

(No Model.)

2 Sheets—Sheet 1.

M. WHELESS.
ELECTRIC RAILWAY CUT-OUT.

No. 441,214.

Patented Nov. 25, 1890.

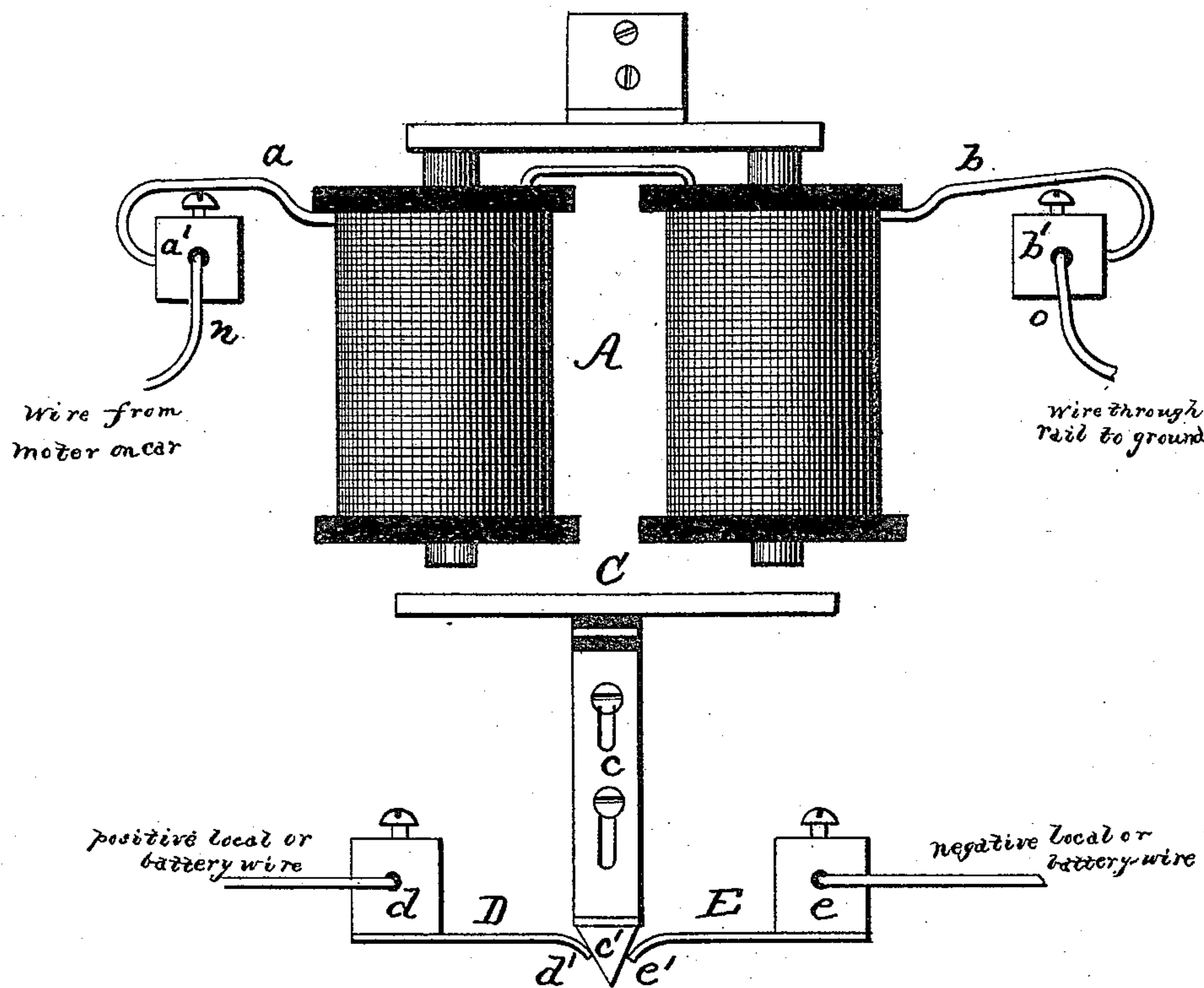


Fig 1.

