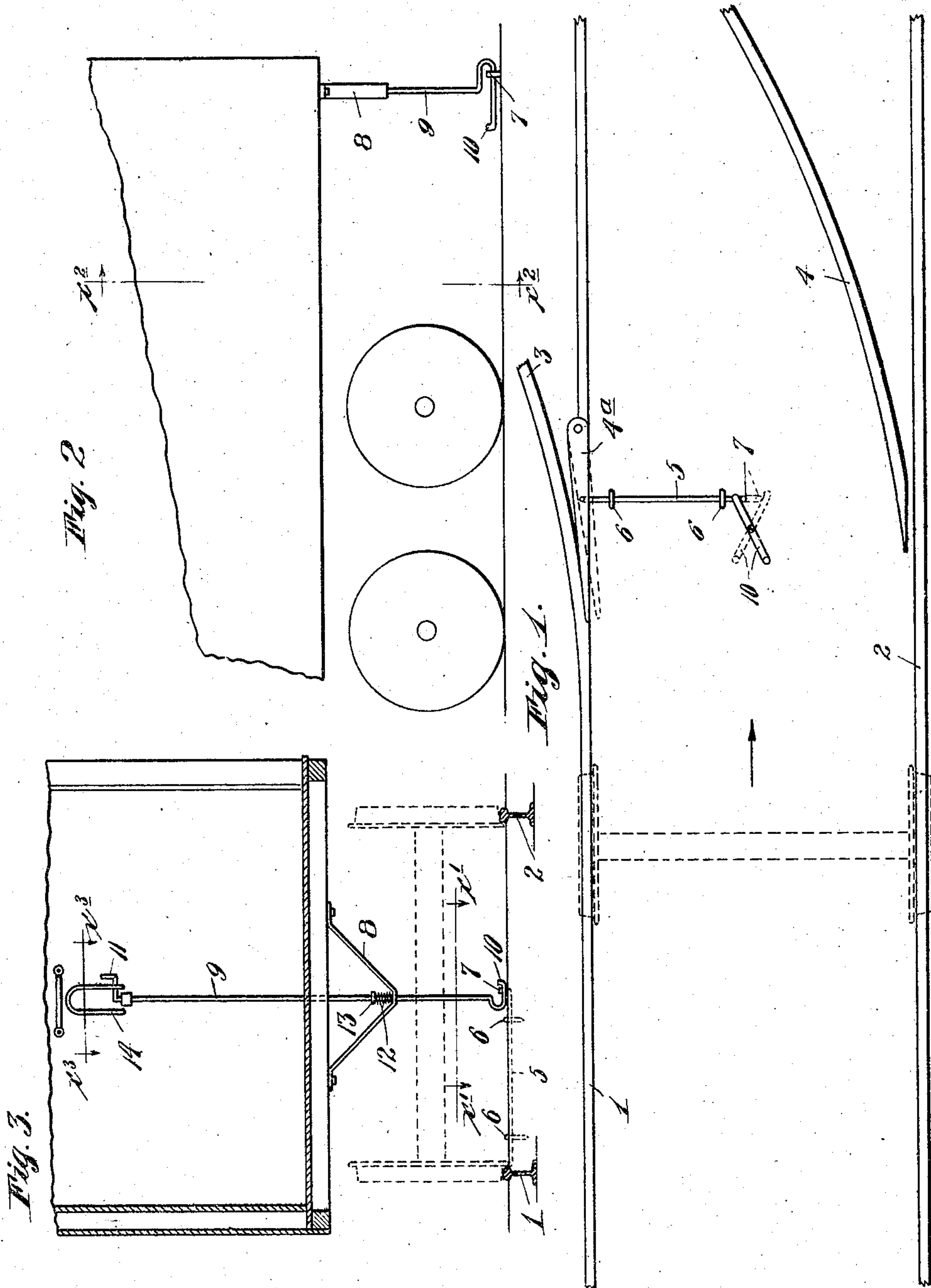


No. 855,090.

