March 11, 1969 E. F. POEHLMAN, JR 3,432,789

FUSEHOLDER FOR ELECTRICAL CIRCUITS

Filed June 16, 1967

Sheet 1 of 3

FIG. 1.

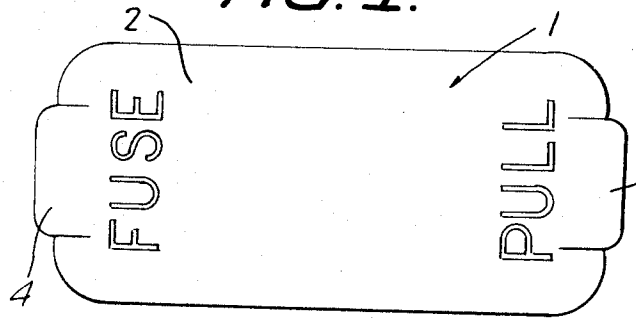


FIG. 6.

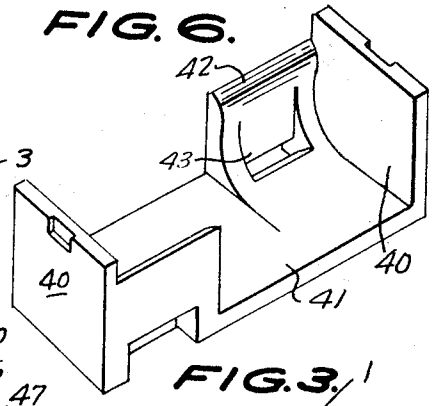


FIG. 2.

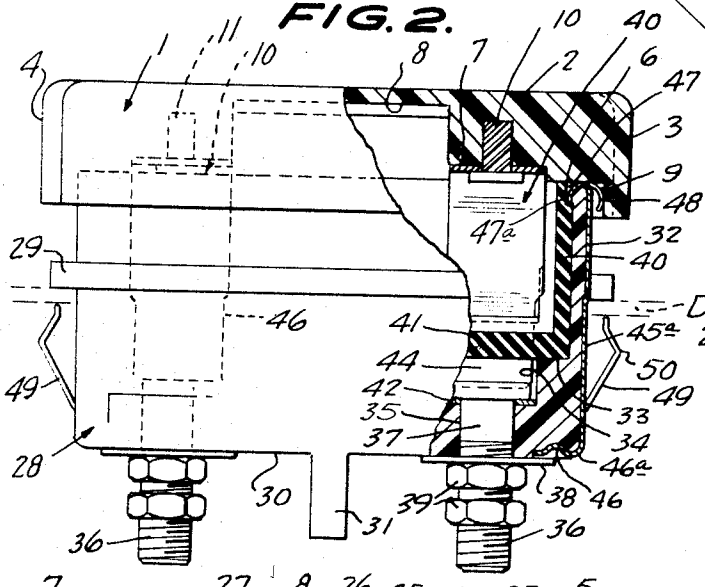
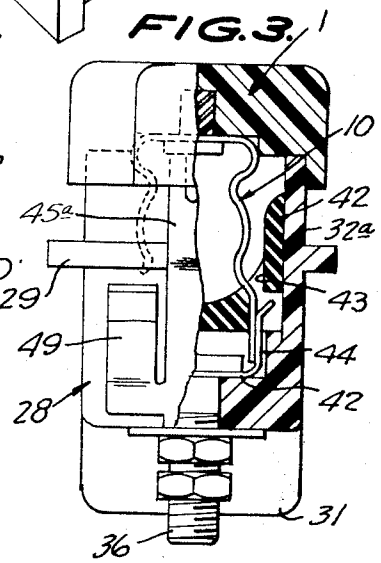


FIG. 3.



