

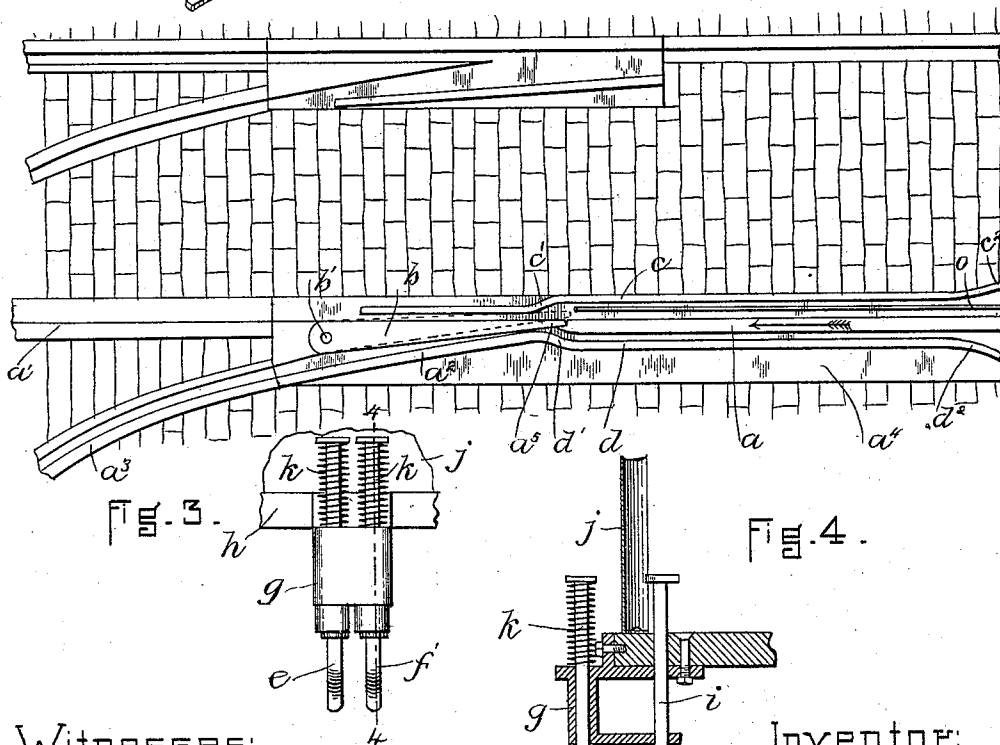
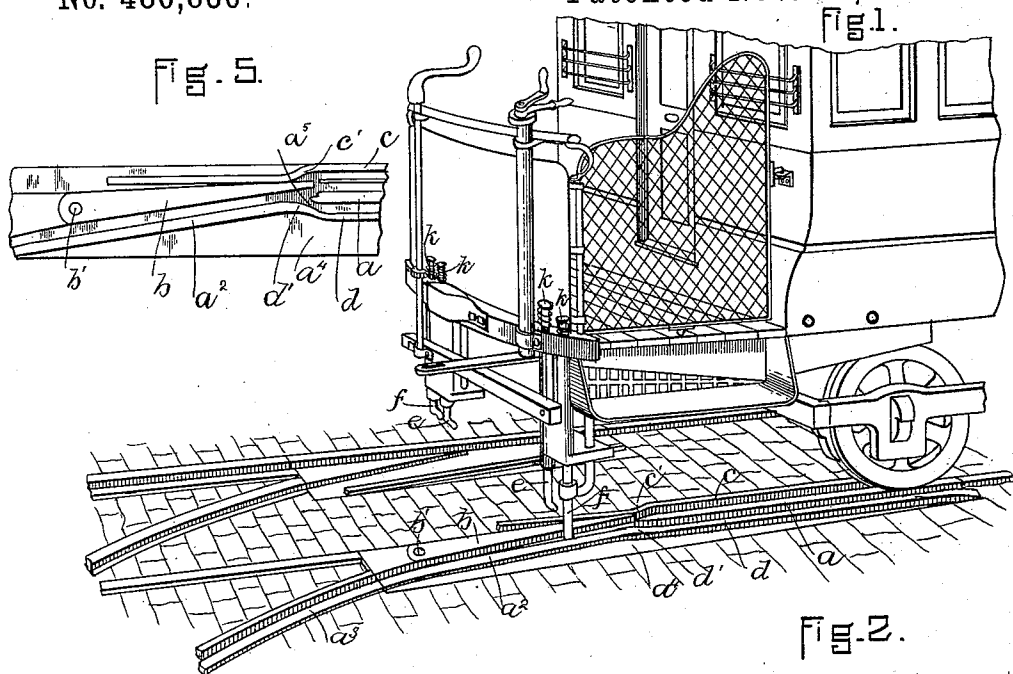
(No Model.)

