

984,423.

Fig.1.

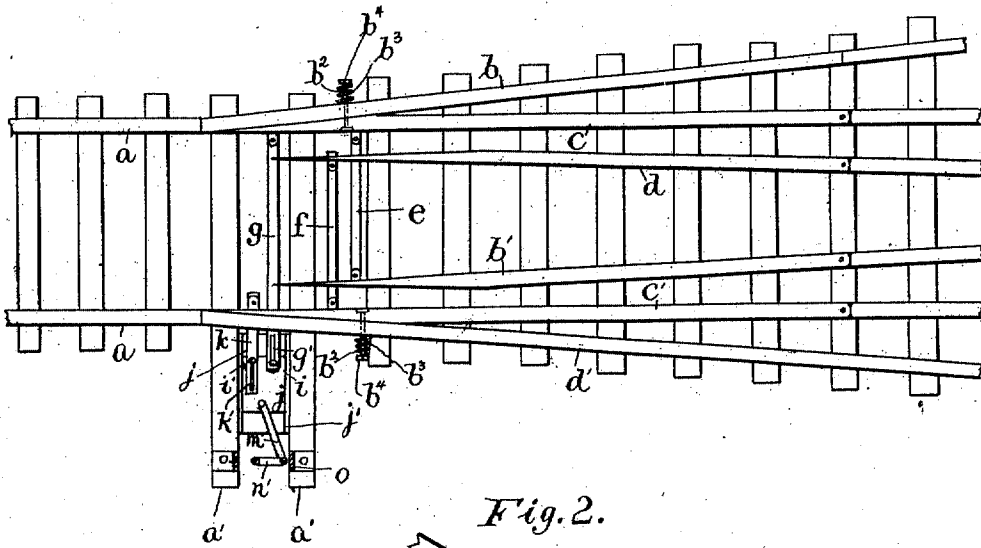
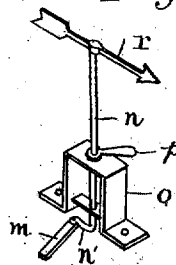


Fig. 2.



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UNITED STATES PATENT OFFICE.

ADESCAR FOURNIER, OF BRUNSWICK, MAINE.

THREE-THROW SWITCH.

984,423.

Specification of Letters Patent.

Patented Feb. 14, 1911.

Application filed May 2, 1910. Serial No. 559,007.

To all whom it may concern:

Be it known that I, ADESCAR FOURNIER, a citizen of the United States of America, and a resident of Brunswick, in the county of Cumberland, State of Maine, have invented certain new and useful Improvements in Three-Throw Switches, of which the following is a specification.

My invention relates to what is known as a three-throw switch for railway tracks. These switches are used where two side tracks diverge from the main track at a single point and the object of my invention is to provide means by which such a switch may be operated by a single switch stand and in which the switch will always tend to come to the central or main line position unless locked or secured in place.

I illustrate my invention by means of the accompanying drawing in which is shown a simple form of my invention, although it is to be understood that various modifications may be made without departing from the spirit of the invention.

In the drawing, Figure 1 represents a plan of a switch constructed according to my invention, and Fig. 2 is a detail of the switch stand.

In the drawing a, a , represent the rails of the main track and abutting onto the ends of the rails a, a , are two permanently fixed rails b and b' diverging at the switching point and forming the outer rails of the two side tracks. The continuation of the main line is formed by two exterior switching rails c and c' pivoted at one end and pointed or split at the other end and fitting closely against the rails b and b' . These rails form, when both are in a closed position, a continuation of the main line.

The inner rails of the two side tracks are formed by the interior switch rails d and d' which are located inside of the rails c and c' .

These rails d and d' are pivoted at one end and the opposite end of each rail is split or pointed in such a manner as to fit closely against the inside of one of the rails c and c' when the latter are in operative position. The free end of one of the interior rails is connected with the free end of one of the exterior rails. As shown, the rail c is connected with the rail b' by a tie rod e and the rail d is connected with the rail c' by a tie rod so that if one exterior rail is thrown, it will carry with it its interior rail.

Means are provided for holding each of

the exterior rails in spring contact with its adjacent fixed rail and for this purpose as here shown, I pass a bolt b^2 horizontally through the exterior rail and its adjacent fixed rail. The outer end of the bolt has a nut or stop b^4 and the bolt is surrounded by a spiral spring b^3 . The result of this construction is to allow the flange of the car wheels to pass between the two rails when moving in one direction and to keep the two exterior rails normally in contact with the fixed rails and the main line always open unless the switch is thrown on one side or the other and positively held there.

