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J. A. BUSSMANN

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ELECTRIC FUSE AND METHOD OF ASSEMBLING SAME

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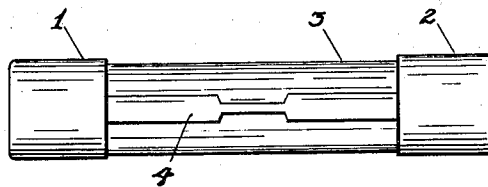


Fig. 1

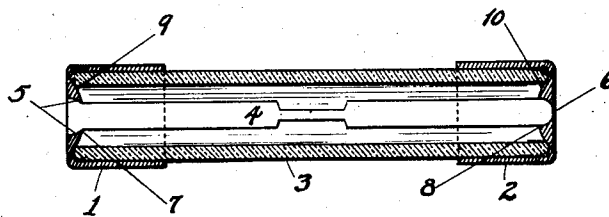


Fig. 2

INVENTOR
JOSEPH A. BUSSMANN

BY

Roy M. Eiler
ATTORNEY

UNITED STATES PATENT OFFICE

JOSEPH A. BUSSMANN, OF ST. LOUIS, MISSOURI

ELECTRIC FUSE AND METHOD OF ASSEMBLING SAME

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My invention relates to ferrule contact type electric fuses, and the object of my invention is to provide an efficient fuse and a method of assembling the same which will materially reduce the cost of manufacture without any detracting from the efficiency of or protection afforded by the fuse.

These advantages of my invention will be readily understood by referring to the accompanying drawings which show a preferred embodiment of my invention.

Fig. 1 shows a ferrule contact fuse. Fig. 2 shows a cross sectional view of the longitudinal section thereof along the axis.

In the drawings 1 and 2 show metallic ferrule terminals attached to the ends of the insulating tube, 3. These terminals serve the double purpose of connecting the fuse to the electrical circuit and forming in conjunction with the tube an enclosure for the fusible element 4, which is electrically and mechanically connected to the ferrules by solder or otherwise.

In assembling a fuse of this type the ferrules are usually attached to the tube. The link 4, is then inserted through holes 7 and 8 in the ferrules and soldered to the ferrules. These holes 7 and 8 have a diameter not substantially greater than the diameter of the link, so as to make easy the soldering operation and to reduce to a minimum the amount of solder necessary.

Heretofore considerable difficulty and expense have been incident to inserting the link in proper position for soldering. With links having both ends of the same dimensions and a length approximately the same as the fuse, considerable difficulty was experienced in endeavoring to get the link properly placed through the hole in the second ferrule after having passed it through the first one; nor was this difficulty lessened by putting on one of the ferrules first, then inserting the link and then putting on the other ferrule, because of the difficulty of getting and holding the link exactly in the center while the second ferrule was being placed in position.

For these reasons it has usually been customary to make the link longer than the length of the fuse so that the operator could

hold the link after it had been passed through the first ferrule and adjust it in position in the second ferrule, or, if the link were fastened to the one ferrule, and then the tube and second ferrule slipped over the link, it was possible, because of the extra length of the link, to first get the link through the hole in the second ferrule before putting the ferrule in position. The extra length of link would then have to be cut off before or after soldering to the second ferrule. This method necessitates an extra operation and waste of the link material cut off.

The object of my invention is the elimination of these difficulties and the extra operation referred to as well as the waste of material referred to, which object I accomplished by making one end of the link, 4, of such form or size, preferably by increasing the width as shown at 5, that it will not pass through the hole 7 in ferrule 1 while at the same time I make the other end of the link of reduced width and rounded or tapered as shown at 6 so that it will easily pass into the corresponding hole 8 of ferrule 2.

I find that with this construction if the ferrules are first attached to the tube and then the link inserted it is readily possible to drop the link through the hole 7 of ferrule 1 and that the rounded end 6 easily locates itself in the hole 8 of ferrule 2.

It is obvious that with this construction the link need not be longer than the fuse and that the cutting off operation and consequent waste of material are both eliminated.

In the case of fuses which have the link attached with solder, the ferrules are usually depressed and the solder used fills these depressions around the ends of the links as shown at 9, 10.

With this particular type of link the operation of assembly is very much more rapid thereby considerably lowering the cost of manufacture.

It is obvious that instead of making one end of the link wide to prevent its passing thru the hole 7 that many other methods may be used to accomplish the same result.

What I claim is:—

1. The herein before described method of

making an enclosed, ferrule contact type fuse, which consists in forming a fuse link substantially the length of the enclosure and forming one end of the link so as not to pass through the ferrule and with the other end reduced, and in passing the link through openings in the ferrules and soldering the link therein.

2. The herein before described method of making an enclosed, ferrule contact type fuse, said ferrules having link receiving openings which consists in forming a fuse passage through the enclosure, in standing the enclosure on end and in forming a link of substantially the same length as the enclosure, in reducing one end portion of the link, and inserting the link through the opening in the top ferrule into said passage so that its reduced portion comes into engagement with the lower ferrule contact with the link in final position with respect to the ferrule contacts, and thereafter soldering the link to the ferrule contacts.

3. In a fuse, a link, a tube, and caps attached to said tube, each cap having a depression therein and having an opening through its depressed portion through which the link extends, said link having a lateral projection at one end and a reduced portion at its opposite end, said ends being surrounded by solder located in said depressions for electrically connecting said link to said caps.

4. In a fuse, a casing including a tube and metal end members on said tube, each end member having a recess and a link-opening through said recess, a link having a maximum width between its ends, not substantially less than the width of the link openings, and having a laterally projecting portion at one end and a reduced portion at its opposite end, said portions spaced substantially to conform to the distance between said recesses, and not substantially greater than the length of said casing, and means metalically uniting said link portions to the recessed portions of the end members.

5. In a fuse, a link, a casing including a tube and metal caps at the ends of the tube, each cap having a depression with a link-opening therethrough, a unitary fuse link having a maximum width between its ends not substantially less than the width of the link opening and formed with its ends lying in said depressions and soldered thereto, one of said link ends being of reduced sectional area.

JOSEPH A. BUSSMANN.