

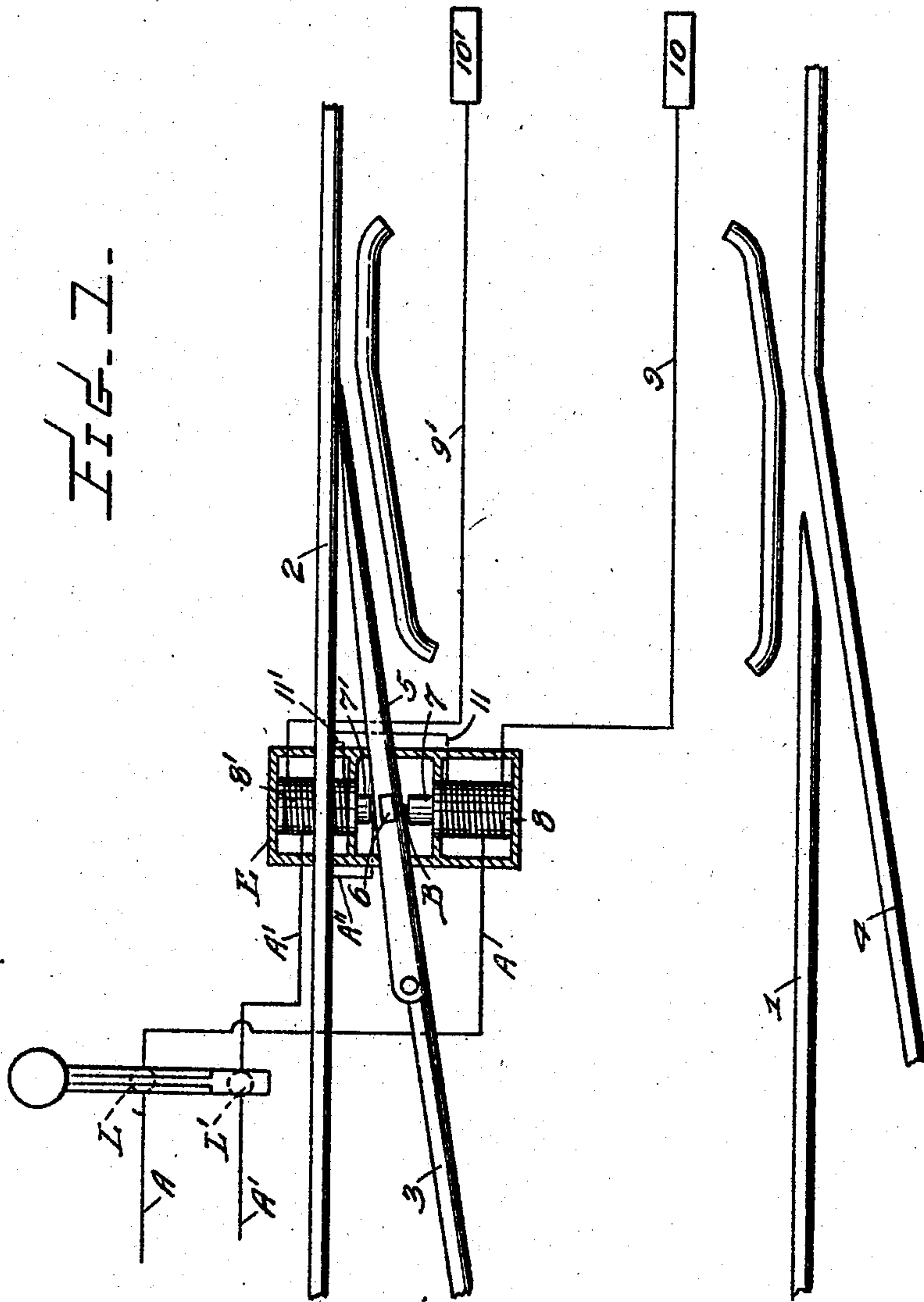
No. 815,314.