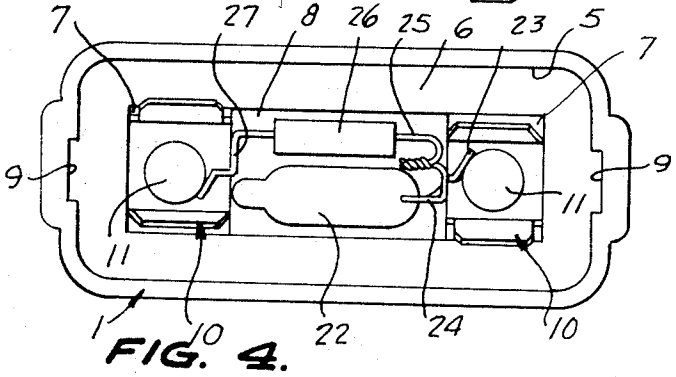


FIG. 4.

FIG. 5.

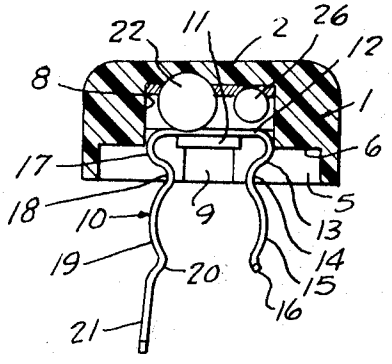
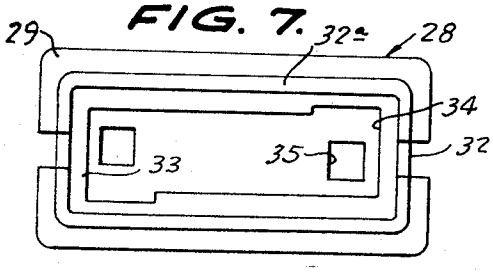


FIG. 7.



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FIG. 8.

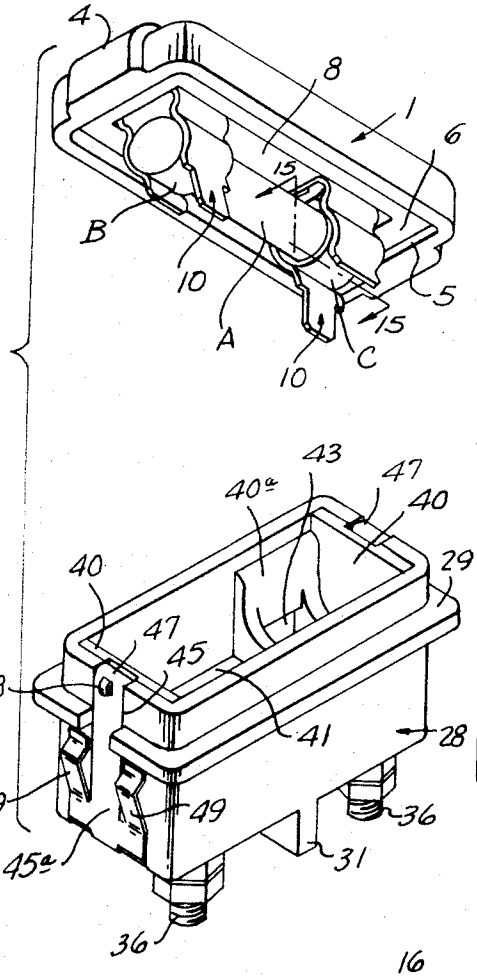


FIG. 13.

