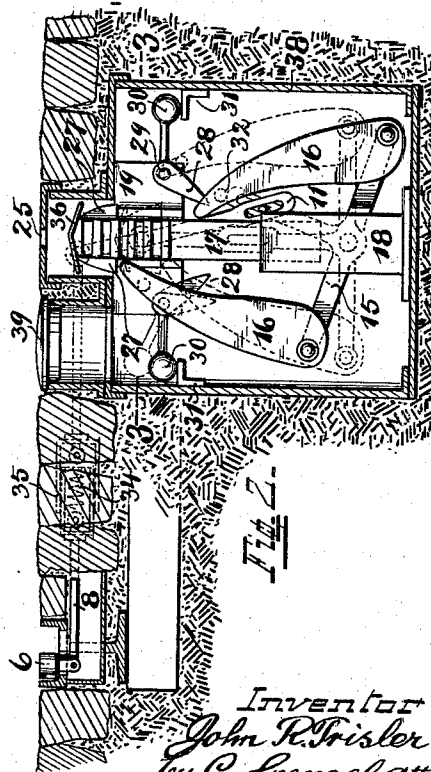


Fig. 7.

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UNITED STATES PATENT OFFICE.

JOHN R. TRISLER, OF WESTWOOD, ASSIGNOR OF ONE-HALF TO JOSEPH H. MOORE, OF CINCINNATI, OHIO.

SWITCH-MOVEMENT.

SPECIFICATION forming part of Letters Patent No. 541,954, dated July 2, 1895.

Application filed April 1, 1895. Serial No. 544,095. (No model.)

To all whom it may concern:

Be it known that I, JOHN R. TRISLER, a citizen of the United States, and a resident of Westwood, Hamilton county, State of Ohio, have invented a new and useful Switch-Movement; and I do 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, attention being called to the accompanying drawings, with the reference-numerals marked thereon, which form a part of this specification.

This invention relates to a device or movement whereby railway switches, particularly those of street-railways may be operated from the car while the latter is in motion.

The device consists substantially of three parts, one part being attached to the car and operated therefrom for the purpose of setting the switch. The next part is located below the street surface but accessible to the part connected to the car from which it is operated. The last part finally is that one whereby the second part is connected to the switch and transmits to it the effects caused by the operation of the part on the car.

The novelty resides more particularly in the construction of the second part, which is the one acted upon by the device on the car, while the other parts contain however also novel features of construction which will become apparent in the following specification and claims which contain a full description of my invention together with its operation, parts, and construction, which latter is also illustrated in the accompanying drawings, in which—

Figure 1 is a sectional side elevation of all parts of the device, showing also the parts connected to the car in ready position to set the switch. Fig. 2 is a vertical cross-section on line 2 2 of Fig. 1. Fig. 3 is a horizontal section on line 3 3 of Fig. 2. Fig. 4 shows a portion of a railway-track with a switch and a device for operating it, the invisible part of the latter being shown in dotted lines. Fig. 5 is part of a view similar to Fig. 2, showing a modified construction.

6 is the switch of well known form, pivoted at 7 and connected at its under side near the

