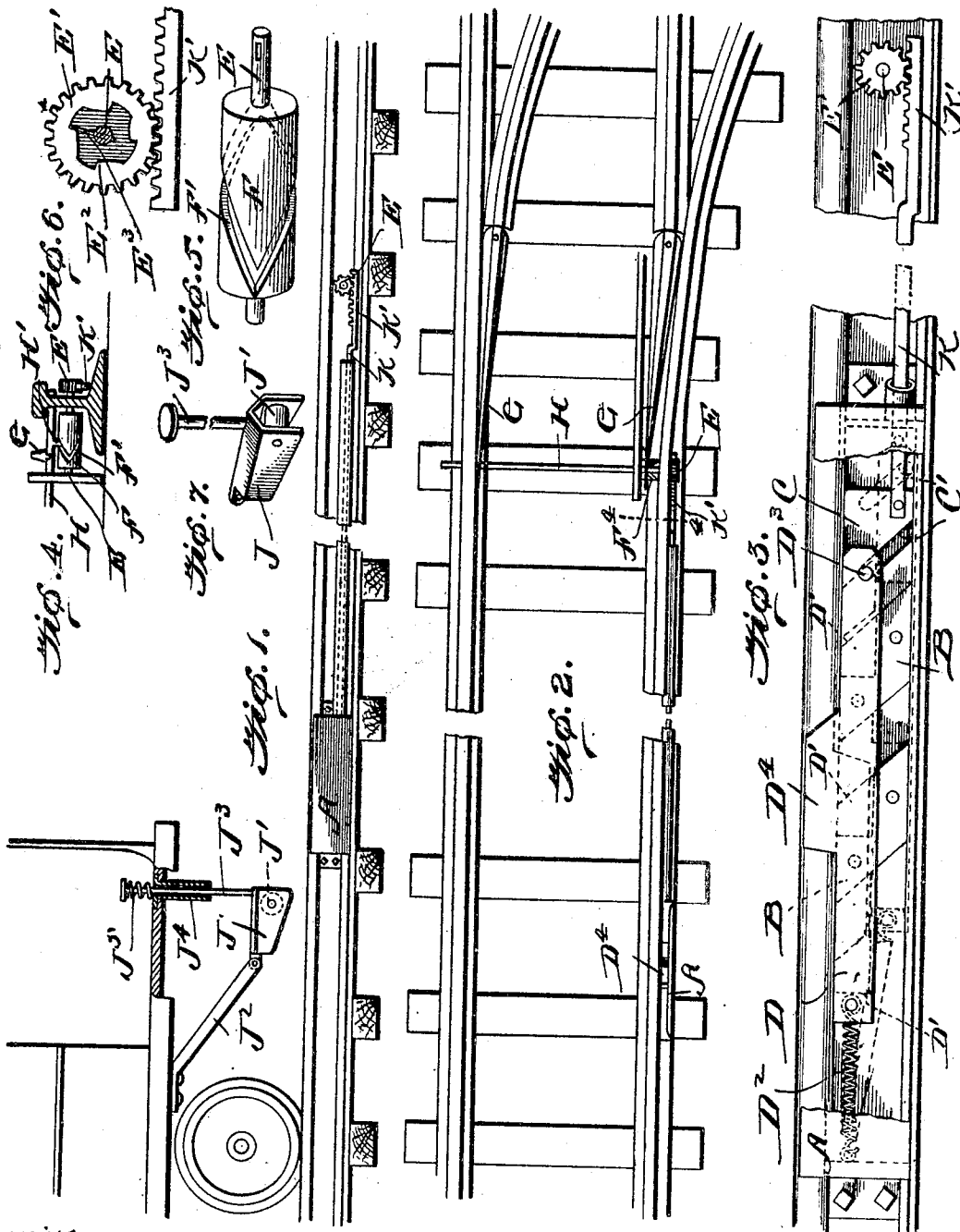


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C. J. G. RICKERSON.
AUTOMATIC SWITCH THROWING DEVICE.
APPLICATION FILED APR. 17, 1905.