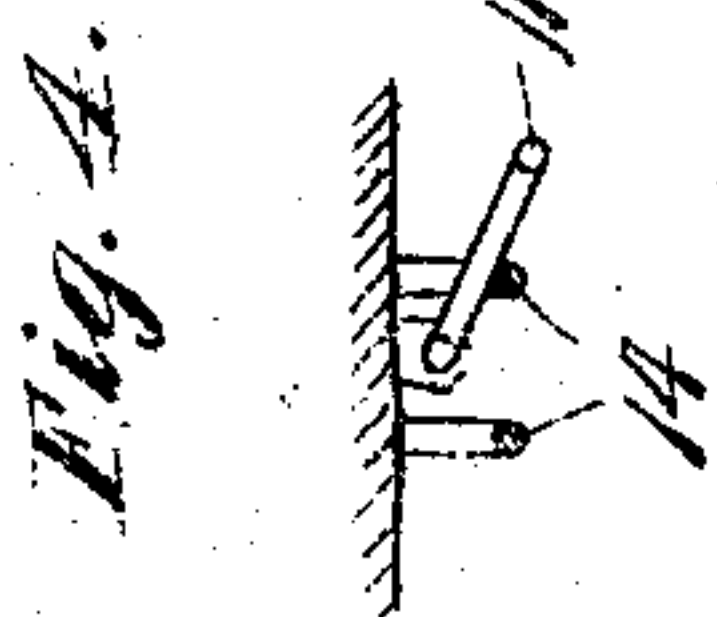
PATENTED MAY 28, 1907.

J. A. BOQUIST.  
AUTOMATIC STREET RAILWAY SWITCH.

APPLICATION FILED APR. 2, 1906.



Witnesses.  
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# UNITED STATES PATENT OFFICE.

JOHN A. BOQUIST, OF MINNEAPOLIS, MINNESOTA.

## AUTOMATIC STREET-RAILWAY SWITCH.

No. 855,090.

Specification of Letters Patent.

Patented May 28, 1907.

Application filed April 2, 1906. Serial No. 309,332.

*To all whom it may concern:*

Be it known that I, JOHN A. BOQUIST, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Automatic Street-Railway Switches; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention has for its special object to provide a simple and efficient device whereby a motorneer on a street car may turn a switch in a track over which the car is to travel.

To the above end the invention consists of the device and combination of devices hereinafter described and defined in the claims.

The invention is illustrated in the accompanying drawing wherein like characters indicate like parts throughout the several views.

Referring to the drawings, Figure 1 is a view showing what may be assumed to be a street car track including a switch in plan, and showing certain parts of the switch-throwing device sectioned on the line  $x^1 x^1$  of Fig. 3. Fig. 2 is a diagrammatic side elevation showing a portion of the track and a portion of the improved switch-throwing device. Fig. 3 is a transverse section taken approximately on the line  $x^2 x^2$  of Fig. 3, some parts being shown in dotted lines only, and Fig. 4 is a detail view in horizontal section taken on the line  $x^3 x^3$  of Fig. 3.

The numerals 1 and 2 indicate the rails of what may be assumed to be the rails of the main line, and the numerals 3 and 4 indicate the rails of what may be assumed to be the rails of a side track or branch line. The rails 1 and 3 are shown as if continuous, and the end rail 4 is shown as separated from the rail 2 far enough to permit the flanges of the car wheels to pass between them. In the gap between the sections of the rails 1 is a pivoted switch rail 4<sup>a</sup>.

The construction and arrangement of the rails described is what is found in general use in all street car systems. It is only necessary to here state that when the pivoted switch rail 4<sup>a</sup> is in the position shown by full lines in Fig. 1, the car will be caused to run on the rails of the main track, while when the side switch rail is moved into the position shown by dotted lines in Fig. 1 a car running in the direction of the arrow marked in Fig. 1 will

be caused to run from the main line onto the branch line. When a car travels in a reverse direction from the branch line toward the main line, no switch-throwing device is required, because the flanges of the wheels will force the switch rail 4<sup>a</sup> from the position shown in full lines into the position shown by dotted lines.

