

918,188.

Patented Apr. 13, 1909.

2 SHEETS—SHEET 1.

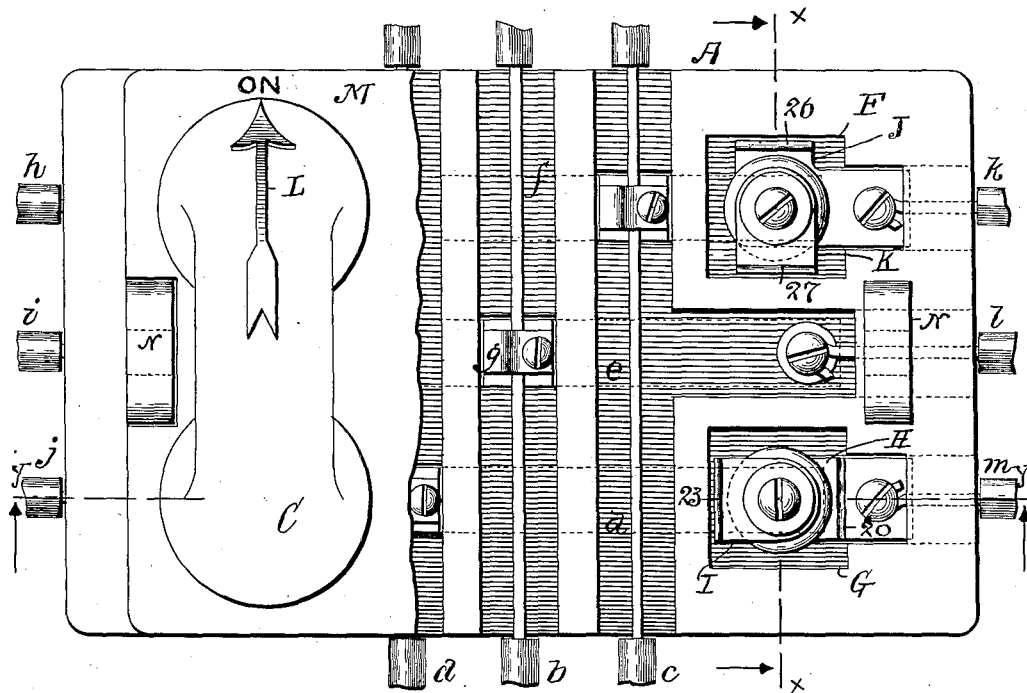


Fig. 1.

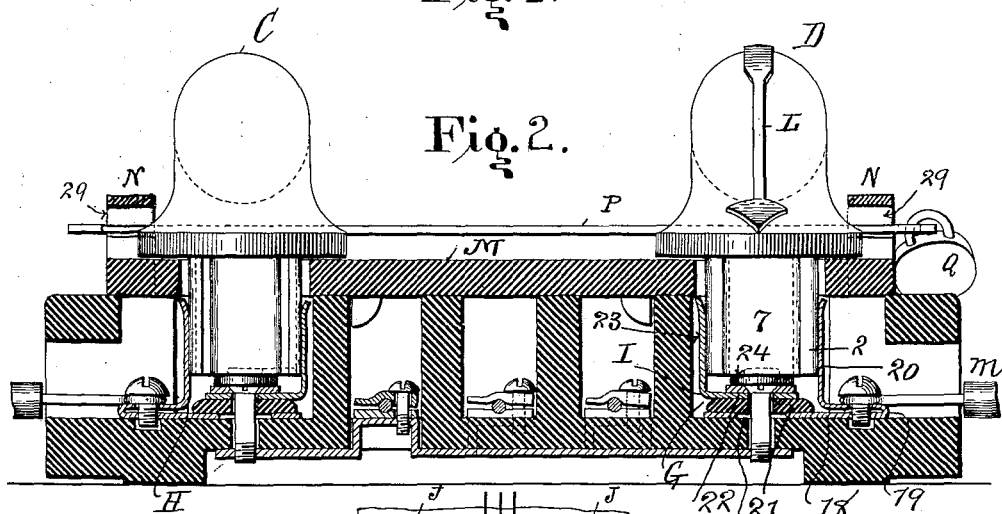


Fig. 2.

