

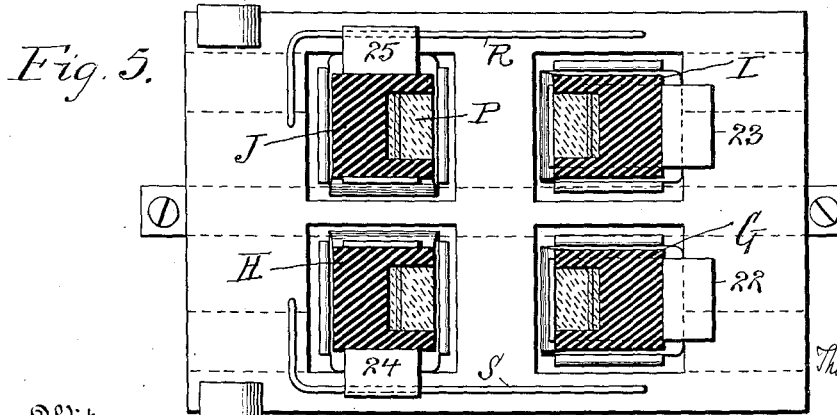
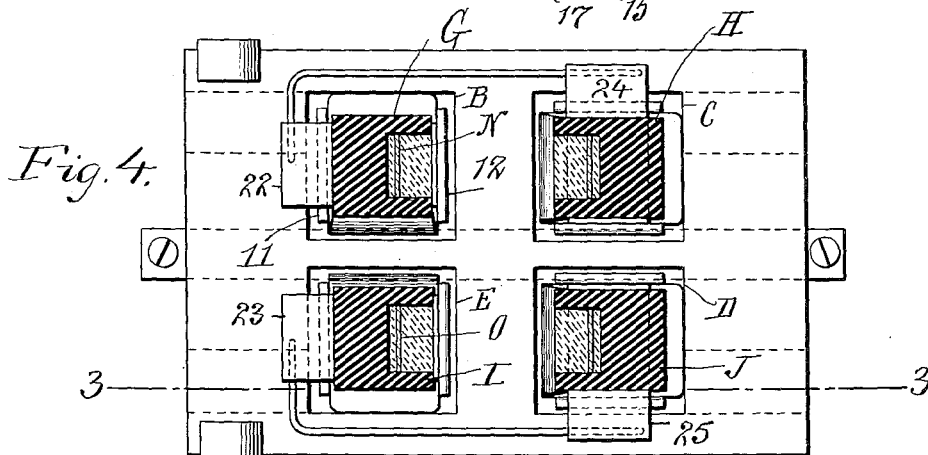
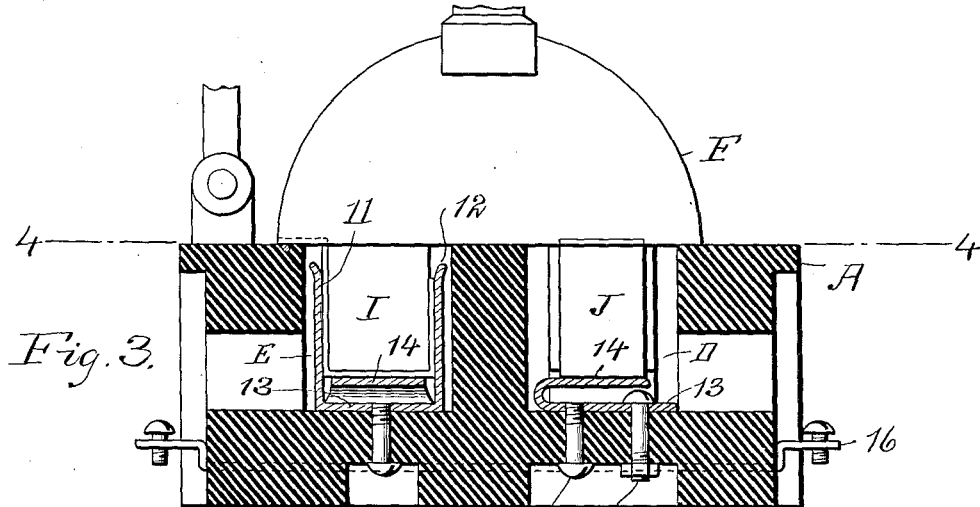


T. E. MURRAY.  
ELECTRIC CUT-OUT.  
APPLICATION FILED JUNE 16, 1910.

970,088.

