T. E. MURRAY.

ELECTRIC CUT-OUT.

APPLICATION FILED OCT. 4, 1911.

**1,028,256.**

Patented June 4, 1912.

3 SHEETS—SHEET 1.

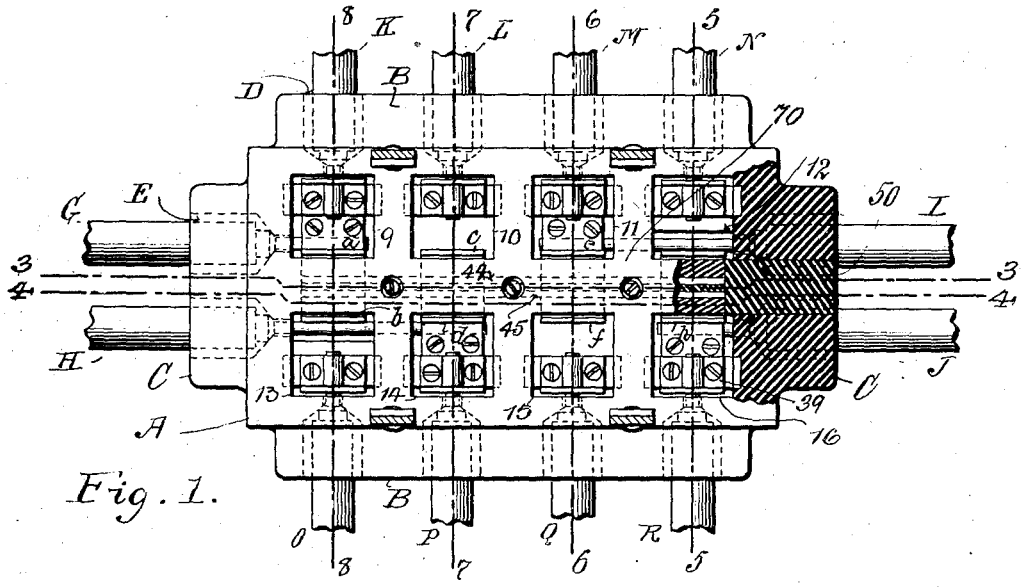

Fig. 1.

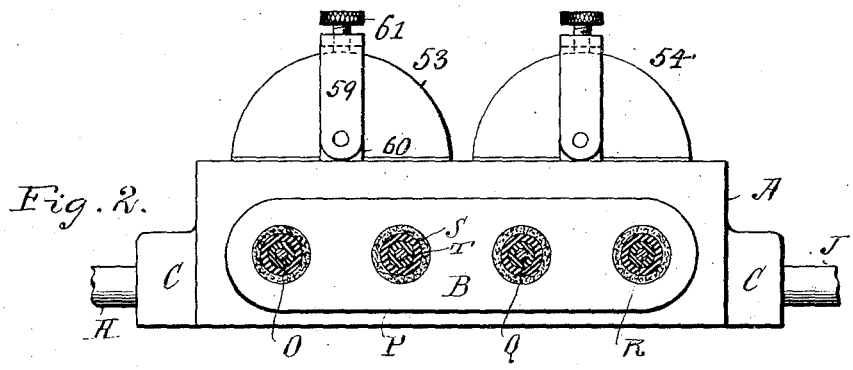

Fig. 2.

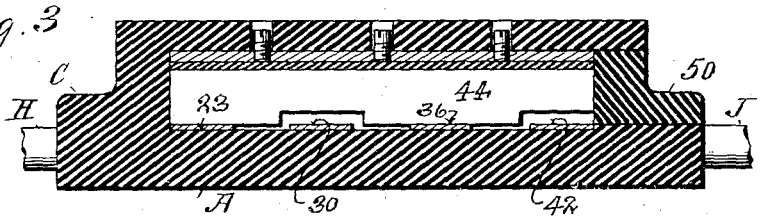

Fig. 3

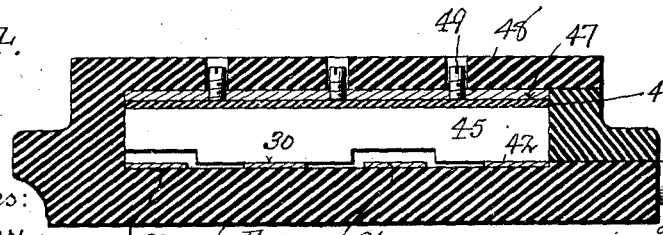

Fig. 4.

