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C. H. FENSKE, JR., ET AL

2,244,532

FUSE HOLDER

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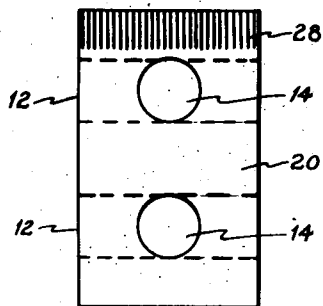


Fig. 2

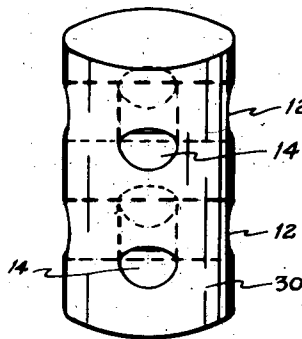


Fig. 3

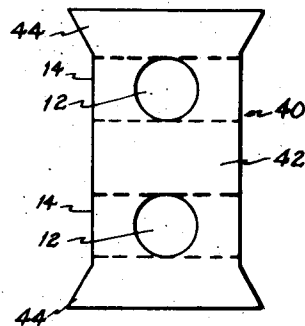


Fig. 4

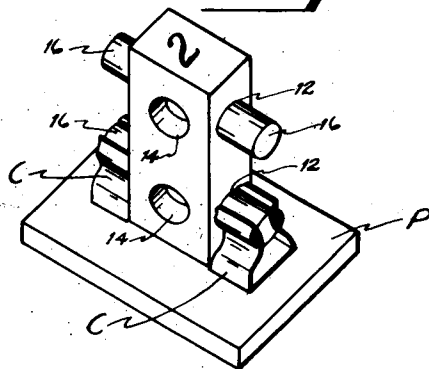


Fig. 1

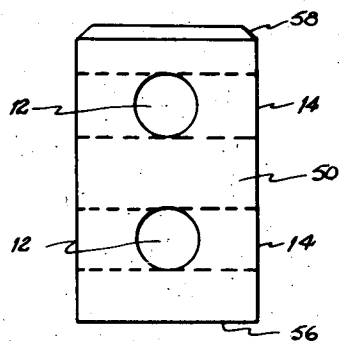


Fig. 5

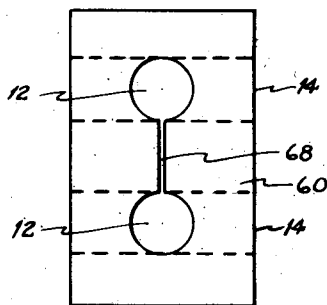


Fig. 6

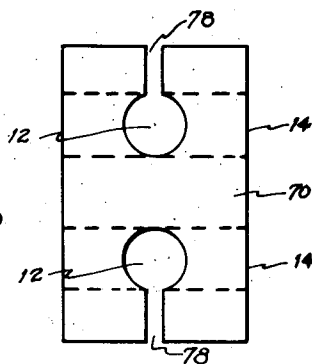


Fig. 7

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FUSE HOLDER

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13 Claims. (Cl. 200—133)

Our invention is a fuse holder and is more particularly a device for carrying a spare fuse which also serves as a handle for inserting and removing fuses in fuse clips.

Conventional electrical systems are provided with fuses for preventing the overloading of the various electrical circuits included therein. Fuses for use in automotive electrical systems are ordinarily small cylindrical cartridges having a diameter of the order of one quarter inch and provided with metal tips for establishing electrical contact and insulated central portions. When placed in the electrical circuit the metal tips are forced into a pair of spring metal clips which grip them tightly.

The clips are frequently placed in relatively inaccessible locations and it is somewhat difficult to secure the fuses in position. The central insulated portion is gripped in the fingers and frequently the clips are so close together that the fingers touch both clips and a shock is received.

One of the objects of the invention is to provide a cheap, durable and satisfactory device which will serve as an insulated handle for inserting and removing fuses.

In automotive vehicles it is desirable to carry spare fuses to replace the active fuses when they burn out. Fuses of several different capacities are frequently used in the different circuits. If the spare fuses are all carried in one box or on a separate spare fuse panel it is necessary to examine the burnt out fuse, determine its capacity, and select a similar fuse from the general supply for replacement. This is inconvenient and time consuming and in an emergency the wrong capacity fuse may be selected with the result that a circuit may be burned out through lack of adequate fuse protection.

