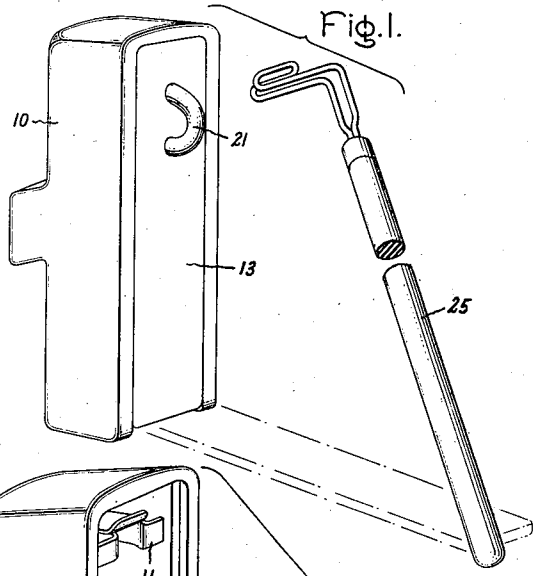
March 10, 1942. B. R. HERMANN 2,275,903

MAINTENANCE TOOL

Filed April 30, 1941

Fig. 1.



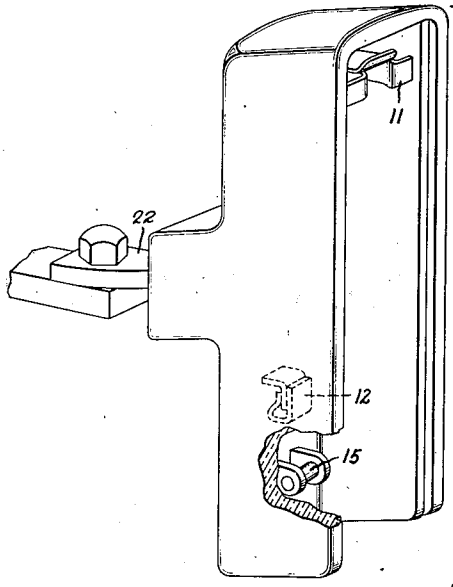


Fig. 2.

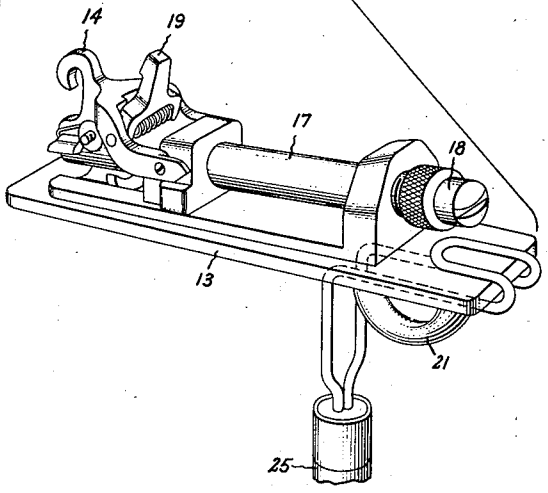
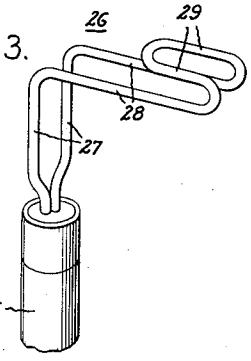


Fig. 3.



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MAINTENANCE TOOL

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Application April 30, 1941, Serial No. 391,171

5 Claims. (Cl. 294—19)

This invention relates to maintenance tools for electrical equipment and more particularly to such tools that are suitable for servicing electrical cutout devices of the type having a removable cover and upon which is mounted a circuit interrupting unit having a renewable element.

Certain types of electric circuit interrupters, such as fuse cutouts, comprise an insulating housing having a pair of line contacts mounted therein and a removable cover which is pivotally attached to the lower end of the housing. Upon the inner surface of the cover is mounted a fuse device the opposite terminals of which are movable into engagement with the housing contacts by operation of the cover to the closed position. To service such a cutout, such as to replace a blown fusible element with a new one, it is necessary to remove the cover from the cutout casing. While this operation may be done by a lineman wearing insulated rubber gloves, it is often desirable to have a suitable insulating tool for performing this operation from a safe distance. Then, too, such a tool would be convenient for servicing cutouts which may be mounted in relatively inaccessible locations.

It is therefore a general object of the present invention to provide a new and improved maintenance tool for electrical equipment and which is particularly suitable for removing and replacing removable doors of electric cutout devices.

For a consideration of what I believe to be novel and my invention, attention is directed to the following description taken in connection with the accompanying drawing, while the features of novelty which characterize my invention will be pointed out with greater particularity in the appended claims.

In the drawing, Fig. 1 is a perspective view of one common form of an electric cutout and a maintenance tool constructed in accordance with the present invention about to be hooked onto the cover of the cutout for opening the same; Fig. 2 is another view in perspective showing the cover removed from the cutout housing and supported upon the end of the tool; and Fig. 3 is another perspective view further illustrating the details of the maintenance tool.

In the drawing an electric cutout is shown comprising an insulating casing or housing 10 having a pair of spaced line contacts 11 and 12 mounted therein. The housing is provided with a removable cover 13 which is pivotally supported by means of a hook 14 upon a pin 15 secured to the back wall of the housing 10 adjacent the lower end thereof. Mounted upon the inner surface of the cover 13 is a fuse device 17, for example, of the expulsion tube type having an upper terminal 18. The cable of the fuse device is connected to a terminal 19 secured to the cutout cover. The terminals 18 and 19 are so arranged that in the closed position of the cover they will engage with the line contacts 11 and 12, respectively, of the housing. The cover 13 is provided with an eyelet 21 whereby it may be operated between the open and closed positions.