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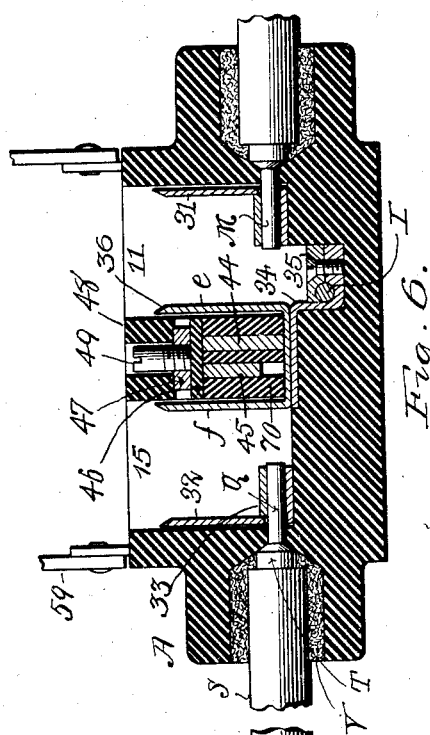

Fig. 6.

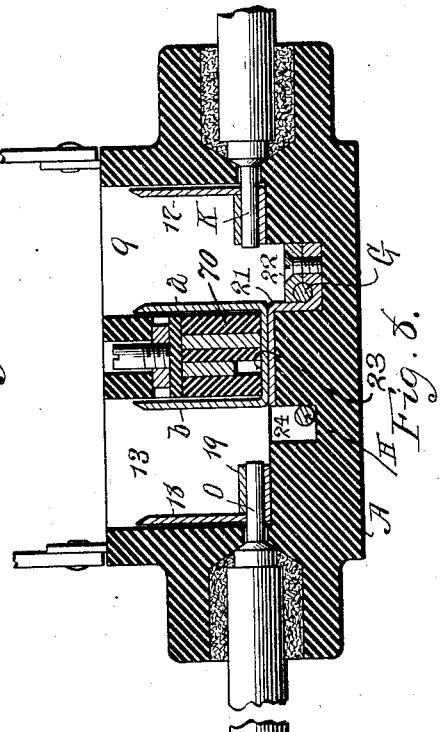

Fig. 8.

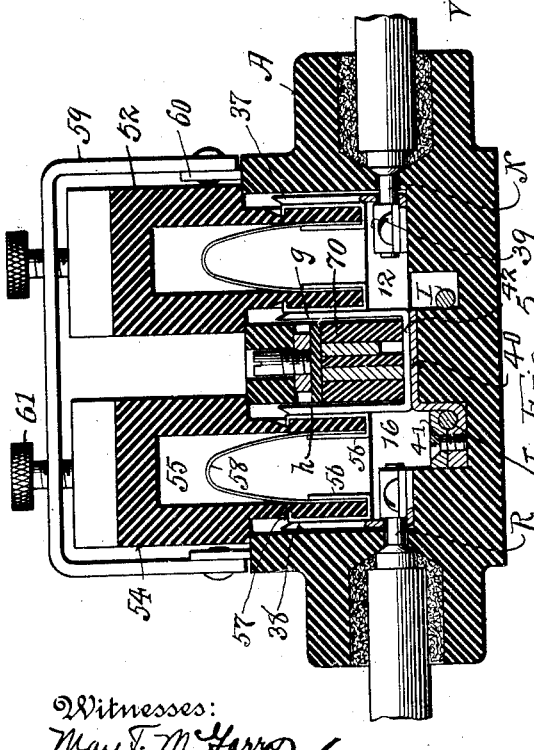

Fig. 5.