front-end thereof by means of link 8 to an arm 9 at the end of a rocking-rod 10. This rod which is supported in suitable bearings, carries at its other end a similar arm 11 which connects to an arm 12 of a short rocking-rod 13, supported in a box 14. The connection between these arms 11 and 12 is preferably adjustable, so that the amount of movement of arm 9 and with it the throw of the switch, may be properly regulated. Rod 13 is connected to a lever 15 which at each end carries loosely connected a pawl 16, which rest normally against a rack 17, adjustably supported at its lower end in a box 18 and near its upper end in a bearing 19. The toothed end 20 of one branch of an angle-lever 21, pivotally supported at 22, engages with this rack, while its other branch 23, provided with a hooked end 24, passes upwardly through a slot 25 and extends above the surface of the street. A weight 26 at the rear end of the angle-lever holds the same normally in a position which brings branch 23 to one extreme end of slot 25 with the toothed branch 20 raised to its highest position. Inasmuch as this branch is in engagement with rack 17, the latter will also be held in a raised position. If this branch 23 is moved within slot 25 in the direction of the arrow, rack 17 will be depressed and carry with it by means of one of the laterally projecting teeth 27, the elevated one of pawls 16. See Fig. 2. The depression of this latter by reason of its connection to lever 15, partly rotates or rocks rod 13, which by means of arms 12 and 11 rocks also rod 10, the arm 9 of which, through the intervention of link 8, operates the switch, as will be readily understood. Upon release of branch 23 of the angle-lever, a weight 26 carries it back to its normal position raising also rack 17 again to bring it in ready position for the next operation. No other parts participate in this latter movement of angle-lever and rack, all retaining their respective positions, the elevated one of pawls 16 simply dropping into place under one of the teeth 27 as soon as the rack has reached the end of its upward movement. On its next depression then rack 17 acts immediately upon the elevated pawl and operates the switch mechanism. During this movement of the pawls in opposite directions,

it becomes necessary that the rising one clear its tooth 27 which moves toward it with the descending rack. This is done by swinging dogs 28, pivoted at 29 and held to a normal position by weights 30, resting upon brackets 31, which limit their movement in one direction. The pawls have pins 32 which may carry friction rollers and on the rising pawl this pin passes under the dog 28 above it and is drawn away thereby from rack 17 thus clearing the descending tooth 27. After having passed up on dog 28 and cleared the upper end of the same, the rising pawl drops again over against the rack, tooth 27 having meanwhile passed down. When the rack rises the raised pawl simply slipover the tooth thereon. The descending pawl when its pin 32 reaches dog 28, pushes the same simply aside, the latter readily yielding and dropping again to its normal position as soon as pin 32 has cleared its lower end. See intermediate position shown in dotted lines in Fig. 2. Member 23 of angle-lever 21 is in two parts, one telescoping within the other with a spring 33 between them, whereby that part which projects above the street-surface readily yields in case any heavy wagons pass over it and whereby any strain and damage on the device are prevented. Link 8 is also in two parts connected by means of spring 34, contained in a telescoping housing 35 which holds said link rigidly to a straight line and prevents it from collapsing when under stress of thrust. This spring is of such strength that it will not yield during the ordinary operation of the device, link 8 acting then to all practical purposes like a rigid member. In case of any obstructions however interfering with the full movement of the switch, it yields and permits the other parts of the device to complete their full movement, thereby preventing any damage to them. At the upper end of rack 17 is a hood 36, projecting over the toothed end of the angle-lever and preventing any dirt entering through slot 25, from dropping between the engaging teeth of lever and rack.

As a modification, the short rocking-rod 13, its box 14 and arm 11, may be omitted and lever 15 in one piece with arm 12 in form of an angle-lever, may directly connect to rocking-rod 10 as shown in Fig. 5. This latter is preferably incased in a pipe or tube 37, while the other parts are contained in a suitable casing 38 which on top is preferably provided with a covered hand-hole 39, through which from time to time accumulating dirt entered through slot 25 may be removed.

For the purpose of operating the switch from a passing car any device capable of engaging temporarily with and then disengaging itself from the upper end of the member 23 of the angle-lever may be used. I prefer a loop 40 of sufficient width which readily engages hook 24 and before and after such engagement freely slides over the street-surface, without defacing the same. It is pivotally suspended from the under side 41 of the car

and movably held up by a spring 42. At the proper time the driver or motorman on the advancing car depresses it by means of a link or push-rod 43 with a treadle at its upper end, whereupon it engages the hooked end 24 of the angle-lever and takes it along until the switch is properly set, by which time hook 24 has assumed such a position that loop 40 cannot hold it any longer and disengaging itself therefrom, permits weight 26 to carry the hook back again to its normal position. If the switch was in proper position no operation is of course required. The device is located between the rails and connection is made by link 8 to whatever side may be required, to reach the switch, so that it does not matter whether the latter is on the right or left side of the track.

