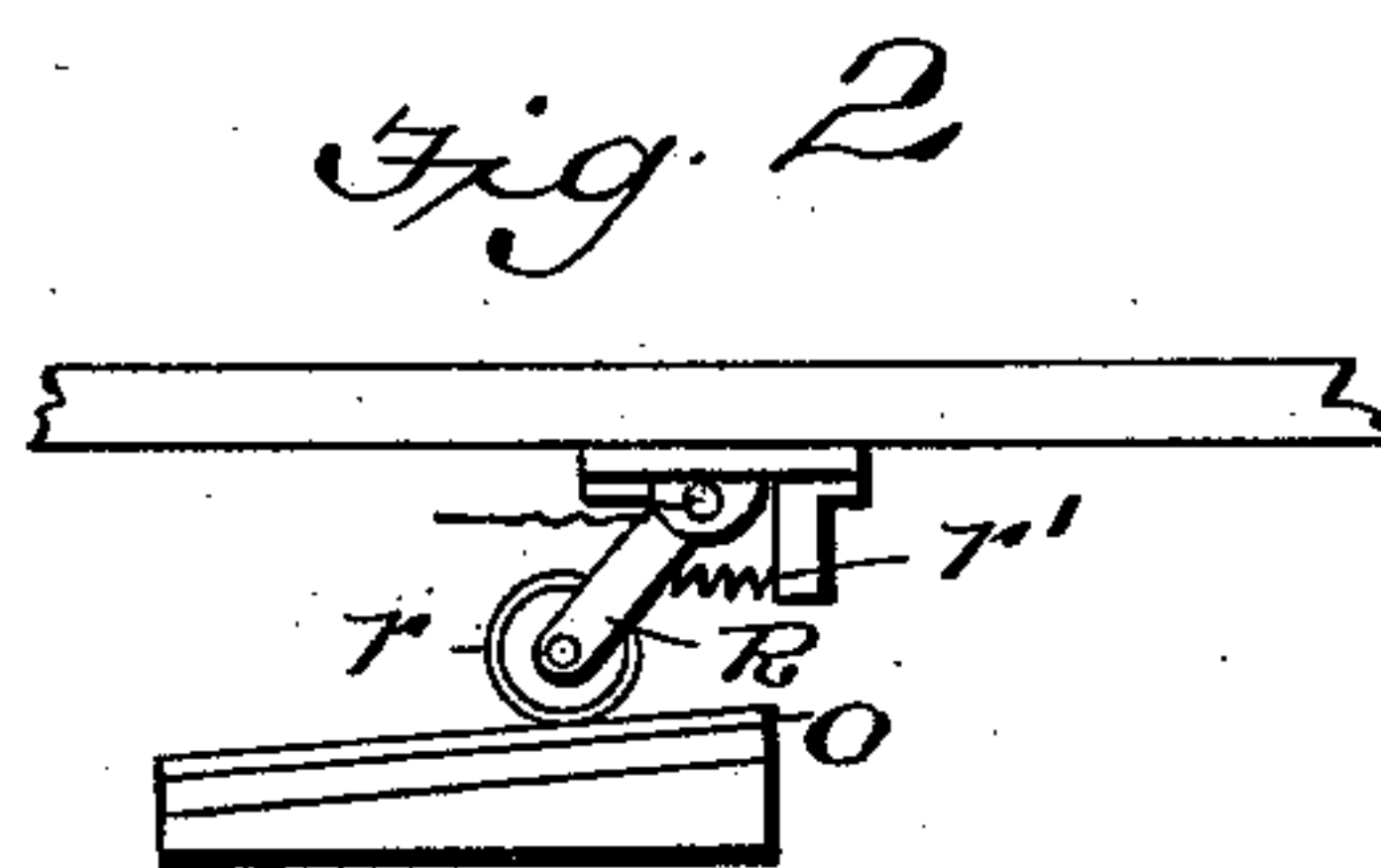
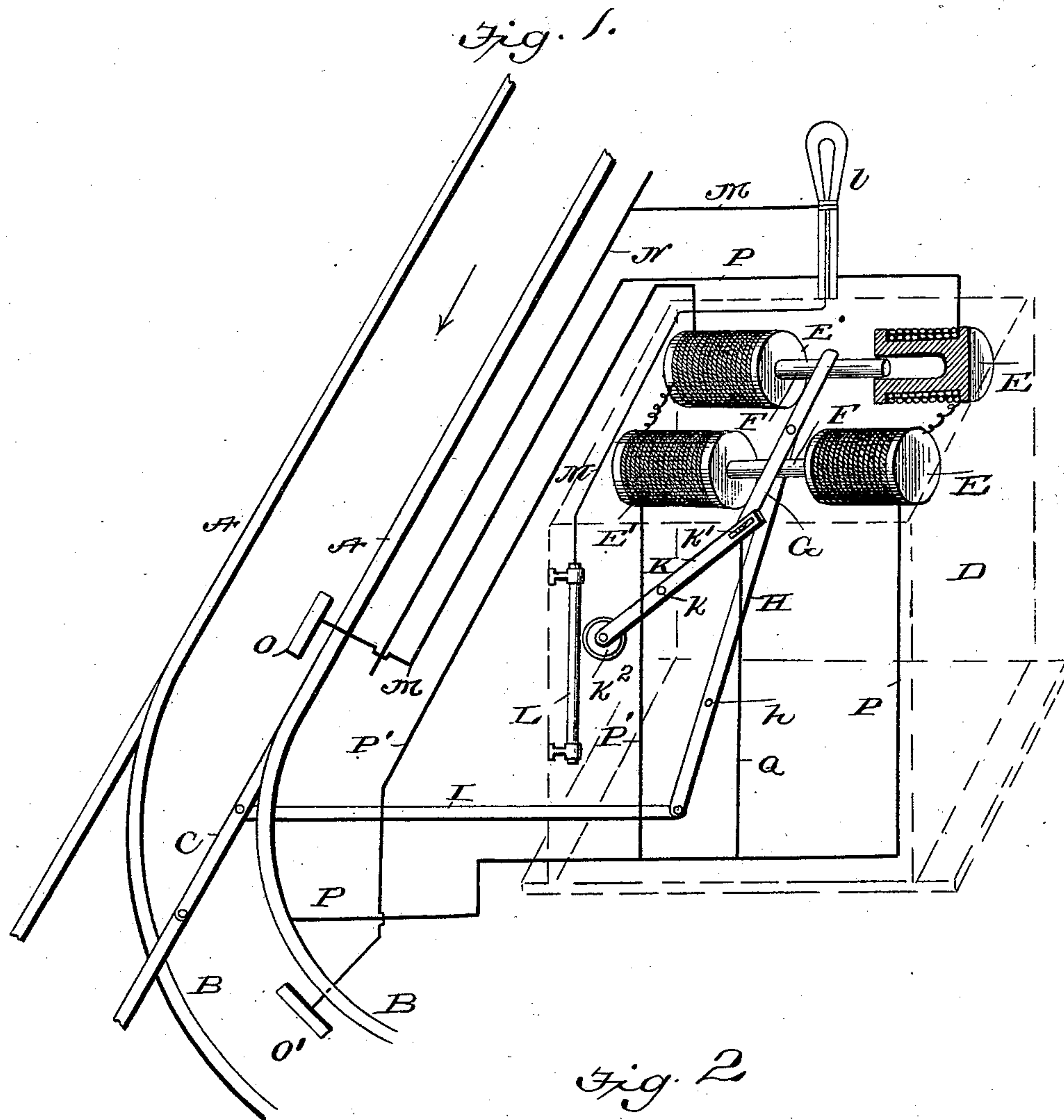