Means are provided for throwing the points of both the exterior rails in opposite directions to open the switches. As here shown, I make use of a connecting bar g pivoted to the rail c near its point and extending laterally between the ties $a' a'$ across the track and beneath the point of the rail c' and the rail d' . The bar g has a longitudinal slot g' near its outer end for the purpose hereinafter set forth. A similar but shorter connecting rod k is pivoted to the rail c' and extends under the rails parallel with the bar g . The bar g has near its end a longitudinal slot g' and the bar k has a like slot k' .

For the purpose of throwing the points of the pivoted rails c and c' , I provide a guide j having two pins i and i' projecting through the slots g' and k' so that a longitudinal motion of the guide j will throw the rods g and k one way or the other. The guide j is slidably supported by a base plate j' and it is actuated by a link m pivoted to a rocker arm n' on the lower end of a vertical switch rod n journaled in the frame o . The pins i and i' are so arranged with relation to the slots g' and k' that when the guide is moved outward the pin i , being normally at the outer end of the slot, will draw the bar g outward and so throw the switch $c b'$. On the other hand when the guide moves inward the pin i will move in the slot g' but the pin i' being at the inner end of the slot k' , will throw the rail c' and the connecting rail d . The switch rod n is turned in any well known manner as by a handle lever and suitable means of locking the switch (not shown) are provided.

The switch is provided with a target which will indicate which of the two switches is open and when the main line is open. As here shown, I place on the top

of the switch rod an indicating device as the arrow *r* so connected that when one of the switches is open, it will point at right angles to the track on the same side as the open switch and when the other switch is open, it will point in the opposite direction. When the main line is open the indicator will point parallel with the main track and will not be seen. It will be seen that the springs *b*³ always tend to close the main line switch. The springs throw the switch points in one direction while the switch rod throws them in the opposite and by thus combining the force of the springs and the positive motion of the switch rod, I am enabled to secure the four motions by two motions of the switch rod while the intermediate safety position is secured independently of any manipulation of the switch rod.

The device as I construct it enables a single switch stand to control a three-throw switch at a single point by combining the ordinary positive methods of throwing switches with the spring connected rails.

I claim;—

1. A three-throw switch comprising outer divergent fixed rails, intermediate pivoted points forming a main line when in normal position, means for resiliently maintaining said intermediate points in normal position of contact with the divergent rails, inner pivoted points coacting with opposing divergent rails to form side lines, said inner pivoted points being relatively independent and being maintained beyond the range of throw of said intermediate points, and connections between each inner point and the opposing intermediate point whereby the inner points are resiliently maintained open under normal conditions.

2. A three-throw switch comprising divergent rails, main line switch points normally resiliently held in operative position and inner switch points connected to said main line switch points whereby maintenance of the main line open positively holds the side

lines closed, said inner pivoted points being relatively independent and being maintained beyond the range of throw of said intermediate points.

3. A three-throw switch comprising divergent rails, main line switch points normally resiliently held in operative position, and inner switch points connected to the opposing main line switch points whereby movement of an inner switch point into operative position and contact with its adjacent main line switch point positively opens the other main line switch point, said inner pivoted points being relatively independent and being maintained beyond the range of throw of said intermediate points.

4. In a three-throw railway switch, the combination of a pair of fixed rails diverging at the throwing point, a pair of exterior split switch rails each pivoted at one end and fitting said fixed rails at the point of divergence to form the main line track, a pair of interior switch rails, each pivoted at one end and formed to fit against said exterior rails to form with the permanent rails the two side switches, tie rods connecting the points of each exterior switch rail with the opposite interior switch rail, a spring for holding each exterior switch rail in spring contact with the adjacent fixed rail, a longitudinally slotted connecting bar secured to the point of each of the exterior switch rails, a guide having a pin extending through the slot in each of said bars, said pins being normally at opposite ends of said slots whereby opposite movements of the plate will throw opposite switch rails and means connected with the switch stand for throwing the guide plate in opposite directions.

In witness whereof I have hereunto set my hand this 22d day of April, 1910.

ADESCAR FOURNIER.

Witnesses:

S. W. BATES,

PERCY M. ANDREWS.