J. C. PRESTON.

AUTOMATIC RAILWAY SWITCH.

APPLICATION FILED APR. 11, 1910.

990,388.

Patented Apr. 25, 1911.

2 SHEETS—SHEET 1.

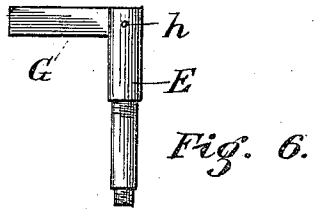


Fig. 6.

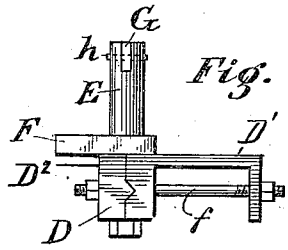


Fig. 5.

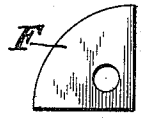


Fig. 4.

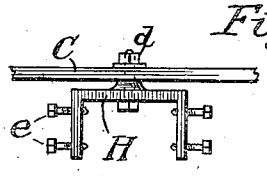


Fig. 3.

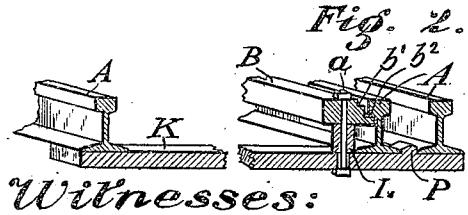


Fig. 2.

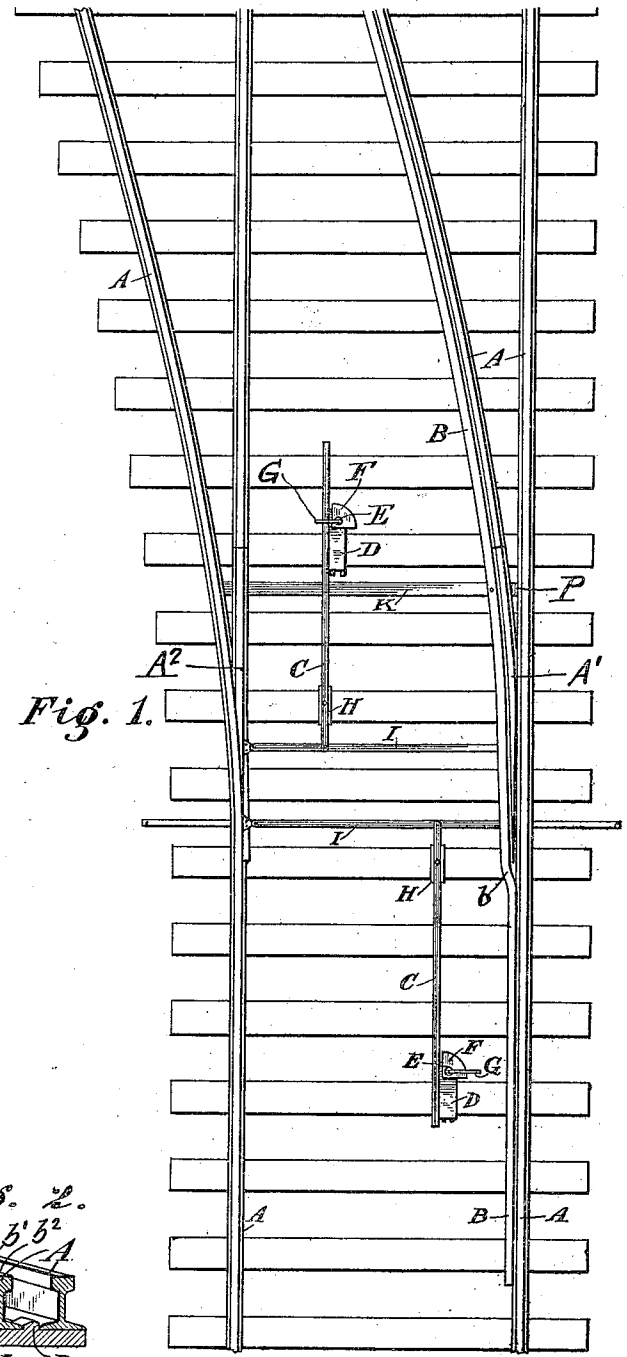


Fig. 1.