PATENTED MAR. 13, 1906.

G. M. THOMPSON.  
RAILWAY SWITCH.

APPLICATION FILED AUG. 3, 1905.

2 SHEETS—SHEET 1.



WITNESSES:

Paul Barnes.  
Alfred J. Ware

INVENTOR

G. M. Thompson.

BY

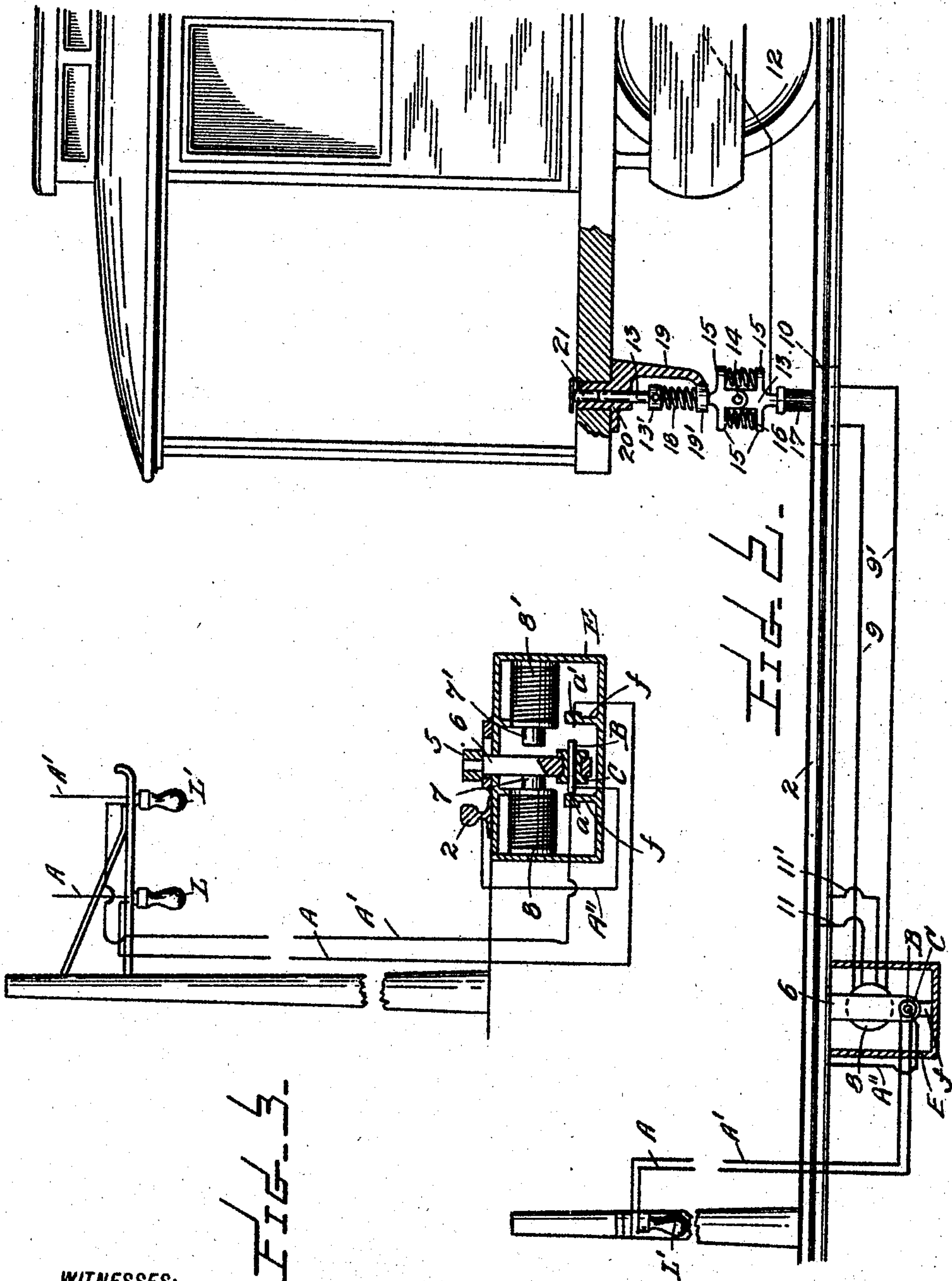
Pierre Barnes  
ATTORNEY

No. 815,314.