Patented Sept. 13, 1910.

4 SHEETS—SHEET 2.



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By *his Attorney*

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4 SHEETS—SHEET 3.

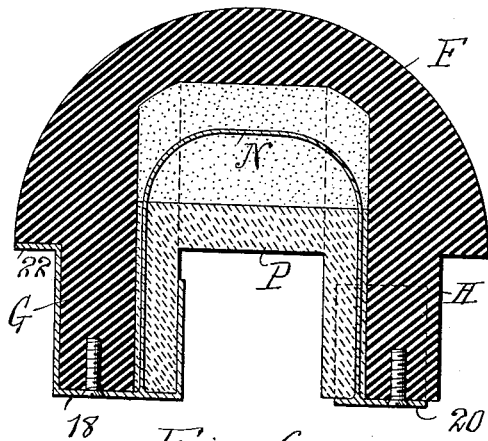


Fig. 6.

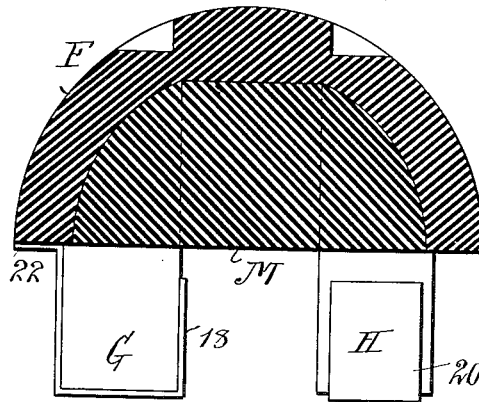


Fig. 7.

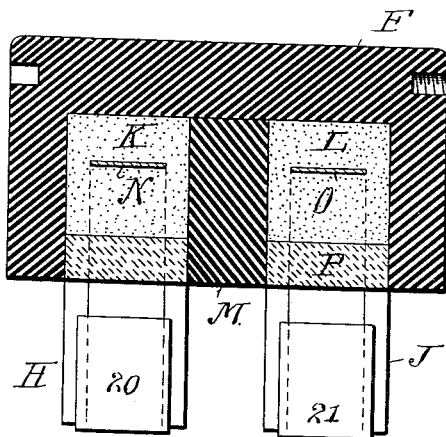


Fig. 8.

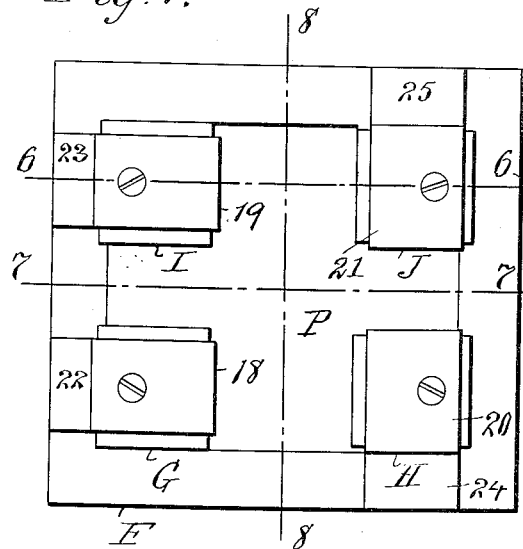


Fig. 9.