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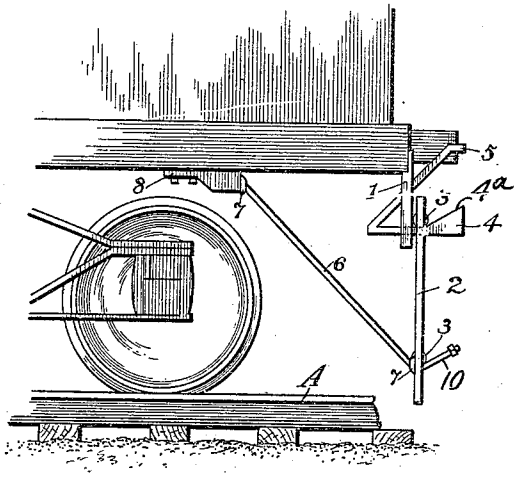


Fig. 10.

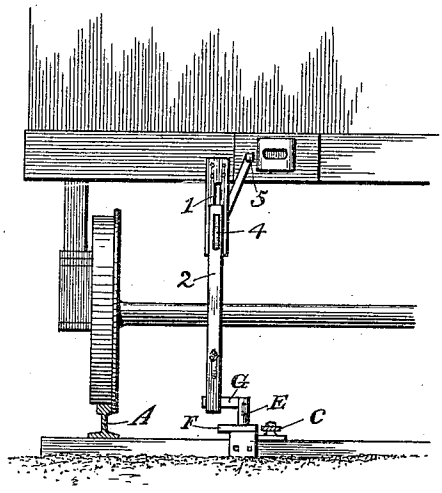


Fig. 11.

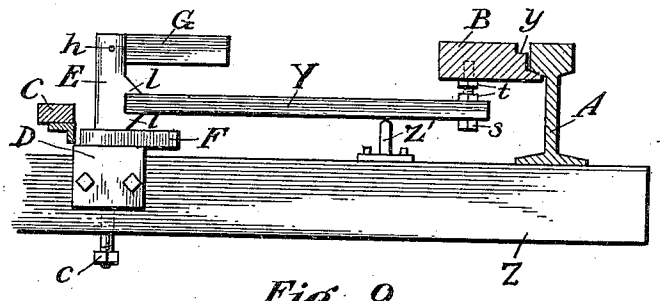


Fig. 9.

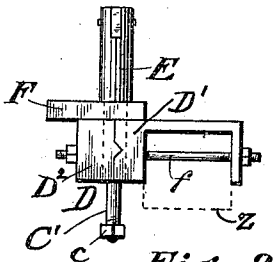


Fig. 8.

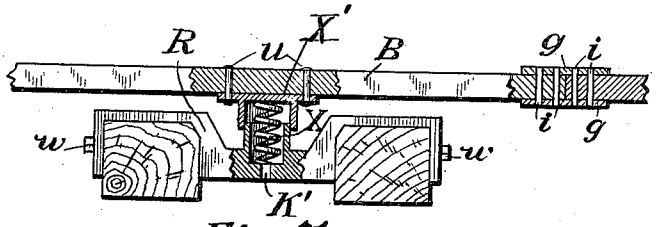


Fig. 7.

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AUTOMATIC RAILWAY-SWITCH.

990,388. Specification of Letters Patent. Patented Apr. 25, 1911.

Application filed April 11, 1910. Serial No. 554,869.

To all whom it may concern:

Be it known that I, JAMES CLARK PRESTON, a citizen of the United States, residing in McAlester, in the county of Pittsburg and State of Oklahoma, have invented certain new and useful Improvements in Automatic Railway-Switches, of which the following is a specification.

My invention relates to that class of railway switches which are operated from the car, locomotive, or train either automatically by a device carried thereby, or by a tool in the hands of an attendant on the car, and the object of my invention is to so improve switches of this class that they may be automatically locked, while not being operated, automatically unlocked to permit of their operation, and which shall be simple in construction and reliable in operation.