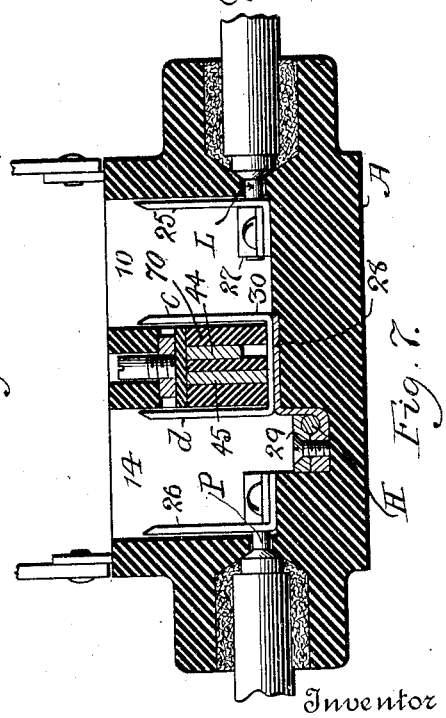

Fig. 7.

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3 SHEETS—SHEET 3.

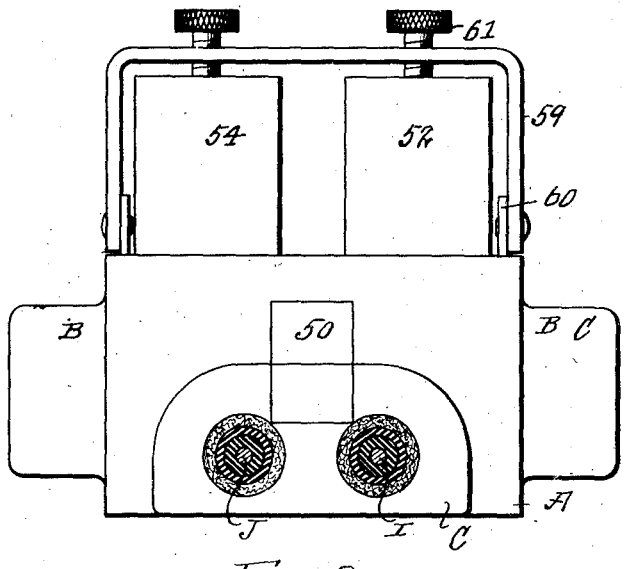


Fig. 9.