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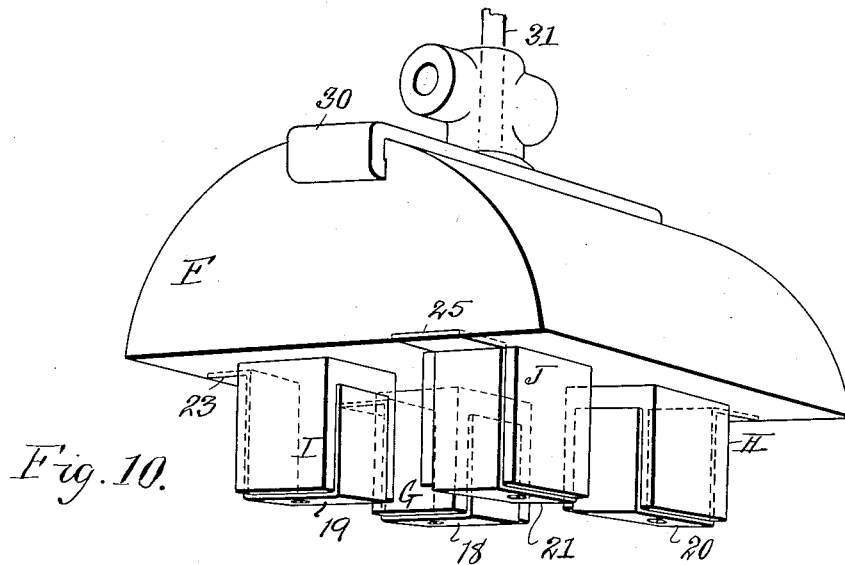


Fig. 10.

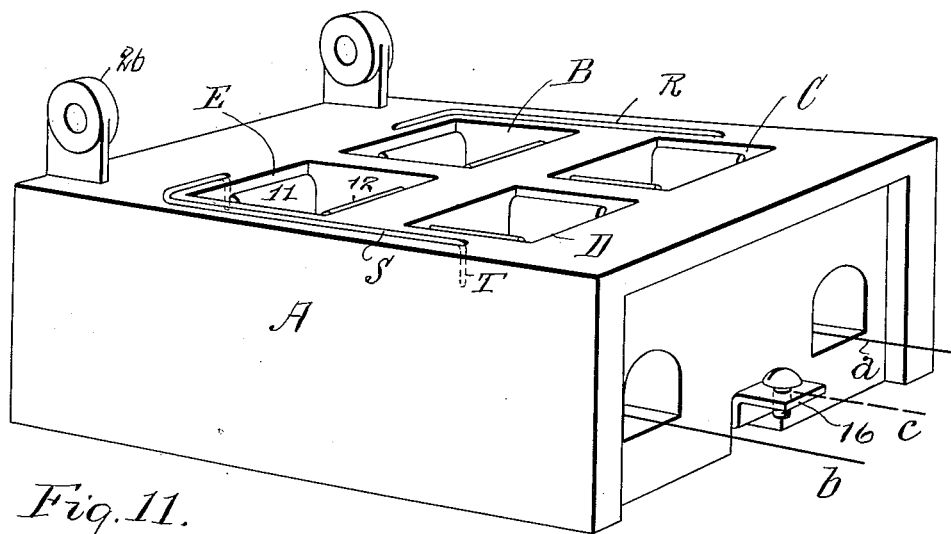


Fig. 11.

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# UNITED STATES PATENT OFFICE.

THOMAS E. MURRAY, OF NEW YORK, N. Y.

ELECTRIC CUT-OUT.

970,088.

Specification of Letters Patent. Patented Sept. 13, 1910.

Application filed June 16, 1910. Serial No. 567,130.

*To all whom it may concern:*

Be it known that I, THOMAS E. MURRAY, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented a certain new and useful Improvement in Electric Cut-Outs, of which the following is a specification.

The invention relates to an electric cut-out, and consists in the construction, whereby the fuse holder is inserted and removed from the base block, whereby said fuse holder is rotated to cut the fuses therein into or out of circuit, whereby said fuse holder is locked in the base block with the fuses either in or out of circuit as may be desired, whereby the blowing of one of the two main fuses is prevented from affecting the other fuse, and whereby the blowing of either or both main fuses is indicated by tell-tale fuses so arranged as to avoid the necessity of opening the fuse holder to examine said main fuses.