H. BLANCHARD.

STREET RAILWAY SWITCH AND OPERATING DEVICE.

No. 486,836.

Patented Nov. 22, 1892.



Witnesses:

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UNITED STATES PATENT OFFICE.

HORACE BLANCHARD, OF BOSTON, MASSACHUSETTS.

STREET-RAILWAY SWITCH AND OPERATING DEVICE.

SPECIFICATION forming part of Letters Patent No. 486,836, dated November 22, 1892.

Application filed June 6, 1892. Serial No. 435,663. (No model.)

To all whom it may concern:

Be it known that I, HORACE BLANCHARD, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Street-Railway Switches and Operating Devices, of which the following is a specification.

This invention has for its object to provide means whereby the driver or motor-man of a street-car may operate a switch without leaving the car and while the latter is in motion in such manner as to either make the main track continuous or connect it with a branch track.

To this end the invention consists as a whole in a car provided with two independent switch-operating devices adapted to be depressed by the driver, each consisting of a vertically and axially movable rod having its lower end bent rearwardly and a track including a pivoted switch-point adapted to either make the main track continuous or to connect it with a branch track, and two fixed guides forming grooves between said guides and the opposite sides of the free end of the switch-point and of the end of the main track, one of said guides being adapted to direct the course of one of the switch-operating devices on the car when said device is depressed by the operator, while the other guide is adapted to direct the course of the other switch-operating device, the arrangement being such that one switch-operating device when depressed by the operator and directed by its groove will move the switch-point to connect the main track with the branch, while the other operating device when similarly depressed and guided will move the switch-point into position to make the main track continuous, all of which I will now proceed to describe.

Of the accompanying drawings, forming part of this specification, Figure 1 represents a perspective view of a portion of a street-car and of the track upon which it runs, said view including an embodiment of my invention. Fig. 2 represents a top view of the portion of the track shown in Fig. 1. Fig. 3 represents an end view of a portion of the car-platform, showing the switch-operating devices carried thereby. Fig. 4 represents a section on line 4 4, Fig. 3. Fig. 5 represents a top view of a portion of the track, showing the switch-point

in a different position from that shown in full lines in Fig. 2.

The same letters of reference indicate the same parts in all the figures.

In the drawings, *a* represents a fixed rail, constituting a section of the main track.

b represents a switch-point pivoted to a fixed support at *b'* and adapted when in the position shown in full lines in Fig. 2 to make the section *a* continuous with the ordinary main-track rail *a'*.

*a*² represents a branch-track rail, which is preferably affixed to a bed-plate *a*⁴, said bed-plate also supporting the section *a* and the switch-point *b*. The inner end of the branch rail *a*² is separated from the end of the section *a* by a groove or depression *a*⁵, across which the flange of a car-wheel running on the section *a* is adapted to pass from the section *a* to the branch section *a*². The switch-point *b* is so arranged that when it occupies the position shown in full lines in Fig. 2 its free end extends across the groove or depression *a*⁵, so that one of the edges of the switch-point constitutes a continuation of the main section *a* and prevents the flange of a car-wheel from entering the groove *a*⁵ and passing onto the section *a*. When the switch-point *b* is moved to the position shown in full lines in Fig. 5 and in dotted lines in Fig. 2, it opens the groove or depression *a*⁵, and assumes a position which causes it to deflect the flange of a car-wheel running on the section *a* in the direction indicated by the arrow in Fig. 2, thus causing said wheel to pass through the groove or depression *a*⁵ and run onto the branch *a*².

c and *d* represent fixed guides, forming grooves between said guides and the opposite sides of the section *a* and of the free end of the switch-point *b*. The guide *c*, which is located at the inner side of the section *a* and of the switch-point, is inwardly curved at *c'*, while the guide *d*, which is located at the outer side, is inwardly-curved at *d'*. The guides *c c'* and *d d'* are arranged to direct the course of a switch-operating device carried by a car running on the track in the direction indicated by the arrow in Fig. 2, the guide *c c'* being formed and arranged to cause one of the operating devices on the car to move the switch-point from the position shown in Fig. 5 to the position shown in full lines

in Fig. 2, thus making the main track continuous, while the guide $d d'$ is formed and arranged to cause the operating device to move the switch-point from the position shown in full lines in Fig. 2 to that shown in Fig. 5.

