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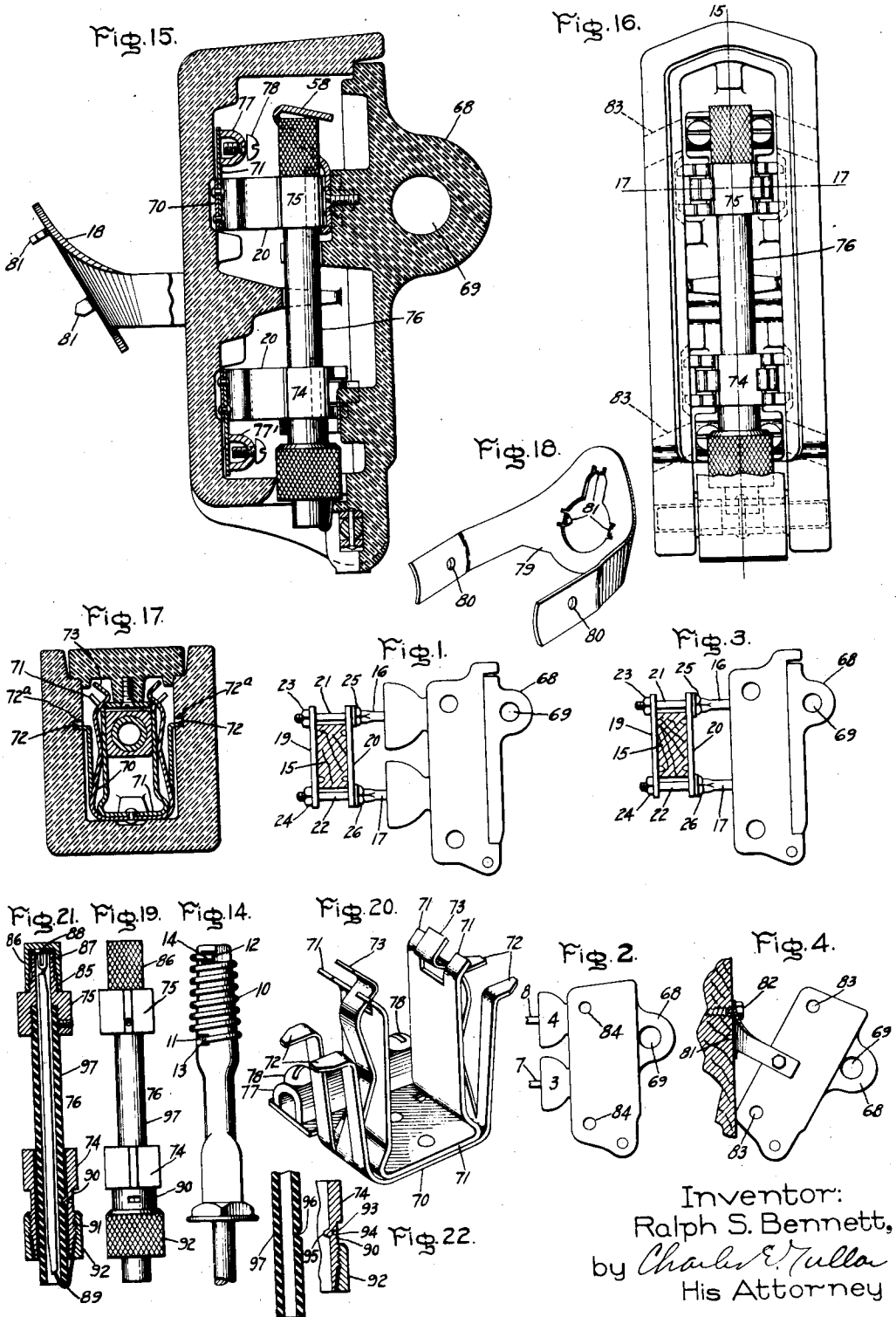
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2,011,391

