

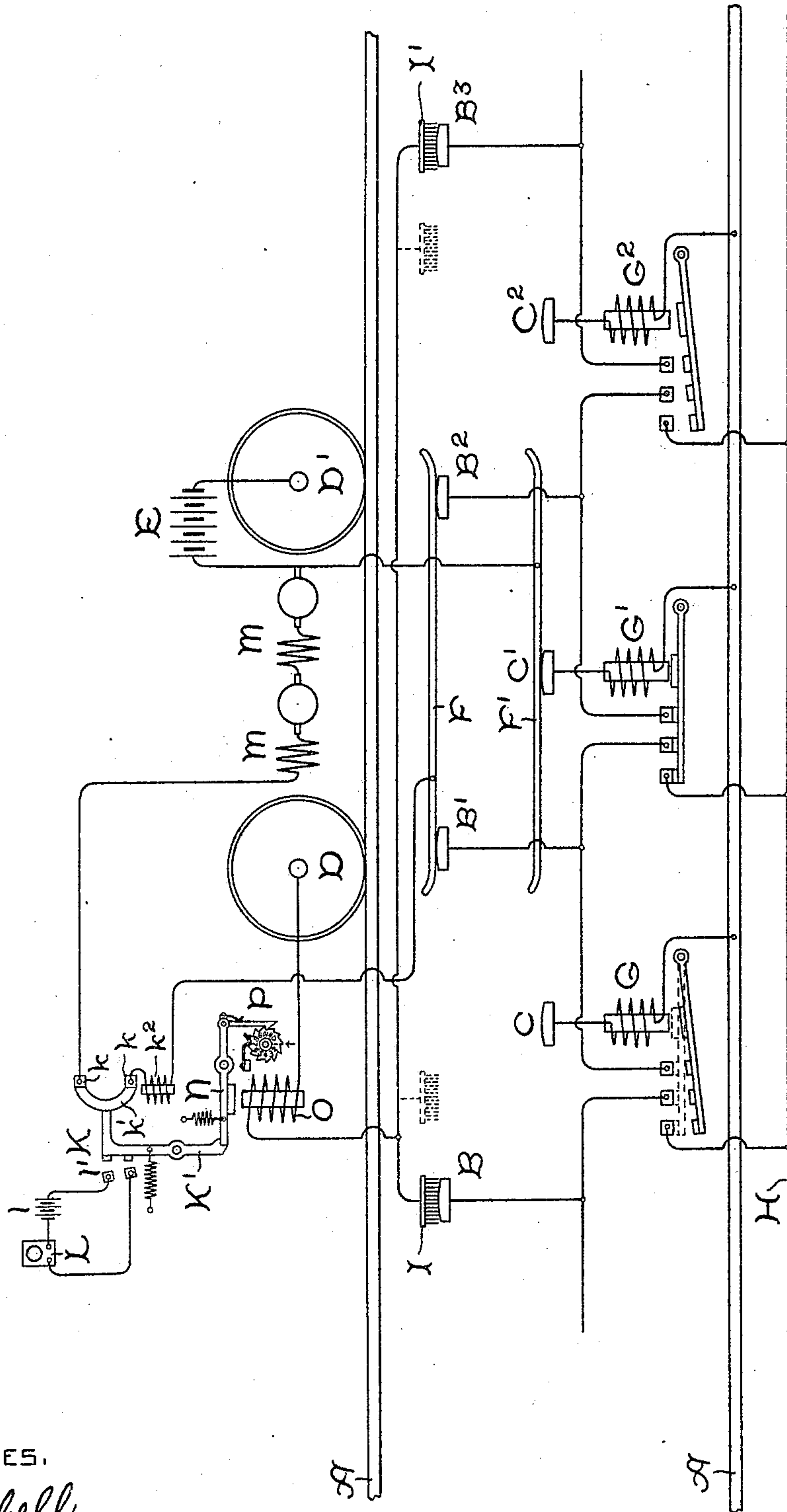
No. 611,760.

Patented Oct. 4, 1898.

W. B. POTTER.
SURFACE CONTACT RAILWAY SYSTEM.

(Application filed Nov. 29, 1897.)

(No Model.)



WITNESSES.

A. H. Abell,

A. MacDonald.

INVENTOR.
William B. Potter,
by
Geo. R. Blackgill
att'y.

UNITED STATES PATENT OFFICE.

WILLIAM B. POTTER, OF SCHENECTADY, NEW YORK, ASSIGNOR TO THE
GENERAL ELECTRIC COMPANY, OF NEW YORK.

SURFACE-CONTACT RAILWAY SYSTEM.

SPECIFICATION forming part of Letters Patent No. 611,760, dated October 4, 1898.

Application filed November 29, 1897. Serial No. 660,167. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM B. POTTER, a citizen of the United States, residing at Schenectady, in the county of Schenectady, State of New York, have invented certain new and useful Improvements in Surface-Contact Railway Systems, (Case No. 451,) of which the following is a specification.

