

UNITED STATES PATENT OFFICE.

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SWITCH-OPERATING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 747,885, dated December 22, 1903.

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To all whom it may concern:

Be it known that I, OLIVER D. HUNT, a citizen of the United States of America, residing at Columbus, in the county of Franklin and State of Ohio, have invented certain new and useful Improvements in Switch-Operating Mechanism, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to improvements in mechanism for operating switch-points from a moving car; and its object is to provide simple, cheap, and efficient means for this purpose, which means are located entirely be-
15 neath the surface of the roadway where vehicles can in no way break or dislocate the parts.

To this end the invention consists in providing a guide-slot in the road-bed to receive
20 any suitable bar operating an arm on the car and beneath this slot locating a longitudinal rock-shaft provided with upwardly-extending arms having ends provided with inclines to project across the slot and rock the shaft
25 when engaged by the operating-bar, the shaft being suitably connected to the switch-point to operate the same.

The invention also consists in providing means whereby the parts will not be broken
30 if by accident the shaft is prevented from turning when the switch-point is thrown independently thereof, and it further consists in the particular arrangement and combination of parts, all as hereinafter more fully described, reference being had to the accompanying drawings, in which—

Figure 1 is a plan view of the road-bed, showing the rails, switch-point, slot, and the operating mechanism for the point in dotted
40 lines. Fig. 2 is a longitudinal section thereof on the line 2 2 of Fig. 1. Fig. 3 is a cross-section of one of the casings for the rock-arms, and Fig. 4 a section on the line 4 4 of Fig. 1.

As shown in the drawings, A is the rail of
45 the main track, B the branch rail or switch, and C the switch-point.

D is a plate or casting located at any convenient point in the road-bed and having a guide-slot D', extending longitudinally of the
50 track to receive and guide any suitable arm or bar carried by each car, and extending

longitudinally beneath this slot is a rock-shaft E, journaled in bearings in casings F, secured to the under side of the plate D. These casings are made in halves, bolted to-
55 gether, and within each casing secured to the rock-shaft is a rock-arm G, having a laterally and forwardly extending upper end G', formed with a contact-face G² at one side, which face is inclined or is slanting in the direction of
60 the travel of the contacting arm on the car, so that when such an operating-arm is projected into the slot it will engage the inclined face and forcing the arm out of its path rock
65 the shaft. The laterally-extending end G' of one of the arms is adapted to be projected across the slot from one side, while that of the other arm is adapted to be projected across
70 from the opposite side of the slot, and the arms are so secured to the rock-shaft relative to each other that when one is projected across
75 the slot the other will be at one side thereof and out of operative position. Thus the engagement and operation of the arm projecting across the slot throws the other arm into
operative position. These rock-arms are guided and their movement limited by said casings.

The rock-shaft is extended along within the road-bed through any desired number of
80 suitable bearings E' to a point opposite the switch-point, where a casing H having a bearing for the shaft is provided, and on the end of said shaft within the casing is secured a
85 rock-arm I, to the upper end of which the connecting-rod J is secured by the wrist-pin J', said pin extending through a slot H' in the side of the casing, with its head engaging
90 the outer surface of the casing to guide the upper end of the arm I and strengthen the same. The opposite end of said connecting-rod is pivotally attached to the switch-point, and intermediate its ends the rod is divided
95 and the adjacent ends connected by a cylinder K, secured to one of the ends and a piston-head K' to the opposing end within the cylinder, springs K² being interposed between the heads of the cylinder and the sides of the
100 piston-head to normally hold the head from moving in the cylinder. The throw of the arm I is greater than the throw of the switch-point, so that when said arm is thrown by

the rock-shaft the spring at one side of the piston-head K' will be compressed to force the switch-point into contact with the rail. These springs will also yield should the operating mechanism in any way be prevented from operating and allow the switch-point to throw sufficiently to allow the wheel of a car coming down the track to pass, and will yield, should the switch-point be clogged, when the device is operated by the operating-arm on a car going up. When the parts are in position shown in the drawings, if the operating-arm on a car moving up the track toward the switch is thrown down it will enter the slot and passing the first rocker-arm will engage the incline of the second and rock the shaft, thus throwing the switch-point from the rail B over to the rail A, and the car will be directed onto the track B. This movement of the rock-shaft also throws the first rock-arm into operative position, so that the operating-arm on the next car going the same direction is lowered, it will engaged the first rock-arm and throw the switch-point from rail A to rail B.

