

T. E. MURRAY.
ELECTRIC CUT-OUT.

APPLICATION FILED MAR. 27, 1909.

Patented Mar. 8, 1910.

3 SHEETS—SHEET 1.

951,446.

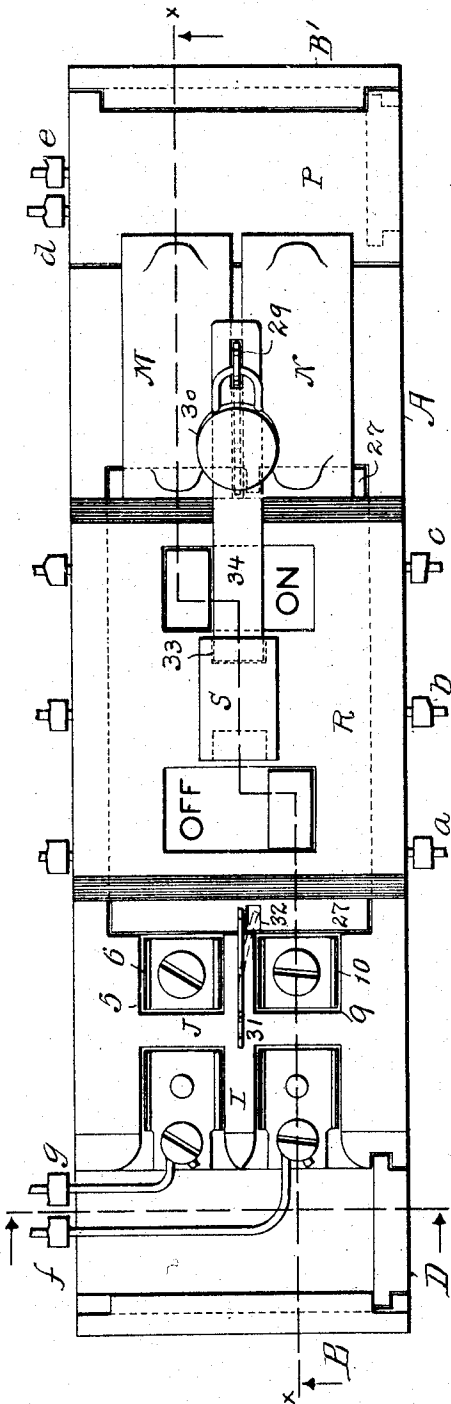


Fig. 1.

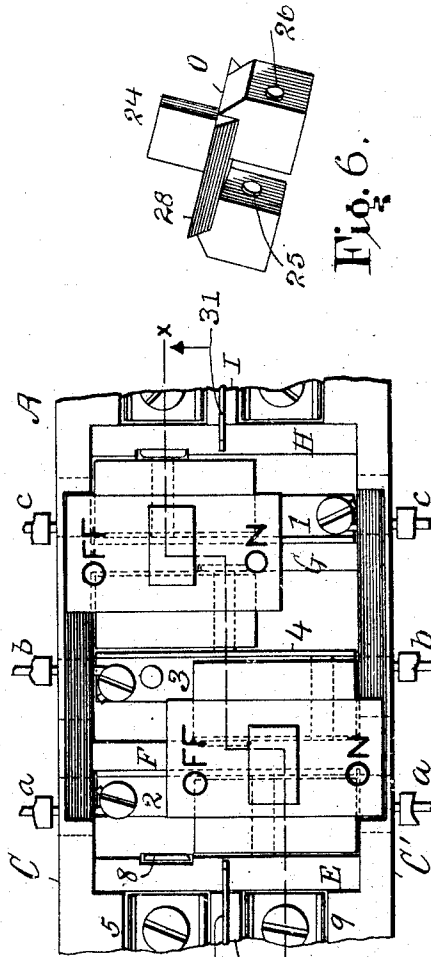


Fig. 2.

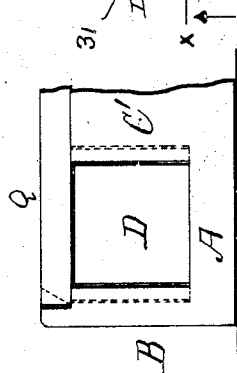


Fig. 3.

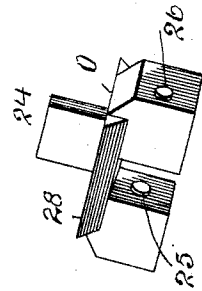


Fig. 6.

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3 SHEETS—SHEET 2.

