

E. O. SCHWEITZER & A. HERZ.

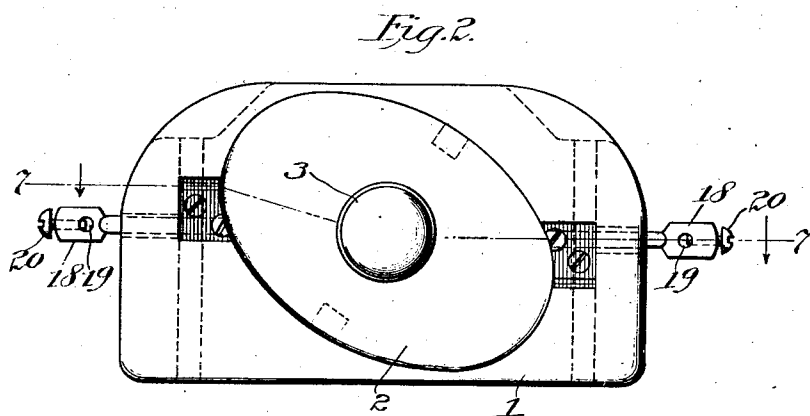
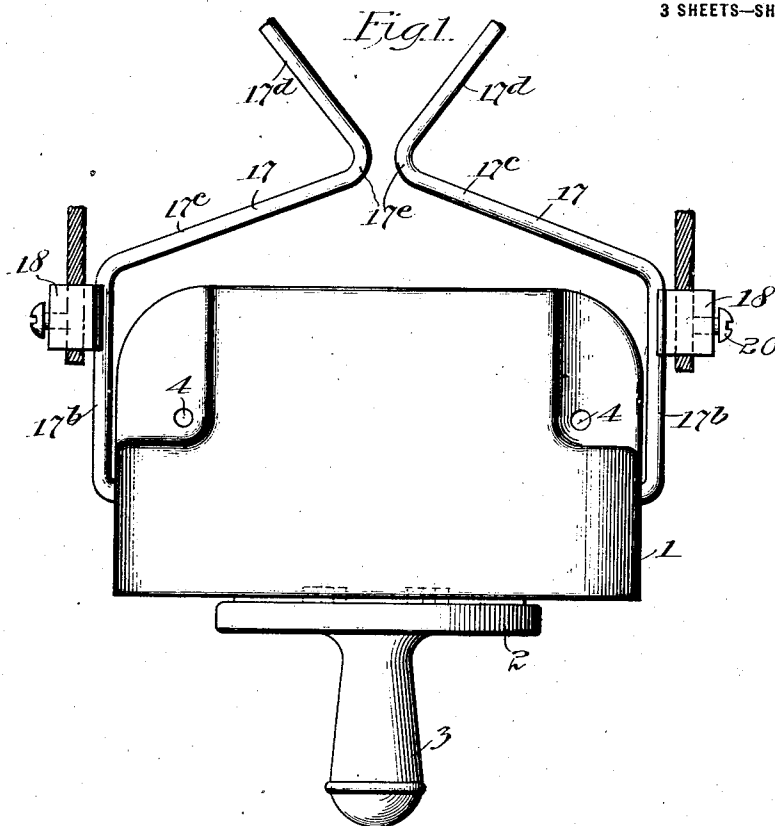
FUSE DEVICE.

APPLICATION FILED MAR. 13, 1914.

1,265,121.

Patented May 7, 1918.

3 SHEETS—SHEET 1.



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3 SHEETS—SHEET 2.

Fig. 3.

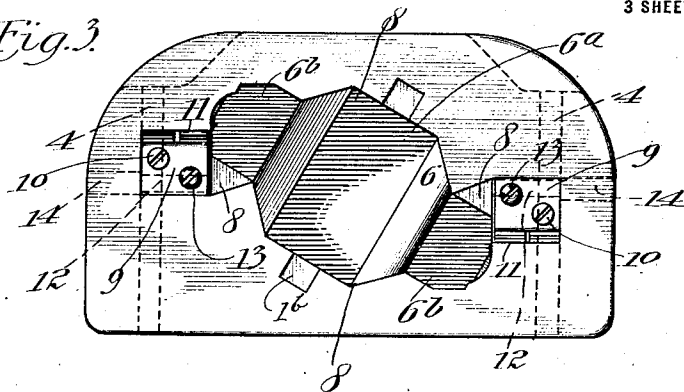


Fig. 4.

