J. P. ABERNATHY.
MEANS FOR OPERATING RAILWAY SWITCHES.
APPLICATION FILED DEC. 14, 1916.

Patented Feb. 5, 1918.
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2 SHEETS—SHEET 2.

Fig. 1

Fig. 2

Fig. 3

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To all whom it may concern:

Be it known that I, JOHN P. ABERNATHY, a citizen of the United States, residing at the city of St. Louis, in the State of Missouri, have invented certain new and useful Improvements in Means for Operating Railway-Switches, of which the following is a specification.

This invention provides improved means for a motorman or driver of a street or elevated car or the like or the operator of any other kind of vehicle running upon rails to throw a switch point connected with the said rails without such motorman, driver, or operator leaving his station on his car. In many places it is customary for the motorman to leave his car and with a switch-bar move such switch point or to stop his car and lean out of the front thereof and manipulate the switch point with such bar. In either event time is lost and traffic delayed. An expensive expedient is for an extra employee to be stationed at each switch to move the same upon the approach of a car. This delay or expense is obviated by the present invention.

In the accompanying drawings forming part of this specification and in which like numbers of reference denote like parts wherever they occur,

Figure 1 is a top plan view of a street or elevated railway track;

Figure 2 is a side elevation thereof and also partly in perspective section of the forward part of a car running on the said track and showing this device set in position to throw the switch point;

Figure 3 is a sectional view on the line 3—3 in Fig. 1 (looking to the right);

Figure 4 is a side elevation of a small section of rail after the switch point has been thrown and after the device for actuating the same has been returned to its normal position;

Figure 5 is a detailed sectional view on the line 5—5 in Fig. 1;

Figure 6 is a detailed sectional view on the line 6—6 in Fig. 4; and

Figure 7 is a sectional view on the line 7—7 in Fig. 4.

The switch point 1 is pivoted at 2 in the ordinary manner, and determines whether a car traveling from left to right in Fig. 1 shall follow the main line 3 (for which the said point is set in Fig. 1) or shall switch off on the line 5. A car traveling from right to left in Fig. 1 on the main line will leave unmoved the switch point shown in Fig. 1 or the flange of its forward left-hand wheel will push it to that position. A car entering the main line from the curve shown in Fig. 1 will enter with the flange of its forward left-hand wheel upon the switch, i.e., push the switch point away from the position depicted in Fig. 1.

When a car is traveling in the direction of from left to right in Fig. 1, the motorman or other operator of the car looks ahead to see whether or not the switch point 1 is set right to enable his car to travel in the correct direction. If it is, no action on his part is required. If it is not, he pushes or kicks with his foot either the trigger 5 or the trigger 6 according to the direction in which it is necessary for the switch point to be moved for his car to follow the proper course of travel. If, for instance, the switch point 1 is set as shown in Fig. 1, and it is necessary for his car to turn out into the curve, he will depress trigger 6. If, on the other hand, his car is to be turned ahead on the main line 3, and he finds switch point 1 set to turn out on the curve, he will depress trigger 5. Each of the triggers 5 and 6 is provided with a notch or stop 7, which, when the trigger is depressed, catches beneath the floor 8 of the car (as shown in Fig. 2), due to the slightly tilted position that the said triggers occupy when depressed (as shown in Fig. 2). From this caught position, the same can be readily released by a slight touch of the operator's toe upon the top of the trigger, pressing or kicking the same slightly forward. Any other retaining and releasing device may be used.