CUT-OUT

Filed May 12, 1928

2 Sheets-Sheet 1



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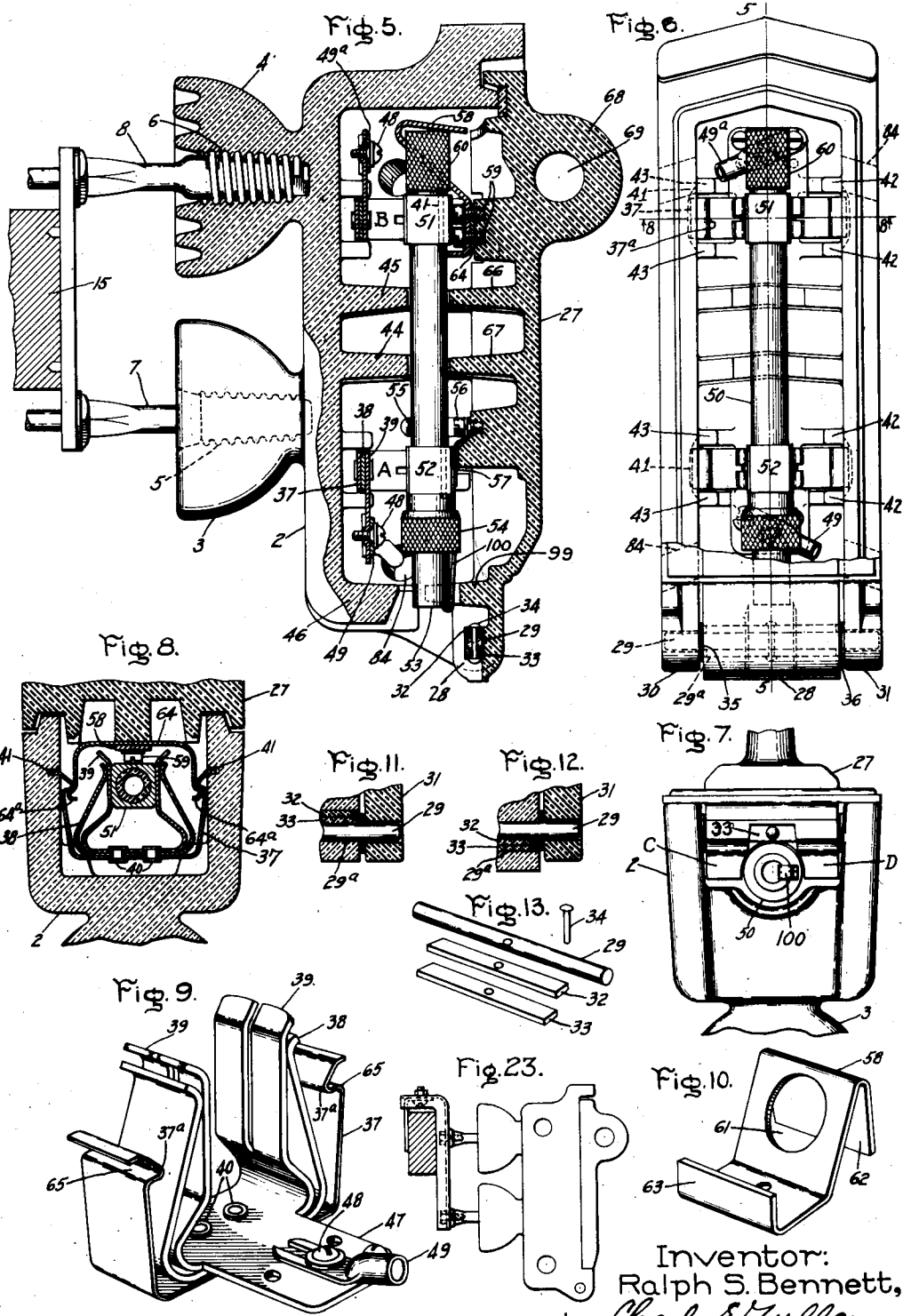
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2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

2,011,391

CUT-OUT

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Application May 12, 1928, Serial No. 277,276

25 Claims. (Cl. 200—133)

My invention relates to cutouts. More particularly it relates to cutouts of the type especially adapted for use as so-called primary cutouts in connection with lines carrying high voltages, such as 2500, 5000, 15,000 and the like, and adapted to carry heavy currents such as 60 amperes, 150 amperes, and the like.

Among the objects of my invention are the following: To provide a cutout fuse free from exposed metal parts; to provide a cutout fuse with a non-metallic hinge for the door of an adjustable type; to provide an improved form of latch for the door; and to provide a new form of construction for the clip elements that engage the fuse terminals. The invention will be more fully understood from the following specification and claims, reference being had to the accompanying drawings, in which:

Fig. 1 is a more or less diagrammatic illustration of one form of cutout of the invention. This form of device is adapted for use in connection with lines of high voltage and in connection with currents of large volume.