Witnesses :

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UNITED STATES PATENT OFFICE.

CLINTON J. G. RICKERSON, OF COLORADO SPRINGS, COLORADO.

AUTOMATIC SWITCH-THROWING DEVICE.

No. 799,940.

Specification of Letters Patent.

Patented Sept. 19, 1905.

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To all whom it may concern:

Be it known that I, CLINTON J. G. RICKERSON, a citizen of the United States, residing at Colorado Springs, in the county of El Paso and the State of Colorado, have invented a new and useful Improvement in Automatic Switch-Throwing Devices, of which the following is a specification.

This invention relates to a device for throwing or setting a switch in advance of a moving car or train without stoppage of the car. While this device is especially adapted for use on street-railroads and with electric cars, it can of course be applied, without essentially changing the invention, to road-engines and motors of various kinds.

The invention consists of the novel features of construction and combination of parts hereinafter described, pointed out in the claims, and shown in the accompanying drawings, in which—

Figure 1 is a side elevation of the various parts of my device in position for use. Fig. 2 is a plan view of a track, partly broken out, showing the switch-throwing apparatus. Fig. 3 is a detail side elevation, partly broken away, showing the means for actuating the switching device as carried by the track-rail. Fig. 4 is a section on the line 4 4 of Fig. 2. Fig. 5 is a detail perspective view of a spiral-cut drum. Fig. 6 is a detail side view of a ratchet and a portion of a pinion. Fig. 7 is a detail perspective view of the actuating means carried by the car-platform, the rod being broken away intermediate its ends.

This device consists of essentially three parts, a casing carried by the outer side of one of the rails in advance of the switch-containing mechanism adapted to be engaged from the car, a switch-throwing mechanism actuated from the casing, and the device carried by the car to operate the mechanism in the casing, which parts will be described in the order mentioned.

A casing A is carried by the outer side of one of the track-rails a suitable distance in advance of the switch, the outer side of the casing being spaced from the top so that a space is left between the top of the casing and the side, and this top is preferably formed of the overhanging tread-section of the rail. The inner mechanism is arranged between the side and the rail-web. This consists of a plurality of blocks B, downwardly and forwardly inclined on their rear faces—that is, toward the approaching car—and having a horizontal

face and a similar inclined face on their forward side, as shown in dotted lines in Fig. 3. In advance of these blocks, which are fixed, is a slidable block C, having a downwardly and forwardly inclined rear edge and a slot parallel to the said edge, as shown at C'. A coacting slidable plate D is arranged in the casing A between the side and the blocks B, and this plate carries wedge-shaped blocks D', adapted to normally rest on the horizontal faces of the blocks B with the exception of the rearmost block D', which rests in the rear of the blocks B and has one end of a spring D² connected thereto, the opposite end of the spring being connected to the rear end of the casing A. A pin D³ is carried by the plate D and works in the slot C'. A projection D⁴ rises from the plate D and has beveled ends, as shown in Fig. 3. The flat top or upper edge of this projection normally rests substantially flush with the tread of the rail. The plate D has a forward and downward movement, as will hereinafter appear.

The switch-throwing apparatus consists, essentially, of a rotatable rod E, journaled adjacent the switch-point, the said rod E passing loosely through the rail and carrying a loose ratchet-pinion E' at its outer end. This ratchet-pinion is hollowed on its inner face and is provided with interior teeth or projections E². The rod E is slotted, and a pin E³ works loosely in the slot and engages the projections E² of the pinion E. On the inner side of the rail the rod E carries a drum F, which has intersecting spiral grooves F' cut in its face, as shown in Fig. 5. The switch-points G are carried by a sliding bar H, which is above and parallel to the rod E and which has a depending pin H' in engagement with the grooves of the drum.

