

T. E. MURRAY & G. W. CHRISTIANS.

FUSE SWITCH.

APPLICATION FILED NOV. 7, 1913.

1,087,971.

Patented Feb. 24, 1914.

Fig. 3.

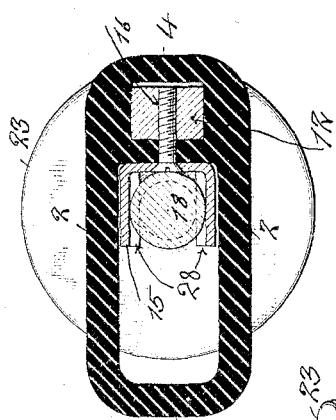


Fig. 2.

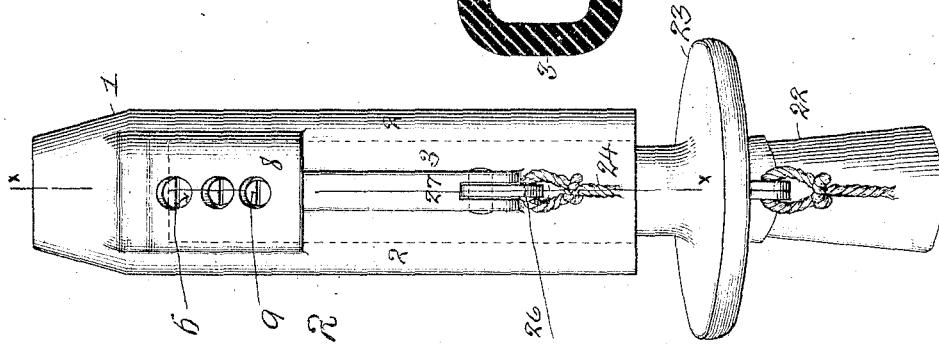
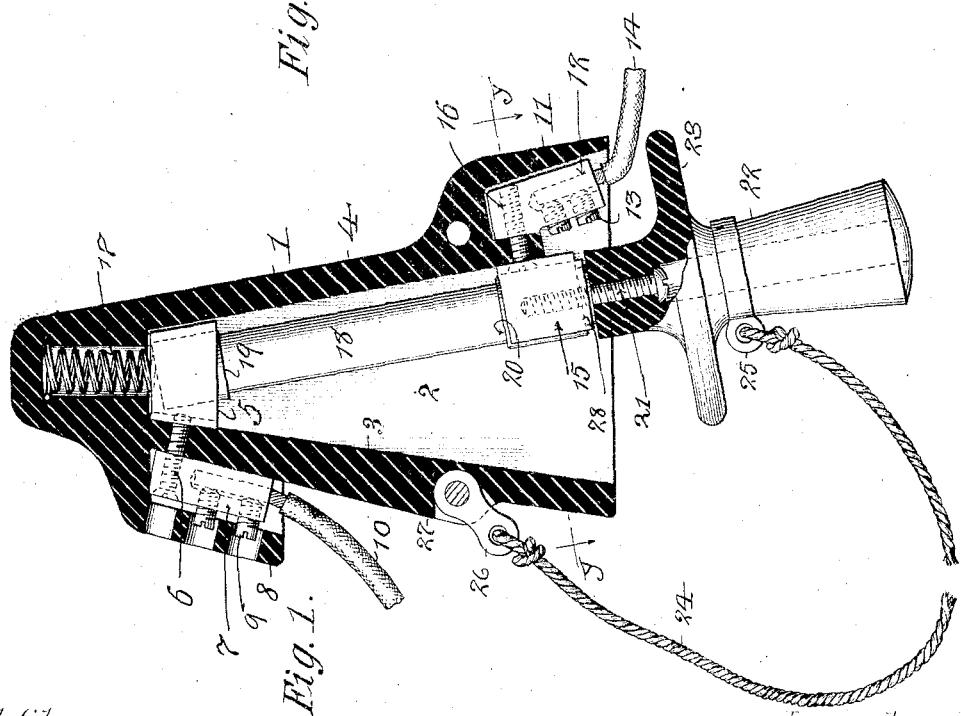


Fig. 1.



UNITED STATES PATENT OFFICE.

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FUSE-SWITCH.

1,087,971.

Specification of Letters Patent. Patented Feb. 24, 1914.

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To all whom it may concern:

Be it known that we, THOMAS E. MURRAY and GEORGE W. CHRISTIANS, citizens 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 Fuse-Switches, of which the following is a specification.

The invention is a fuse switch, in which a cartridge fuse case provided with a suitable handle forms the switch lever. The fixed part of the device comprises a socket, in which are disposed a ring contact and a U-shaped contact projecting inwardly from one of the walls of the socket, to which contacts the circuit leads are connected. When it is desired to establish circuit through the fuse, the fuse case is inserted into the socket so that a cap on one end of the case enters and co-operates with the ring contact, and a cap on the other end of the case enters between and co-operates with the arms of the U contact. A spring suitably arranged within the ring contact and acting against one end face of the fuse case forces the opposite end face against an abutment, preferably inturned flanges on the U contact, thus holding the fuse case in its circuit-closing position. When the fuse is not in use, the fuse case and handle are removed from the socket and may be left suspended therefrom by a suitable cord.