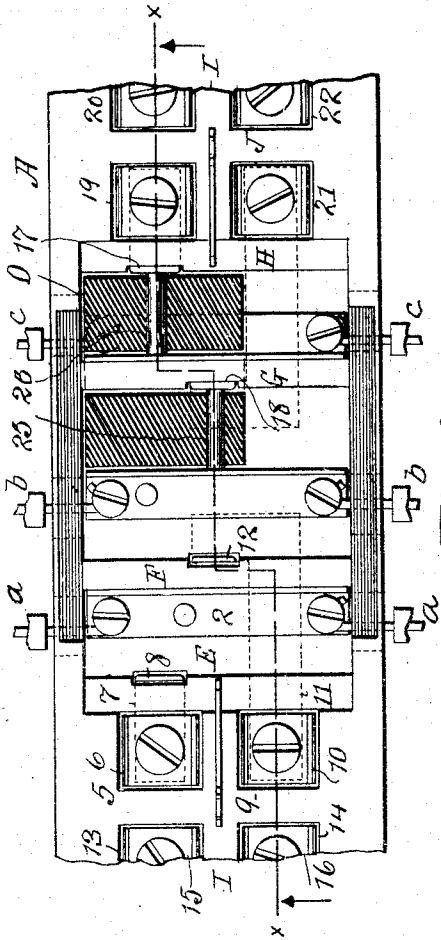


Fig. 3.

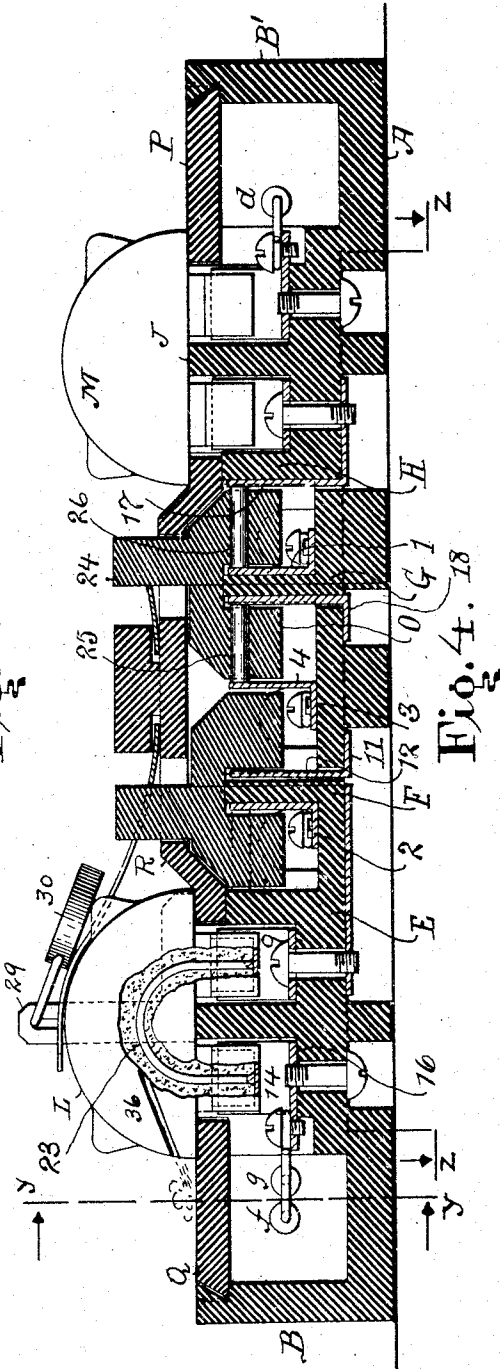


Fig. 4.

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3 SHEETS—SHEET 3.

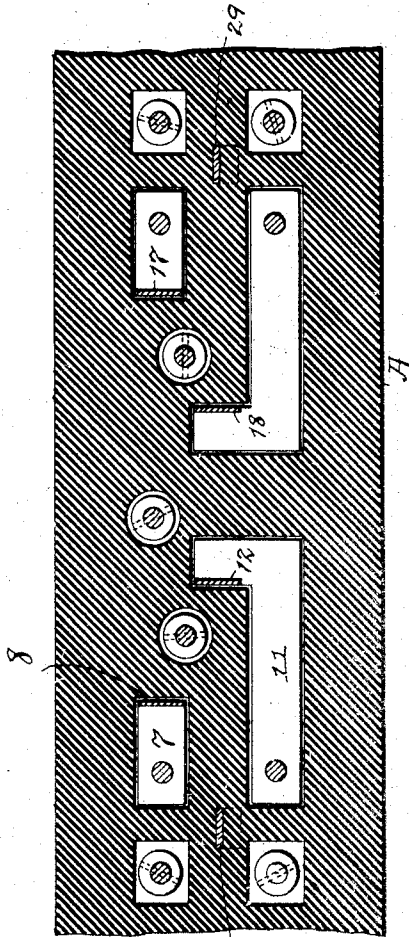


Fig. 8.