(No Model.)

W. S. WRIGHT & J. E. VENUS.
AUTOMATIC SWITCH FOR ELECTRIC RAILWAYS.

No. 526,985.

Patented Oct. 2, 1894.



Witnesses

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Inventors

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UNITED STATES PATENT OFFICE.

WILBER S. WRIGHT AND JOHN E. VENUS, OF NEW ORLEANS, LOUISIANA.

AUTOMATIC SWITCH FOR ELECTRIC RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 526,985, dated October 2, 1894.

Application filed December 6, 1893. Serial No. 492,957. (No model.)

To all whom it may concern:

Be it known that we, WILBER S. WRIGHT and JOHN E. VENUS, citizens of the United States, residing at New Orleans, in the parish of Orleans and State of Louisiana, have invented certain new and useful Improvements in Automatic Switches for Electric Railways; and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters of reference marked thereon.

Our invention relates to automatic electrically-controlled railway switches for electric street railways, and has for its object to provide means for automatically operating switches from the trolley-car, thus dispensing with the services of switch tenders; and also has for its object to provide means for operating an electric light to indicate at night the condition of the switch.

To these ends our invention consists in the novel construction and arrangement of parts hereinafter fully described and afterward definitely pointed out in the claims following the description.

In the drawings, forming a part of this specification, Figure 1 is a top view, partly in section, of our improved apparatus, and showing a portion of the main track and a switch, and Fig. 2 is a side elevation of the contact device carried by the car for completing the circuits to operate the switch and signal light.

Referring to the drawings, the letter A indicates the main track; B, the switch rails, and C the pivoted switch tongue of ordinary construction and operating to switch the car onto the switch rails in the usual manner.

