(No Model.)

F. RICE.

AUTOMATIC CAR SWITCH.

No. 577,563. Patented Feb. 23, 1897.

Fig. 5.

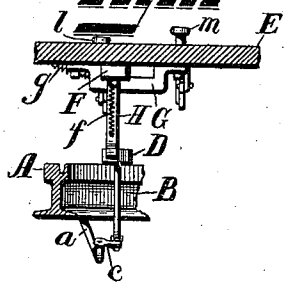


Fig. 1.

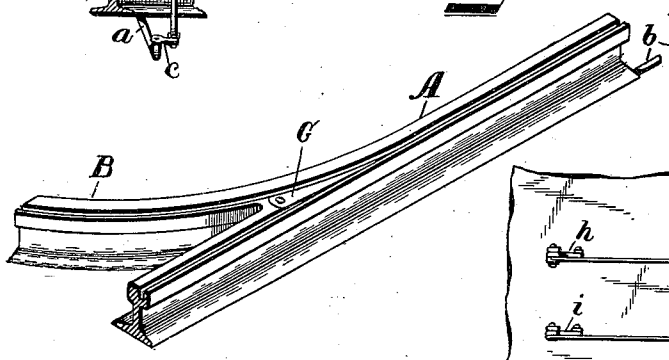


Fig. 4.

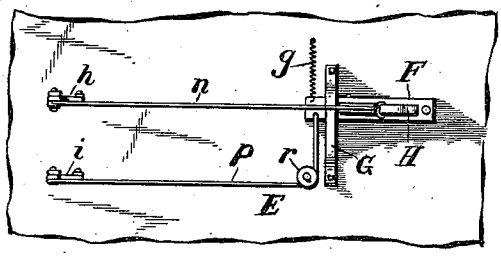


Fig. 3.

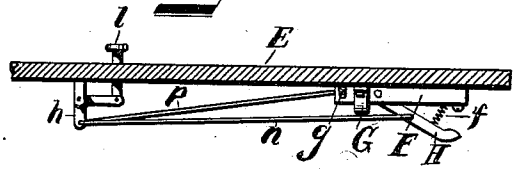
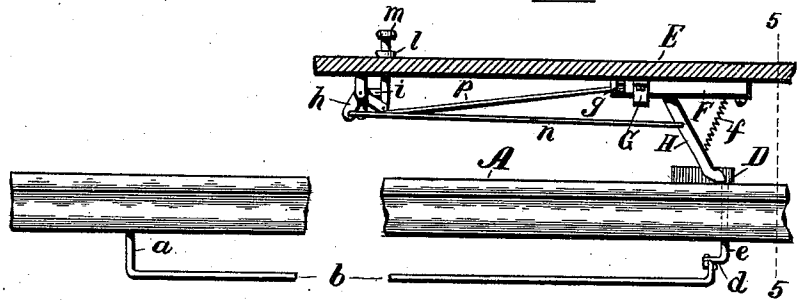


Fig. 2.



Witnesses.

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FRANKLIN RICE, OF DAYTON, OHIO.

AUTOMATIC CAR-SWITCH.

SPECIFICATION forming part of Letters Patent No. 577,563, dated February 23, 1897.

Application filed December 9, 1896. Serial No. 615,045. (No model.)

To all whom it may concern:

Be it known that I, FRANKLIN RICE, a citizen of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Automatic Car-Switches, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to improvements in devices for automatic shifting of railway-switches by means of a lever operated from the passing car; and it consists of a certain novel construction and arrangement of parts to be hereinafter more particularly pointed out and claimed.

My invention is especially adapted for use on street-car tracks, and its purpose is to enable the operator on the car to shift the switch while still a considerable distance from the switch-track, and it is particularly intended for use in connection with rapidly-moving electric street-cars, whereby there may be no delay or stoppage at the switch and no liability of the car running by the switch before it is shifted. In devices heretofore in use for this purpose it has been customary to provide vertically-movable plungers or platforms, which are operated by levers on the car intended to be depressed when the car is directly over the plunger. In this construction, however, inasmuch as the operating-levers on the cars must be depressed at a particular instant when the car is directly over the plungers it is as necessary to slow up or stop the car for this purpose as it is to turn the switch in the ordinary way, and little or no advantage is gained with such devices. It is the purpose of my invention to overcome these objections to the ordinary automatic switch by providing a means for shifting the switch, which can always be operated with accuracy without stopping or slowing up the car, and which will shift the switch while the car is such a distance from the switch-track that the motorman or driver can readily see that the switch has been shifted some moments before the car reaches the switch. This result I accomplish by providing a horizontally-shiftable wedge arranged between the tracks at a suitable distance from the switch-point, the point of the wedge being toward the approaching car, while a lever operated from the car shifts the wedge-shaped piece by contact with either side of same, the wedge being connected with the switch, so that the shifting of the wedge will shift the switch.