Having described my invention, I claim as new—

1. In a device for operating rail-switches from cars, the combination of the switch, a vertically sustained angle-lever, having one member partly projecting above the street surface for operation from the car, the other member below being toothed and intermediate mechanism whereby this toothed member of the angle-lever transfers the effect of its operation onto the switch.

2. In a device for operating rail-switches from cars, the combination of the switch, a vertically sustained angle-lever having one member reaching through a slot and partly projecting above the street-surface for operation from the car, such member having a normal tendency to return after operation to its first position within that end of the slot from which it had been moved, its other member below being toothed and intermediate mechanism whereby this toothed member of the angle lever transfers the effects of its operation onto the switch.

3. In a device for operating rail-switches from cars, the combination of the switch, a vertically sustained angle-lever having one member partly projecting above the street-surface for operation from the car, a vertically movable member 17, with laterally projecting teeth 27, pawls 16 and a lever 15 by which they are carried, said pawls adapted to be alternately engaged by teeth 27 for the purpose of oscillating lever 15 and a rocking-rod, operatively connecting the latter to the switch, whereby the oscillations of lever 15 are transferred to the switch.

4. In a device for operating rail-switches from cars, the combination of the switch, a vertically sustained angle-lever having one member partly projecting above the street-surface for operation from the car, its other member being toothed at its end, a vertically movable rack 17 with laterally projecting teeth 27, pawls 16 and a lever 15 by which they are carried, said pawls adapted to be alternately engaged by teeth 27 for the purpose of oscillating lever 15, a weight or its equivalent to carry the angle-lever and rack 17 back

to the position they occupied before operation and a rocking-rod operatively connecting lever 15 and the switch whereby the oscillations of the former are transferred to the latter.

5. In a device for operating rail-switches from cars, the combination of the switch, a vertically sustained angle-lever having one member partly projecting above the street-surface for operation from the car, a vertically movable member 17 with laterally projecting teeth 27, pawls 16 and a lever 15 which carries them, said pawls adapted to be alternately engaged by teeth 27 for the purpose of oscillating lever 15, a weight or its equivalent to carry the angle-lever and rack 17 back to the position they occupied before operation, pivoted dogs 28 adapted to engage with the upper part of pawls 16, to guide them when rising in a manner to clear the descending teeth 27 and a rocking-rod operatively connected to lever 15 and to the switch whereby the oscillations of the former are transferred to the latter.
6. In a device for operating rail-switches from cars, the combination of the switch, a vertically sustained angle-lever having one member partly projecting above the street surface for operation from the car, a vertically movable member 17 with laterally projecting teeth 27, pawls 16 and a lever 15 by which they are carried, said pawls adapted to be alternately engaged by teeth 27 for the purpose of oscillating lever 15, a rocking-rod 13 with arm 12 connected to lever 15, a rocking-rod 10 with arms 11 and 9, connected to arm 12, and a link to connect arm 9 to the switch.

7. In a device for operating rail-switches from cars, the combination of the switch, a vertically sustained angle-lever having one member partly projecting above the street-surface for operation from the car, a vertically movable member 17 with laterally projecting teeth 27, pawls 16 and a lever 15 which carries them, said pawls adapted to be alternately engaged by teeth 27 for the purpose of oscillating lever 15, a weight or its equivalent to carry the angle-lever and rack 17 back to the position they occupied before operation, pivoted dogs 28, adapted to engage with the upper part of pawls 16 to guide them when rising, in a manner to clear the descending teeth 27, a rocking-rod 13 with arm 12, connected to lever 15, a rocking-rod 10 with arms 11 and 9 connected to arm 12, and a link to connect arm 9 to the switch.

8. In a device for operating rail-switches from cars, the combination of the switch, a vertically sustained angle-lever having one member 23 reaching through a slot and partly projecting above the street-surface for operation from the car, such member being in two parts adjustable on each other with a spring 33 between them and having a normal tendency to return after operation to its first position within that end of the slot from which it had been moved, and intermediate mechanism whereby this angle-lever transfers the effects of its operation onto the switch.

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

JOHN R. TRISLER.

Witnesses:

C. SPENGEL,
C. FINN.