It is accordingly a further object of the invention to provide a convenient and dependable spare fuse holder which will hold a spare fuse in a convenient location and which will keep a service fuse and an equivalent spare fuse together to avoid error in replacement.

It is a further object of the invention to provide a device which will hold a plurality of fuses together but insulated from each other and will provide for immediate visual inspection of all such fuses to determine their condition.

It is a further object of the invention to provide a fuse holder which has indicating means to distinguish the service fuse from the spare fuse at a glance.

Other and further objects of the invention will become apparent as the description proceeds.

All the objects mentioned above are accomplished by the fuse holder described below and illustrated in the accompanying drawing in which:

Figure 1 is an isometric view showing our novel fuse holder in use, one fuse being engaged with the clips of an electrical circuit and another fuse being carried in reserve;

Figure 2 is an elevational view showing the construction of the fuse holder with passages or openings therethrough, and with one end colored to serve as an indicating means;

Figure 3 is an isometric view showing a modified form of our fuse holder;

Figure 4 is an elevational view showing a further modified form;

Figure 5 is an elevational view showing a form of holder with dissimilar ends for indicating purposes;

Figure 6 is an elevational view showing another modification; and,

Figure 7 is an elevational view showing still another modification.

Our novel fuse holder is shown in use in Figure 1, in which a panel P is provided with conventional fuse clips C which are connected to an electrical circuit. The fuse holder itself is made in the form of a block 10 having holes 12 for the insertion of fuses 16, and holes 14 arranged at an angle to and intersecting the holes 12.

The block 10 is made of a material which is substantially a non-conductor of electricity. The material is preferably resilient, such as rubber, Neoprene or the like, although it may also be Bakelite, or any synthetic resin.

Holes 12 are formed with a diameter slightly less than that of a standard fuse so that the fuses when inserted, will stretch the holes and be tightly gripped in place. The block 10 is of such dimensions that the metal tips of a fuse will protrude at either side when carried by the holder and will be adapted to contact with clips C. The holes 14 are preferably formed at right angles to holes 12 and intersect them. They serve as windows through which the central portion of the fuse may be viewed to determine whether or not it is burned out.

The fuse holder of our invention is cheap and durable and serves several useful purposes. The small amount of rubber or other material used is very inexpensive. It is almost impossible to

break it or wear it out and consequently it will last indefinitely.

The type of fuse for which our holder is primarily designed is held quite close to panel P when clipped in place. The central portion, usually of glass, is only about one quarter inch in diameter. This combination of circumstances makes it difficult to grasp and extract the fuse with the fingers, particularly in warm weather when the hands are moist. If the fingers contact both of the fuse clips it is possible to receive an unpleasant shock or burn. Our fuse holder serves as a handle of sufficient size to be readily grasped and its insulating qualities avoid all danger of shock.

The holder serves the added purpose of providing a storage place for a spare fuse. While supports for spare fuses are well known we are not aware of any which carry the spare fuse immediately adjacent to the service fuse. Two identical fuses can be carried in the same holder and an exchange can be made immediately in an emergency without the necessity of checking capacities or the danger of error in selection.

The holder is provided with novel indicating means which may take various forms. Figure 1, for instance, shows the use of raised or sunken numerals on the ends of the block. Number 2 indicates that the spare fuse is still available. When the holder is reversed, the number 1 on the opposite end will be in sight and will give warning that the service fuse is blown and should be replaced. The holders should be inspected in every routine check.

The indicating means may take any one of several forms. For instance, in Figure 2 one end of the holder is given a distinctive color, such as red, and in Figure 5 one end of holder is bevelled or rounded off to make it dissimilar in shape to the other end. With these forms the distinctive end is used to carry the service fuse and will, of course, be visible when the spare fuse is in use.

It will be obvious to anyone skilled in the art that the holder may be made longer and provided with additional holes to carry several spare fuses if desired.

The principles of the invention may be employed in a variety of forms. Figure 2 shows a block 20 having a substantially rectangular cross-section, and having one end distinctively colored, as at 25.

Figure 3 shows a substantially cylindrical holder 30, having the usual holes 12 and 14 for holding and viewing the fuses.

In Figure 4, the holder 40 may be rectangular or any other shape in cross-section and has a relatively slender central portion 42 with enlarged ends 44, making it generally I shaped in elevation.