D indicates a casing, in the upper part of which are arranged double solenoids, each consisting of two magnets E, E, and E', E', arranged in pairs as shown, and provided with armatures F, F, common to both pair of magnets, and coupled together by a bar G, insulated from the armatures. To the bar G is loosely connected a lever H, pivoted at h, and pivoted at its lower end to the switch-rod I, said rod, at its other end, being connected to the switch tongue C.

K indicates a lever pivoted at K, and at its

upper end is slotted as at k', which slotted end is engaged by one end of the coupling bar G. The free end of the lever K is provided with a contact or trolley-wheel k², which is adapted to make contact with a contact-rod L which is connected with a wire M, the other end of said wire being connected with the line or trolley wire N which serves to conduct the current from the power house to the motor on the car in the usual manner, an electric lamp l being included in the circuit. From a contact O, arranged beside one of the main track rails, leads a wire P, which passes about the magnets E, E, and from thence to one of the rails of the switch, as at p. A similar contact O' is arranged beside one of the switch rails and connected thereto is a wire P', which passes about the magnets E', E', and from thence to the wire P, with which latter it is connected. To the wire P is also connected a wire Q, which at its other end is connected to the lever K. To the under side of the car is pivotally secured an arm R carrying a trolley-wheel r and normally held elevated by a spring r'. When said arm R is depressed by any suitable means under the control of the motorman, the trolley-wheel will, when the car has reached the proper point, make contact with one of the contacts O or O', and operate the switch in the manner which we will now proceed to describe.

Let it be supposed that the car is approaching the switch in the direction indicated by the arrow, and it is desired to enter the switch. The motorman depresses the arm R, and when the car arrives at the contact O, the trolley-wheel r makes contact therewith and the current passes from the car over the wire P about the magnets E, E, and from thence to the switch-rail B, thus completing the circuit. The magnets E, E, being then energized, attract the armatures F, F, and through the medium of the levers H and switch-rod I, throw the switch-tongues C and cause the car to enter the switch. When the car reaches the contact O', the trolley-wheel r contacts therewith, and the current then passes over the wire P', about the magnets E', E', to the wire P, and thence to the switch-rail B, completing the circuit. The magnets E', E' be-

ing now energized, attract the armatures F F, and throw the switch-tongue C back to its original position and closes the switch.

To indicate at night when a car has entered the switch, the electric lamp is automatically thrown into operation as follows:

When the car approaches to enter the switch, and has completed the circuit through the contact O and wire P, attracting the armatures F, F, to the magnets E, E, as before described, the coupling-bar G swings the lever K about its pivot and causes the trolley-wheel k^2 to make contact with the rod L. A circuit is then completed from the line wire N, through the wire M, through the lamp L, to the rod L, and thence by the trolley-wheel k , and lever K, over the wire Q, and by the wire P to the rail B. This causes the lamp, to be illuminated and indicates to a car following that the switch is open. The lamp remains illuminated until the car arrives at the contact O', when the circuit is completed over the wire P', as before described, attracting the armatures F, F, to the magnets E', E', simultaneously closing the switch and breaking the contact between the trolley-wheel k^2 and rod L, thus cutting out the lamp and indicating "safety." In order that the lamp may be thrown out of circuit in the day time, any circuit breaker or cut-out of ordinary or approved construction may be placed in the lamp circuit.

We have shown and described two double solenoids as the preferred means for operating the switch and the lamp signal, but we may employ powerful core magnets arranged either doubly or singly.

Having described our invention, what we claim is—

40 1. In an electrically operated railway switch, the combination of magnets E E', an arma-

ture common to both, a pivoted lever connected at one end to said armature and at its other end to a switch-rod, contacts arranged adjacent to the main track and to the switch, 45 two independent electric circuits, one through the magnet E, and the other through the magnet E', and respectively connected at one end to said contacts and grounded at the other, a contact-maker carried by the car and 50 operating to complete the circuit from the trolley line through said magnets, a conductor leading from the trolley wire through an electric light to a stationary contact, and a movable contact connected with a ground wire 55 and operated by the armature to make and break the circuit through the lamp, substantially as described and for the purpose specified.

2. In an electrically operated railway switch, 60 the combination of magnets E, E', an armature common to both, a pivoted lever connected at one end to the armature and at its other end to a switch rod, contacts arranged adjacent to the main track and to the switch, 65 two independent electric circuits, one through the magnet E and the other through the magnet E', and respectively connected at one end to said contacts and at the other end to the switch rail, a branch circuit including an 70 electric lamp and mechanism controlled by the said magnets for alternately throwing in and out of circuit the lamp, substantially as described.

In testimony whereof we have hereunto subscribed our names in the presence of two 75 witnesses.

WILBER S. WRIGHT.
JOHN E. VENUS.

Witnesses:

WALTER H. COOK,
ROBT. E. RIES.