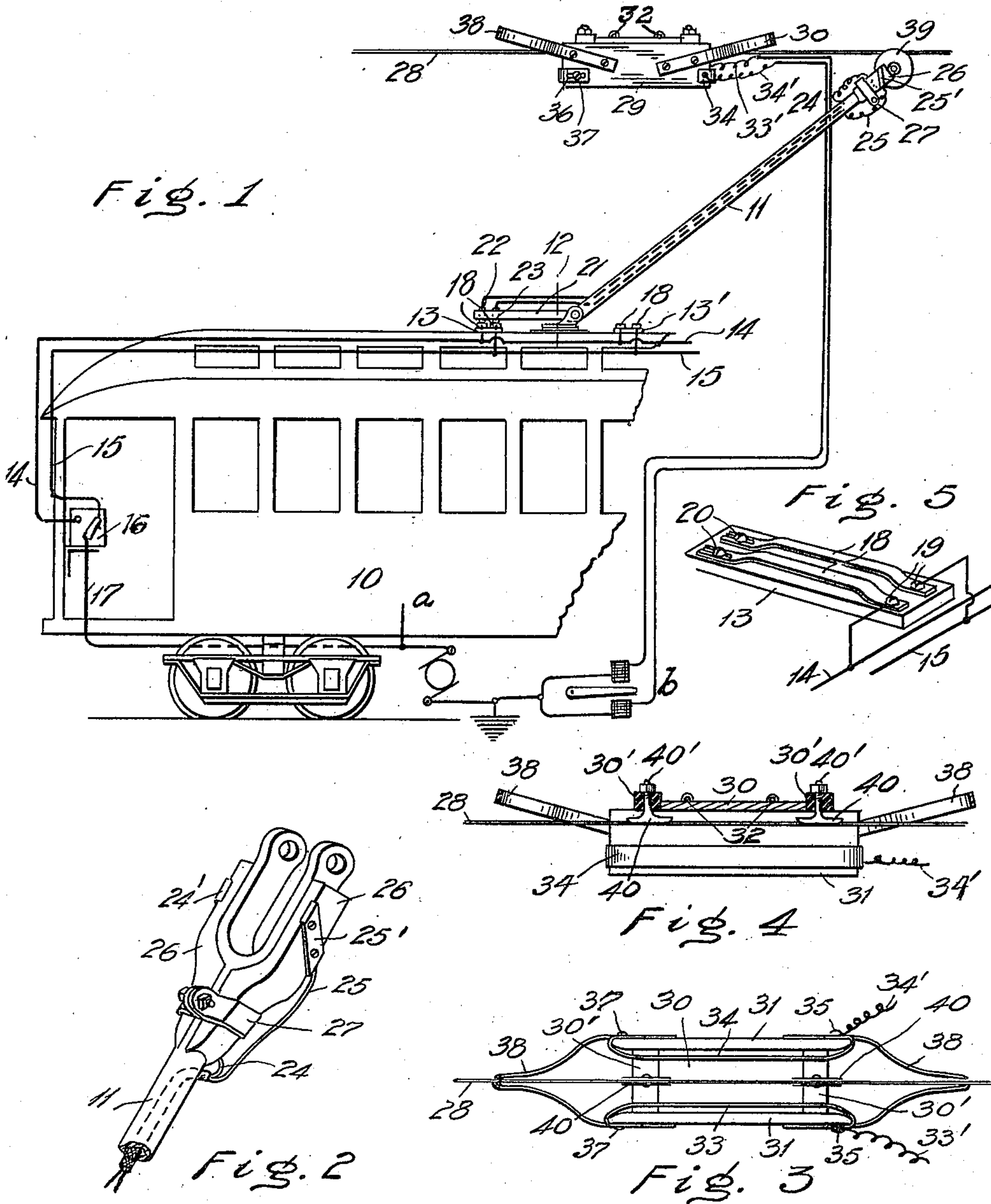


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ELECTRIC CIRCUIT CONTROLLER FOR RAILWAY SWITCHES.  
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975,585.

Patented Nov. 15, 1910.



Witnesses:

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# UNITED STATES PATENT OFFICE.

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## ELECTRIC-CIRCUIT CONTROLLER FOR RAILWAY-SWITCHES.

975,585.

Specification of Letters Patent. Patented Nov. 15, 1910.

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*To all whom it may concern:*

Be it known that I, GUY M. THOMPSON, 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 Electric-Circuit Controllers for Railway-Switches, of which the following is a specification.

This invention relates to devices which are employed in the operation of electrically operated railway switches and more especially for use with that class of switches described and illustrated in United States Patent No. 866,983, which was issued September 24, 1907.

The object of the present invention is to provide apparatus under the control of a motorman whereby the electric circuits necessary to influence the switch-operating magnets may be made effective to change the condition of the switch-point without interfering with the electric current which is utilized in the propulsion of a car.