The throw of the switch point is accomplished by the depression of the proper trigger 5 or 6, because its depression carries downward from normal position its connected roller 9 or 10, the normal position 100 of such roller being depicted in full lines in Fig. 4 and in Fig. 7 and its depressed position being depicted in Fig. 2 and in dotted lines in Fig. 4. It will be observed that the roller 9 or 10 has a flange 11 adapted to run on the outside of the rail instead of on the inside, like the flange 12 of the car wheels 13. The said flanges 11 are adapted to impinge against and to depress the plungers 14 and 15, adapted to move in sockets in 110 plates 16, which plungers 14 and 15 are connected together by ball-cranks 17 and rod.
18 and to the switch point 1 by rod 19 and stud 20, one of the bell-cranks 17 being tight at 21 on the said rod 19. The said stud 20 projects upwardly through a hole or slot in the rail the upper end of the said stud 20 being socketed in a hole in the underneath side of switch point 1, whereby the said switch point is moved to the right or the left by the rocking of the stud 20 (as indicated in Fig. 5), the said rocking of the stud 20 being caused by the rocking of the rod 19, which in turn is caused by the movement of bell-crank 17 fast thereon at 21. The said rod 19 rocks whether either trigger 5 or trigger 6 has been depressed so as to cause its respective roller 9 or 10 to depress its respective plunger 14 or 15.

Springs 22 tend to return triggers 5 and 6 to normal position as soon as the stop 7 on either has been disengaged from the floor 8. If the motorman forgets to disengage the notch 7 from the floor 8 so as to permit this return, spring 23 accommodates sufficient play in the slot 24 in bracket 25, in which the rear end of each lever 26 is pivoted, to allow the respective roller or wheel 9 or 10 to ride without undue pressure. By trunnions 27 the rollers or wheels 9 and 10 are revolvably connected to the levers 26 and borne thereby.

Having thus described this invention, I hereby reserve the benefit of all changes in form, arrangement, order, or use of parts, as it is evident that many minor changes may be made therein without departing from the spirit of this invention.

I claim:

1. The combination of a switch point, means for moving the same in either direction including a member with its upper end let into said switch point, depressible means connected to and adapted to actuate the said member, the said depressible means being located on the side of the rail opposite the side on which the flange of the car wheel runs and comprising plungers slidably positioned in place, a roller or wheel adapted to depress the said plungers, a movable member bearing the said roller or wheel, and a trigger for moving and holding the said roller or wheel into the line of engagement with the said depressible means and being adapted, also, to release the same, said trigger being adapted for automatic engagement with retaining means as it is manually actuated.

2. The combination of a switch point, means for moving the same in either direction including a stud with its upper end socketed into said switch point, depressible means adapted to actuate the said stud, the said depressible means being located on the side of the rail opposite the side on which the flange of the car wheel runs and comprising plungers slidably positioned in place, a roller or wheel adapted to depress the said plungers, a movable member bearing the said roller or wheel, a trigger for moving the said roller or wheel into and holding the same in the line of engagement with the said plungers and being adapted, also, to release the same, and a duplication of the said roller or wheel, movable member, and trigger for throwing the said switch point in the opposite direction, said trigger being adapted for automatic engagement with retaining means as they are manually actuated.

3. The combination of a railway track, of a vertically movable plunger disposed adjacent each of the rails of the track, said plunger being movable in a straight line downwardly, bell cranks to which the lower ends of said plunger are connected, a rod connecting said bell crank in such manner that when one of the plungers is elevated the other is lowered and vice versa, an oscillatory rod to which one of the bell cranks is secured, a switch point and a member carried by the rod and engaging the switch point for shifting the same.

4. The combination with a railway track of a vertically movable plunger disposed adjacent each of the rails thereof and movable in a straight line downwardly, a longitudinally extending rod lying substantially parallel with one of the rails, a bell crank lever connected to said rod, comprising a substantially horizontal arm, to which one of said plungers is pivotally connected at its lower end and a vertical arm, a transverse rod connected pivotally to said vertical arm of the bell crank lever, a second bell crank lever mounted adjacent the other of said rails, and comprising a downwardly extending arm to which the last named rod is pivotally connected, the other arm of said bell crank lever being pivotally connected to the other of said vertical plungers, a switch point and a member carried by the first named rod and engaging said switch point in such manner that rocking of said rod serves to actuate said switch point in one direction or the other.

In testimony whereof I hereunto affix my signature.

JOHN P. ABERNATHY.