Witnesses

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Inventor

Malme Wheless,
per M. H. Houghton,
att'y.

(No Model.)

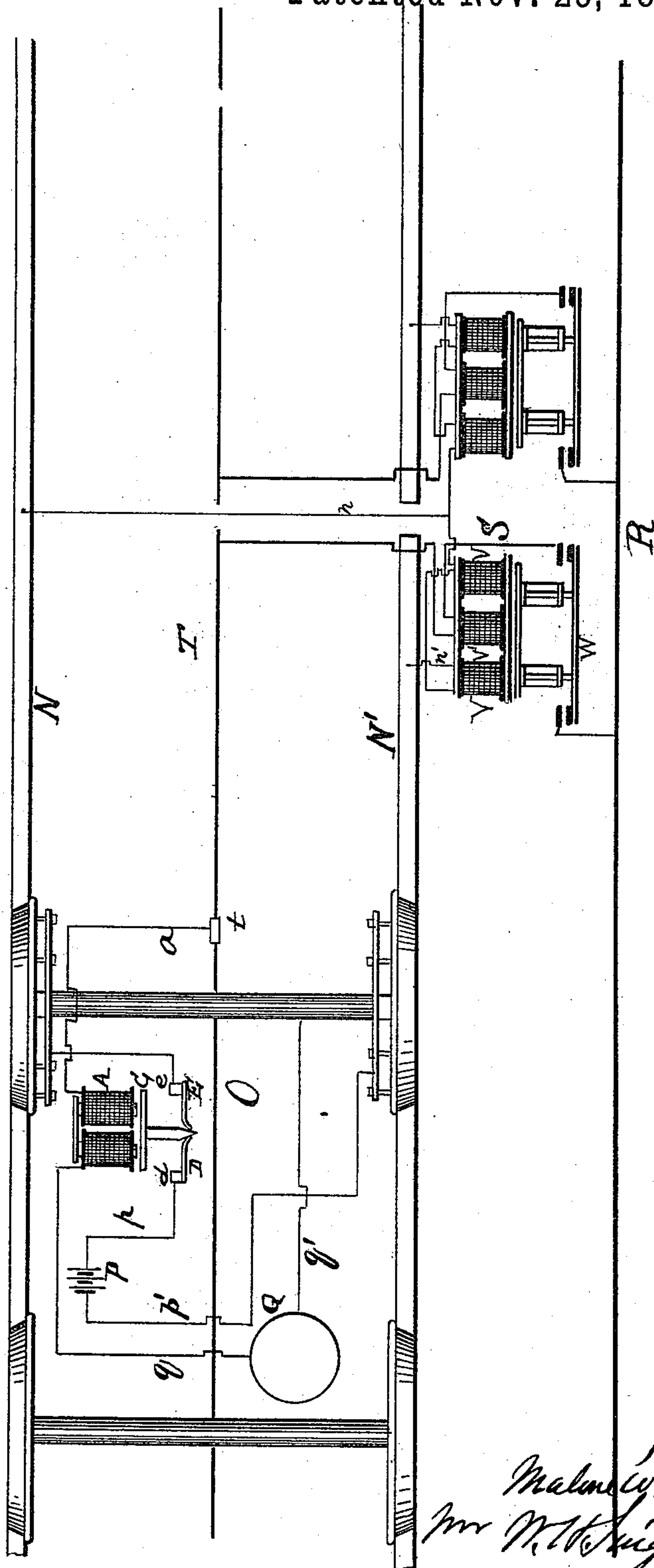
2 Sheets—Sheet 2.

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Fig. 2.



Witnesses.

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UNITED STATES PATENT OFFICE.

MALONE WHELESS, OF NASHVILLE, TENNESSEE, ASSIGNOR TO THE WHELESS ELECTRIC RAILWAY COMPANY, OF ALEXANDRIA, VIRGINIA.

ELECTRIC-RAILWAY CUT-OUT.