PATENTED MAR. 13, 1906.

G. M. THOMPSON.  
RAILWAY SWITCH.  
APPLICATION FILED AUG. 3, 1905.

2 SHEETS—SHEET 2.



WITNESSES:  
*Paul Barnes.*  
*Alfred Ware*

INVENTOR  
G. M. Thompson.  
BY  
*Pierre Barnes*  
ATTORNEY



# UNITED STATES PATENT OFFICE.

GUY M. THOMPSON, OF SEATTLE, WASHINGTON, ASSIGNOR OF ONE-FOURTH TO CHARLES S. FOLLETT, OF SEATTLE, WASHINGTON.

## RAILWAY-SWITCH.

No. 815,314.

Specification of Letters Patent.

Patented March 13, 1906.

Application filed August 3, 1905. Serial No. 272,509.

*To all whom it may concern:*

Be it known that I, GUY M. THOMPSON, a citizen of the United States, residing at Seattle, in the county of King and State of Washington, have invented certain new and useful Improvements in Railway-Switches, of which the following is a specification, reference being had therein to the accompanying drawings, in which—

Figure 1 is a plan view of a portion of railway track and switch and showing an embodiment of the invention. Fig. 2 is a longitudinal sectional view of the same and showing the front end of a car, and Fig. 3 is a transverse sectional view.

This invention relates to improvements in railway-switch-operating mechanism, and its principal object is the provision of electrically-actuated devices whereby switches may be operated predeterminately from an approaching car; and a further object of the invention is the provision of automatic means for indicating the open or closed condition of the track. I attain these ends by the novel construction, disposition, and adaptation of electrical and mechanical devices, as will be hereinafter fully described, and particularly pointed out in the appended claims.

In the said drawings the reference-numerals 1 and 2 designate the main-track rails, 3 and 4 the switch-rails, and 5 the vibratory switch-tongue, all of which are of ordinary or suitable construction.

Rigidly connected to or formed integral with the tongue is an arm 6, extending downwardly between the cores 7 7' of two electromagnets 8 8' and forming an armature therefor. The winding-wires of these magnets are respectively connected by conducting ends 9 and 9' with contact-plates 10 and 10', embedded in the ground, preferably between the track-rails at some distance from the switch, and having their upper surfaces exposed. The other ends 11 11' of these wires are connected to one of the track-rails, as 2. The aforesaid wiring forms incomplete electric circuits which are severally and predeterminately completed by depressing one or the other of the contact-makers or brush devices carried by the car and respectively positioned thereon in the same longitudinal planes with the said contact-plates and being connected by wires with the trolley-line and with the track-

rail 2 through the car-wheel 12. Specifically, these contact-makers each consist of a vertical bar 13, comprised of two parts, which are hinged together by a pivot 14, and adjacent thereto upon each such bar parts forwardly and rearwardly protruding arms 15 are provided to receive interposed helical springs 16, which act to flexibly maintain the axes of the two parts of the bar in the same line. The purpose of thus providing the bars with a hinge connection is to furnish means whereby the lower parts may be tilted rearwardly in the event of their encountering some obstacle in their path and permit their readily passing thereover.