In the present custom when a car is running in the direction shown by the arrow in Fig. 1 and it is desired to run onto the branch line to stop the car with its front wheels close to the free end of the switch rail 4<sup>a</sup> and then by a long rod to force the switch rail 4<sup>a</sup> from the said position shown by full lines into the position shown by dotted lines, my improved switch-throwing device operates to automatically throw the switch rail 4 from the position shown by full lines into the position shown by dotted lines while the car is in motion; thus making it unnecessary to stop the car in order to throw the switch.

In order to render a switch-throwing device which is carried by the car operator to throw the switch rail 4<sup>a</sup>, a sliding rod 5 is pivotally attached to the intermediate portion of said rail, is mounted to slide through suitable guides 6 in the rod bed, and is provided with an upturned end 7.

Mounted in a bearing bracket 8 secured on the bottom of the car and in other suitable bearings on the car, is a vertical switch rod 9 which at its lower end is provided with a cam head 10 which, as shown, is formed by bending the end of the said rod laterally upon itself. The upper end of the rod 9 is provided with a crank-like handpiece 11 by means of which the cam head 10 may be turned from the position shown by full lines in Fig. 1 into the position shown by dotted lines in said view, and vice-versa. By downward pressure on the rod 9 the cam head 10 is adapted to be moved into a plane for engagement with the upturned end 7 of the rod 5, but the said rod is normally held upward in a position to carry the cam head 10 into a plane above the said upturned end of said rod 5, as shown by means of a coil spring 12 which reacts against the bracket 8 and against the coil 13 on said rod 9.

To assist in holding the cam head 10 in either of the two positions in which it may be set, I provide a lock bracket 14 which is secured to a suitable support, such as the front of the vestibule of the car, and is adapted to engage the crank 11 when the rod 9 is pushed



downward and thereby hold the said rod, crank, and cam head 10 in either of the two positions in which they may be set.

To illustrate the action of the switch-throwing device, it is first assumed that the car is moving in the direction of the arrow marked in Fig. 1, that the switch rail 4 is in the position shown by full lines in Fig. 1 and that it is desired to run the car from the main line onto the branch line. In this case the rod 9 should be turned so that its cam head 10 will stand in the position shown by full lines in Fig. 1, and then should be pushed downward so as to carry the said cam head in position for action on the upward end of the rod 5. The said cam head then stands at an angle with respect to the line of travel of the car, and in such position that under the forward movement of the car it will have a camming action on the upturned end 7 of the rod 5, and will thereby positively force the switch rail 4 into the position shown by dotted lines in Fig. 1, and consequently cause the car to run from the main line onto the branch line. If, on the other hand, the switch rail 4 stands in the position shown by dotted lines in Fig. 1 and it is desired to have the car continue to run on the main line past the switch, the said cam head 10 should be set in the position shown by dotted lines in Fig. 1, so that under a forward movement of the car in the direction of the arrow marked in Fig. 1, the said cam head acting on the upturned end of the rod 5 will positively force the switch rail 4 from the position indicated by dotted lines into the position indicated by full lines in Fig. 1.

It is not necessary for the motorneer to see or know the position in which the switch rail 4 may happen to stand. He of course knows

whether he wishes to continue to run on the main line or to switch off onto the branch line, and he sets his switch-throwing device in the proper position to accomplish that result. If it so happens that the switch rail 4 already stands in the proper position, the switch-throwing device will of course have no action on the switch rail.

The cam head 10 must, of course, be located far enough ahead of the front wheels of the car to cause the switch rail 4 to be moved before the said forward wheels reach the said switch rail.

The device described may of course take various forms and be variously arranged all within the scope of this invention.

What I claim is:

The combination with the rails of a main line and a branch line, and a pivoted switch rail for switching the cars from one line to the other, of a rod connected to said switch rail and having a single upturned end or projection that is mounted to move from one side to the other of the center of the track, and a vertical switch rod mounted on the car for pivotal and vertical movements, said switch rod having a depending end, a cam head adapted to be raised and lowered and to be set at different angles with respect to the line of travel, said cam head when lowered being operative, under both directions of travel of the car, upon the upturned end of the rod which is connected to said switch rail, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN A. BOQUIST.

Witnesses:

MALIE HOEL,  
F. D. MERCHANT.