Nov. 7, 1933. E. G. NEWTON 1,934,442

FUSE CUT-OUT AND THE LIKE

Filed July 19, 1932

Fig. 1.

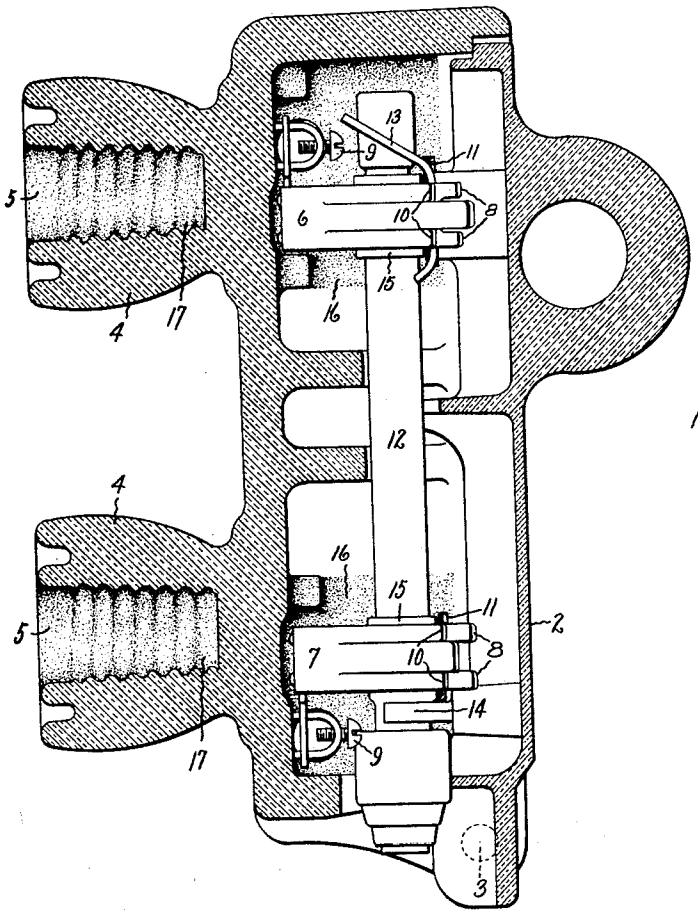
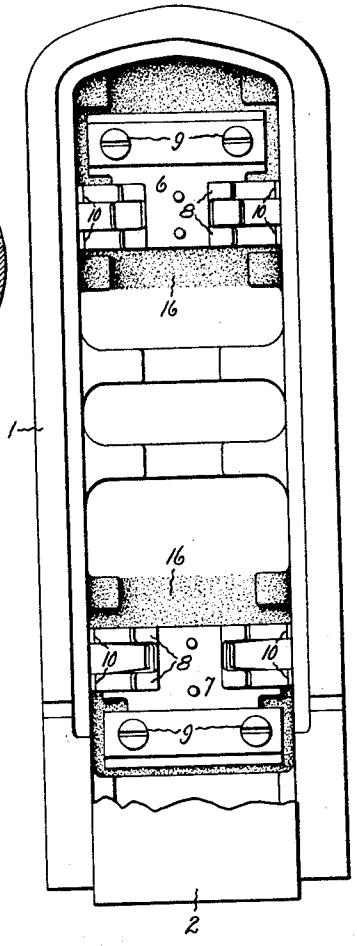


Fig. 2.



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FUSE CUT-OUT AND THE LIKE

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2 Claims. (Cl. 200—133)

The present invention relates to electrical devices such as fuse cutouts and the like wherein an electrical contact of more or less irregular outline and having sharp corners or points at which concentration of electrostatic flux may occur, is supported by or in a wall or housing of suitable insulating material such as porcelain for example. In such apparatus, there exists an air gap between the conductor and the porcelain which is in series with the porcelain and since this air gap is necessarily small, due to design restrictions, its dielectric strength is low compared to that of the porcelain. This means that in case of high potential conductors, sparking may occur across the air gap between points of the conductor and the porcelain, which is objectionable in that it may cause radio interference.