With this end in view the invention consists in the novel construction and combination of devices, as will be hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a longitudinal elevational view of an electric car and the trolley-wire with which are applied apparatus embodying my invention the magnetically operated track-switch being shown in diagrammatic lines. Fig. 2 is a fragmentary perspective view of the trolley-pole. Fig. 3 is an underside plan view of the trolley-box. Fig. 4 is a longitudinal vertical section of Fig. 3. Fig. 5 is a perspective view of one of the pairs of contact elements such as are employed upon a car-roof.

The reference numeral 10 designates a car provided with a trolley-pole 11 which, as usual, is arranged to be revolvably swung about an axis 12. Secured to the car-roof at similar distances to the front and rear of said axis are transversely arranged blocks 13 and 13' which afford insulating supports for the terminals of two normally incomplete electrical wire connections 14 and 15 extending to and operatively connected with a three-way switch, indicated by 16 in Fig. 1, provided at each end of the car. Each of these switches is connected by a wire, as 17, which forms parts of a circuit including a

source of electric supply as, for example, the wire *a* employed to supply electric energy to the power motor of the car and the magnets of a magnetic switch *b*. Said terminals of the connections 14 and 15, see Fig. 5, are each formed of a flexible plate 18 of suitable metal which is fixedly secured at one end by a screw 19 with the respective block and has its other end slidably connected, as by a screw 20, passing through a slot thereof to be secured in the block. The screws 19 are desirably used as binding screws for attaching the aforesaid wires 14 and 15 to the appropriate bars. In an arm 21 of the trolley-pole are carried insulated brush elements 22 and 23 disposed to contact with the pair of plates 18 at either side of the pole. Wire connections 24 and 25 between said brush elements and metallic bars 24' and 25' are connected with the pole near its upper extremity and upon opposite sides of the same. Advantageously the wires 24 and 25 are extended through the pole, as indicated by broken lines in Fig. 1. Said bars are insulated with respect to the pole by being embedded in intervening cheek pieces 26 formed of a suitable material, such as lignum-vitæ wood, and which are clamped to the pole by a band 27, or an equivalent.

28 represents a trolley-wire, which extends through a box 29 unprovided with ends and a bottom or, more particularly, the box is comprised of a top part 30 which is rigidly connected along its lateral edges with pendent sides 31. The box is suitably supported against horizontal displacement, as by stays 32 (Figs. 1 and 4) connected from posts, or an equivalent, and is likewise coupled with the trolley-wire by hangers 40 whose shanks 40' extend through and are supported by insulating members 30' of the box top. Longitudinally arranged metal plates 33 and 34 are provided within the box to afford contact elements of normally incomplete electric circuits 33' and 34' which, upon occasion, are employed in energizing the respective magnets for operating the point of an electric switch, as for example, like the one shown in the aforesaid patent. The plates 33 and 34 are arranged to be respectively contacted by the bars 24' and 25' as the latter are carried by the pole in passing through the box. That such contacts may be insured, the plate elements thereof



are desirably made of resilient material and are offset inwardly from the box-sides so as to protrude within the path of the respective cheek pieces 28 to necessitate the plates being thrust outwardly in the passage of the pole. Advantageously, the plates 33 and 34 have their ends bent to overlie the outer faces of the box sides, see Figs. 1 and 3, and with one end of each plate fixedly secured by screws 35 while the other ends are provided with slots 36 to furnish supports for endwise movement upon screws 37 to accommodate the changes in length due to the referred to outward thrust of the plates.

Extending outwardly from the front and rear of the box are guards 38 formed of rods which, as best shown in Figs. 3 and 4, span the trolley-wire at some distance from the extremities of the box and thence spread downwardly in diverging limbs and in inclined directions for being secured to the outer faces of the box sides, substantially as represented in Fig. 1. The office of these guards is to swerve a trolley-pole which is disconnected with the trolley-wire to one side or the other to prevent its encountering the box.

The operation of the invention may be described as follows: When the car approaches a track switch which is to be altered then the motorman manipulates the three-way electric switch 16 to close the gap between the circuit wires 14, or 15, and the wire 17. With this portion of the magnet circuit of the track-switch coupled there is still an incomplete circuit with the bar 24', or 25', and

the box-plates 33, or 34, for terminals. In the further progress of the car the trolley-pole carries said bars through the box and in so doing makes wiping contacts between the bars and said plates to cause the completion of the circuit wires which are closed by the switch 16 and thereby supplying the proper track-switch controlling-magnet with an energizing current to swing the track-switch point in the selected direction.

It is to be noted that the electric current that actuates the track-switch is distinct from the current which effects the propulsion of the car and is regulated by an independent controller. By such an arrangement the speed of the car need not be changed when the condition of the track-switch is to be altered.

What I claim as my invention, is—

A trolley actuated circuit closer, comprising, in combination, an insulated housing supported by the trolley wire including spaced longitudinal side members, trolley guides secured to and oppositely projected from either end of the housing, longitudinally arranged resilient contact plates secured to the side members of the housing and insulated from each other, a magnetic track switch, and a normally open electrical circuit including said plates and said track switch and adapted to be closed by the trolley frictionally engaging said plates.

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