Cutouts of the general type described are adapted to be mounted upright or vertically by means of a suitable bracket arm 22 extending from the rear of the housing upon a suitable support such as a crossarm or pole (not shown). The hook 14, for pivotal attachment of the cover to the housing, is so shaped that the cover can be removed from the housing only when it is in substantially the fully opened position, in which position both of the fuse terminals are disconnected from the line contacts. The fully opened position of the cover is usually at right angles with respect to the vertical cutout housing, or in other words, substantially horizontal as indicated in the drawing.

The cutout described forms no part of the present invention but is merely illustrative of one well-known type of an electric circuit interrupting device with which the maintenance tool of my invention may be used. It will be obvious, however, as the description proceeds that my tool may be advantageously used with other types of circuit breaking devices.

The maintenance tool of my invention comprises an insulating stick or handle 25 of a desired length which may be of wood, fiber, or any other suitable insulating material. Upon the upper end of handle 25 is mounted a hook indicated generally at 26 and which, for example, may be formed of a closed loop of relatively stiff wire the ends of the loop being secured in a cooperating bore provided in the end of the handle. The two sides of the loop of wire are spaced apart and substantially parallel with each other, one portion 27 of the loop extending longitudinally from the end of the handle, while a second portion 28 extends at substantially right angles with respect to the portion 27. The closed end portion 29 doubles back over the portion 28 but spaced therefrom by a distance substantially equal to the thickness of the upper end of the cutout cover 13. At least the portions 27 and 28 are spaced apart by a distance substantially equal to the thickness of the cover eyelet 21.

For opening the cutout cover the hook end portion 29 may be inserted into the eyelet 21 and by pulling on the handle, the cover may be swung open to the position indicated by dotted lines in Fig. 1. With the cover in the opened position the hook may be attached thereto by moving the horizontal portions 28 longitudinally of the cover from the outer end so that the eyelet slides therebetween and the end portion 29 over the outer end of the cover. By manipulating the tool so as to lift the left end of the door, as viewed in Fig. 2, upwardly, the hook 14 may be raised off of the supporting pin 15 and the cover detached from the housing. It will be observed that the portions 28 engaging with the outer surface of the cover intermediate the ends thereof will hold the cover steadily on the end of the tool and permit the lifting of the left end of the cover relative to the casing.

After the fuse device has been serviced, the cover may be remounted upon the end of the tool as shown in Fig. 2 and attached again to the housing by passing the hook 14 over the hinge pin 15. The tool is then moved outwardly from the cover so as to unhook the portion 29 from the cover end and by an upward push of the handle the cutout door may be moved to the closed position as shown in Fig. 1.

It is preferred that the outer portion 29 of the tool hook 26 be so spaced from the portions 28 that a relatively snug fit is provided with the end of the cutout cover. Thus it will be obvious that the cutout cover with the fuse device mounted thereon will be relatively securely held by the tool and permit the removal and attachment of the cover to the cutout housing without danger of the cover dropping from the end of the tool and being damaged by dropping to the ground or floor.

Having described the principle of operation of my invention in what I consider to represent a preferred embodiment thereof, I desire to have it understood that the specific details shown are merely illustrative and that the invention may be carried out by other means.

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

1. A maintenance tool for removing and attaching covers of fuse cutouts and the like devices having an operating eyelet extending outwardly from the surface of the cover, said tool comprising an operating handle, a hook mounted on the end of said handle having a portion extending substantially at a right angle with respect to the axis of said handle for hooking over the upper end of the cutout cover in the opened position thereof and a pair of spaced portions for engaging with said cover on the opposite sides of said eyelet.

2. A maintenance tool for removing and attaching removable covers of electric cutouts and the like devices, said tool comprising an operating handle, a hook member secured on the end of said handle, said hook member having a first portion extending at substantially right angles with respect to the axis of said handle, and having a second end portion doubling back over said first portion to form a hook for fitting cooperatively over the end of a cutout cover.

3. A maintenance tool for removing and attaching covers of fuse cutouts and the like devices which are removably hinged at the lower end to a casing, said tool comprising an operating handle, a cover engaging member on said handle comprising a closed loop of wire having a first portion for sliding over an outer edge of said cover and a second portion for engaging with the outer surface of said cover whereby said cover may be steadily and removably supported on the end of said handle.

4. A maintenance tool for removing and attaching covers of fuse cutouts and the like devices which are removably hinged at the lower end to a casing, said tool comprising an operating handle, a hook member on the end of said handle having a portion for fitting over the outer end of a cutout cover, and a second portion for engaging with the outer surface of the cover intermediate the ends thereof.

5. A maintenance tool for removing and attaching covers of fuse cutouts and the like having a separate eyelet extending outwardly from the surface of the cover and positioned adjacent one end of said cover, said tool comprising an operating handle, a hook in the form of a closed loop of relatively stiff wire mounted on the end of said handle having a first portion extending from the handle parallel with the longitudinal axis of said handle, a second portion extending substantially at right angles with respect to said first portion and of a length at least as great as the distance of said eyelet from the adjacent end of the cover of said cutout, and a third portion parallel with said second portion for hooking over the upper end of the cutout cover in the open position thereof so that said cutout cover may be supported on said second portion with said eyelet engaged between the wire forming the second portion of said loop, whereby said cover may be steadily and removably supported on the end of said handle.

BENJAMIN R. HERMANN.