May 24, 1949. A. J. PARKER 2,471,236

CLEANING DEVICE FOR FUSES AND FUSE HOLDERS

Filed Dec. 7, 1945

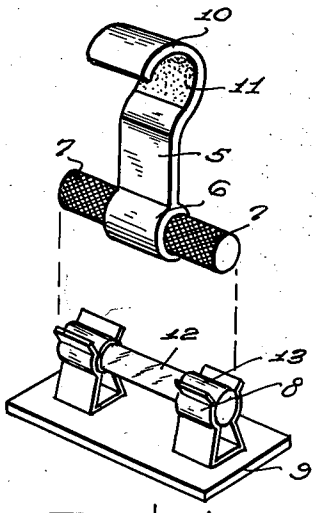

FIG. 1.

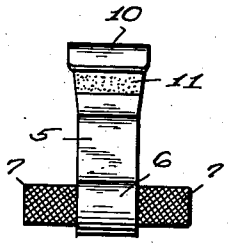

FIG. 2.

FIG. 3.

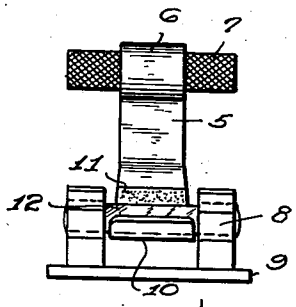

FIG. 4.

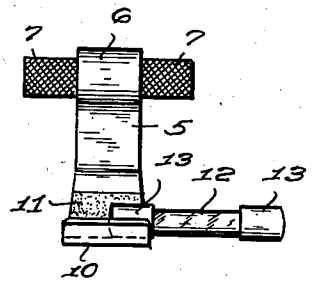

FIG. 5.

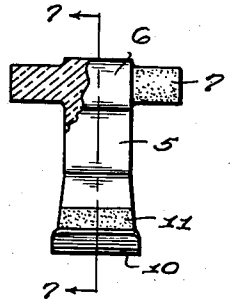

FIG. 6.

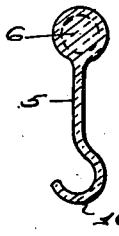

FIG. 7.

INVENTOR.
Allen J. Parker,
BY
James M. Ogle
ATTORNEY

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CLEANING DEVICE FOR FUSES AND FUSE HOLDERS

Allen J. Parker, West Palm Beach, Fla.

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3 Claims. (Cl. 51—205)

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This invention relates to an improvement in cleaning devices and has particular reference to a device for removing and cleaning electric fuses and fuse holders.

It is an object of the present invention to provide a device for quickly and conveniently removing a fuse from its terminal holder in a manner that will avoid breakage of the fuse or injury of the fuse holder.

A further object of the invention resides in means associated with the device for quickly and efficiently cleaning the terminals of the fuse holder and then the opposite ends of the fuse.

Another object of the invention resides in the extreme simplicity of the device, is strong, durable and highly efficient in use.

Other important objects and advantages of the invention will present themselves during the course of the following description, reference being had to the accompanying drawings, wherein:

Figure 1 is a perspective view of the device with a fuse and fuse holder to be cleaned,

Figure 2 is a face view of the device,

Figure 3 is an end view thereof,

Figure 4 is a face view of the device, shown in the position for removal of the fuse,

Figure 5 is an inverted face view illustrating the method of cleaning the fuse ends,

Figure 6 is a face view, partly in section of a slightly modified form of the invention, and

Figure 7 is a vertical section taken on line 7—7 of Figure 6.

In the drawings, wherein like reference characters refer to like parts throughout, the numeral 5 designates a flat, preferably metal shank portion, provided at one end with a tubular head 6. Positioned in the tubular head 6 and extending therebeyond an equal distance on either side, is a cylindrical cleaning element 7, preferably formed of metal and having its circumferential surfaces serrated or roughened for providing an abrasive surface to clean the fuse terminals 8 of a fuse block 9. The opposite end of the shank 5 terminates in a hooked extension 10 having its inner and concave surface provided with a suitable abrasive 11 of any desired form. The abrasive 11 may be omitted and the inner surface of the hook roughened by serrating. The hook portion 10 is formed slightly wider than the shank 5, for a purpose to be presently explained. The terminals 8 are normally adapted to support a conventional fuse, having a glass body portion 12 and metallic ferrules 13, the ferrules 13 seating in the terminals 8 as is customary.

In the use of the device, it being assumed that

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the terminals 8 and ferrules 13 have become corroded and interrupt the flow of electrical current therethrough, the hook 10 is engaged beneath the body 12 of the fuse, as shown in Figure 4 and pulled upward, lifting the fuse from the terminals. The width of the hooked end 10 is substantially that of the glass body 12 and the lifting action exerts an even pressure throughout the length of the glass, thereby avoiding an uneven pressure with its frequent fracturing of the glass. This even withdrawing pressure assures the removal of the fuse without damage. After the fuse has been removed, the device is inverted and the cleaning element 7 forced into the fuse terminals. Rocking of the device back and forth completely cleans all foreign deposits from the contact surfaces of the terminals. After the terminals have been cleaned, the device is removed and inverted, as in Figure 5 and the ends of the fuse are alternately inserted against the abrasive 11 and rotated thereagainst by hand until all foreign matter has been removed.