In the accompanying drawings, Figure 1 is a top plan view of a railway switch embodying my improvements. Fig. 2 is a detail view in section of part of the switch mechanism. Fig. 3 is a detail view of the pivotal connection between the shifting lever and the road bed. Fig. 4 is a detail view of a cam forming part of the switch shifting mechanism. Fig. 5 is a detail view showing the pivotal connection between the cam, its operating devices and the road bed. Fig. 6 is a further detail of this mechanism. Fig. 7 is a detail view of the locking rail showing how it is yieldingly supported. Figs. 8 and 9 show how the mechanism on the road bed for shifting the switch rail may be raised and lowered. Figs. 10 and 11 illustrate the devices carried by a car for operating the switch mechanism.

The rails A of the main track and of the switch or siding are of the usual construction. The shifting switch rail or switch point A′ is arranged in the usual way and by the side of this switch rail and extending beyond it at each end is a locking rail B which in advance of the extremity of the switch point is bent at *b* and then extends parallel with and close to the adjacent rail of the main track. The outer side of the rail B is provided with a groove at *b′* and with a flange at b^2. The groove *b′* is adapted to receive the flange of the car-wheel, and the flange b^2 is adapted to extend under the top flange of the track rail and limit the upward movement of the locking rail. The rail B is connected to a cross-bar K, as shown, and preferably between the locking bar and cross-bar is interposed a block L for the purpose of holding the bar B at the desired elevation above the cross-bar. A bolt *a* is employed for attaching the rail B to the cross-bar K. The bar K carries a locking lug P. This is preferably wedge-shaped, as shown, and is adapted to enter between the switch rail A′ and the adjacent rail A of the main track so as to lock the switch rail or switch point in the manner clearly shown in the drawings. The arrangement is such, as will be presently explained, that the locking rail B and the cross-bar K may be depressed so as to withdraw the lug P from its position between the rails and permit the shifting of the switch point.

As shown in Fig. 7, the rail B is supported by a spring X arranged in housings X′, which may be in turn supported by a bridge R connected to the cross-ties by bolts *w*, as shown. The rail B may be made in sections, as shown, connected by plates *g* and rivets or bolts *i*. The switch points are connected by two bars I each of which is in turn pivotally connected with a shifting lever C pivoted, in the manner shown in Fig. 3, by a bolt *d* to a yoke H which may be attached to a cross-tie by bolts or set screws *e*. Each shifting lever C extends past a cam F attached to a vertical post E which carries at its upper end a laterally projecting horizontally arranged arm G which is attached to the post by a pin *h*. The post extends through a sectional block D, one of which sections is provided with a yoke D′ adapted to be secured to a cross-tie Z by means of bolts *f*. One section D^2 of the block may be removed and the post E and cam F withdrawn without detaching the other section D′ from the cross-tie. The arrangement is such that when a car approaches the switch from the main track and its weight rests on the locking rail B, the latter will be depressed and the locking lug P will thus be withdrawn from between the adjacent rails, then as the car proceeds a suitable device thereon will engage the arm G, turn the cam F and cause the switch points or switch point to be shifted. As long as the car or train is on the rail B, the locking lug P will be depressed, but as soon as the car or train leaves the locking rail the latter will rise and with it the cross-bar K, and the lug P will enter between the adjacent rails and cause the switch point to be shifted back to its original position. The locking rail B is

made longer than the distance between the car trucks on the same car or between the last truck on one car and the following truck on the next car. It will thus be seen that the shifting of the switch point back to its original position to open the main line cannot occur until after the car or train has left that portion of the track containing the bar B, and that as soon as the car or train has left this portion of the track, the switch point or switch points are returned automatically to their original position to open the main line.