In the accompanying drawings, Figure 1 is a perspective view of one of the main rails and switch-rail, showing my switch-shifting device. Fig. 2 is a side elevation of same, showing the switch-operating levers on the car. Fig. 3 is a side elevation of the car-operating levers. Fig. 4 is a bottom plan view of same. Fig. 5 is a vertical cross-section of the parts shown in Fig. 2, taken on lines 5 5.

A is one of the main-track rails, and B the switch-rail connecting therewith.

C is a pivoted switch-bar, the shifting of which opens or closes the switch-track. The rail immediately under this switch-bar is slotted to allow for the passage of the vertical arm *a*, carried by the shaft *b*, which extends back horizontally with the main rail in a suitable trench underneath the rail to a point at a suitable distance from the switch. The extreme outer end of this shaft *b* is connected by connecting-links *c* with one arm *d* of a connecting-rod, the other arm *e* of which passes vertically upward through a suitable passage-way left in the surface of the street between the rails and engages the acute end of a wedge-bar D, which rests on the surface of the street or in a suitable depression left for that purpose. The arm *a* of the shaft *b* being connected with switch-bar C, while the other end of the shaft *b* is thus connected with the wedge D, it is evident that the horizontal shifting of the wedge will cause a similar shifting of the switch from side to side; and it will also be evident that by means of any suitable shifting device on the car arranged to be brought in contact with either side of the wedge that the movement of the switch can be controlled at will and the switch be either opened or closed at will, as desired.

In devices heretofore arranged for the automatic shifting of switches it has been necessary, I believe, to provide two operating devices, one to be pushed down when the wedge is to be moved in one direction and the other to be operated for the other movement of the switch.

It will be seen that with my arrangement only a single wedge-shaped piece is required, which necessarily reduces the expense and simplifies the construction. The operating-wedge can of course be located at any convenient point between or alongside of the track and at any suitable distance from the switch that the motorman can have ample opportunity to observe that the switch has been properly opened or closed before the car reaches the switching-point.

Any convenient arrangement may be employed on the car to contact with the operating-wedge D, but I prefer to use some such construction as is illustrated in Figs. 2 to 5.

E is a portion of the floor of the car, to the under surface of which is pivoted the bar F, so as to have a horizontal movement, the outer end of the bar being held in the stirrup G, secured to the bottom of the car. This bar carries the lever H, pivoted thereon, normally held up by the coiled spring *f*, while the end of the bar F is normally held in the position shown in Fig. 4 by the coiled spring *g*. A pair of bell-crank levers *h* and *i*, operated by the foot-pins *l m*, are connected by the cords *n p*, the one with the lever H and the other with the end of the bar F, the cord *p* first passing around the bearing *r*, so that the depression of the bell-crank lever *i* by the pin *l* will shift the bar F from one end of the stirrup to the other, thus changing the position of the lever H. It will be understood from this that when the motorman wishes to open the switch he will first depress the pin *l* and shift the lever so that it will be in a position, when depressed by the pin *m*, to contact with the right-hand side of the wedge, and when the switch is to be thrown in the other direction the pin *l* is not depressed at all, but only the pim *m*, which will bring the end of the lever H into contact with the left-hand edge of the wedge as the car approaches the switch.

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

1. In a railway-switch, the combination, with the switch-rail, and a wedge, of a rock-shaft, with arms connecting same at opposite ends to said switch-rail and wedge, whereby the shifting of the wedge will turn the switch, substantially as shown and described.

2. In a railway-switch, the combination, with the switch-rail and a wedge, of a rock-shaft, with arms connecting same at opposite ends to switch-rail and wedge, with lever on the car, and means for shifting same from side to side to contact with either side of the wedge, substantially as shown and described.

3. In a railway-switch, the combination, with the switch-rail and a wedge, of a rock-shaft, with an arm at one end connecting same to the switch-rail, and a downwardly-extending arm attached to the wedge, with link connecting said arm to the other end of said rock-shaft, whereby the rotation of the wedge-arm will rock the shaft to shift the switch, substantially as shown and described.

4. In a railway-switch, provided with a switch-rail and wedge and connecting mechanism, a lever pivoted to a horizontally-movable block secured to the car, and means for depressing said lever to contact with said wedge, in connection with mechanism for shifting the lever-block to change the contacting position of said lever, substantially as shown and described.

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Witnesses:
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