The switch-operating devices on the car consists of two vertically-movable rods $e f$, arranged side by side in a vertical guide-piece g , attached to the platform h of the car, said rods being vertically movable and provided with shoulders $e^2 f^2$, on which rest the sleeved lower ends i' of offset arms i , which pass through the platform at the inner side of the fender j , and are in position to be depressed by the foot of the driver. Each rod is provided with a spring k , whereby it is normally raised after being depressed, and is axially movable in the guide-piece g . The lower end of each rod is bent backwardly, as shown at f' in Fig. 4. The lower end of the rod e is formed to bear against one edge of the guide $c c'$ when depressed by the operator, said guide being curved at its forward end, as at c^2 , to form a wide bearing for the entrance of the rod e . The guide d is similarly curved at its forward end, as indicated at d^2 , to facilitate the engagement of the rod f with said guide.

The operation is as follows: Suppose the switch-point b to be in the position shown in full lines in Fig. 2, and, further, that the driver of a car approaching in the direction indicated by the arrow in Fig. 2 desires to go upon the branch track. Under these circumstances the driver depresses the outer rod f , causing it to enter the space or groove between the guide d and the section a . The lower end of the rod moves along said groove, and when it encounters the curved portion d' of the groove it is directed inwardly by the latter and caused to strike the switch-point and throw the latter to the position shown in dotted lines in Fig. 2 and in full lines in Fig. 5, the rod turning on its axis to permit this movement of its lower end, so that when the forward wheel of the car reaches the switch-point the flange of said wheel will be deflected by the switch-point, as above described. The bent form of the lower end of the rod, causing the part of the rod that is engaged in the groove to stand out of line with the main body of the rod, enables said lower end to swing laterally when it encounters the curved portion of the groove. Hence the operating device on the car is laterally as well as vertically movable. In case the switch-point is in the position shown in Fig. 5 and the driver of an approaching car desires to continue upon the main track he depresses the rod e , thus causing the engagement of the said rod with the guide $c c'$, the lower end of the rod being attracted inwardly by the portion c' , and thus caused to throw the switch-point into position to make the

main track continuous. It will be seen, therefore, that the operator can readily direct the course of the car while the latter is in motion and without leaving the car by depressing either of two rods or pedals upon the platform.

It is essential that the guides $c c'$ and $d d'$ shall extend from points on opposite sides of the free end of the switch-point along opposite sides of the main track, so as to form grooves that will prevent the lower ends of the rods e or f from being thrown out of the proper operative line of travel by contact with the curved ends or cams c^2 or d^2 or from any other cause.

I claim—

1. The combination of a car provided with two independent switch-operating devices adapted to be depressed by the driver, each consisting of a vertically and axially movable rod having its lower end bent rearwardly, and a track, including a pivoted switch-point, adapted to either make the main track continuous or to connect it with a branch track, and two fixed guides forming grooves between said guides and the opposite sides of the free end of the switch-point and of the end of the main track, one of said guides being adapted to direct the course of one of the switch-operating devices on the car when said device is depressed by the operator, while the other guide is adapted to direct the course of the other switch-operating device, the arrangement being such that one switch-operating device when depressed by the operator and directed by its groove will move the switch-point to connect the main track with the branch, while the other operating device when similarly depressed and guided will move the switch-point into position to make the main track continuous, as set forth.

2. The combination, with a car having two downwardly-projecting vertically and axially movable switch-operating rods having rearwardly-bent lower ends and adapted to be operated independently, of a base-plate carrying a pivoted switch-point forming a part of the track on which the car is adapted to run, said base-plate having grooves arranged at opposite sides of the free end of said switch and extending along opposite sides of the main track, one of said grooves being arranged to direct one of the said devices outwardly, while the other groove is adapted to direct the other device inwardly, as set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 3d day of June, A. D. 1892.

HORACE BLANCHARD.

Witnesses:

C. F. BROWN,
A. D. HARRISON.