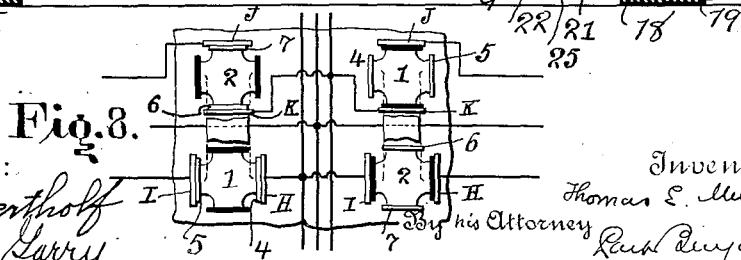


Fig. 3.

Witnesses:

C. H. Bertholf
May J. Mc Larry

Inventor

Thomas E. Murray
By his Attorney *Ruth Livingston*

T. E. MURRAY.
ELECTRIC CUT-OUT.
APPLICATION FILED OCT. 17, 1908.

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2 SHEETS—SHEET 2.

Fig. 3.

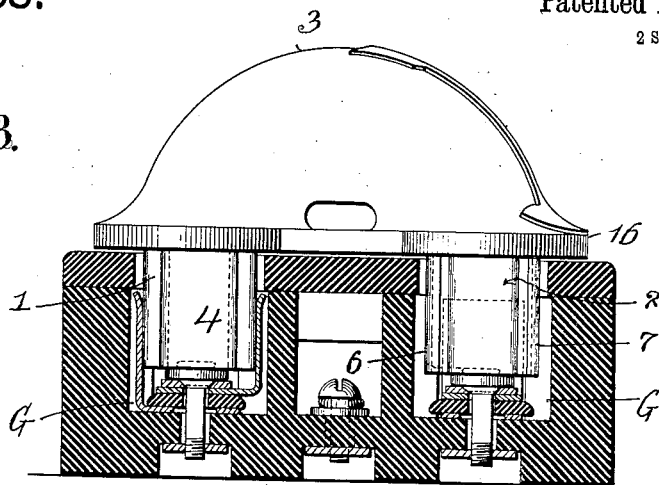


Fig. 4.

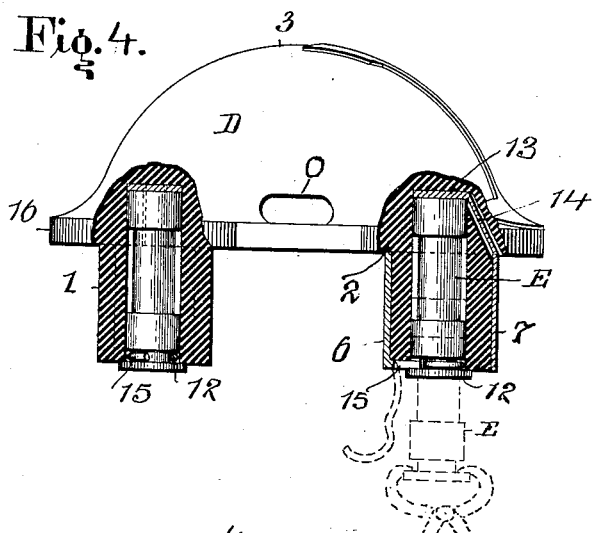


Fig. 5.

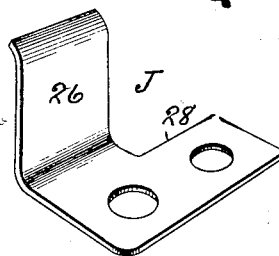


Fig. 7.

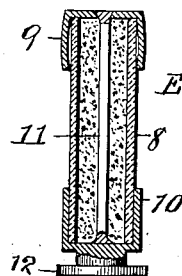


Fig. 6.

Witnesses:
C. H. Berthoff
May J. Mc Larry.

Inventor
Thomas E. Murray
By his Attorney Paul R. Ryan

UNITED STATES PATENT OFFICE.

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

ELECTRIC CUT-OUT.

No. 918,188.

Specification of Letters Patent.

Patented April 13, 1909.

Application filed October 17, 1908. Serial No. 458,199.