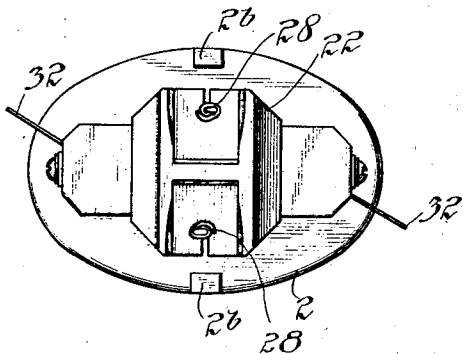


Fig. 5.

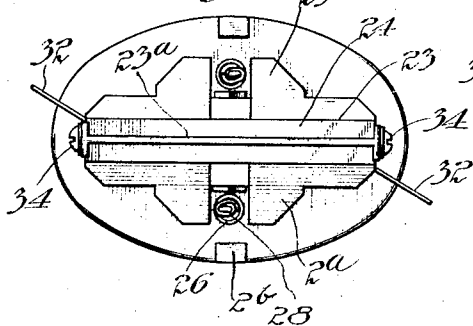


Fig. 6.

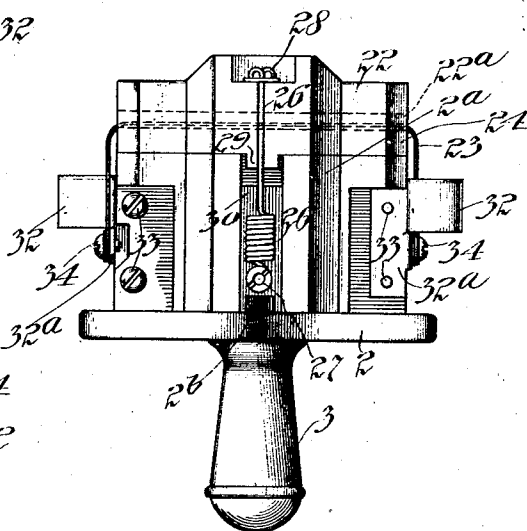
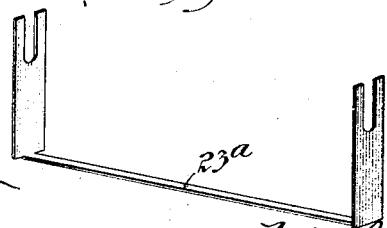


Fig. 9.



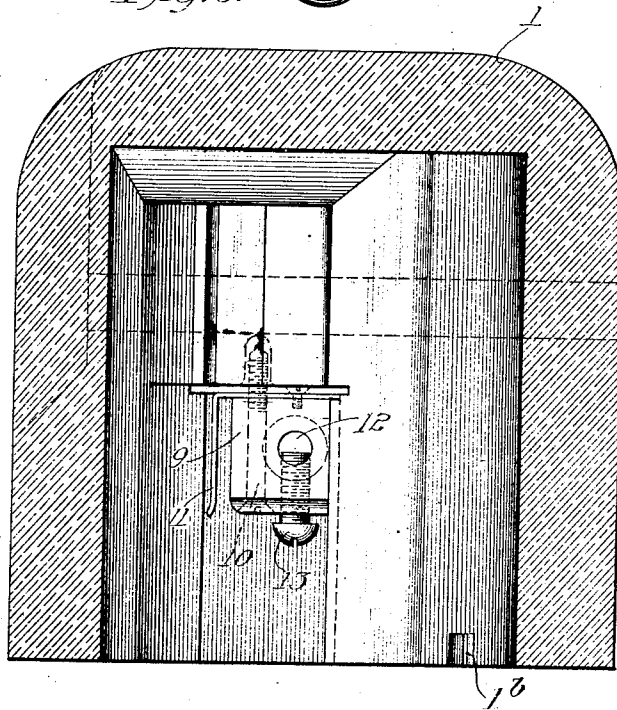
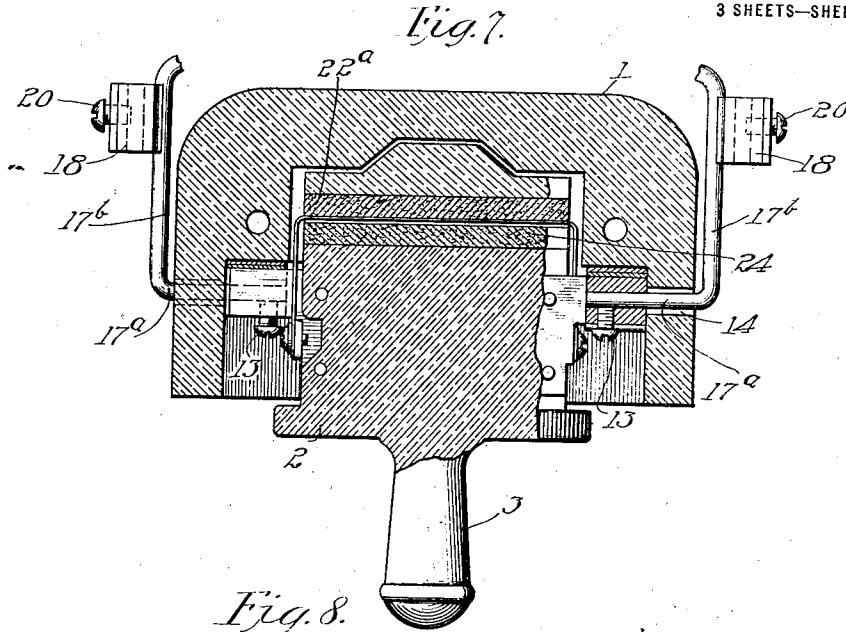
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UNITED STATES PATENT OFFICE.