My invention relates to surface-contact railway systems, and has for its object to provide a safety device for such systems which will indicate definitely whether or not a contact over which the car has just passed has been left "alive" in the street. In many of these systems there is a possibility of contacts being left alive, with consequent danger to persons and to animals. It has been proposed as a safety device to so arrange the motor-contacts that a supplemental shoe or brush from the car shall touch them and short-circuit the contact to ground. In this short circuit would be inserted a fuse which should blow by the passage of the abnormal current, although it would carry the ordinary motor-current. The disadvantage of this is that the sectional conductor or contact would be killed and it is necessary to make repairs; yet there would be no indication given of trouble to the crew on the car, which would ordinarily go over a single dead contact in an efficient system without indication. Furthermore, if the car should stop when over this contact it could not start again. In another system it has been proposed to demagnetize the switch by a supplemental shoe or contact, and thus insure its opening. This, however, is open to the same objection that a defectively-operating switch would not be indicated and repairs would not be made. By my invention I obviate these difficulties by providing upon the vehicle an automatic circuit-breaker of any convenient type, having its actuating-magnet connected between the ground and a supplemental or testing shoe, which will make contact with the sectional conductor after the shoe-furnishing motor-current has left it. With the circuit-breaker I may combine any convenient visual or audi-

ble signal, though ordinarily the failure of current caused by its opening would be sufficient. I also combine with it a registering device, showing whether it has been opened. This device is preferably out of control of the motorman, so that the car-inspector may be able to determine how often the circuit-breaker has been actuated.

My invention is illustrated in diagram in the accompanying drawing.

In the drawing, A A are the track-rails; H, the feeder; B, the surface contacts or studs furnishing current to the motor, and C the studs upon the negative side, actuating the electromagnetic switches G G', which connect the feeder with the positive contacts B in sequence as the car passes.

I I' are the supplemental or testing contacts referred to, which are independent of the shoes F F', carrying the working current.

DD' are the car-wheels, and MM the motors.

E is a storage battery, the use of which in these systems is well understood.

In the ordinary operation of the railway the parts act as follows: When the shoe F' touches the contact C, (passing to the left,) a portion of the motor-current passes down and actuates the switch G, closing the circuit between the feeder H and the button B. In case the motor-current be cut off, so that all the switches are down when the car starts, the current from the battery E is passed through the shoe F' and the switch-button upon which it rests to ground, picking up the switch. In the lead from the shoe F to the motors is a circuit-breaker K, consisting of contacts k k and an arm carrying a bridging-contact k' . A blow-out magnet k^2 is indicated and is arranged adjacent to the contacts, which may be of the form shown or of any other convenient one. The circuit-breaker as just shown, however, is not designed to act by abnormal current flowing in the motors. The arm K' is held in place by a detent N, which operates the registering mechanism P. At l' back contacts upon the circuit-breaker complete the circuit of a battery l and a bell L, so that when the circuit-breaker K opens the bell L rings until it is

closed. The series operating coil O of the circuit-breaker is in circuit between the shoes I I' and ground. These shoes should be at such a distance from the shoes F F' carrying the working current that they will never be in contact with any of the studs B when the shoe F' is upon the corresponding switch-button C. As indicated in dotted lines, the displacement may be in either direction, provided this result is attained.

The operation of the parts thus described is as follows: Suppose that the switch G, as indicated in dotted lines, remains closed after the car has gone toward the right, leaving the button or stud B alive. Current will then flow from the stud through the series coil O to ground, pull down the detent N, and open the circuit-breaker, completing the circuit of the battery and ringing the bell L. This will indicate the presence of the live button; but in the meantime the car would of course have passed on and it would be impossible to determine which one of the buttons was touched by the brush when the circuit-breaker opened. When the current failed, however, the motor-man would reverse the car after bringing it to a stop and back it slowly until the brush made contact with the live button, when the circuit-breaker would again open and the location of the defective switch could be at once ascertained. When running in the opposite direction, the brush I' would serve the same purpose as the brush I.

While the apparatus might be installed in any ordinary car, it would be most conveniently located in a testing and repair car,

which would be run over the road from time to time.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a surface-contact railway, a feeder, sectional conductors or studs arranged in two sets, one furnishing current to the motor, the other upon the negative side of the system, and electromagnetic connecting-switches; in combination with a moving vehicle carrying motors, sliding contacts upon the vehicle for each of the sets of sectional conductors, a testing-contact in the line of the positive studs and in circuit with a circuit-breaker upon the vehicle in the main motor-lead, and a registering apparatus actuated by the circuit-breaker.

2. In a closed-conduit or surface-contact railway, a feeder, sectional conductors or studs arranged in two sets, one furnishing current to the motor, the other upon the negative side of the system, and electromagnetic connecting-switches; in combination with a moving vehicle carrying motors, sliding contacts upon the vehicle for each of the sets of sectional conductors, a testing-contact in the line of the positive studs and in circuit with a circuit-breaker upon the vehicle in the main motor-lead, and an indicating device actuated by the circuit-breaker.

In witness whereof I have hereunto set my hand this 16th day of November, 1897.

WILLIAM B. POTTER.

Witnesses:

B. B. HULL,

A. STUART DURRANT.