Fig. 2 is a modified form of the cutout of Fig. 1.

Fig. 3 is a drawing similar to Fig. 1 of a form of cutout of the invention adapted for use in connection with lower voltages and in connection with large volumes of current.

Fig. 4 is a diagrammatic illustration of another form of cutout of the invention adapted for use in connection with lower voltage and in connection with currents of comparatively small volume.

Fig. 5 is an enlarged side view in elevation and in section of the form of device of Fig. 1.

Fig. 6 is a front view of the device of Fig. 5 with part of the door broken away to more clearly show the details inside the box.

Fig. 7 is an end view of the cutout of Fig. 6.

Fig. 8 is a section of the cutout taken on line 8—8, Fig. 6.

Fig. 9 is a perspective view of one of the spring terminal elements of the cutout of Figs. 5, 6 and 8.

Fig. 10 is a perspective view of a spring support for the fuse container of the cutouts of Figs. 5 and 15.

Figs. 11, 12 and 13 are details of the hinge of the device of the invention. This type of hinge is adapted for use in connection with all of the forms of the device.

Fig. 14 is a side view of one of the supporting elements for the form of device shown in Figs. 1, 2 and 5.

Fig. 15 is a side view in section and in elevation of the form of device of Fig. 4.

Fig. 16 is a front view of the device of Fig. 15 with part of the door broken away in order to show the details inside the box.

Fig. 17 is a section of the device of Fig. 16 along line 17—17.

Fig. 18 is an enlarged perspective view of the supporting device of the cutout of Fig. 4.

Fig. 19 is a view in elevation of a fuse container of the invention.

Fig. 20 is a view in perspective of one of the spring terminal elements of the device of Fig. 15 corresponding to the spring shown in Fig. 9.

Fig. 21 is a sectional view of the fuse container of Fig. 19.

Fig. 22 is an enlarged so-called exploded view of a section through the terminal 74 and the tube 76, Fig. 21.

Fig. 23 shows a support for the device of the invention which support is a modified form of that shown in Fig. 1.

Referring more in detail to the drawings and more particularly to the type of cutout shown in Fig. 5, it will be seen that it comprises a container 2 of insulating material such as porcelain. Inasmuch as this type of cutout is intended for use in connection with high voltages, the container is provided with rearwardly projecting insulators 3 and 4 which are formed as parts of the container. Each of these insulators is provided with a threaded core, such as the cores 5 and 6, Fig. 5, of the insulators 3 and 4 respectively. Each of these cores is adapted to receive a threaded pin, such as the pins 7 and 8. These pins may be made of metal. The heads of the pins 7 and 8 as shown in Fig. 14 are provided with a thread in the form of a helical wire coil 10. At one end, the pin is provided with a pair of notches 11 and 12 adapted to receive the ends 13 and 14 of the coil 10 which are bent so as to enter the notches 11 and 12 and be seated therein, thereby locking the spring 10 in position. I prefer to use pins 7 and 8 of this type inasmuch as the threads are flexible. By the use of such pins the container is relieved of all serious strain when the pins 7 and 8 are clamped to a cross element on a pole, such as the cross arm element 15, Fig. 5.

In Fig. 3 I have indicated how pins 16 and 17, similar to pins 7 and 8, are secured to a cross arm 15. This is accomplished by providing a pair of link elements 19 and 20 through which the stem sections 21 and 22 of the pins 16 and 17 pass, the elements 19 and 20 being provided

with suitable holes for receiving the stems of the elements 16 and 17. These stems, as indicated, are threaded for receiving nuts 23 and 24. It will be seen that the heads of the elements 16 and 17 terminate in shoulders 25 and 26. Therefore, by tightening the nuts 23 and 24 the links 19 and 20 are tightly clamped about the cross arm element 15, thus effectively supporting the container.