The object of my invention is to provide an improved construction and arrangement wherein the foregoing difficulty is overcome, and for the consideration of what I believe to be novel and my invention, attention is directed to the following specification and the claims appended thereto.

An application of my invention and one to which it is particularly well adapted is in connection with fuse cutouts and in the drawing and the following specification, I have specifically illustrated and described this application of my invention. It is to be understood, however, that this is only by way of example and that the invention is not limited thereto necessarily.

In the drawing, Fig. 1 is a vertical sectional view of a fuse cutout embodying my invention, and Fig. 2 is a face view thereof with the cover broken away.

Referring to the drawing, 1 indicates the casing or housing of the fuse cutout and 2 indicates the cover which is hinged to the housing as is indicated at 3. The housing and cover may be formed of porcelain, for example. Formed integral with the housing are supporting projections 4 having openings 5 in which supporting pins for the housing may be located.

Inside the housing are terminal clips 6 and 7 formed of suitable metal. Terminal clips 6 and 7 have spring contact fingers 8 for the reception of the metal connectors on the fuse tube, and binding screws 9 for connecting electrical conductors to the clips.

The clips are held in the casing by means of outturned fingers 10 which engage in grooves 11 in the side walls of the porcelain casing. The clips are thus more or less loosely held in the casing so that they may have a limited amount of movement to adjust themselves to the connectors on the fuse tube.

12 indicates the fuse tube carried by metal clips 13 and 14 which are attached to the cover 2. The metal connectors on the outside of the fuse tube with which the ends of the fuse wire are connected and which in turn engage the terminal clips 6 and 7 are indicated at 15.

The construction so far considered is that of a known type of fuse cutout. It is shown by way of example. Its specific construction forms no part of the present invention.

According to my invention, I coat or plate the porcelain in the vicinity of the terminal clips with a layer of metal as is indicated at 16 with which the terminal clips are in contact. This serves to short circuit the air gaps between the terminal clips and the porcelain whereby all the electrostatic field is confined to the porcelain casing itself. By this means, the air gaps are, in effect, entirely eliminated, thus doing away with the occurrence of corona and of sparking due to the presence of air gaps in series with the porcelain. In this connection, it will be understood that the porcelain alone has sufficient dielectric strength to withstand the stresses set up by the potential between the terminal clips.

The coating or plating of the parts of the porcelain may be effected in any suitable manner and by any suitable process. Preferably, I leave unglazed the portion of the porcelain which is to be coated and apply the metal coating to it by a suitable spraying process. Processes for spraying metal on to porcelain to provide what is in substance an integral coating thereon are known in the art and need not be specifically described.

By my invention, I form in substance a metallic shield for the terminal clips by means of which voltage at which corona or sparking takes place becomes materially higher than would be the case were the coating not present, that is to say the voltage at which corona or sparking occurs is not now determined by the distribution of the voltage stress between the air gaps and the porcelain as two dielectrics in series, but is determined by the dielectric strength of the porcelain alone. In one instance, in the case of a certain fuse cutout, I was enabled by my invention to raise the voltage at which corona or sparking took place from 8 kv. to 16 kv. In addition, the voltage stress on the porcelain is more evenly distributed thus increasing the factor of safety in the insulation.

In a fuse cutout as shown in the drawing, I preferably also coat the surfaces of openings 5 of the supporting projection 4, as is indicated at 17, in a manner similar to and for the same purpose at that described above.

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

1. A fuse cutout comprising a casing of insulating material, a metallic terminal of irregular contour mounted thereon, there being thus formed a plurality of air gaps between points of the terminal and the adjacent insulating material, and a metallic coating on the insulating material in the vicinity of the contact and with which the contact engages.

2. An electrical device comprising a member of insulating material and a metallic terminal of irregular contour supported thereon, there being thus formed a plurality of air gaps between points of the terminal and the adjacent insulating material, the portion of the member in the vicinity of the terminal being covered with a metallic coating to which the terminal is electrically connected.

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