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 a fuse case having two connected plugs containing fuses, each plug being provided on its exterior with a pair of circuit terminals connected to the fuse, the pair of terminals on one plug being disposed at an angle to the terminals on the other plug; also in the combination in an electric cut out, of a holder having a socket and circuit terminals therein, of a fuse case having two fuses and a pair of circuit terminals connecting with each fuse, the said fuse case being reversible to permit either fuse and its associated terminals to be introduced into either socket, and the said socket terminals and the said fuse terminals being relatively so disposed that circuit through said fuses may be made or broken in accordance with the position of said case; also in the combination of a fuse case holder and locking device for retaining said case in a socket in said holder, the construction being such as to permit the fuse case to be withdrawn from said socket sufficiently to break circuit to said fuse without releasing said lock; and also the various combinations more particularly pointed out in the claims.

In the accompanying drawings—Figure 1 is a plan view of my improved electric cut out, part of the cover being broken away. Fig. 2 is a section on the line *y, y*, of Fig. 1. Fig. 3 is a section on the line *x, x*, of Fig. 1. Fig. 4 is an elevation of the fuse case, showing the parts holding the fuse cylinders in section. Fig. 5 shows the contact plate, separately and in perspective. Fig. 6 is a bottom view of the fuse case. Fig. 7 is a longitudinal section of the fuse cylinder. Fig. 8 is a diagram showing the connections, and also the fuse cases in different positions.

Similar numbers and letters of reference indicate like parts.

A is the holder or base block, preferably made of porcelain, provided with three channels on its upper side for the reception of the main conductors, *a, b, c*, of a three wire system. On the under side of the block are recesses for the reception of the metal strips

d, e, f, which are connected respectively to the mains *a, b, c* by clips *g* in the usual way, and which communicate on opposite sides of the base block with the terminals of two local wiring systems *h, i, j*, and *k, l, m*. In each local system is disposed a fuse case C or D and suitable connections, and as said fuse cases C or D with associated parts are alike, a description of one applies to both.

Each fuse case, as D, consists of two fuse plugs 1, 2, united by an arched connecting piece 3 which may be integral with said plugs; the entire case being preferably made of porcelain. Each plug has, on opposite sides of its exterior, two contact plates, namely, 4, 5 on plug 1, and 6, 7 on plug 2. The plates 4, 5, of plug 1 are placed at right angles to the plates 6, 7 of plug 2. The plugs 1, 2 may be four-sided or preferably cruciform in cross section, as shown in Fig. 6, with the contact plates 4, 5, 6, 7 secured by bending their edges over the corners of the cross arms. In a cylindrical opening in each plug is inserted a fuse cylinder E, Fig. 7, comprising a tube of porcelain, metal caps 9, 10, a fuse 11 connected at its ends to said caps, and a filling of incombustible pulverized material in which the fuse is embedded. On cap 10 is a flanged projection 12, which may be conveniently grasped in order to withdraw the fuse from the plug, as shown in dotted lines, Fig. 4. The fuse cylinder E is inserted in the plug opening until the upper cap 9 meets a contact plate 13, Fig. 4, which is connected, by a strip 14 passing through an inclined passage in the wall of the plug, to contact plate 7. Contact plate 6 is connected to cylinder E by a wire 15 which is wrapped around the projection 12 on the cap 10 of cylinder E and in the groove above the flange on said projection, and said wire is released from said projection (dotted lines, Fig. 4) by unwrapping it therefrom before the removal of the plug.

On the connecting piece 3 of the fuse case are flanges 16, and in the body thereof is an opening O, the purpose of which will be explained hereafter.

In the holder or base plate A are sockets F, G, into which the plugs 1, 2 respectively fit when the fuse case C is in place. At the bottom of socket G is a contact plate H having a horizontal portion 18, Fig. 2, a doubled over portion 19, and a vertical portion 20. To the doubled over portion is secured a terminal of local conductor *m*. Above the horizontal portion is an insulating disk 21;

and then the horizontal portion 22 of a bent contact plate I, the vertical portion 23 of which is disposed opposite to the vertical portion 20 of contact plate H. Above the horizontal portion 22 of contact plate I is a contact disk 24. The contact disk 24, plates H, I, and disk 21 are secured together by a screw which passes through the bottom of the holder, and engages with conducting strip *d*. The opening 25, in the horizontal portion 18 of plate H, is enlarged so that the fastening screw does not make contact with said plate. The arrangement of the corresponding parts in socket F is the same, with the exception that the vertical portions 26, 27 of the contact plates J, K are set at right angles to the vertical portions 20 and 23 of the contact plates H, I. To permit this, the lower contact plate J is made as shown in Fig. 5, with a side projection 28 on its horizontal portion, to which projection the terminal of local conductor *k* is secured.