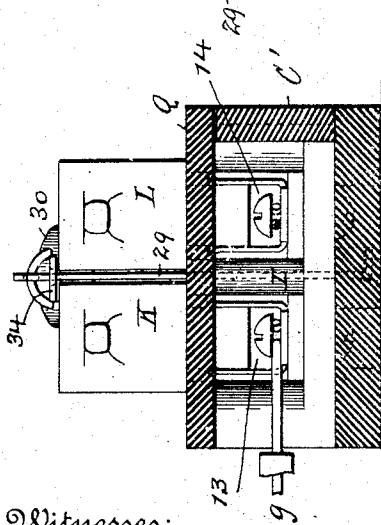


Fig. 7.

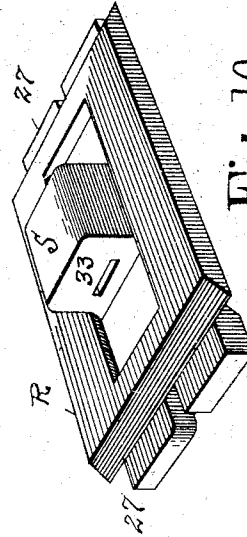


Fig. 10.

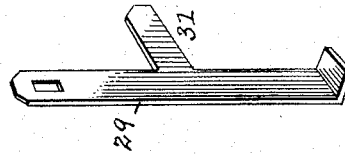


Fig. 9.

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UNITED STATES PATENT OFFICE.

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ELECTRIC CUT-OUT.

951,446.

Specification of Letters Patent.

Patented Mar. 8, 1910.

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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 electric cut-outs, and consists in the construction, whereby a local circuit or either of two local circuits derived from main conductors may be cut out, without removing the fuse cases, which fuse cases are themselves removable from the containing box and are respectively disposed in circuit with the local conductors.

The invention further consists in the various combinations recited in the claims.

In the accompanying drawings—Figure 1 is a plan view of the device with the cover and fuse cases at the left hand end removed. Fig. 2 is a plan view of the middle portion of the device with the cover and fuse cases removed. Fig. 3 is a plan view of the middle portion of the device with the cover and fuse cases removed, the sliding switch bars removed from the left hand side and the sliding switch bars on the right hand side shown in horizontal section. Fig. 4 is a section on the lines *x, x*, of Fig. 1, Fig. 2 and Fig. 3. Fig. 5 is an elevation of one corner of the containing box showing the removable plates in the side walls. Fig. 6 shows one of the sliding switch bars separately and in perspective. Fig. 7 is a section on the line *y, y*, of Fig. 1 and Fig. 4. Fig. 8 is a section on the line *z, z*, of Fig. 4. Fig. 9 shows one of the locking devices separately and in perspective. Fig. 10 shows the middle of the cover separately and in perspective.

Similar letters and numbers of reference indicate like parts.

As here shown, my device is constructed to control two local circuits receiving current from a three wire system of which *a* and *c* are respectively the plus and minus, and *b* the neutral conductor. The local conductors *d, e* on the right hand side of Fig. 1 are respectively connected to the main conductors *b* and *c*, and the local conductors *f, g* on the left hand side of Fig. 1 are respectively electrically connected to the main conductors *a* and *b*.

A is the containing box made, preferably, of porcelain or other fictile material, having end walls B, B' and side walls C, C'. The side walls C are separated from the end walls by a space, which may be closed, if desired, by the vertical plates D which slide in ways made in the ends of the side walls and on the inner faces of the end walls (Fig. 5).

Within the box are four transverse partitions E, F, G, H, dividing the middle part of said box into three compartments. In the compartment between partitions G, H is secured a metal plate 1 having a bent up vertical portion which is in contact with partition G. To the ends of this plate are connected the terminals of main conductor *c* passing through openings in the side walls C, C'. In the compartment between partitions E, F is a similar plate 2 having a bent up vertical portion which is in contact with partition F. To the ends of this plate are connected the terminals of main conductor *a* passing through openings in the side walls. In the compartment between the partitions F, G is a similar plate 3 having a bent up portion 4 which divides said compartment into two sub-compartments. To the ends of plate 3 are connected the terminals of neutral conductor *b* passing through openings in the side walls.