The container, as shown in Figs. 5 and 6, is provided with a cover element 27 which is also formed of insulating material. This cover is provided with a novel hinge element which passes through the tail projection 28, Fig. 6, which projection is an extension of said cover. The details of this hinge are shown in Figs. 11, 12 and 13. The hinge comprises a shaft element 29 which extends all the way through a channel 29a in the projection 28. The container 2 is provided with a pair of flanges 30 and 31 through which holes extend for receiving the shaft 29. These holes serve as bearings for the shaft 29. The channel 29a between the flanges 30 and 31 is preferably rectangular. A pair of rectangular spacers or strips 32 and 33 are provided for use in connection with the shaft 29 by means of which the adjustment of the hinge may be carried out (see Figs. 5 and 6). In Fig. 5 the shaft 29 is located between the spacers 32 and 33. A pin 34 is provided which extends through the shaft 29 and the spacers 32 and 33, as indicated in dotted lines in Fig. 6. With this arrangement the shaft 29 is centrally located in the channel 29a. Between the projection 28 and the flanges 30 and 31, I provide one or more washers 35 and 36 in order to keep the cover centrally located between the flanges 30 and 31. The holes through the washers 35 and 36 are just large enough to permit the shaft 29 to pass through. These holes, therefore, are smaller than the channel 29a and therefore prevent the assembled structure consisting of the shaft 29 and the spacers 32 and 33 from sliding lengthwise. Furthermore, the holes in the flanges 30 and 31 are barely larger than the shaft 29. Therefore, the flanges 30 and 31 also assist in preventing any lateral displacement of the shaft 29 which as above indicated is pinned to the spacers 32 and 33. It will be understood that the pin 34 may be locked in position in any suitable manner. For example, the pin 34 may be in the form of a small bolt with a head on one end and a nut on the other or it may even be in the form of a cotter pin. In the manufacture of the container 2 it is very difficult to always make this element exactly the same in size. Consequently, it is very desirable that the hinge should be adjustable. This adjustable feature is obtained by the provision of the spacers 32 and 33, both of which may be located on the upper side of the shaft 29, as indicated in Fig. 11, or they may both be located on the under side of the shaft 29, as indicated in Fig. 12. The result is that the cover 27, may, if necessary, be raised a little as shown in Fig. 11, or it may be lowered a little as shown in Fig. 12.

As indicated in Fig. 5, the container 2 is provided with a pair of terminal spring elements A and B each similar to that shown in Fig. 8 or in Fig. 9. As shown in Fig. 9, each of these terminals consists of three metal elements 37, 38 and 39, all riveted together by means of the rivet elements 40. The element 37 serves as a spring latch, the ends of which engage abutments formed by recesses 41 in the walls of the con-

tainer 2. The container is provided on each side with a pair of heel projections, one pair 42, Fig. 6, being shown on one side, and another pair 43 being shown on the opposite side. These heels serve as barriers to prevent the terminals A and B from being displaced from their latched position in the container 2. These heels, of course, are a part of the container 2. The container is further provided with barrier elements 44, 45 and 46, the object of which will be more fully disclosed. These barriers have a function to perform in connection with the operation of the device at the time that the fuse explodes.

It will be seen that the terminal in Fig. 9 is also provided with the extension 47 from the metal element 39. This extension 47 is provided with the binding screw 48 to which a circuit connection may readily be made. For example, a conductor lead to the device is preferably supplied with a terminal element 49 which may be secured to the binding screw 48, as indicated in Fig. 9. Referring to Fig. 5, it will be seen that inasmuch as there are two terminal elements A and B each similar to that shown in Fig. 9, namely, a lower one and an upper one, there are provided, of course, two terminal screws, namely, the screw 48 for the lower terminal A and the screw 48 for the upper terminal B, both being the same. As shown in Fig. 5 terminal B has a terminal 49a similar to the terminal 49, Fig. 9. This terminal is more clearly shown in Fig. 6.