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FUSE DEVICE.

1,265,121.

Specification of Letters Patent.

Patented May 7, 1918.

Application filed March 13, 1914. Serial No. 824,412.

To all whom it may concern:

Be it known that we, EDMUND O. SCHWEITZER and ALFRED HERZ, citizens of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Fuse Devices, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

Our invention relates to fuse devices, and especially to a type of fuse device which is intended for outdoor overhead work.

Prominent objects of the invention are to provide a simple, practical and effective construction of fuse device; to secure a high degree of efficiency; to arrange for the easy and ready removal or renewal of the fuse link; to arrange to take up the rebound or kick in the circuit when the fuse is operated so as to open the circuit; to insure the safety of the fuse and to prevent its being injured or damaged when manipulating the device to put it in position or to examine it; to secure compactness and economy of space; and to secure the foregoing and other desirable results in a simple and expeditious manner.

In the accompanying drawings Figure 1 is a side elevation of a fuse device embodying our present invention;

Fig. 2 is a bottom plan of the same;

Fig. 3 is a similar bottom plan, but with a plug portion of the device removed;

Fig. 4 is an end view of said plug portion;

Fig. 5 is a similar view of the same with a fuse holding member removed;

Fig. 6 is a side elevation of said plug portion, as shown in Fig. 4;

Fig. 7 is a vertical section taken on line 7—7 in Fig. 2;

Fig. 8 is a transverse vertical section taken on line 8—8 in Fig. 3; and

Fig. 9 is a perspective view of the fuse link.

Referring to the drawings, we show a device comprising upper and lower members 1 and 2 respectively, whereof the upper member is desirably in the form of a socket and the lower member in the form of a plug adapted to fit into the socket member 1, and having a handle 3 by which said member 2 may be grasped and manipulated. The socket member 1 is intended to be supported in some suitable way, as for example by se-

curing it to the side of a building or some suitable support which can be done by passing screws through the transverse apertures 4—4, (Fig. 1). The plug member 2 is intended to be normally fitted into the socket member 1 and held in position in the same, as shown in Figs. 1 and 7, it being also the intention to be able to remove said plug member 2 from the socket member so as to gain access to the fuse link or fuse proper to renew or repair the same, or for other purposes. In such case the plug member 2 is grasped by the handle 3 and drawn downwardly so as to remove it entirely from the interior of the socket member 1. The plug member 2 is shown removed from the socket member 1 in Fig. 6, and the socket member alone with the plug member withdrawn is shown in Figs. 3 and 8, Fig. 8 being on a larger scale than Fig. 3. As shown especially in Figs. 2 and 3 the socket member 1 has the aperture or recess 6 for the plug member 2 arranged diagonally whereby compactness and economy of space are secured; the plug member being permitted to be longer than if it were arranged longitudinally of the socket member 1. The recess 6 is preferably made with an enlarged central portion 6^a and contracted end portions 6^b, and further side or supplemental recesses 8—8 are provided at the opposite ends of the recess 6, said recesses 8—8 being provided with or containing metallic contact blocks or members 9—9 for connection with the plug member 2 when the same is inserted in the socket member 1. As a preferred arrangement the contact members 9 are provided with body portions through which screws 10—10 are passed to hold said contact blocks to the body portion of the member 1. As well shown in Fig. 8 said blocks 9—9 are also conveniently provided with spring contact jaws 11—11 (Figs. 3 and 8), into which metallic contacts can be inserted as will later be described. The blocks 9—9 are also desirably provided with transverse apertures 12—12 and also with screws 13—13 which can be screwed into the apertures 12—12 so as to engage and hold a conductor when the same is inserted in said apertures 12—12. The member 1 is provided with apertures or openings 14—14 (Fig. 3), extending from the outer end surfaces of said member 1 to the blocks 9 and communicating with the openings or bores 12—12 therein, so that conductors may be