In the accompanying drawings—Figure 1 is a longitudinal section of our fuse switch on line x, x of Fig. 2. Fig. 2 is an elevation, and Fig. 3 is a section on the line y, y , of Fig. 1.

Similar numbers of reference indicate like parts.

1 is a socket, preferably formed integrally of refractory insulating material, such as porcelain. The side walls 2, 2 of said socket may be parallel. The end walls 3, 4 diverge outwardly, so that, as shown in Fig. 1, a longitudinal section of the socket recess taken through the end walls is substantially frusto-pyramidal in form. In the bottom or contracted end of said recess is fitted an annular hollow frusto-pyramidal contact 5 (termed hereafter for brevity "ring contact") and secured in place by a screw 6. Said screw also serves to hold a metal block 8 in a recess formed in a projection 8 on the end wall 3 of the socket. In block 6 is an opening which receives the denuded end of

the circuit lead 10, said end being fastened in said opening by the binding screws 9 which are inserted through openings in said projection 8. In a projection 11 on end wall 4 is a recess receiving a metal block 12 having an opening in which is clamped by means of the binding screws 13, the denuded end of circuit lead 14. A portion of end wall 4 is cut away to permit of the insertion of screws 13. Within the socket and on the inner side of end wall 4 is secured a U-shaped contact plate 15 by means of screw 16 which also enters and so holds in place the metal block 12. In the extremity of the socket is a cylindrical recess, in which is seated the helical spring 17. The wall of said recess immediately adjacent to its bottom is grooved to receive the enlarged end turn of spring 17. In inserting the spring, this turn is compressed to permit it to pass through the recess, so that said turn expands upon reaching the groove and so holds the spring in said recess. The free end of the spring normally extends into the ring contact 5.

18 is a cartridge fuse case having metal end caps 19, 20, and containing the usual fuse strip or wire (not shown) extending between said caps. To one cap 20 is attached by means of screw 21 or by any other convenient means an operating handle 22 of insulating material. As here shown, the screw 21 is inserted through a longitudinal bore in the handle. The handle may have formed upon it a circular flange 23 forming a guard for the hand of the operator being to that end made of sufficient width to form a barrier protecting the hand from contact with the block 12 when the switch is in the closed position shown in Fig. 2. The handle and fuse case attached thereto form a structure separate from the socket, but which may be conveniently attached thereto by means of a cord 24 connected at one end to an eye 25 on the handle and at the other end to an eye on a metal bar 26 pivoted in a lug 27 on end wall 3 of the casing.

In using the device, the fuse case 18 which practically forms the switch lever is inserted in the socket, so that the cap 19 on the end thereof enters the ring contact 5, meets the protruding end of spring 17, and is pushed inward to compress said spring. The handle 22 is then swung to the right of Fig. 1, until the cap 20 enters between the arms 110

of U-shaped contact 15 and above inwardly turned flanges 28 on the lower edges of said arms. The resiliency of spring 17 then forces the outer face of cap 20 against the 5 flanges 28, and holds the fuse case in place, closing circuit between the ring contact 5 and U contact, after the handle is released by the operator. By reversing this operation, the fuse case and handle may be wholly 10 withdrawn from the socket, and, if desired, left suspended therefrom by cord 24.

We claim:

1. A fuse switch, comprising a socket, a contact at the bottom thereof, a contact on 15 the inner side of one wall of said socket, a fuse case entering said socket, contacts on said fuse case coöperating with said socket contacts, means for detachably retaining said fuse case in said coöperation, a handle 20 of insulating material secured to an end of said fuse case, and a circumferential flange on said handle forming a protective barrier between the hand of the operator and said contacts.
2. A fuse switch, comprising a socket having walls diverging to the opening thereof, a ring contact at the bottom of said socket, a U-shaped contact projecting inwardly from one of said diverging walls, a fuse case entering said socket, end contacts on said fuse 25 case received respectively in said ring contact and between the arms of said U-shaped contact and coöperating with said socket contacts, and means for detachably retaining said fuse case contacts in said coöperation.
3. A fuse switch, comprising a socket hav-

ing walls diverging to the opening thereof, a ring contact at the bottom of said socket, a spring supported within said ring contact, 40 a U-shaped contact projecting inwardly from one of said diverging walls, an abutment between said U-shaped contact and said socket opening, a fuse case entering said socket, and end contacts on said fuse case; 45 one of said end contacts being received in said ring contact and bearing upon said spring, and the other of said contacts being received between the arms of said U-shaped contact and being held by the resiliency of 50 said spring against said abutment.

4. A fuse switch, comprising a socket having walls diverging to the opening thereof, a ring contact at the bottom of said socket, a spring supported within said ring contact, 55 a U-shaped contact projecting from said diverging walls into said socket and having an inwardly turned flange on each of its arms, a fuse case entering said socket, and end contacts on said fuse case; one of said end contacts being received in said ring contact and bearing upon said spring, and the other of said end contacts being received between the arms of said U-shaped contact and being held by the resiliency of 60 said spring 65 against said flanges.

In testimony whereof we have affixed our signatures in presence of two witnesses.

THOMAS E. MURRAY.
GEORGE W. CHRISTIANS.

Witnesses:

GERTRUDE T. PORTER,
MAY T. McGARRY.