S. W. HUFF.

METHOD OF MANUFACTURING DRAWN LINKS FOR ELECTRIC FUSES.

APPLICATION FILED MAR. 17, 1919.

1,388,568. Patented Aug. 23, 1921.

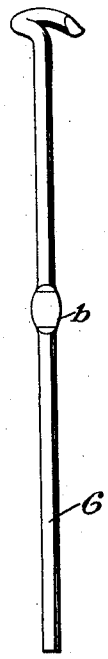


Fig. 1

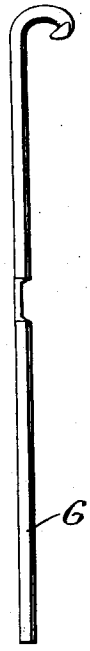


Fig. 2

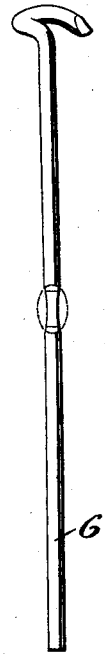


Fig. 3

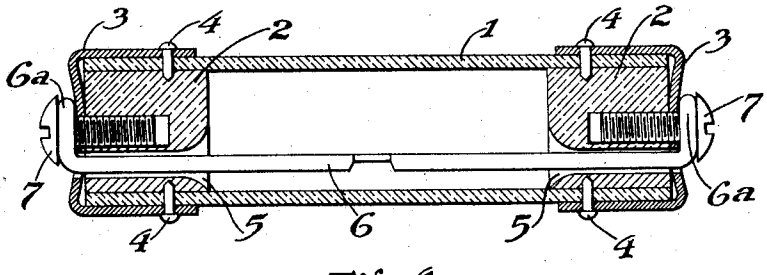


Fig. 4

Inventor

Slaughter W. Huff

By his Attorneys

UNITED STATES PATENT OFFICE.

SLAUGHTER W. HUFF, OF NEW YORK, N. Y.

METHOD OF MANUFACTURING DRAWN LINKS FOR ELECTRIC FUSES.

1,388,568. Specification of Letters Patent. Patented Aug. 23, 1921.

Application filed March 17, 1919. Serial No. 283,116.

To all whom it may concern:

Be it known that I, SLAUGHTER W. HUFF, a citizen of the United States, residing at New York, county of New York, and State of New York, have invented certain new and useful Improvements in a Method of Manufacturing Drawn Links for Electric Fuses, of which the following is a specification.

The present invention relates to a fusible link for use in an electric fuse, which link has its intermediate portion diminished in cross section in order that the fusing point may be localized as far as possible from the conducting ends of the fuse casing, and in order that that portion of the fuse member which gives off a substantial amount of heat may be as short as possible. My U. S. Patent No. 1,228,924 illustrates a link of this type, and the present invention constitutes an improvement thereon, or another method of accomplishing a similar purpose.

As pointed out in that patent, a drawn body of metal such as wire, is well adapted for use as a fusible link because of its uniformity of dimensions, texture, and conductivity. It has been somewhat of a problem, however, when using wire for the link, to find a simple and efficient method of reducing the sectional area and therefore the conducting capacity of the intermediate portion of the link, and at the same time do it so that this capacity can be accurately gaged. It has been proposed to cut away transversely a portion of the wire.

The object of the present invention is to provide an improved form of fusible cut link which will have an accurately determined conducting capacity, and will, therefore, be reliable in operation; and at the same time to devise a method for making the link, which will be simple, rapid and economical.

In the accompanying drawings, which illustrate my invention;

Figure 1 shows the drawn link in the first stage of its manufacture, having its intermediate portion flattened.

Figs. 2 and 3 show side and top views respectively of the completed link, the dotted lines in Fig. 3 indicating the parts severed, and

Fig. 4 is a longitudinal section of a form of electric fuse embodying the link.

The numeral 1 indicates the case of the fuse, provided with insulating plugs 2 and end conducting caps 3. These plugs and caps are secured to the casing 1 by means of pins 4. A passage 5 is provided in the plugs and caps through which the fusible conducting link 6 passes. This link has its ends bent over into a transversely extending loop 6^a which is held in contact with end caps 3 by means of screws 7. It will be understood of course, that my invention may be applied to any kind of electric fuse, and that the one shown is used merely as an illustration.

The fuse shown, in fact, is not my invention, and is not claimed in the present application; but, instead, is described and claimed in a copending application in the name of John A. Thake, filed February 27th, 1919, Serial No. 279,528.

In carrying out my invention, I take a piece of wire of the desired length and having a conducting capacity sufficiently in excess of the maximum current to be carried to prevent excess heating throughout the main body of the wire as distinguished from the reduced portion. I first press and flatten the intermediate portion of the wire by any suitable means, such as a stamping press, for instance, until it is of the desired thickness, which can be accurately gaged. It will then assume the shape shown in Fig. 1, the metal having been forced out transversely as shown at *b*. As stated before, when the wire has been pressed out in this fashion, its thickness can be very accurately gaged, as it is smooth and uniform.

The next operation is to take off so much of the transversely extending portions produced by the pressing operation as will leave a sectional area at this point corresponding to the conducting capacity desired. This is done most rapidly and accurately with a punching machine preferably adapted to punch off the metal from both sides of the wire at a single operation. Knowing with certainty the thickness of the metal, the width necessary for the desired conducting capacity can readily be determined and the punch set so as to accurately cut the metal down to this size.

By the above method it is possible to produce a link in a most simple, rapid and economical manner. It will be noted that there are only two steps to be performed in order to complete the link; namely, the pressing and the cutting steps. These two steps can be performed simultaneously in an ordinary press; for instance, by advancing a length of wire through the press in such manner that the cutting operation is being per-

formed on a portion of the wire previously pressed at the same time that the pressing operation is being performed on a successive portion of the wire. Thus each operation of the press completes a link.

Furthermore, by this method, I have produced a fusible conducting link having the carrying capacity of its intermediate reduced portion uniformly accurate due to the fact that it has been first pressed out to desired gage in depth, and then reduced to the desired gage in width, giving therefore an exact predetermined sectional area, of limited longitudinal extent so as to render as short as possible that portion of the fuse member which gives off a substantial amount of heat.

I claim:—

1. The process of forming drawn wire links of the character described, which consists in flattening out an intermediate portion of the wire link by pressure to the desired thickness; and then cutting off a transversely extending portion created thereby to leave a remaining portion of reduced sectional area limited in both lateral and longitudinal extent and corresponding to the carrying capacity desired.

2. The process of forming drawn wire links of the character described, which consists in flattening out an intermediate portion of the wire link by pressure to the desired thickness; and then cutting off simultaneously from both sides the transversely extending portions created thereby, to leave a remaining portion of reduced sectional area limited in both lateral and longitudinal extent and corresponding to the carrying capacity desired.

SLAUGHTER W. HUFF.