The structure as illustrated in Figures 6 and 7 is identical in shape and size to that first described and comprises a shank 5, head 6 and oppositely extending cylindrical cleaners 7. The body 5 terminates at its opposite end in the hook 10, as before. In this form of the invention, the shank 5, head 6, cleaners 7 and hook 10 are formed as an integral structure, preferably of a molded substance, such as plastic and the cleaners 7 have their surfaces coated in any convenient manner with an abrasive substance, such as Carborundum. Since most of the conventional plastics are of a dielectric nature, such an article aids in preventing accidental shock when used around fuse blocks. The inner surface of the hook 10 is likewise coated with an abrasive. The use of this form of the invention is identical with that first described. In the first form of the invention, the cleaner 7 is engaged in the head 6 in a manner to hold it against turning and disengagement, either by a force fit or by the use of a suitable set screw, not shown.

It will be seen from the foregoing that an extremely simple and effective device has been provided for efficiently cleaning the fuse ends and fuse terminals of corrosive deposits. The device lends itself to any conventional fuse block and the method of removing the fuse is especially convenient, since in many cases the fuse blocks are placed in more or less difficult spots that make it difficult to remove the fuse without injury to both the fuse and the fuse holder. The device may obviously be made in varying sizes to suit the particular type of fuse to be cleaned,

such as the conventional cartridge fuses used on power lines, power houses or the smaller type used in fuse boxes for residential service. By providing the rigid unitary substantially T-shaped device of Fig. 2 I make the several elements serve multiple functions in a way never before suggested and in a way which accomplishes these functions in a most facile, economical and efficient way. For example, the rigid transverse head 7 constitutes a handle which may be grasped and pulled upon after hook 10 has been engaged about the fuse to be removed, as in Fig. 4. The hook 10 in turn serves as a finger grasp when the ends 7 are to be oscillated in the corroded terminals. Further this hook is dimensioned and provided internally with an abrading surface, to cause it to function as shown in Fig. 5.

It is to be understood that the invention is not limited to the precise form shown, but that it includes within its purview, whatever changes fairly come within either the terms or the scope of the appended claims.

Having described the invention, what is claimed is:

1. A device for removing cartridge type fuses from their fuse block terminals and for cleaning said terminals, consisting of a rigid member of general T-shape comprising a shank and a transverse head which lie substantially at right angles to each other the opposite ends of the head being of cylindrical form and projecting substantially equidistantly beyond the shank and being roughened to constitute abrasive elements dimensioned to abrasively engage within the terminals of a fuse block, the terminal end of the shank being curved forwardly to form a hook-like member extending across the free end of said shank, said hook-like member constituting a finger grasp by which the cylindrical roughened ends of the head may be rocked back and forth within the terminals to clean the same, said hook-like member being dimensioned to engage about the body of a cartridge fuse to pull the same out of its fuse block terminals when the device is inverted and the head is grasped as a handle and pulled outwardly and away from said fuse block.

2. A device for removing cartridge type fuses from their fuse block terminals and for cleaning said terminals, consisting of a rigid member of general T-shape comprising a shank and a transverse head which lie substantially at right angles to each other the opposite ends of the head being of cylindrical form and projecting substantially equidistantly beyond the shank and being roughened to constitute abrasive elements dimensioned to abrasively engage within the terminals of a fuse block, the terminal end of the shank being curved forwardly to form a hook-like member extending across the free end of said shank, said hook-like member constituting a finger grasp by which the cylindrical roughened ends of the head may be rocked back and forth within the terminals to clean the same, said hook-like member being dimensioned to engage about the body of a cartridge fuse to pull the same out of its fuse block terminals when the device is inverted and the head is grasped as a handle and pulled outwardly and away from said fuse block, the concave face of said hook-like member being roughened to provide an abrasive surface and dimensioned to receive the ends of fuses to be cleaned.

3. A device for removing cartridge type fuses from their fuse block terminals and for cleaning said terminals, consisting of a rigid member of general T-shape comprising a shank and a transverse head which lie substantially at right angles to each other the opposite ends of the head being of cylindrical form and projecting substantially equidistantly beyond the shank and being roughened to constitute abrasive elements dimensioned to abrasively engage within the terminals of a fuse block, the terminal end of the shank being curved forwardly to form a hook-like member extending across the free end of said shank, said hook-like member constituting a finger grasp by which the cylindrical roughened ends of the head may be rocked back and forth within the terminals to clean the same, said hook-like member being dimensioned to engage about the body of a cartridge fuse to pull the same out of its fuse block terminals when the device is inverted and the head is grasped as a handle and pulled outwardly and away from said fuse block, the width of said hook-like member being greater than the width of the shank at the junction of the latter with the transverse head.

ALLEN J. PARKER.

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