On the cover of the device, Figs. 5, 6 and 8 the fuse element 50 is mounted. This fuse element is provided with two terminals, an upper terminal 51 and a lower terminal 52. The fuse wire is within the tube of the fuse element 50, being located between the two terminals. At the lower end, the fuse wire makes a loop and extends around the lower end 53 and then extends on the outside of the fuse element 50 up as far as the clamping screw 54, which insures connection between the fuse wire and the terminal 52. For securing the lower end of the fuse element 50 in position I provide on the cover a clip spring 55 (see Fig. 5) which is secured to the cover by any suitable means such as by means of the screw 56. In order to prevent static or other sparks between the fuse terminal 52 and the clip 55, an auxiliary spring 57 is secured under the head of the screw 56. This spring effectively engages the surface of the terminal element 52 next to the cover 27, as shown in Fig. 5. The upper end of the fuse is secured to the cover by means of an S shaped metal support 58. Support 58 is clearly shown in perspective in Fig. 10. As indicated in Fig. 5, support 58 is secured to the cover by means of screws 59. The upper terminal 51 of the fuse is provided with a metal cap 60 which is a part of the terminal 51. This metal cap, as shown in Fig. 5, is inserted in the opening 61, see Fig. 10. The upper end of the cap 60 is forced home until it strikes the shelf 62 thereby insuring the proper location of the fuse element. Support 58 is provided with a heel 63, Figs. 5 and 10, which serves as a fulcrum for the fuse element 50 and upon which the fuse element 50 rests, as shown in Fig. 5. When the cap 60 is inserted in position in the support 58 the lower end of the fuse element is pressed down even after it strikes the heel 63 until it is forced into engagement with the clip spring 55. This, of course, will deflect the support 58 somewhat, maintaining good contact between 58 and 60 and so preventing sparking. It will be seen, therefore, that means

are provided on the cover 27 for effectively securing the fuse in permanent position on the cover. The cover is furthermore provided with a spring element 64, (see Fig. 8), which element is secured to the cover underneath the metal support 58 and clamped by means of the screws 59. This element 64 forms part of a latch mechanism, the other portion of which is the element 37 (see Fig. 9). When the cover 27 is closed the edges 64a of the spring 64 engage the edges 37a of the element 37 (see Fig. 9) and snap underneath the shelf 65 of the element 37 thereby latching the cover in position. When the cover is closed the terminals 51 and 52 of the fuse are forced into effective electrical contact with the spring elements 39, (see Fig. 8) of the terminal clips A and B. The cover is also provided with barrier elements 66 and 67 located opposite the barrier elements 45 and 44. As shown in Fig. 5, the cover is provided with a ring element 68 which serves as a handle for the purpose of opening and closing the cover. This element is provided with a hole 69 in order that the cover may be effectively gripped in order to pull it open against the tension of springs 37 and 64. This ring is made integral with and made of the insulation material of the cover.

While any suitable insulating material may be used for the container, nevertheless I have found that for the base 2 porcelain made by the wet process is preferable. However, it is preferable to make the cover of molded insulation, such as a phenolic condensation product.

With the foregoing construction the terminal elements A and B are effectively but yieldingly secured to the container 2, so that a proper alignment may be made with respect to the terminals 51 and 52 of the fuse. For example, these terminals A and B, while they are held in place by the notches 41 in the sides of the casing and by the projecting heels 42, still there is a slight play both longitudinally of the casing and about an axis at right angles to the axis of the container and perpendicular to the cover. It will also be seen that the latch elements 37 and 64 are independent of the contact elements 39 so that the movement of the latch elements 64 and 37 transverse the axis of the device during the latching operation does not affect the contact between the fuse terminals 51 and 52 and the contact springs 39.

The type of device shown in Fig. 15 is provided with terminal elements somewhat similar to terminal elements A and B but slightly modified in form as shown in Fig. 20. In this type of terminal there are provided only two spring elements 70 and 71. However, the spring element 70 is provided with two different sets of prongs, namely, the prongs 72 and the prongs 73. The prongs 72 serve as the latching members for engaging the notches 72a in the side of the container as shown in Fig. 17 corresponding to the notches 41, Fig. 8. The prongs 73, on the other hand, serve as latching elements corresponding to the latching elements 37a in Fig. 9. The element 71, on the other hand, serves as an independent contact member for making contact with the terminals 74 and 75 of the fuse element 76, Fig. 19 of the smaller device.

In the type of terminal shown in Fig. 20 the cable connection is made with a binding post 78 and which is directly secured to the element 71 or which may be formed from said element. In Fig. 17 I have indicated the relation of the fuse terminal 75 with respect to the latching springs 73.

While the type of device of Fig. 5 is designed

to be secured upright to a cross arm, such as the cross arm 18, by clamping to the cross arm, the type of device shown in Figs. 4 and 15 is preferably secured in a slanting position by means of a support in the form of a metal stirrup 79 shown in Fig. 18. The object of thus slanting the device is to minimize the danger of rain and snow entering the device. The stirrup is provided with holes 80 by means of which the stirrup is bolted to the device as shown in Fig. 4. At the rear end 10 the stirrup is provided with metal spurs 81 designed to be embedded in the wood of the supporting structure and a bolt 82 is used for clamping the stirrup to the support as indicated in Fig. 4. Furthermore, the device is provided with openings 83 on the side through which the cable leads enter the device, which leads, of course, are secured to the terminals 77 and 77', Fig. 15. Similarly, in the form of device shown in Figs. 2 and 5 the casing 2 is provided with openings 84 on the side through which the cable terminals enter and join the terminals A and B.

