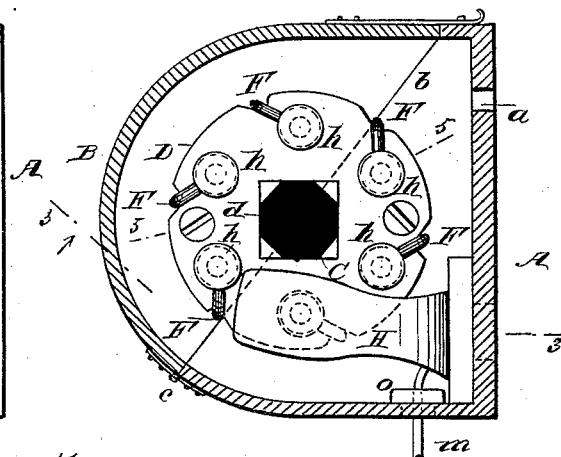
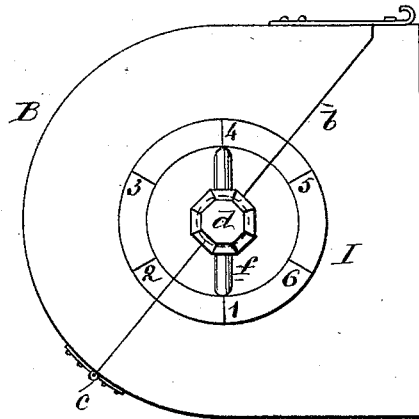


E. E. HERSH.
ELECTRIC CUT-OUT.

Patented Sept. 18, 1894.

Fig. 2



4 | *Fig. 3*
| *B*

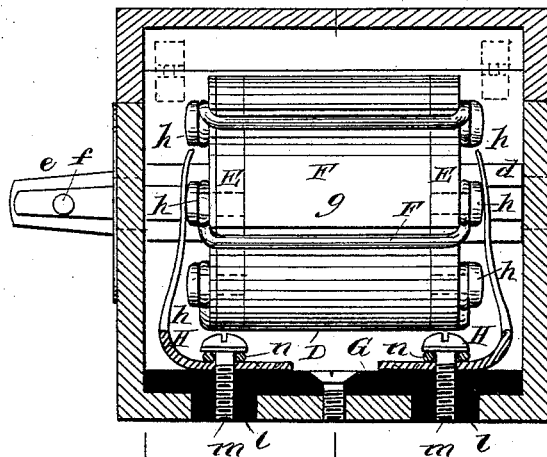


Fig. 4

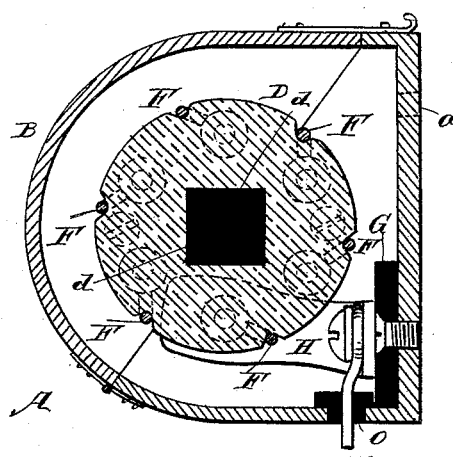
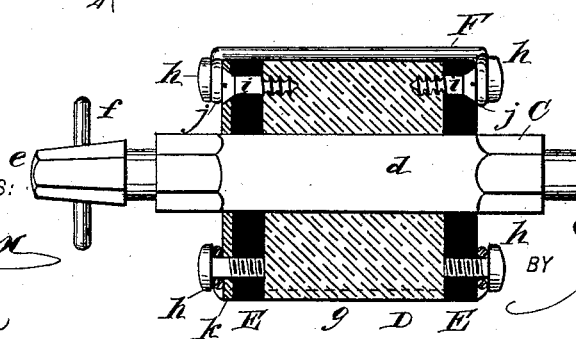


Fig. 5



WITNESSES:

C. Neveu
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INVENTOR

E. E. Hersh

BY

ATTORNEYS.

UNITED STATES PATENT OFFICE.

ELMER E. HERSH, OF DENVER, COLORADO, ASSIGNOR OF TWO-THIRDS TO JOHN B. TORBERT AND CLINTON A. SCOTT, OF SAME PLACE.

ELECTRIC CUT-OUT.

SPECIFICATION forming part of Letters Patent No. 526,227, dated September 18, 1894.

Application filed March 7, 1894. Serial No. 502,649. (No model.)

To all whom it may concern:

Be it known that I, ELMER E. HERSH, of Denver, in the county of Arapahoe and State of Colorado, have invented a new and Improved Electric Cut-Out, of which the following is a specification, reference being had to the annexed drawings, forming a part thereof, in which—

Figure 1 is an end elevation of my improved cut-out. Fig. 2 is a transverse section taken on line 2—2 in Fig. 3. Fig. 3 is a longitudinal section taken on line 3—3 in Fig. 2. Fig. 4 is a transverse section taken on line 4—4 in Fig. 3; and Fig. 5 is a longitudinal section of the cut-out cylinder, taken on line 5—5 in Fig. 2.