It will be apparent, that the relative positions of the vertical portions of the pairs of contact plates H, I, and J, K in the sockets F, G is the same as that of the pairs of contact plates 4, 5 and 6, 7 on the connected plugs 1, 2. The pair of vertical plates in socket F forms, in fact, a clip which stands at right angles to the similar pair of vertical plates also forming a clip in socket G. If, therefore, the plug 1 be inserted in socket F and the plug 2 in socket G, then the contact plates 4, 5 on plug 1 will not make contact with the plates J, K in socket F, and the contact plates 6, 7 on plug 2 will not make contact with the plates H, I, in socket G. This condition is shown on the right of the diagram, Fig. 8. If the plug 1 be inserted in socket G and the plug 2 in socket F, then the contact plates 4, 5 on plug 1 will make contact with the plates H, I in socket G, and the contact plates 6, 7 on plug 2 will make contact with the contact plates J, K in socket F. This condition is shown on the left of the diagram, Fig. 8. Hence, local circuit in the conductors *k*, *l*, *m* may be made or broken by simply inserting the plugs in the sockets in one way or the other. If plug 1 is in socket G and plug 2 in socket F, circuit is completed through the fuses. If plug 1 is in socket F and plug 2 in socket G, circuit is broken. To make the change, it is simply necessary to remove the fuse case and turn it end for end. On the case may be an arrow L, which, when the plugs are in position to close circuit through the fuses, may point to the word "on" inscribed on the cover M of the holder A, as shown in Fig. 1. When the case is reversed, the arrow is reversed, as shown in Fig. 2.

Projecting upward from the base or holder A, and received in recesses of the cover M, are lugs N having openings 29. Said openings, 29, are in line with the openings O in the

fuse cases C, D, so that a headed rod P may be passed through all of said openings. The withdrawal of said rod is prevented by passing the shackle of any suitable seal Q, through an opening near its end. This rod locks the fuse cases C, D and also the cover M, upon which the flanges 16 of said cases bear, in place in and on the holder A, and said rod is, of course, removed before a fuse case is reversed to make or break circuit. It is possible to make or break circuit in either local circuit in another way, and without releasing the locking rod. The openings 29 in the lugs N are made greater in vertical height than the openings O in the fuse cases, see Fig. 2, so that it is possible to raise said cases or either of them (the rod then rising in openings 29) for a sufficient distance to permit the projections 12 to be separated from the plates 24. The fuse case is held thus raised by the friction of the plugs in the clips formed by the fixed contact plates in the sockets. It will be obvious, that instead of enlarging the openings in the lugs N, I may enlarge the opening O in the fuse cases to give to the latter the requisite upward play to permit of similar separation of the contacts.

I claim:

1. In a fuse case, two plugs, a connecting piece between said plugs, a pair of oppositely disposed contact plates on the exterior of each plug, the pair of contact plates on one plug being at an angle to the contact plates on the other plug, and a fuse in each plug connected at its ends respectively to the contact plates on said plug.

2. In a fuse case, two plugs, a connecting piece between said plugs, two removable fuse cylinders having contact plates at their opposite ends disposed in said plugs, a pair of oppositely placed contact plates on the exterior of each plug, and connections from the ends of each fuse cylinder to its associated contact plates: the pair of contact plates on one of said plugs being disposed at an angle to the contact plates on the other plug.

3. In a fuse case, two plugs disposed relatively parallel to one another, a connecting piece extending between said plugs and having a transverse opening, two removable fuse cylinders having contact plates at their opposite ends disposed in said plugs, a pair of oppositely placed contact plates on the exterior of each plug, and connections from the ends of each fuse cylinder to its associated contact plates: the pair of contact plates on one of said plugs being disposed at an angle to the contact plates on the other plug.