It will be seen, therefore, that the cutout of the invention presents the novel features of being free from any exposed metal parts which may be in any way connected with the live elements within the device and from isolated metal parts which would acquire a static charge. It will also be seen that I provide a form of hinge which is free from metal elements and which is adjustable and which, therefore, reduces the cost of construction. The device comprises new forms of terminal elements, such as the elements of Figs. 9 and 20, which may be readily inserted or latched in position without necessitating the use of screws, babbitt, cement, or the like. These terminals A and B possess the features that they are formed each as a unit, each can be easily and effectively latched in position, and yieldably held so as to enable each to become properly aligned with the fuse terminal and thereby insure good electrical connection with the fuse element notwithstanding variations which necessarily result in the manufacture of ceramic materials. Furthermore, all of the metal elements of the device are electrically connected within the container, as for example, by the provision of the elements, such as the element 57, Fig. 5, thereby making it impossible to have any sparking between elements of the device which may produce waves that will interfere with radio communication. The device is provided with suitable projections in the rear of the container resembling line insulators and which are integral therewith, effectively insulating the device from the supporting pins and minimizing the cost in manufacture. The device also provides novel methods of insuring permanent and reliable connection between the terminals of the fuse element and the terminals of the device.

Referring to the fuse element, Fig. 21, it will be seen that the terminal 75 is provided with threads 85 and with a cap 86 which is adapted to fit over the projection 87 and screwed thereon in order to clamp the cap 88 of the fuse wire 89 between the upper end of the projection 87 and the cap 86, which latter is closed at the top.

The terminal 74 of the fuse element is provided with an extension 90 which is provided with threads 91. A nut 92 is adapted to be screwed on the extension 90. The lower portion of the extension 90 is tapered and serves to clamp the lower end of the fuse wire 89 between the nut 92 and the lower portion of the extension 90. As will be seen from Fig. 22 the extension 90 is lanced transversely along the lines 93 and 94 and the

metal pressed inward so as to form a locking element 95, which engages the notch 96 in the insulation tube 97 that supports the terminals 75 and 74. The object of the notch 96 and of the locking element 95 is to hold the terminal 74 yielding in one definite position but allowing sufficient play to permit the terminal 74 to line up with the elements in the container.

The object of the barriers in the container, such as the barriers 44, 45 and 46 is to impede the gases when the fuse wire blows from rising up into the container and depositing metal or metal oxides on the walls of the container, which, of course, is objectionable. Furthermore, the barriers impede the passage of the gases when they are in an incandescent and conducting state and are liable to short circuit the insulation in the cutout.

With reference to the cutouts shown in Figs. 1 and 3, it will be seen that these cutouts differ from the cutout of Fig. 2 in that the cover instead of being narrower than the container, as indicated in Fig. 17, is as broad as the container and covers the edges of the side walls of the container.

It will be understood that the opening formed between the cover 27 and the barrier 46, (see the lower part of Fig. 5), that is, between the barrier 46 on one side and the flange 99 on the opposite side having the projections C and D (see Fig. 7), between which the lower end 53 of the fuse element projects, flares upwardly and the barrier 46 and flange 99 operate as a barrier and assist the barriers 44 and 45 in preventing the gases from accumulating within the container. The tail projection 28 at the lower end of the cover not only serves to receive the shaft 29, but it also serves as an apron and protects the operators who handle the device from coming in contact with the metal fuse wire 100. This fuse wire, as shown in Figs. 5 and 7, is folded around the lower end 53 of the tube or cartridge of the fuse element 50. The form of the opening, as clearly indicated in Figs. 15 and 7, insures a free, smooth exit of the gases at the time that the fuse blows.

With respect to the element shown in Fig. 10; while I have shown this element as being provided with a stop shelf 62, this shelf may in certain instances be dispensed with.

It will be understood that while I have elected to disclose my invention by specific illustrations such as contained in the drawings, I do not care to be limited to the specific structure disclosed, inasmuch as in view of the specification, variations and modifications may be readily made without departing from the spirit of the invention or the scope of the claims contained herein.