The device mounted on the car comprises a double-flanged shoe J, having a roller J' between the flanges. The shoe is hinged to a bracket J² and is connected to the lower end of a foot-rod J³, which works in a sleeve J⁴ and is held in elevated position by a coil-spring J⁵. From the front end of the casing A to the switch-point runs a pipe or suitable boxing of any kind, through which runs a bar K. At its rear end the bar K is connected to the block C, and at its forward end it has formed on it a rack K', which engages and actuates the pinion E'.

The operation of the device is as follows: When it is desired to throw the switch, the motorman depresses the rod J³, which forces

down the shoe J, one flange being on the inner side of the rail and the roller J' traveling on the rail. The outer flange of the shoe contacts with and as it rides upon depresses the projection D⁴ of the plate D. This contact at first gives a horizontal movement to the plate D until the blocks D' leave the horizontal faces of the blocks B and move down the inclined faces. The plate D therefore has a forward motion at first in a horizontal plane and then a combined downward and forward motion, and the pin D³ traveling in the slot C' causes the block C to slide forward as the pin moves through the length of the slot C'. Forward movement of the bar K and rack K' rotates the ratchet-pinion E', rod E, and drum F, and the rotation of the drum F with its grooves F' in engagement with the pin H' will slide the bar H and move the switch-point G. The parts will be returned to their normal position—that is, the parts in the casing A and the bar K—through the action of the spring D² as soon as the shoe J has passed over the projection D⁴. It will be obvious, therefore, that the ratchet-pinion E' must be loose on the rod E or the switch would be returned to its normal position before the car reached it. When the rack K' moves forward, it rotates the ratchet-pinion E', and the projections E² engage the pin E³ and the rod E is rotated; but on rearward movement of the rack K' and reverse rotation of the rack and pinion the bar is not rotated as the pin rides or slips over the said projections.

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

1. A device of the kind described comprising a forwardly and downwardly movable plate, a slidable block, a pin carried by the plate, the said block having an inclined slot, the said pin working in the slot, a bar having a rack formed on it, said bar being connected to the block, and switch-throwing means actuated by said rack.

2. A device of the kind described comprising a movable plate arranged adjacent a rail, means carried by a car for moving the plate, a spring adapted to return the plate to its normal position, a switch-throwing device comprising a ratchet-pinion, a movable block hav-

ing an inclined slot, a pin carried by the plate and in engagement with the slot, and a bar having a rack thereon, said rack being in engagement with the pinion.

3. A device of the kind described comprising a movable plate arranged adjacent a rail, an upwardly-extending, beveled projection on the plate, a pivoted, depressible shoe carried by a car and having flanges, one of said flanges overlapping the inner face of a rail and one the outer face, the latter flange being adapted to engage the projection of the plate, and a roller between the flanges adapted to travel on the rail.

4. A device of the kind described comprising a slidable bar supporting switch-points and having a depending pin, a rotatable shaft, a spirally-grooved drum on the shaft, the pin being in engagement with the drum, a ratchet-pinion loosely mounted on the rod, a rack-bar adapted to engage the ratchet-pinion, inner teeth on the ratchet-pinion, and a pin loosely carried by the rod and in engagement with the inner teeth of the ratchet-pinion and adapted to rotate the rod when the ratchet-pinion is rotated in one direction and the slip on the teeth when the ratchet-pinion is rotated in the opposite direction, and means for reciprocating the rack-bar.

5. A device of the kind described comprising a casing adjacent a rail, beveled blocks carried by the rail-web within the casing, a plate in the casing adapted to forward and downward movement, coacting blocks carried by the plate, a spring connected to the plate and to the casing, an upwardly-extending projection carried by the plate, a pin carried by the plate, a movable block in the casing having an inclined slot, the pin of the plate working in said slot, a shoe carried by a car adapted to contact with the projection of the plate, a bar carried by the movable slotted block, a rack formed on the bar, a ratchet-pinion in engagement with the rack, and switch-throwing means actuated by rotation of the ratchet-pinion in one direction.

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Witnesses:

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