The invention further consists in the details of construction more particularly pointed out in the claims.

In the accompanying drawings—Figure 1 is an end elevation of my improved cut-out, Fig. 2 is a top view. Fig. 3 is a vertical section on the line 3, 3, of Fig. 4. Fig. 4 is a horizontal section on the line 4, 4, of Fig. 3, showing the fuse plug in the position shown in Fig. 3, closing circuit through the fuses. Fig. 5 is a similar section showing the fuse plug in reversed position to cut out the fuses. Fig. 6 is a vertical section of the fuse plug on the line 6, 6, of Fig. 9. Fig. 7 is a similar section on the line 7, 7, of Fig. 9. Fig. 8 is a transverse vertical section of the fuse plug on the line 8, 8, of Fig. 9. Fig. 9 is a bottom view of the fuse plug. Fig. 10 is a perspective view of the fuse plug, with the operating lever removed, and Fig. 11 is a perspective view of the base block.

Similar numbers and letters of reference indicate like parts.

The base block A is preferably of porcelain or other refractory insulating material and is made in a single piece. It is provided with four sockets B, C, D, E, in which are disposed pairs of spring clips. Each clip comprises two upwardly extending metal arms 11, 12, Fig. 3, formed integrally with a connecting bottom plate 13, which on one side has an extension 14 bent over to form a spring parallel to the connecting portion

13. The clips in sockets B, E are disposed at right angles to the clips in sockets C, D. The terminals of one potential conductor *a*, Fig. 11, of a three wire system are connected respectively to the clips B, C by bolts, as 15, Fig. 3, suitable openings being made in the end walls of the block; the terminals of the other potential conductor *b* are connected respectively to the clips D, E; the terminals of the neutral conductor *c* are connected to the ends of a metal strip 16 seated in a recess on the under side of block A. The several clips are secured in the sockets B, C, D, E, by means of screws 17 countersunk in recesses, also on the under side of the block.

The fuse plug F is in the form of a half cylinder, provided on its flat side with four cubical projections G, H, I, J, which enter respectively the sockets B, C, E, D. The plug is internally divided into two chambers K, L by the inserted partition M, also of porcelain. To each projection G, H, I, J is secured a metal contact plate, which extends across the bottom of the projection and up on two opposite sides thereof. The contact plates 18, 19 on projections G, I are at right angles to the contact plates 20, 21 on projections H, J. On contact plates 18, 19 are flanges 22, 23, and on contact plates 20, 21 are flanges 24, 25, said flanges, as shown in Fig. 7, lying against the under side of the semi-cylindrical portion of the fuse plug. The inner sides of the projections G, H, I, J are channeled, as shown in Figs. 4 and 5, and through these channels pass the main fuse strips N, O. The fuse strip N is connected at its ends to the contact plates 18 and 20 on projections G, H and arches over in the chamber K. The fuse strip O is connected at its ends to the contact plates 19, 21 on projections I, J and arches over in the chamber L. The space within the two chambers inclosing the arched portions of fuses N, O is to be filled with a pulverized refractory insulating material, such as magnesia. The remainder of said space and the channels in the projections are preferably filled with plaster of paris P in plastic state, which, on hardening, embeds the fuse and also forms a cover or retaining wall which prevents escape of the pulverized material.

In the upper surface of the block A, outside of the sockets B, C, D, E, are seated two additional fuse wires or strips R, S disposed relatively parallel and each having one end

turned at right angles. The extremities of said strips may be bent downwardly and inserted in openings in the base block, as shown at T, Fig. 11, so as to hold said strips in place. The location of said strips is such, as that when the projections on the plug are inserted in the sockets, as shown in Fig. 4—the projection G then entering the recess B—the flanges 22, 23, 24, 25 on the contact plates on said projections will touch said strips, for the purpose hereafter explained.