What I claim as new and desire to secure by Letters Patent of the United States is:—

1. A cutout having a container of insulating material, a pair of terminals for the cutout located in the container each provided with means for receiving a terminal of a fuse, and a fuse mounted between said cutout terminals, a door for the container, one of said cutout terminals being provided with spring means movable independently of the fuse receiving means for latching the door of the container to hold the door closed.

2. In an electric device, a fuse, a terminal for the fuse, a support for the terminal, said support being in general S-shaped and having an opening along the axis of the S in the central slanting section of the S through which a fuse terminal projects, the top branch of the S serving as a stop for the fuse terminal and the tip of the

lower section of the S serving as a seat for the fuse.

3. A cutout having a container of insulating material, a pair of cutout terminals located in the container each provided with means for receiving the terminals of a fuse, and a fuse connected between the latter, a door for the container, means for latching the door to one of said terminals, said door being provided with a non-metallic hinge to render the device less dangerous, said hinge being supported by said container, and means for adjusting the hinge with respect to the door whereby the door may be adjusted with respect to the container.

4. A cutout having a container of insulating material, a cutout terminal in the container provided with means for receiving a terminal of a fuse, a door for the container, means for latching the door to said cutout terminal, the latter being provided with spring means for latching the cutout terminal to the container wall.

5. A cutout having a container of insulating material, said material forming two projections on one side of the container, each projection having a hollow threaded core, and means for supporting said container comprising a pair of pins each provided with flexible threads for engaging the thread elements in said projections.

6. A cutout having a container of insulating material, a cutout terminal in the container provided with means for receiving a fuse terminal, a door for the container, said cutout terminal being provided with means for latching the latter to the wall of the container, a catch element secured to the door, and a spring element for the cutout terminal for latching the catch and the spring element together to hold the door closed.

7. A cutout having a container of insulating material, a spring cutout terminal in the container provided with means for receiving a fuse terminal, a door for the container, said cutout terminal being provided with means for latching the cutout terminal to the container wall, a catch element secured to the door, a latch spring for the cutout terminal, means for latching the latter to both the container and the catch to hold the door closed, said latch spring being provided also with means for reinforcing said cutout terminal.

8. A cutout having a container of insulating material, a pair of cutout terminals in the container each provided with means for receiving the terminals of a fuse and a fuse mounted between said cutout terminals, a door for the container, said door being provided with a non-metallic hinge to render the hinge region safe against exposed metal parts, said hinge being supported by said container, said hinge consisting of a shaft element and a spacer associated with said shaft whereby the door may be adjusted with respect to the container.

9. A cutout having a container of insulating material, a pair of cutout terminals in the container each provided with means for receiving the terminal of a fuse and a fuse mounted between said cutout terminals, a door for the container, said door being provided with a non-metallic hinge, said hinge being supported by said container, and means for adjusting the hinge with respect to the door whereby the door may be adjusted with respect to the container, said means comprising a shaft serving as the hinge and spacers inserted between one side of the shaft and the door, said shaft being longer than the door is wide and said spacers being shorter than the

shaft whereby the spacers will clear the container between the points of support of the shaft.

10. A cutout having a container of insulating material, a pair of terminals for the cutout located in the container each provided with means for receiving a terminal of a fuse, and a fuse mounted between said cutout terminals, a door for the container, one of said cutout terminals being provided with spring means movable independently of the fuse receiving means for latching the door of the container to hold the door closed, the spring means and the fuse receiving means being formed as a unit with all the elements thereof in metallic contact.

11. A cutout having a container of insulating material, a pair of terminals for the cutout located in the container each provided with means for receiving a terminal of a fuse, and a fuse mounted between said cutout terminals, a door for the container, one of said cutout terminals being provided with spring means for latching the door of the container to hold the door closed, said fuse being permanently secured to the door in such manner that the terminals thereof engage the cutout terminals when the door is closed, and means for yieldingly holding the cutout terminals in position with respect to the container whereby the cutout terminals may become properly aligned with respect to the fuse terminals when the door is closed.

12. A cutout comprising a container of insulating material, a cover hinged to the container, spaced clips on the cover for supporting a fuse element, spaced terminals in the container each comprising a spring latch which engages walls of the container for yieldingly positioning the terminal in the container and spring fingers for engaging a terminal of a fuse element, and cooperating members carried by the container and cover which form a spring latch for fastening the cover in closed position.