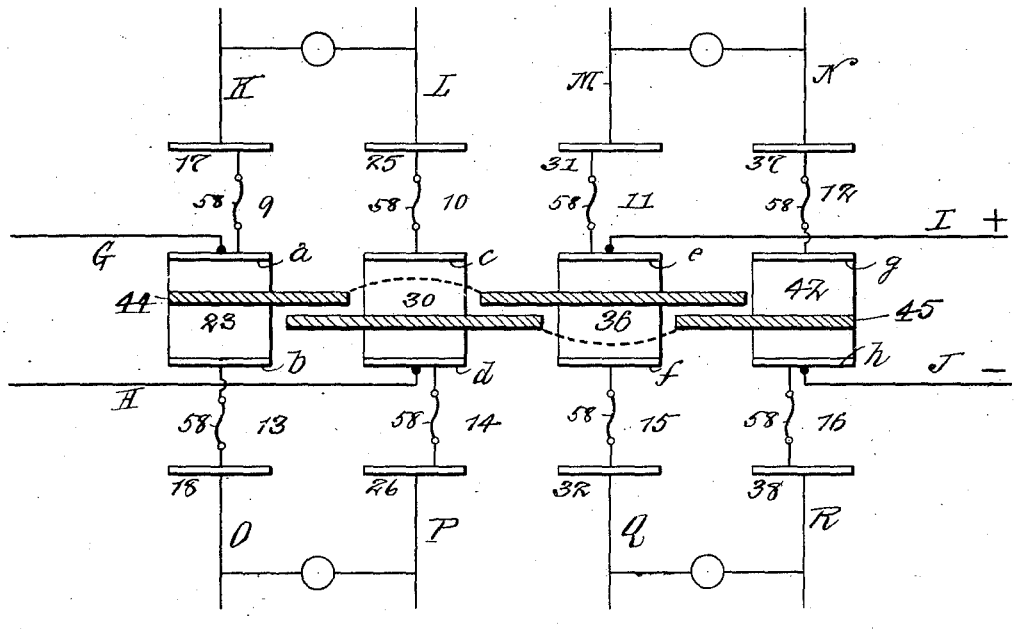


Fig. 10.

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# UNITED STATES PATENT OFFICE.

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

## ELECTRIC CUT-OUT.

1,028,256. Specification of Letters Patent. Patented June 4, 1912.

Application filed October 4, 1911. Serial No. 652,793.

*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 is an electric cut-out and consists in the construction, hereinafter set forth, whereby branch circuits are taken directly from the main circuit conductors, with a removable fuse in each lead.

Upon the base block are four fixed contacts, to each of which a group of three leads are connected. Said groups of leads and hence said contacts may be of alternately opposite polarities. The contacts of like polarity are then connected by bridges. The leads are suitably connected to form main and branch circuits, and means are provided for removably inserting fuses in two members of each of said groups of leads.

In the accompanying drawings—Figure 1 is a plan view of my cut-out box, with the fuse holders removed, part of said box being broken away and in section. Fig. 2 is a side elevation, with the branch conductors and lead floss packing in section. Fig. 3 is a longitudinal section on the line 3, 3 of Fig. 1. Fig. 4 is a longitudinal section on the line 4, 4 of Fig. 1. Figs. 5, 6, 7 and 8 are respectively transverse sections on the lines 5, 5—6, 6—7, 7 and 8, 8 of Fig. 1. In Fig. 5, the fuse holders are in place, and in Figs. 6, 7 and 8 they are removed. Fig. 9 is an end elevation, the main line conductors and lead floss packing being in section. Fig. 10 is a diagram showing the circuits.

Similar letters and numbers of reference indicate like parts.

A is the base block, preferably formed of refractory insulating material, such as porcelain. On opposite sides of said block are projections B, and on opposite ends of said block are projections C. In each projection B are four circular recesses D, and in each projection C two circular recesses E, each recess having preferably an inwardly tapering inner end. The recesses E receive the terminal ends of the main line leads G, H and I, J. The recesses D receive the terminal ends of four parts of branch or load circuit leads, namely, K, L, M, N, O, P, and Q, R. Each line conductor is provided with a lead sheath S, Fig. 6, and an inner insulating cover T, preferably of rubber or other elastic material. Each conductor is secured in its recess in the following manner: The extremity is denuded so as to expose the bare wire for a suitable distance to make the appropriate connection, as hereinafter described. Then the lead sheath S is removed to expose a portion of the elastic inner cover T, Fig. 6. The denuded end is inserted through a passage in the wall of the block which communicates with the recess until the extremity of the inner elastic cover T, which is suitably tapered, becomes seated in said recess. While the elastic cover T is held compressed against the bottom of the recess, the wire is secured to its appropriate contact plate by means of a clamping plate and screw. Thus, in Fig. 5, the denuded end of wire N is clamped upon plate 37 by the arched plate and screw 39. Lead floss V is then driven into the clearance remaining in the recess, so as to form a tight water and moisture-proof joint.