Pivoted in lugs 26 on the upper side of block A are links 27 which are pivoted at their upper ends to the arms of a bifurcated lever 28, provided with an operating handle 29.

Extending across the arch of the fuse plug F is a bar 30, the ends of which are bent over so as to enter recesses in the sides of said plug, as shown in Fig. 10. From the middle point of said bar rises a pin 31, threaded at its upper end to receive a threaded disk 32 and a nut 33. Upon the pin is placed a sleeve 34, having studs 35 on each side, by means of which said sleeve is pivoted between the arms of lever 28. Secured at one end to disk 32, and at the other end to sleeve 34, is a helical spring 36, Fig. 1, the normal effect of which, when wound, is to rotate the pin 31 in the sleeve 34, and so to turn the plug F on the pin 31 as an axis.

Between the arms of lever 28 is pivoted a shaft which carries a latch 37, which is operated by the lever 38. Said latch, by means of the leaf spring 39, is normally held in engagement with one or the other of two notches 40, 41, formed in the fuse plug. Depending from the latch shaft are arms 42, connected by a cross bar which on one side has a hook 43 which engages under a nut 44 on the upwardly projecting threaded pin 46, which is secured in the base block A. The nut 44 may be prevented from turning in any suitable way: as here shown, it is provided with an upward projection 45, through which passes one part of a wire loop 49, both parts of which extend through an opening in a projection 47 on the other side of the bar connecting arms 42. The two ends of the loop are connected by any suitable seal 48.

The operation of the entire device is as follows: Under normal conditions, the projections on the plug F are inserted in the base sockets, so that the projection G enters the socket B, as shown in Fig. 4. Circuit is then made from both potential conductors through the main fuses N, O; and by reason of the flanges 22, 24 meeting the auxiliary fuse R, and the flanges 23, 25 meeting the auxiliary fuse S, said auxiliary fuses are brought into parallel with the main fuses. As the projections enter the sockets they force down the springs 14 on the bottom

plates 13 of clip arms 11, 12, good electrical connection between said springs and the contact plates on said projections being thus secured. The lever 28 is then locked in position, by carrying the hook 43 under the nut 44 which is screwed down, and prevented from being turned backward by means of the loop wire 49 and seal 48. When it is desired to cut the fuses out of circuit, the seal 48 on loop wire 46 is broken and the lever 28 is raised. When the projections rise clear of the sockets, the latch lever 38 is pressed down, causing the latch 37 to rise from the notch 41, and thus permitting the plug F to be turned by the spring 36 a half revolution on the pin 31 as an axis. The latch then engages in notch 40. The lever 28 is then depressed to insert the projections again in the sockets, but by reason of the half revolution, the plug will have been reversed end for end, the projection J entering the socket B, and the position being as shown in Fig. 5. Circuit through both the main fuses N, O and the auxiliary fuses R, S is thus broken. The lever 28 is finally locked in place in the manner already described, the seal fastening preventing any unauthorized raising of the lever and consequent access to the plug again to establish circuit.

In case of the blowing of either fuse N, O, the corresponding auxiliary fuse R or S will also be blown. Hence the fuses R, S serve as tell-tales, from which the condition of the main fuses can be seen without opening the fuse plugs.

I claim:

1. An electric cut-out comprising a base having two pairs of sockets and circuit terminals therein, a removable fuse plug, a partition dividing said plug into two compartments, a fuse in each compartment, projections on said plug, and contact plates on said projections, to which plates the ends of said fuses are connected; the said projections entering said sockets to close circuit through said terminals and plates to said fuses.

2. An electric cut-out comprising a base having two pairs of sockets and pairs of clip arms forming circuit terminals therein, a removable fuse plug, a partition dividing said plug into two compartments, a fuse in each compartment, projections on said plug, and contact plates on said projections, to which plates the ends of said fuses are connected; the said contact plates on said projections being placed with reference to the clip arms in said sockets so that when the projections are inserted in said sockets circuit shall be closed through said fuses, and when the plug is reversed end for end and the projections again inserted in said sockets, circuit through said fuses shall be opened.