13. A cutout comprising a container of insulating material, a cover hinged to the container, spaced clips on the cover for supporting a fuse element, spaced terminals in the container each comprising a spring latch which engages walls of the container for yieldingly positioning the terminal in the container and spring fingers for engaging a terminal of a fuse element, and cooperating members carried by the container and cover which form a spring latch for fastening the cover in closed position, the member carried by the container being a part of one of the spaced terminals.

14. A cutout comprising a container of insulating material, a cover hinged to the container, spaced clips on the cover for supporting a fuse element, spaced terminals in the container each comprising a spring latch which engages walls of the container for yieldingly positioning the terminal in the container and spring fingers for engaging a terminal of a fuse element, cooperating members carried by the container and cover which form a spring latch for fastening the cover in closed position, and means for electrically connecting the clips on the cover to the spaced terminals when the cover is closed.

15. A cutout comprising a container of insulating material and a cover having spaced clips for supporting a fuse element, one of said clips comprising an angularly extending wall having an opening to receive the end of a fuse element and a projecting wall beneath the angularly extending wall which forms a fulcrum for engaging the fuse element and wedging its end against the edge of said opening.

16. A cutout comprising a container of insulating material and a cover having spaced clips for supporting a fuse element, one of said clips comprising an angularly extending wall having an opening to receive the end of a fuse element, a projecting wall beneath the angularly extending wall which forms a fulcrum for engaging the fuse element and wedging its end against the edge of said opening, and a wall above the angularly extending wall which forms a stop for positioning the fuse element in the clip.

17. In a fuse cutout, a casing having a back wall and side walls, said side walls being provided with abutments, and a spring terminal in the casing comprising spring arms, the outer ends of which engage said abutments to hold the terminal in position, and spring members located between said spring arms for engagement with a fuse terminal.

18. In a fuse cutout, a casing having a back wall and side walls, said side walls being provided with abutments, and a spring terminal in the casing comprising a U-shaped member having spring arms the ends of which engage said abutments to hold the terminal in place, and spaced spring members projecting upwardly between and in spaced relation to said spring arms for engagement with a fuse terminal.

19. In a fuse cutout, a casing having a back wall and side walls, said side walls being provided with abutments, and a spring terminal in the casing comprising a base portion, means for connecting a conductor to said base portion, spring arms projecting upwardly from said base portion and engaging said abutments to hold the terminal in place, and spring members projecting upwardly from said base portion for engagement with a fuse terminal.

20. In a fuse cutout, a casing having a back wall and side walls, said side walls having abutments, and a spring terminal in the casing comprising a plurality of nested U-shaped members having their base portions fastened together, the arms of one of said U-shaped members engaging said abutments, and the arms of another of said U-shaped members being adapted for engagement with a fuse terminal.

21. A spring terminal for a fuse box comprising a plurality of nested U-shaped members having their base portions fastened together, and their arms projecting in spaced relation to each other, certain of said arms being adapted for holding the terminal in a fuse box and other of said arms being adapted for engagement with a fuse terminal.

22. A spring terminal for a fuse box comprising a plurality of nested U-shaped members having their base portions fastened together, and their arms projecting in spaced relation to each other, certain of said arms being adapted for holding the terminal in a fuse box and other of said arms being adapted for engagement with a fuse terminal, a base portion being provided with means whereby a conductor may be connected thereto.

23. In a fuse cutout, a casing having a back wall and side walls, and a spring terminal in the casing comprising a base portion, means attached to the base portion and engaging the casing for holding the base portion in the casing, the connection between said means and the casing permitting adjustment movement of the base portion, and spring arms carried by the base portion and extending forwardly along the side walls for engagement with a fuse terminal.

24. In a fuse cutout, a casing having a back wall and side walls, and a self aligning spring terminal therein comprising a U-shaped structure having spring arms which engage walls of the casing for holding the terminal in position and which extend along the side walls of the casing to receive between them a fuse terminal, and means for attaching a conductor to the U-shaped structure.
25. In a fuse cutout, a casing having a back wall, side walls, and an open front, a cover for the open front adapted to carry a fuse, and a spring terminal in the casing comprising two spaced spring arms adapted to receive between them a fuse terminal on a fuse carried by the cover, and means for yieldingly mounting the spring terminal in the casing whereby it may move to align itself with such a fuse terminal.

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