From partition E extends a longitudinal partition I which is bisected by a transverse partition J, so that four sockets are formed, the outer sockets opening into the space between the ends of the side walls C, C' and the end walls. In the socket 5 is secured a metal plate having two upwardly extending spring arms 6, which connects by means of its fastening screw, extending through the bottom of the box, with a metal plate 7 having an upwardly turned portion 8 which passes up through the box bottom and enters the compartment containing the conductor *a*, above described, and lies in a recess on the inner face of partition E. In socket 9 is a metal plate having upwardly extending spring arms 10, similar to arms 6, and connecting by its fastening screw, extending through the bottom of the box, with a metal plate 11 having an upwardly turned portion 12 which passes up through the box bottom and enters the compartment containing the neutral conductor *b*, above described, and

lies in a recess on the inner face of partition F. In the sockets 13 and 14 are metal plates 15, 16, each having a pair of upwardly extending spring arms, similar to arms 6, and to these plates the local conductors *f*, *g* are respectively connected. On the opposite end of the case A, four sockets, 19, 20, 21, 22 are formed in like manner, containing plates and pairs of spring arms. The arms in the sockets 19, 21 are connected respectively to plates 17, 18, located in recesses on the inner sides of partitions G, H, and the arms in the sockets 20, 22 are connected to the local conductors *f*, *g*.

In each pair of sockets 19, 20: 21, 22: 5, 13, and 9, 14, is inserted the square plug ends of fuse cases K, L, M, N. The fuse cases are alike. Each comprises an upper arched over portion in which is formed a bore to receive the fuse strip 23, the terminals of said strip being connected to metal contact plates on the exterior of the plug ends, and the space in the bore surrounding said strip being filled with pulverized non-combustible material. The plug ends of the fuse cases are received between the spring arms in the sockets, and in this way, circuit is closed through the fuse strips from the main to the local conductors. Either local circuit can be broken by removing the appropriate fuse case or cases from the sockets.

In order to make and break circuit from the main conductors to either pair of local conductors, without removing the fuse cases from their sockets, I provide the following construction. A bifurcated block, O, Fig. 6, having an upwardly projecting operating handle 24, straddles and slides along the partition G. Extending transversely through one leg of said block is a metal rod 25 having its ends exposed. Extending transversely through the other leg of said block is a metal rod 26, also having its ends exposed. One end of the rod 25 always bears against the bent up portion 4 of plate 3. The other end of rod 25 may make contact with the plate 18 on partition G. One end of rod 26 always bears against the plate 1 on the opposite side of partition G. The other end of rod 26 may make contact with the plate 17 on partition H. Referring now to Fig. 3, it will be obvious that when the block O is in the position there shown, circuit is closed from main conductor *c* by plate 1 to rod 26, to plate 17 and so to the fuse case M in sockets 19, 20 and local conductor *d*. Circuit is also closed from neutral conductor *b* by rod 25 to plate 18, to fuse case N in sockets 21, 22 and local conductor *e*. When the block O is moved to the opposite end of its path, the rods 25, 26 will no longer make contact with plates 17 and 18, and hence local circuit in conductors *d*, *e* will be broken. A precisely similar block

straddles partition F, and in like manner slides to make and break circuit through the fuse cases K, L and to local conductors *f*, *g*.

There are three covers as follows: a cover P resting at one edge on shoulders formed in the upper ends of the side walls C, C' and beveled at its opposite edge to pass under a shoulder on the end wall B', thus extending over the space between the side walls and the end wall B'. A similarly arranged cover Q extends over the space between the side walls and the end wall B. A middle cover R, Fig. 10, having on its under side and at its opposite edges, projections 27 which rest on top of the partitions E, H and between the side walls C, C', and are received at their outer edges in suitably formed recesses in said walls. In said cover are elongated openings through which pass the operating handles of the sliding switch blocks O.

On the upper portion of each block O are beveled flanges 28 which are received upon suitably beveled inner edges of the side walls C, C'. On the upper surface of each block, and in proximity to the handle may be marked the words Off and On,—the word On showing through the handle slots when the block is in the position shown in Fig. 3, to close circuit to the local conductors, and the word Off showing when the block is in the opposite position to break circuit.