The brush 17, carried upon the lower end of each two-part bar, is normally held out of contact with the plate 10 or 10', as the case may be, by the provision of a helical spring 18 between a sleeve portion 19' of a supporting-bracket 19 and a collar 13', fixedly secured to the bar thereabove. The bracket 19 is formed or provided on a socket-plate 20, into which the top end of the upper part of the bar 13 extends, and removably seated in the socket of each such plate is the stud 21, terminating above the car-platform in an enlarged flat head forming an extended bearing-surface, whereby the depression of the brush into operative contact with the particular plate may be accomplished by the foot-pressure of the operator while the car is progressively moving toward the switch. These tread-plates are made removable in order that they can be used interchangeably at either end of a car, according to its direction of travel, and likewise to obviate all danger of the brush devices at the rear end of the car being accidentally moved into operative position.

When one of the brush devices is pressed down into contact with its plate 10 or 10', it will complete the respective circuit to energize one or the other of the electromagnets and through the armature draw the tongue 5 where a change is to be made in the switch.

Included in the invention are signal means to indicate the condition of the switch and consist of supplemental circuits which are directly and positively made or broken by the movement of the depending arm 6. These supplemental circuits include two incandescent lamps L L', one being appropriated



to each position of the switch-tongue, so as to indicate whether the switch is open or closed as to the main track. The circuits now being considered comprise conducting-wires A A', leading from the trolley-line and terminating in contact-points *a a'*, disposed upon opposite sides of the arm 6, and a conducting-wire A'', common to both the last-named circuits, which connects the rail 2 with a make-and-break conductor-link B. The latter passes through an insulating-bushing C of said arm, and these three parts are so connected as to move as a single piece. When the switch-tongue is shifted from one side to the other, it is apparent that the link B will be moved to simultaneously illuminate one or the other of the said lamps, thus reliably and automatically indicating the condition of the switch.

The electric and mechanical parts of the invention are inclosed within a suitable casing E, which may advantageously be provided with a detachable cover (not shown) to give ready access to the interior for inspecting, adjusting, or renewing the contained mechanism, and the terminals *a a'* would be held by binding-posts, as *f*, connected to or formed in said casing.

The invention is extremely simple and accomplishes in a very efficient manner the several functions intended, and, too, without resorting to the use of a multiplicity of parts, such as levers or the like, wherewith it is difficult to maintain a suitable adjustment of the parts or prevent their entire derangement.

I do not wish to confine myself in carrying out my invention to the use of lamps alone, as during daylight semaphores may be used in their stead, if deemed desirable. The explanation of the manner of connecting up the lamps will, it is thought, be sufficient to enable others to replace the same with the semaphores controlled by electromagnets.

Having described my invention, what I

claim as new, and desire to secure by Letters Patent, is—

1. In a railway-switch, the combination with two electromagnetic switch-moving mechanisms normally in incomplete circuits and two supplemental electric circuits, of a contact-maker for each electromagnetic circuit, said contact-maker severally comprised of a bar formed of two pivotally-connected parts, a brush carried on the lower of said parts, two helical springs interposed between lateral arms provided on the respective said bar parts and tending to maintain them in axial alinement with each other, a helical spring acting to elevate said contact-maker, a removable pressure-plate adapted to operatively engage said bar, and a bracket-support for the bar provided with a socket for the reception of the upper end of the bar and a stud provided on said pressure-plate.

2. In an electrically-operated switch, the combination with the track-rails and a tongue having a depending bar, of two contact-plates positioned at some distance from the switch and respectively forming the terminals of two incomplete electric circuits, an electromagnet included in each such circuit and disposed at opposite sides of said bar, an insulated rod extending through the lower end of said depending bar and forming a terminal of two other electric circuits having their other terminals respectively disposed upon opposite sides of said rod, incandescent lamps included in the last-named circuits, and means carried by a car whereby either of said electromagnets may be predeterminedly engaged to accomplish a movement of said switch-tongue and simultaneously light the corresponding of said lamps.

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

GUY M. THOMPSON.

Witnesses:

PIERRE BARNES,  
H. A. TRUMBULL.