led into the apertures 14—14 and to the blocks 9—9 and connection made with the same by means of the screws 13—13. Connectors could be connected with the device in this way in any desired manner. As a preferred arrangement, however, we show connecting means which serve not only as connectors for the connection with the fuse device, but also serve as means for taking up the back kick usually present when an electric circuit is suddenly opened. This arrangement is best shown in Figs. 1, 2 and 7, and comprises a pair of metallic conducting members 17—17 made in irregular shape, as shown in Fig. 1. These members have bent end portions 17^a (Fig. 7) which are adapted to fit into the apertures 14 in the member 1, and also have upwardly extending portions 17^b and other portions 17^c and 17^d, forming pointed members or elbows 17^e, which when the two members 17—17 are arranged in proper position in connection with the device come close together, but do not touch as shown in Fig. 1. These members 17—17 are also provided with connectors 18—18 having bores 19 for the reception of conductors, and screws 20 for fastening said conductors in position. These connectors 18 are conveniently made separate and soldered to the upright portions 17^b of the members 17. Thus it will be seen that connection may be made with the fuse device by attaching conductors to the connectors 18—18 whence connection will be made to the contact blocks 9—9 in the socket member 1, and at the same time the elbows 17^e—17^e of the members 17—17 will permit a spark or arc to take place between them so as to take up any back kick, or otherwise relieve the circuit when the fuse device operates.

The plug member 2 is provided with a body part 2^a which is enlarged at the middle and smaller at the ends, so that it fits within the recess 6^a in the member 1. A separable or removable top 22 is arranged at the end of the body part 2^a so that when the plug member is inserted into the socket member, the top 22 is innermost in said socket member. A fuse 23 is interposed between the body part 2^a and the top 22, said fuse being extended lengthwise along the upper surface of a strip 24 on the member 2^a and the top 22 being provided with a longitudinally extending groove which is adapted to receive the upstanding portion 24 so that the top 22 may fit down and over said strip 24 and over the fuse 23, and rest downwardly upon the flat portions or shoulders 25. The strip 24 is preferably a separate block of some particular insulating material, as for example limestone or silica, which block may be secured to the member 2^a. The top member 22 is also provided with a separate properly secured block 22^a (Fig. 7), of limestone or some other suitable material, the two blocks

24 and 22^a thus forming compression blocks on opposite sides of the fuse, to exert pressure on the same. The top 22 is desirably provided with downwardly extending projections 29 adapted to fit in grooves 30 and so lock said top 22 against longitudinal and crosswise movement. The top 22 is held in position by springs 26 arranged on opposite sides of the plug member 2, one end of each spring being secured to the plug member by a screw 27, and having an enlarged or looped end 28 adapted to engage the upper surface of the top 22, as shown in Figs. 4 and 6, whereby said springs exert a pulling or compressing action tending to force the top 22 downwardly and toward that portion of the fuse 23 which lies upon the surface of the strip 24. The springs 26 are inclosed in vertical side grooves 30 in the sides of the thickened or widened portion of the plug member 2 whereby said springs are shielded and protected from interference or injury. At the opposite ends of the plug 2 are metallic contacts 32—32 which project at an angle from the body member 2^a of said plug member, as shown in Fig. 5. These metallic contact strips are conveniently secured to the ends of the plug 2 by screws 33—33 passing crosswise through the narrowed end portions of the body member 2^a, as shown in Fig. 6. The fuse 23 has its opposite ends extended down the ends of the body member 2^a, as shown in Fig. 6 and secured to and in contact with the contact strips 32^a by means of screws 34—34, Figs. 5 and 6. Thus the angularly arranged contacts 32—32 may fit into the contact jaws 11 on the contact blocks 9 previously described as set into side recesses in the plug member 2, whereby when the plug is inserted contact will be made between the contacts 32 and the jaws 11 and block 9, and thus include the fuse in the circuit made to said contact blocks 9—9. It will be seen that by placing the contacts 32—32 at an angle to the length of the plug member 2, said contacts 32 may extend longitudinally of the device, although the plug member itself is at the angle or obliquely thereto, so that the contact blocks 9—9 may be set squarely in the apertures 8—8 which may be formed at right angles to the length and breadth of the device.

