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E. C. HANKS

1,852,159

FUSE WRENCH

Filed June 21, 1930

Fig. 1

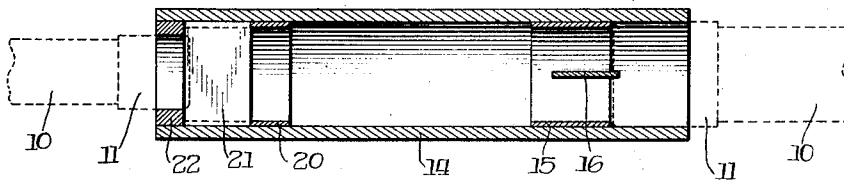


Fig. 2

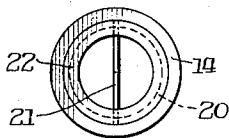


Fig. 3

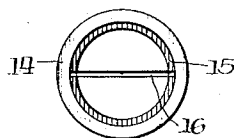
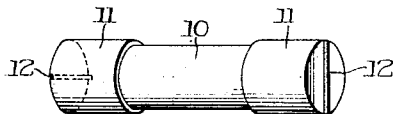


Fig. 4



Inventor:
Elmer C. Hanks.

By *Lincoln Barker & Carlson*
Attys

UNITED STATES PATENT OFFICE

ELMER C. HANKS, OF OAKLAND, CALIFORNIA, ASSIGNOR TO JEFFERSON ELECTRIC COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS

FUSE WRENCH

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The invention relates generally to wrenches and more particularly to a wrench for assembling and disassembling ferrule-type renewable electric fuses.

5 Ferrule-type renewable fuses are often made with end members comprising internally threaded metal caps covering the ends of the fuse to serve as terminals therefor and which must be removed in order to renew the
10 fuse. A diametral slot is usually cut in the end face of the cap to receive a screw driver by which the cap may be turned. It is usually necessary to screw the caps tightly onto the fuse to afford proper electric contacts
15 within the fuse, and, to remove a cap when it has been so screwed, considerable force is required to loosen it, especially after the fuse has been blown.

It is general practice to manufacture ferrule-type fuses in two sizes for a given voltage, namely, one size to accommodate from
20 zero to thirty amperes and the other size from thirty-five to sixty amperes.

25 The general object of the invention is to provide a novel and convenient fuse-cap wrench which may be readily engaged with the cap and the slot therein, and which may be easily held in such engagement without danger of slipping when turned and without
30 marring the cap.

Another object of the invention is to provide a wrench of this character which is adapted for use with either size of fuse for
35 a given voltage, which is relatively small and neat in appearance, and which may be easily and inexpensively manufactured.

Other objects and advantages will become apparent from the following description taken in connection with the accompanying
40 drawings, in which:

Figure 1 is a longitudinal section of a wrench embodying the features of the invention and showing portions of uses in dotted
45 lines in their operative relation thereof.

Fig. 2 is an end view of the left-hand end of the wrench as shown in Fig. 1.

Fig. 3 is an end view of the right-hand end of the wrench as shown in Fig. 1.

50 Fig. 4 is a perspective view of a ferrule-type fuse.

While the invention is susceptible of various modifications and alternative constructions, I have shown in the drawings and will herein describe in detail the preferred embodiment, but it is to be understood that I
55 do not thereby intend to limit the invention to the specific form disclosed, but intend to cover all modifications and alternative constructions falling within the spirit and scope of the invention as expressed in the appended
60 claim.