In order to lock the fuse cases and middle cover in place, I provide vertical metal strips 29, Fig. 9, embedded in the partitions I and extending up through the narrow spaces between said cases. Above said cases an opening near the end of each strip receives the shackle of a seal fastening 30. The two strips 29 are each provided with an arm 31, which arms extend for a short distance over the middle cover. The cover is first put in place, the arms 31 then being sprung slightly to one side (dotted lines Fig. 1) to pass through recesses 32 in the edges of said cover, and afterward springing back straight and above the solid part of the cover in proximity to said recesses. The fuse cases are then inserted in their sockets, and hence receive the arms 31 between them, so that so long as said fuse cases are seated, said arms cannot be bent sidewise to enter the recesses 32. The seal shackle is then passed through the opening in the vertical strip 29. In this way the strips 29 and arms 31 thereon serve the double purpose of locking the fuse cases and cover R in place.

In order to lock the sliding switch bars O, I provide on each side of the projection S on cover R, recesses 33 in which enter the ends of bent metal strips 34. Near the opposite ends of said strips are openings 35 through which the extremities of the strips 29 pass, so that removal of the strips 34 is also prevented by the seals 30. The edges of

the strips 34 bear against the operating handles 24 of the switch bars, and hence prevent movement thereof. When it is desired to move said bars, the strips 34 are taken off of the strips 29 and their ends taken out of the recesses in projection S.

In order to indicate the blowing of a fuse, I provide in each fuse case a downwardly inclined passage 36, Fig. 3, communicating with the bore thereof. When the fuse blows, the escaping gases from said passage make a mark on the white upper surface of the adjacent porcelain cover Q.

I claim:

1. In an electric cut-out, a box, a fuse case and fuse therein, the said case having its ends entering sockets in said box, circuit connections in said sockets, a fixed contact electrically connected to the circuit connections in one of said sockets, a longitudinally slidable switch member in said box movable to open or close circuit at said contact, and means for guiding said member in its path of movement.

2. In an electric cut-out, a box, a removable fuse case and fuse therein, the said case being in arch form having its parallel ends entering sockets separately formed in said box, circuit connections in said sockets, a fixed contact electrically connected to the circuit connections in one of said sockets, a longitudinally slidable switch member in said box movable to open or close circuit at said contact, and means for guiding said member in its path of movement.

3. In an electric cut-out, a box, two arched fuses therein having their ends disposed in sockets separately formed in said box, fixed contacts connected respectively to said fuses, circuit conductors entering said box, a longitudinally slidable switch member in said box movable to open or close circuit from said contacts simultaneously to said conductors, and means for guiding said member in its path of movement.

4. In an electric cut-out, a box, two fuses therein, fixed contacts connected respectively to said fuses, circuit conductors entering said box, a longitudinally slidable switch block in said box movable to close and open circuit at said fixed contacts, and thereby to cut both of said fuses simultaneously into or out of circuit with said conductors and means for guiding said block in its path of movement.

5. In an electric cut-out, a box, two fuse cases and fuses seated in said box, a transverse partition, a switch block slidable on

said partition, and circuit connections; said block being movable to open and close circuit to both of said fuses simultaneously.

6. In an electric cut-out, an inclosing box, a cover having an opening, a longitudinally slidable switch member movable in said box to open and close circuit, means for guiding said member in its path of movement, a projection on said member of less cross sectional area than said opening and extending through the same, and a locking device engaging said projection and retaining said switch member in adjusted position.

7. In an electric cut-out, a box having four sockets, two fuse cases having end projections entering said sockets, a fixed strip extending outwardly from said box and between said fuse cases and having an opening near its protruding end, and a seal device secured in said opening.

8. In an electric cut-out, an inclosing box and disposed therein, a fuse case and fuse, and a movable member for making and breaking circuit to said fuse, the said movable member being operable from the exterior of said box, and a device for simultaneously locking said member in adjusted position and said fuse case in place.

9. In an electric cut-out, an inclosing box, a cover having an opening, a longitudinally slidable switch member movable in said box to open and close circuit, means for guiding said member in its path of movement, a projection on said member of less cross sectional area than said opening and extending through the same, and on the upper surface of said member on opposite sides of said projection, means for visually indicating the make or break of circuit in accordance with the position of said member.

10. In an electric cut-out, an inclosing box, main conductors, a plurality of pairs of branch conductors, a plurality of fuse cases within said box respectively connected in circuit with said branch conductors, independently movable switch members in said box for making and breaking circuit from said main conductors to each pair of branch conductors, and means for visually indicating the make and break of circuit in said pairs of branch conductors in accordance with the position of said members.

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

THOMAS E. MURRAY.

Witnesses:

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GERTRUDE T. PORTER.