SPECIFICATION forming part of Letters Patent No. 441,214, dated November 25, 1890.

Application filed July 21, 1890. Serial No. 359,384. (No model.)

To all whom it may concern:

Be it known that I, MALONE WHELESS, a citizen of the United States, residing at Nashville, in the county of Davidson and State of Tennessee, have invented certain new and useful Improvements in Electric Cut-Outs on Cars; and I do 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, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

Figure 1 shows the detailed construction of the device, and Fig. 2 its application to a railway system.

This invention relates to an improved cut-out to be used on electric railways, more particularly in a system devised by me, wherein there are employed an insulated power-line, a trolley-line or working-conductor, bare and in sections, magnets which when vitalized connect the sections of the working-conductor with the power-line, and a local line the battery of which is on the car, this local line being used to vitalize the magnets. As the local line need only be used for vitalizing the magnets and connecting the working-conductor sections to the power-line, as soon as this is done the local line should be at once broken, if practicable. To do this I provide a cut-out, which in the present instance is placed upon the car.

The invention therefore consists in providing a car with a cut-out between the power-line and the local, as will be explained.

In the annexed drawings, the letter A indicates two magnets, having the wires *a* and *b*, running to convenient posts *a'* and *b'*. The armature C has an insulated tongue *c*, provided with the wedge-point *c'*. Just below the armature are two posts *d* and *e*, from which two spring-plates D and E project toward each other and have the downwardly-turned ends *d'* and *e'* spaced apart, the space between them being just below the point *c'* of the armature C. This device is placed vertically, as shown in the drawings, so that normally gravity will hold the armature C down, closing the space between the spring-plates

D and E, the weight of the armature tending somewhat to depress the plates and insuring contact. From the post *a'* a wire *n* runs to the motor, and from the post *b'* a wire *o* runs to one line of rails. To the posts *d* and *e* the wires of the local circuit are connected. When the local circuit is closed, it operates, as fully described in the application referred to. The power-current passes through the motor, wire *n*, post *a'*, wire *a*, magnets A, wire *b*, post *b'*, and wire *o* to the rails and ground. This vitalizes the magnets A, drawing up the armature C and breaking the local circuit.

On Sheet 2 is illustrated the application of this invention to a railway system. The letters N N' are the two lines of track-rails, on which is the car O, having the battery P and motor Q, with line-wires *p p'* and *q q'*, the cut-out being in the battery-circuit, as shown. The letter R indicates the main power-line, and S the electro-magnetic switch, which when closed connects the main power-line with trolley-line T. Engaging this line T is the trolley *t*, the wire *a* from which passes around the magnets. When the current is switched into the trolley-line and then to the motor, the cut-out is operated and the local circuit broken.

In Fig. 2 the cut-out is shown placed before the motor instead of after, as indicated in Fig. 1. This is perhaps preferable, but the action is the same in both cases.

The operation is as follows: When the battery or local circuit is closed, the current passes to one line N of rails through the wire *n* and the magnets V V through wire *n'* to line N' of rails and back to battery by wire *p'*. This vitalizes the magnets V V, and the bar W is drawn up. The power-current then streams in from power-line R and magnet V', preserving the contact of bar W through the trolley-wire T, trolley *t*, wire *a*, magnets A, wire *q*, motor Q, wire *q'*, and to ground. This cuts out the local line, as already stated, and at the same time the power-line connection with the trolley is preserved by the action of the magnet V'.

Having thus described my invention, what I claim is—

1. The combination of a car, a local circuit, and part of a motor-circuit thereon with a

cut-out on the car between the power-circuit and local circuit, such cut-out controlled by the power-circuit and controlling the local circuit, as set forth.

- 5 2. A local circuit having a break, in combination with a power-line provided with a magnet, the armature of which normally closes the break in the local circuit, and electrical devices on a car, whereon is placed the local

circuit, part of the power-line, and the magnet 10 and armature, as set forth.

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

MALONE WHELESS.

Witnesses:

J. SHERMAN PATRICK,
GRAHAM L. GORDON.