4. In an electric cut out, a holder having two sockets and circuit terminals therein, and a fuse case having two fuses and a pair of circuit terminals connecting with each fuse: the said fuse case being reversible to permit either fuse and its associated terminals to be introduced into either socket, and the said

socket terminals and the said fuse terminals being relatively disposed at right angles so that circuit through said fuses is made or broken in accordance with the position of said case.

5 In an electric cut out, a holder having two sockets and circuit terminals therein, and a fuse case having two fuses and a pair of circuit terminals connecting with each fuse: the said fuse case being reversible to permit either fuse and its associated terminals to be introduced into either socket, and the said socket terminals and the said fuse terminals being relatively disposed at right angles so that circuit through said fuses is made or broken in accordance with the position of said case: and means for locking said case in said holder.

6 In an electric cut out, a holder having 20 two sockets and circuit terminals therein, a fuse case having two fuses and a pair of circuit terminals connecting with each fuse:—the said fuse case being reversible to permit either fuse and its associated terminals to be introduced into either socket, and the said socket terminals and the said fuse terminals being relatively disposed at right angles so that circuit through said fuses is made or broken in accordance with the position of said case:—and means for locking the case in either position in said holder.

7 In an electric cut out, a holder having two sockets and circuit terminals therein, a cover for said holder having openings above said sockets, a fuse case having two fuses and a pair of circuit terminals connecting with each fuse:—the said fuse case being reversible to permit either fuse and its associated terminals to be introduced into either socket, and the said socket terminals and the said fuse terminals being relatively disposed at right angles so that circuit through said fuses is made or broken in accordance with the position of said case:—and means for locking said case in, and said cover on, said holder.

8 In an electric cut out, a holder having a socket and circuit terminals therein, a fuse case having a fuse and circuit terminals connecting therewith, said fuse terminals being constructed to contact with said circuit terminals upon the insertion of said fuse case in said socket, and a locking device for retaining said fuse case in said socket, and passing through an opening in said fuse case, the said opening being of a size to permit said fuse case to be withdrawn from said socket sufficiently to break circuit to said fuse without releasing the said lock.

9 In an electric cut out, two fuse plugs, each having a pair of contact plates on its exterior, a fuse in each plug having its terminals connected to its associated pair of contact plates, a connecting piece between said

plugs having an opening, a holder, two sockets in said holder constructed to receive said plugs, a pair of contact plates in each of said sockets, lugs on said holder having openings, and a locking bar extending through said openings in said lugs and said fuse case: the openings in said lugs and the openings in said fuse case being relatively so proportioned as to permit the fuse plugs to be withdrawn from said sockets sufficiently to break circuit without removing said locking bar.

10 In an electric cut out, a fuse case comprising two connected plugs and fuses therein, and contacts on the exterior of said plugs, in combination with a holder having sockets to receive said plugs, and contacts in said sockets: the aforesaid plug contacts and socket contacts being disposed relatively at right angles so that when said fuse case is disposed in one position, and said plugs are inserted in said sockets, circuit is made to said fuses, and when said fuse case is turned end for end in the reverse position, and the plugs are then inserted in said sockets, circuit is broken to said fuses.

11 In an electric cut out, a holder having two sockets, a pair of contact plates oppositely disposed on the walls of each socket, the contact plates in one socket being at right angles to the contact plates in the other socket, two plugs disposed relatively parallel and constructed to enter said sockets, a connecting piece between said plugs, a pair of oppositely disposed contact plates on the exterior of each plug, the pair of contact plates on one plug being at right angles to the contact plates on the other plug, and a fuse in each plug connected at its ends respectively to the pair of contact plates on said plug.

12 In an electric cut out, a holder having two sockets, a pair of contact plates disposed on the wall of each socket, two plugs constructed to enter said sockets, a pair of contact plates on the exterior of each plug, and in each plug a fuse having its ends connected to the contact plates on said plugs: the aforesaid plug contacts and socket contacts being disposed relatively at right angles so that when said fuse case is disposed in one position, and said plugs are inserted in said sockets, contact is made between said plug contact plates and said socket contact plates, and when said case is turned end for end in the reverse position, and said plugs are then inserted in said sockets, contact is broken between said plug contact plates and said socket contact plates.

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

THOMAS E. MURRAY.

Witnesses:

GERTRUDE T. PORTER,
MAY T. MCGARRY.