In the body of the block are eight sockets, 9, 10, 11, 12, 13, 14, 15, 16, Fig. 1. In sockets 9 and 13 (see Fig. 8) are bent contact plates 17, 18, to which the denuded extremities of the branch conductors K, O are connected by means of clamping plates 19. Extending through the partition 70 between said sockets is a plate 21, which is bent downwardly to enter a channel in the bottom of socket 9, and is grooved to receive the denuded end of main line conductor G, said end being secured in place by a grooved covering plate and screw 22. Extending through the partition above plate 21, and in contact therewith, is a two-armed or U-shaped contact plate 23, the arms *a*, *b* of which lie respectively in the sockets 9, 13, and against the opposite sides of said partition. In the bottom of socket 13 is a channel 24, through which extends the denuded end of main line conductor H.

In sockets 10 and 14, Fig. 7, the denuded ends of branch conductors L, P are connected to bent contact plates 25, 26 by clamping plates 27. A bent contact plate 28 extends through the partition 70 between said sockets and down into a channel at the bottom of socket 14, and is provided with a groove to receive the end of main line conductor H, which is secured in place by the grooved covering plate and screw

29. Extending through the partition above plate 29, and in contact therewith, is a two-armed contact plate 30, the arms *c*, *d* of which lie respectively in said sockets 10, 14, and against the opposite sides of said partition.

In sockets 11 and 15, Fig. 6, the denuded ends of conductors M, Q are connected to bent contact plates 31, 32 by clamping plates 33. A bent contact plate 34 extends through the partition 70 between said sockets and down into a channel at the bottom of socket 11, and is provided with a groove to receive the end of main line conductor I, which is secured in place by the grooved covering plate and screw 35. Extending through the partition above plate 34, and in contact therewith, is a two-armed contact plate 36, the arms *e*, *f* of which lie respectively in said sockets 11, 15, and against the opposite sides of the partition.

In sockets 12, 16, Fig. 5, the denuded ends of branch conductors N, R are connected to bent contact plates 37, 38 by clamping plates and screws 39. A bent contact plate 40 extends through the partition 70 between said sockets and down into a channel at the bottom of socket 16, and is provided with a groove to receive the end of main line conductor J, which is secured in place by the grooved covering plate and screw 41. Extending through the partition above plate 40, and in contact therewith, is a two-armed contact plate 42, the arms *g*, *h* of which lie respectively in said sockets 12, 16, and against the opposite sides of the partition. In the bottom of socket 12 is a channel through which passes the denuded end of main line conductor I.

The arms of plates 23, 30, 36 and 42 extend above the longitudinal partition between the sockets. In said partition are made two parallel slots, to receive the metal connecting bars 44, 45, Figs. 3, 4. Bar 44 makes contact with the base portion of two-armed plates 23 and 36, but is cut away on its under side so as to avoid the plates 30 and 42. Bar 45 makes contact with the base portion of two-armed plates 30 and 42, but is cut away on its under side so as to avoid the plates 23 and 36. Above the bars 44, 45, and between the arms of the two-armed plates 23, 30, 36 and 42 is a strip 46 of insulating material, then a strip of metal 47, and, finally, a cover 48 of refractory insulating material, which may be made integral with the base block, as shown in Figs. 3 and 4. In the cover 48 are openings to receive the clamping screws 49, which engage in the metal strip 47, and serve to hold the bars 44, 45 in close contact with the two-armed plates 23, 30, 36 and 42. When the cover 48 is made integral with the base block, as shown, the partition between the sockets is cut away at one end (see Figs. 1, 3 and 4) so as to expose the extremities of the slots in which the bars 44 and 45 are inserted after the various contact plates which extend through said partition have first been adjusted in place. The end of the box is then closed by an inserted plug 50. Four bifurcated fuse plugs, 51, 52, 53, 54, (51 not shown) also of refractory insulating material, are provided. In each plug arm is a recess 55, Fig. 5. Entering said recess are contact plates 56, which are bent around the opposite walls of the arm, and secured thereto by end flanges 57 turned into notches, as shown in Fig. 5. The arched fuse strip 58 is disposed in the recess, its ends being clamped between the contact plates 56 and the plug wall. The arms of plug 51 (not shown) enter sockets 9, 10; the arms of plug 52 enter sockets 11, 12; the arms of plug 53 enter sockets 13, 14, and the arms of plug 54 enter sockets 15, 16. The contact plates 56 on said plugs then close circuit with the arms of the two-armed plates and the contact plates respectively in said sockets, thus bringing a fuse strip 58 into each lead of the four branch or load circuits. In order to retain the fuse plugs in place, swinging bails 59, pivoted to lugs 60 on the upper side of the base block, are provided. Each bail extends over two fuse plugs, as shown in Fig. 5, and clamping screws 61, passing through said bail, bear on the arched upper portions of said plugs.