It is desirable, especially when my improvements are used on street railways, to so arrange the operating devices of the shifting lever that they may be raised and lowered. In Figs. 8 and 9 I have shown how this may be done. In this case the post E is prolonged at e' below the bottom of the sectional block D and is provided on its lower end with a nut e which limits the upward movement of the post. As shown in Fig. 9 the locking rail B is connected by a bolt provided with nuts s, t to a lever Y which is mounted to move on a fulcrum Z'. One end of the lever extends between lugs l on the post E above the cam F. When the locking rail B is depressed by a car upon it, the lever Y is operated to lift the post E and the arm G to a proper level to be engaged by the operating device on the car, but when the rail B rises, the post E with the arm G are lowered out of the way. The arm G may be operated by a depending bar or other device attached to the car and properly positioned, or it may be operated by a rod or other implement or tool in the hands of an attendant on the car. In Figs. 10 and 11 I have shown devices which may be used for this purpose, and which are so constructed that when two cars are coupled, the operating rod between such two cars will be automatically raised out of operative position.

As shown in the drawings 2 indicates a bar arranged vertically and slotted at opposite ends. At the upper end of each of the upper and lower slots is a roller 3. Through the lower slot extends the upwardly inclined end 10 of a brace 6, provided with collars at 7 and attached at its upper end to a casting 8. Through the upper slot of the bar 2 extends a sliding lifting device 4 which has an inclined upper edge 4^a adapted to engage the upper roller 3. This device is also provided at its inner end with an upwardly extending arm 5 which is adapted to enter between the couplers of two cars, as clearly shown in Fig. 11. The device 4 extends through a slot in a hanger 1 attached to the car. If the car shown in Fig. 10 is moving from left to right, the lower end of the bar 2, when it engages the arm G, will turn it and cause the cam F to operate the shifting lever C. If the car is moving in the opposite direction and the bar 2 comes in contact with the arm G, the bar 2 will rise, slide along the extension 10, and not operate the arm G. When two cars come together, the coupler on one car will strike the arm 5, move the device 4 through the slot in the hanger I, cause the inclined edge 4^a to act upon the upper roller 3 and thus raise the bar 2 above the plane of the arm G, so that when two or more cars are in a train only the operating devices on one car will be in service, the others being automatically thrown out of operation and therefore not interfering with the action performed by the first car.

I claim as my invention:

1. In a railway switch, the combination with the track rails and switch points, of a locking rail arranged by the side of the switch rail and extending beyond opposite ends of the switch point, means for yieldingly supporting said locking rail, a locking lug adapted to enter between the switch point or movable switch rail section and a rail of the main track and means connecting said locking lug with said locking rail.

2. The combination with the track rails and switch rails, of a locking rail arranged parallel with the switch rail, a cross bar connected with the locking rail and a wedge lug carried by the cross-bar adapted to enter between a rail of the main track and the switch point or movable switch rail section.

3. The combination with the track rails and switch rails, of a locking rail arranged by the side of the switch rail, means for yieldingly supporting the locking rail, a lug adapted to enter between the switch point or movable switch rail section and a rail of the main track, means connecting said lug with the locking rail, a switch shifting lever, a cam adapted to engage it, and means for turning the cam to shift the switch.

4. The combination with the track rails and switch rails, of a locking rail arranged by the side of the switch rail and extending beyond the opposite ends of the movable switch rail section or switch point, means for yieldingly supporting the locking rail, a wedge-shaped lug adapted to enter between the switch point and a rail of the main track, means connecting said wedge-shaped lug with the locking rail, a switch shifting lever, a cam adapted to engage it, a post connected with the cam, and a laterally projecting arm carried by the post.

5. In a railway track switch, the combination of a cam, an upright post to which it is connected, a laterally projecting arm carried by the post, a sectional block to which the post is connected, means for connecting one section of the block to the road bed and devices for detachably connecting the

other section of the block to the first mentioned section whereby the post with the cam may be removed from the road bed without detaching the first mentioned section of the block therefrom.

6. The combination of the main rails and the switch rails, the locking rail extending along the side of a switch rail, means for yieldingly supporting the locking rail, a lug adapted to enter between the switch point and the rail of the main track, means connecting said lug with the locking rail, a vertically arranged post carrying a laterally projecting arm adapted to engage an operating device on a car, means connected with the post for operating the switch, a lever engaging the post and adapted to lift it, and connections between this lever and the locking rail whereby when the latter is depressed said lever is operated and the post is raised.

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."