The switch-point may be thrown by a pinch-bar or by a car-wheel and the rock-arms will always be in an operative position, and as there are no arms or parts projecting above the road-bed a very practical construction is secured, which is compact and not liable to get out of order.

Having thus fully described my invention, what I claim is—

1. The combination, with a switch-point, of a rock-shaft, means connecting said shaft and switch-point for throwing the point when the shaft is turned, and rock-arms on said shaft adapted to be projected, one at a time, across the path of operating means carried by the car for engaging said arms and rocking the shaft.

2. The combination, with a switch-point, of a rock-shaft, means connecting said shaft and switch-point for throwing the point when the shaft is turned, rock-arms on said shaft adapted to project into the path of an arm carried by the car for operating the rock-arms and so arranged that the engaging and moving in one direction of one arm out of the path by the operating-arm moves the other arm into the path.

3. The combination, with a switch-point, of a rock-shaft, means connecting said shaft and switch-point for operating the point when the shaft is turned, and rock-arms on said shaft at a distance apart and having slanting sides adapted to be engaged by an operating-arm on the car to move the rock-arm and turn the shaft.

4. The combination, with a switch-point, of a rock-shaft, means connecting said shaft and the switch-point for operating the point when the shaft is turned, and rock-arms on said shaft adapted to be engaged by an operating-

arm on the car, each of said rock-arms having a slanting side inclined in the direction of the travel of the operating-arm and each adapted to be moved into and out of the path of the arm in a direction opposite to that of the other rock-arm.

5. The combination, with a switch-point, of a rock-shaft, means connecting said shaft and the switch-point to actuate said point when the shaft is rocked, and rock-arms on said shaft having upper ends formed with slanting faces adapted to be engaged by an operating-arm on the car, the face on each arm being inclined in the direction of the travel of said operating-arm and each inclined outwardly in a direction opposite to that of the other.

6. The combination, with a switch-point, of a rock-shaft, means connecting the point and shaft for transmitting motion from one to the other, a guide-slot for an operating-arm carried by the car, and rock-arms on the rock-shaft, each adapted to be projected across the slot from the side thereof opposite to that of the other arm and each provided with a slanting face inclined in the direction of the travel of said operating-arm and adapted to be contacted by said arm to move its rock-arm from across the slot and to project the other rock-arm across the same.

7. The combination, with a switch-point, of a rock-shaft, a rock-arm on said shaft opposite the switch-point, a connecting-rod connecting said arm and switch-point, a guide-slot extending longitudinally above the rock-shaft to receive and guide an operating-arm on the car, rock-arms on the rock-shaft having upper ends extending laterally and in the direction of the travel of the operating-arm, and also each adapted to project across the guide-slot from a side thereof opposite to that from which the other upper end extends, and casings to inclose the rock-arms and limit the movement thereof.

8. The combination, with a switch-point, of a rock-shaft, a rock-arm on said shaft having a greater throw than the throw of the switch-point, a connecting-rod connecting the rock-arm and switch-point and divided intermediate its ends, a cylinder secured to one of the adjacent ends of the divided rod, a piston-head secured to the other adjacent end within the cylinder, springs within the cylinder at each side of the head, a guide-slot for an operating-arm carried by the car, and rock-arms on the rock-shaft having slanting faces adapted to be projected across the slot.

9. The combination, with a switch-point, of a rock-shaft, extending longitudinally of the track, a rock-arm on said shaft, a casing inclosing said rock-arm and guiding the upper end of said arm, a divided connecting-rod attached to the upper end of said arm at one end and to the switch-point at its opposite end, means for yieldingly connecting the divided ends of said rod, a plate provided with

a guide-slot for an operating-arm carried by the car, castings secured to said plate and having bearings for the rock-shaft, rock-arms on said shaft within the casings, and a laterally
5 and forwardly extending upper end on each of said arms having a contact-face adapted to be engaged by the operating-arms.

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

OLIVER D. HUNT.

Witnesses:

E. R. DUNN,
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