Similar letters of reference indicate corresponding parts in all the views.

The object of my invention is to provide a simple and efficient automatic fuse wire cut-out, in which the wire may be replaced after each operation, the improved cut-out being more particularly designed for electrically propelled cars, but capable of being used wherever a cut-out is necessary.

My invention consists in certain details of construction and combination and arrangement of parts, as will be hereinafter fully described and set forth in the claims.

The casing A, which contains the working parts of the cut-out is preferably formed of iron, with a flat base and a convex front, the base being provided with holes *a* for receiving screws for fastening the cut-out to its support. The case is divided diagonally on the line *b*, the cover B being connected to the fixed portion by hinges *c*. In the casing A, on the dividing line between the cover and fixed portion is journaled a shaft C, the said shaft being provided with a square middle portion *d*.

The shaft C is made of porcelain or other insulating material, and in the end *e* which projects beyond the casing is inserted a cross bar *f*, by means of which it may be turned. Upon the shaft C is mounted a cylinder D, formed of a central part *g*, and disks E of porcelain or other insulating material, such as vulcanized fiber, which is capable of insulating the fuse wires and of receiving the screws *h* by means of which the fuse wires

are clamped to the cylinder. The disks E are attached to the ends of the porcelain part *g* by means of screws *i*.

The periphery of the cylinder D is furnished with longitudinal grooves in which are placed the fuse wires F, the ends of the said fuse wires being bent at right angles and curved to form eyes *j* for receiving the screws *h* which clamp the wires to the ends of the cylinder D. In some cases I insert a plate *k* of metal between the eyes *j* and the adjoining disk E of vulcanized fiber.

To the base of the casing A is secured a bar G of insulating material, provided with bosses *l* which project through the casing for receiving the screws *m* which clamp the contact springs H to the bar G. Between the heads of the screws *m* and the springs H, are clamped the conductors *n n* which convey the current into and out of the casing, the casing being provided with insulating thimbles *o* through which the conductors *n n* pass. The contact springs H extend over the ends of the cylinder D, and bear upon the screws *h* which clamp the fuse wires F, the said springs embracing between them one of the fuse wires, as shown in Fig. 3, so that the current entering by one of the wires *n* passes through the spring H, through the fuse wire F, through the other spring H and wire *n* out. When the current exceeds the prescribed strength, the fuse wire melts and the circuit is broken. To restore the circuit it is only necessary to turn forward the cylinder D, bringing another pair of screws *h* under the springs H, thereby throwing another fuse wire into the circuit. The passage of one set of screws from underneath the springs H is indicated by the blow of the spring on the next following pair of screws, so that the attendant can tell by sound alone when the melted fuse is replaced by another. The contact springs H bear inwardly toward each other, and when a set of screws passes from engagement with the springs, the ends of the springs move in the path of the screws just disengaged, as shown in Figs. 2 and 3, and prevent backward movement of the cylinder. In addition to this method of indicating the replacing of the fuse, the end of the casing A is provided with a scale I, which is graduated into as

many divisions as there are fuse wires, so that the cross bar *f*, used as an index in conjunction with the dial, indicates the number of fuses melted. The device is designed
5 mainly for use on electric street cars, and each motorman is provided with an extra cylinder fitted with fuse wires, so that should the entire lot of fuse wires melt, the cylinder D may be replaced by another cylinder containing a full set of fuse wires, by simply
10 opening the casing, taking out the exhausted cylinder, and dropping in the filled one.

Having thus described my invention, I claim as new and desire to secure by Letters
15 Patent—

1. In a cut-out for electric circuits, the combination with the revoluble cylinder, of a series of fuse wires extending over the face of the cylinder and secured to the ends thereof,
20 the contact springs connected with the conductors and bearing inwardly toward each other and between which the said cylinder is inserted, the said fuse wires being adapted to be introduced between the contact springs
25 in succession as the cylinder turns, and means for engaging the free ends of the contact springs to prevent backward movement of the cylinder, substantially as specified.

2. In a cut-out for electric circuits, the combination with a casing, of a cylinder journaled therein, fuse wires extending over the

face of the cylinder, screws for clamping the fuse wires to the ends of the cylinder, and the contact springs extending over the ends
35 of the cylinder and bearing inwardly toward each other and pressing upon the fuse wire clamping screws, the ends of the said springs being adapted to engage the fuse wire clamping screws to prevent backward movement
40 of the cylinder, substantially as specified.

3. The combination with the casing formed of a fixed portion and a hinged cover, of the shaft journaled in the casing on the line of the separation of the cover and fixed portion
45 of the casing, the cylinder formed of a porcelain center and having end disks of insulating material, the fuse wires extending lengthwise over the face of the cylinder, screws for clamping the fuse wires to the end disks, and
50 the contact springs secured to the fixed portion of the case and between which the said cylinder is held, the said springs bearing inwardly toward each other with their inner
55 faces resting on the fuse wire clamping screws, and the free ends of said springs adapted to engage the said screws to prevent backward movement of the cylinder, substantially as specified.

ELMER E. HERSH.

Witnesses:

JOHN R. HERSH,
F. P. MANNIX.