3. An electric cut-out comprising a base, a fuse plug supported thereon, circuit terminals on said base and plug, relatively so disposed that circuit through the plug may be broken by reversing said plug end for end, a device for lifting said plug from said base, and means on said lifting device for reversing said plug.

4. An electric cut-out comprising a base, a fuse plug supported thereon, circuit terminals on said base and plug, relatively so disposed that circuit through the plug may be broken by reversing said plug end for end, a device for lifting said plug from said base, means on said lifting device for reversing said plug, and a latch engaging said plug.

5. An electric cut-out comprising a base, a fuse plug supported thereon, circuit terminals on said base and plug, relatively so disposed that circuit through the plug may be broken by reversing said plug end for end, a device for lifting said plug from said base, and locking mechanism for preventing the operation of said device.

6. An electric cut-out comprising a base, a fuse plug supported thereon, circuit terminals on said base and plug, relatively so disposed that circuit through the plug may be broken by reversing said plug end for end, a lever pivoted on said base for lifting said plug therefrom, a sleeve on said lever, a pin on said plug entering said sleeve, a helical spring connected to said pin and to said sleeve for rotating said plug on said pin as an axis, and a latch on said lever engaging said plug.

7. An electric cut-out comprising a base having sockets and horizontal spring circuit terminals at the bottoms thereof, a fuse plug, projections on said plug entering said sockets, contact plates on the bottoms of said projections, a device on said base for moving said plug into said sockets against the resiliency of said spring terminals, and means for securing said inserted plug in place.

8. An electric cut-out comprising a base having sockets and horizontal spring circuit terminals at the bottoms thereof, a fuse plug, projections on said plug entering said sockets, contact plates on the bottoms of said projections, a pivoted lever on said base connected to said plug for moving said plug into said sockets against the resiliency of said spring terminals, and means for locking said lever to hold said inserted plug in place.

9. An electric cut-out comprising a base having two pairs of sockets and circuit terminals therein, a removable fuse plug, projections on said plug, contact plates on said

projections, and fuses on said plug connected to said plates, the said contact plates being placed with reference to said terminals so that when the projections are inserted in said sockets circuit shall be closed through said fuses, and when the plug is reversed end for end and the projections again inserted in said sockets, circuit through said fuses shall be opened: a device for lifting said fuse plug from said base, and means on said lifting device for reversing said plug.

10. An electric cut-out comprising a base having two pairs of sockets and circuit terminals therein, a removable fuse plug, projections on said plug, contact plates on said projections, and fuses on said plug connected to said plates, the said contact plates being placed with reference to said terminals so that when the projections are inserted in said sockets circuit shall be closed through said fuses, and when the plug is reversed end for end and the projections again inserted in said sockets, circuit through said fuses shall be opened: a device for lifting said fuse from said base, a releasable holding means for preventing rotation of said plug, and means on said lifting device for reversing said plug upon the release of said holding means.

11. An electric cut-out comprising a support, circuit terminals thereon, an auxiliary fuse, and a removable main fuse plug closing circuit between said terminals and through said auxiliary fuse.

12. An electric cut-out comprising a base having sockets and circuit terminals therein, an auxiliary fuse on said base, and a removable fuse plug entering said sockets and closing circuit between said terminals and through said auxiliary fuse.

13. An electric cut-out comprises a base having sockets and circuit terminals therein, an auxiliary fuse on said base, and a removable fuse plug covering said auxiliary fuse, entering said sockets and closing circuit between said terminals and through said auxiliary fuse.

14. An electric cut-out comprising a base having sockets and circuit terminals therein, an auxiliary fuse on said base, a removable fuse plug having projections entering said base, and contact plates on said projections closing circuit between said terminals and through said auxiliary fuse.

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

THOMAS E. MURRAY.

Witnesses:

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MAY T. MCGARRY.