It will be also seen that the end portions of the fuse 23, that is to say the portions which extend vertically, referring to Fig. 6, at the ends of the member 2^a, are on one side of the contacts 32, whereas the contact blocks 9 are on the other side of said contacts, as well shown in Fig. 3. Therefore the fuse will not be brought into contact or pushed against the blocks 9—9 when the plug member is being inserted into the socket member as a result of which the fuse will not be torn or damaged or displaced by interference with the contact blocks, nor injured by arc-

ing or premature electrical contact with said contacts, when the plug is being withdrawn or inserted.

The plug member 2 is preferably provided with lugs or projections 2^b, 2^b, (Figs. 4 and 6) and the socket member 1 with corresponding recesses 1^b (Fig. 8), into which the lugs 2^b may fit when the plug member is inserted. By this arrangement, barriers are interposed into what would otherwise be the shortest path for an arc between fuse terminals, whereby a longer path to prevent and extinguish the arc is provided.

The fuse 23 may be any suitable form or style of fuse, but as a preferred arrangement we make it as shown in Fig. 9, with enlarged ends and a narrow or contracted middle portion 23^a. This fuse may conveniently be made of tin foil or similar material. The plug and socket members 2 and 1 respectively, may be made of any desired material, but preferably we make them of such insulating material as porcelain or the like.

It will be understood that changes and modifications may be made without departing from the spirit of the invention.

What we claim is:

1. A fuse device comprising plug and socket members provided with cooperating contacts, the plug member carrying a fuse connected with its contacts, arc dissipating horns connected with the casing contacts and line terminals on said horns.

2. A device of the class specified comprising an insulating member, arc dissipating horns mounted upon said member, a fuse extended between said horns and line conductor terminals on said horns.

3. A fuse device comprising a casing having line terminals, a fuse carrying member insertible into and removable from said casing, said member being provided with contacts cooperating with said terminals, and arc dissipating horns passing through the walls of said casing, connected with said terminals therein, whereby connection will be made between said horns and said fuse when said insertible member is introduced into said casing.

4. A fuse device comprising plug and socket members provided with cooperating contacts, the plug member carrying a fuse connected with its contacts, and arc dissipating horns connected with the contacts of

said socket member, said horns having connecting portions extending through apertures in the wall of said socket member.

5. A fuse device comprising a casing and a fuse carrying member insertible into and withdrawable from said casing, said casing and fuse carrying member being provided with cooperating contacts for connecting with the fuse when said member is inserted into the casing, and arc dissipating horns having connecting portions extending through apertures in the wall of the casing and connected with the contacts on the interior of the casing, said horns also having portions extending toward one another and forming elbows with diverging end portions above the casing.

6. The combination of a casing containing a fuse, and having terminals for the fuse inside of the casing, and arc dissipating horns connected with said interiorly arranged fuse terminals, said horns having connecting portions extending through the wall of the casing to said terminals.

7. The combination of a casing containing a fuse and having terminals for the fuse inside of the casing, and arc dissipating horns connected with said interiorly arranged fuse terminals, said horns being mounted upon and supported by said casing, and having connecting portions extending through the wall of said casing and connected with the fuse terminals inside of the same.

8. In combination, an inverted cup-shaped socket member having stationary terminals and stationary switch contacts, arranged inside of said socket member, a plug member adapted to fit into the socket member, said plug member bearing movable cooperating switch contacts, a fuse carried by the plug member and connected between the movable switch contacts, and horn electrodes mounted on the socket member and forming a horn gap above the socket member, said electrodes being connected to the stationary switch contacts.

In witness whereof, we hereunto subscribe our names this 9th day of March, A. D. 1914.

EDMUND O. SCHWEITZER.
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Witnesses:

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