A ferrule-type fuse, on which a wrench embodying the features of the present invention may be used, is shown in Fig. 4 and comprises a tube 10 on the respective ends of
65 which are threaded caps 11. Each cap is provided with a recess comprising a slot 12 extending diametrically across the end face of the cap and providing a means by which the cap may be gripped to turn it.
70

It is essential that, in assembling a fuse, the cap be screwed tightly onto the fuse to insure a proper relation of parts within the fuse. Also when disassembling the fuse, it
75 often is found that the cap sticks and that a considerable twisting force is necessary to unscrew it. It is obvious that the ordinary screw driver is not a convenient tool for turning the cap due to several facts, among which
80 is the fact that it is difficult to hold the fuse and blade of the screw driver axially aligned, any canting of one relative to the other causing the blade to tear or mar the sides of the slot so that the blade can no longer abut
85 squarely against said side. Also, in the usual type of screw driver which is carried by electricians, the blade is not wide enough to extend completely across the cap so that the most advantageous turning force cannot be exerted on the cap. If the periphery of the
90 cap were to be grasped by a tool such as pliers and thus turned, the pressure of such a tool necessary to hold the cap firmly would cause the tool to mar the surface of the cap and spoil the contact thereof with the fuse
95 clip.

The invention aims to provide a wrench which may readily engage the slot in the cap and hold the fuse in a centered position so that excessive endwise pressure need not
100

be exerted against the fuse to prevent the wrench from slipping out of engagement with the slot in the cap. The wrench is so formed that it may be readily grasped in one hand and placed in an operative position on a fuse.

5 The present embodiment, as shown in the drawings, comprises a rigid tubular body member 14 having means mounted in its respective ends adapted for use with the two different sizes of fuses. In Fig. 1 the left-hand end is adapted for a small size fuse such as a thirty-ampere fuse, while the right-hand end is adapted for a large fuse such as a sixty-ampere fuse. The caps 11 of both sizes of fuses are of similar shape but differ only in their dimensions.

10 The internal diameter of the body member is such as to snugly receive the end of a fuse, as is shown in Fig. 1, and within the body member 14 at a point spaced a short distance from the end thereof a sleeve 15 is secured as by brazing. The sleeve is provided with diametrically opposite longitudinal slots in which is inserted a blade 16, constituting means for interengaging with the cap of a fuse, lying in an axial plane relative to the internal diameter of the body member with its edge extending slightly beyond the end of the sleeve toward the end of the body member. Thus, the end of the body member beyond the sleeve 15 constitutes a socket or guide means for embracing the end of a fuse.

15 In use, the fuse cap is inserted into the end of the body member until the end face of the cap strikes the edge of the blade. The cap is then turned until the slot in its end face is alined with the blade when the latter will enter the slot. By holding the fuse in one hand and the wrench in the other and exerting a relatively slight pressure toward each other, the wrench firmly grips the cap which may then be turned relative to the fuse. Since the cap is held concentric or axially alined with the body member and since the blade extends across the full diameter of the cap, it is obvious that no great endwise force need be exerted to hold the blade in engagement with the slot in the cap, even when a large turning force is exerted.

20 As mentioned above, the other end of the wrench is adapted for use on smaller fuses. It has a similar structure which comprises a sleeve 20, secured within the body member 14 and having longitudinal slots in which is secured a blade 21 extending diametrically across the inside of the body member. Between the edge of the blade 21 and the adjacent end of the body member is secured a sleeve 22, constituting a socket or guide means, whose inner diameter is such that the cap of the smaller size of fuse may be readily inserted therein but yet will be held in a substantially central position so that the

slot in the cap will be alined with the blade when turned to the proper position.

It is evident from the above that I have provided a wrench by means of which the caps of ferrule-type fuses may be easily turned without slipping and without marring the fuse. It is also evident that the wrench is adapted for use with either size of fuse for a given voltage and may be inexpensively manufactured.

I claim as my invention:

A wrench for turning the caps of ferrule-type fuses comprising, in combination, a tubular body member adapted to be grasped manually and to receive the cap of the fuse concentrically within the end thereof, a sleeve secured within said body member at a point spaced from the end thereof and having a pair of diametrically opposite longitudinal slots, and a blade fixed in said slots and extending slightly beyond the end of said sleeve toward said end of the body member, said blade being arranged to enter the slot in the cap when the latter is received within the body member.

In testimony whereof I have hereunto affixed my signature.

ELMER C. HANKS.