Referring now to the circuit diagram, Fig. 10, it will be apparent that main lead G is connected to arm *a* of two-armed plate 23, the main lead H to arm *d* of two-armed plate 30, main lead I to arm *e* of two-armed plate 36, and main lead J to arm *h* of two-armed plate 42: also that plates 23 and 36 are connected by bar 44, and plates 30 and 42 by bar 45. The branch circuit leads K, L, M, N, O, P and Q, R, when the fuse plugs are in place, are then taken off as follows: Branch K, L from arm *a* of plate 23 and arm *c* of plate 30. Branch M, N from arm *e* of plate 36 and arm *g* of plate 42. Branch O, P from arm *b* of plate 23 and arm *d* of plate 30. Branch Q, R from arm *f* of plate 36 and arm *h* of plate 42. To each contact plate 23, 30, 36 and 42, three leads are connected, as K, G, O to plate 23. The leads K, G, O, connected to plate 23, as here shown, are of different polarity from the leads L, H, P, connected to plate 30, and hence said plates are of different polarity. The leads K, G, O, connected to plate 23, and the leads M, I, Q, connected to plate 36, are of the same polarity, different from that of the leads L, H, P, connected to plate 30, and the leads N, J, R, connected to plate 42. Plates 23 and 36 being of like polarity are connected by bridge 44. Similarly, plates 42 and 30 being of like polarity are connected by bridge 45.

I claim:

1. An electric cut-out, comprising a base block, a longitudinal partition thereon, a plurality of U-shaped contact plates extending through said partition with their arms on opposite sides thereof, fixed contact plates facing said arms, fuse plugs entering between said U-shaped plates and said fixed contact plates, plus main circuit conductors respectively connected to certain of said U-shaped plates, minus main circuit conductors respectively connected to the remainder of said U-shaped plates, bridges joining U-shaped plates connected to conductors of the same polarity, and branch circuit conductors connected to said fixed contact plates.

2. An electric cut-out, comprising a base block, a longitudinal partition thereon, a plurality of U-shaped contact plates extending through said partition with their arms on opposite sides thereof, fixed contact plates facing said arms, fuse plugs entering between said U-shaped plates and said fixed contact plates, plus main circuit conductors respectively connected to certain of said U-shaped plates, minus main circuit conductors respectively connected to the remainder of said U-shaped plates, bridges inclosed in said partition joining U-shaped plates connected to conductors of the same polarity, and branch circuit conductors connected to said fixed contact plates.

3. An electric cut-out, comprising a base block, a longitudinal partition thereon having a plurality of longitudinal slots, a plurality of U-shaped contact plates extending through said partition below said slots and having their arms on opposite sides of said partition, fixed contact plates facing said arms, fuse plugs entering between said U-shaped plates and said fixed contact plates, plus main circuit conductors respectively connected to certain of said U-shaped plates, minus main circuit conductors respectively connected to the remainder of said U-shaped plates, bridge bars inserted in said slots in said partition and making contact with U-shaped plates connected to conductors of the same polarity, and branch circuit conductors connected to said fixed contact plates.

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

THOMAS E. MURRAY.

Witnesses:

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MAY T. MCGARRY.