The holder 50 of Figure 5 is of any desired cross sectional shape and has one end 56 substantially squared off while the other end is beveled or rounded off, as at 58, to give it a distinctive shape to serve as an indicating means.

The form shown in Figure 6 makes insertion and removal of fuses from the holder somewhat easier. The holder 60 is provided with fuse holding passages 12, 12 which are connected by a narrow slit 68. This allows the holes 12 to spread readily for insertion of the fuses.

The form shown in Figure 7 is particularly desirable where the holder is made of Bakelite or other materials which are considerably stiffer

than soft rubber. The body 70 is provided with fuse receiving holes 12, and narrow slits 78 extend from each hole to the outer surface of the block so that the holes may be sprung slightly for ready insertion of the fuses.

Any of the holders shown in the drawing may be molded to form or may be cut out of block material. Molding is considered to be preferable for mass production.

While we have described our invention in detail in its present preferred embodiment, it will be obvious to those skilled in the art after understanding our invention that various changes and modifications may be made therein without departing from the spirit or scope thereof. We aim in the appended claims to cover all such modifications and changes.

We claim:

1. A fuse holder comprising a block of resilient material substantially rectangular in cross section and substantially rectangular in plan, means forming a plurality of passages through said block substantially parallel to each other and substantially normal to the longitudinal axis of the block and means forming a plurality of passages extending through said block in a direction substantially normal to the axes of said first openings and to the longitudinal axis of said block, each one of said second named passages intersecting respectively one of said first passages, said first named passages serving as retainers for fuses and said second named passages serving as windows to view the condition of the fuses.

2. A fuse holder comprising a unitary block of resilient material, a plurality of passageways through said block adapted to receive and retain fuses and a plurality of passageways intersecting said first passageways and serving as windows to view the condition of the fuses.

3. A fuse holder comprising a block of flexible material having an opening formed therethrough and spaced from one end to receive and retain a fuse and having a second opening formed therethrough, also spaced from said end and extending at an angle to and intersecting said first opening and adapted to serve as a window to view the center portion of the fuse.

4. A fuse holder comprising an elongated block, a plurality of openings formed therethrough at an angle to the longitudinal axis thereof and adapted to receive fuses, and at least one opening formed through said block and intersecting said first named openings to expose the centers of said fuses to view.

5. A fuse holder comprising a block of insulating material, a plurality of openings being formed therein to receive and retain fuses, said block being symmetrical in other respects but having means on one end thereof adapted to serve as a signal to distinguish one end from the other.

6. A fuse holder comprising a block of rubber having openings formed therein at substantially right angles to its longitudinal axis, said openings being adapted to receive and retain fuses and having a diameter less than that of the fuses in order to grip them tightly.

7. A fuse holder comprising a block of flexible material having an opening formed therein for receiving a fuse, said opening being of a diameter less than that of the fuse in order to grip it firmly, said block having a second opening formed therein and spaced from the ends thereof and intersecting said first opening.

8. A fuse holder comprising a blocking of insulating material provided with means at one end for holding a fuse and with means at the other end adapted to serve as a signal to distinguish one end from the other said block being otherwise substantially symmetrical.

9. A fuse holder comprising a block of non-conducting material having means formed near each end for gripping a fuse, the two ends of said block being dissimilar in form to serve as a means to distinguish said ends.

10. A fuse holder comprising an elongated block having means formed near each end for gripping a fuse, one end having a distinctive color to serve as a means to distinguish between the ends.

11. A fuse holder comprising an elongated block having openings therethrough near each end and substantially parallel to each other and at an angle to the longitudinal axis of the block and means forming a narrow slit extending between said openings.

12. A fuse holder comprising an elongated

block of resilient material, means forming a plurality of passages through said block substantially normal to the longitudinal axis of said block, and means forming a plurality of passages through said block at angles to the longitudinal axes of said block and said first named openings and intersecting said first named openings, some of said openings serving to receive and retain standard types of cartridge fuses and others of said openings serving as windows to view the condition of said fuses.

13. A fuse holder comprising a unitary block of material, means forming a first pair of openings passing through said block and adapted to receive and retain standard types of cartridge fuses, and means forming a second pair of openings in said block intersecting said first openings and adapted to serve as windows to view the condition of fuses carried in said first openings.

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