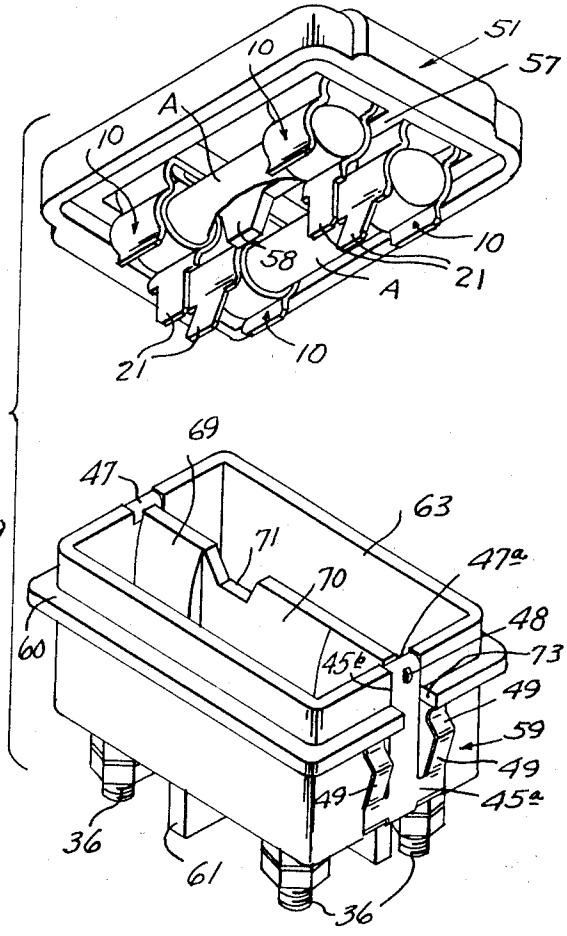


FIG. 15.

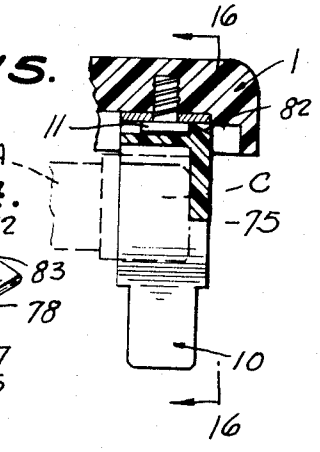


FIG. 14.

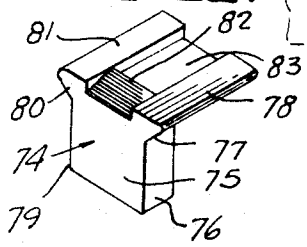
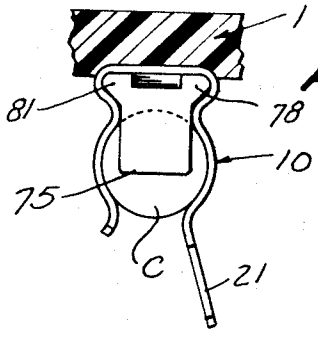


FIG. 16.



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FIG. 11.

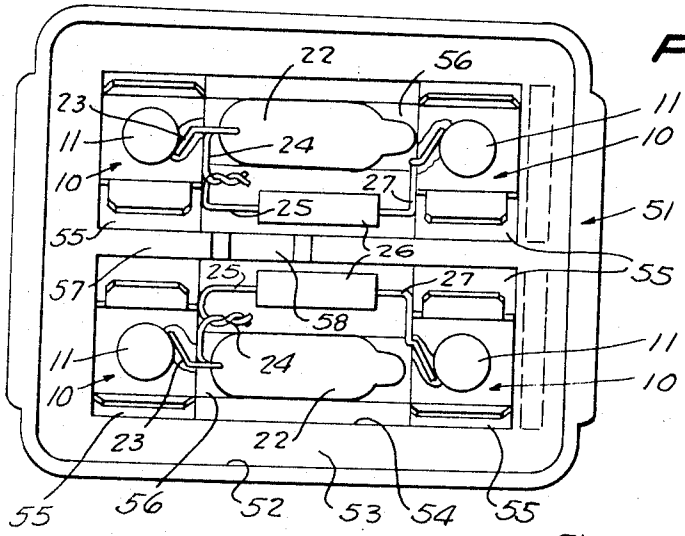


FIG. 9.

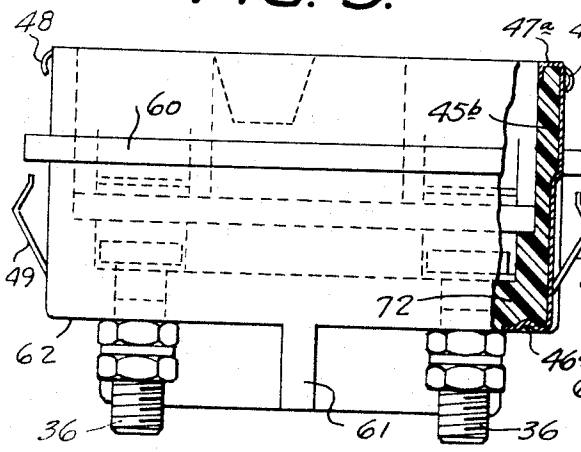


FIG. 12.

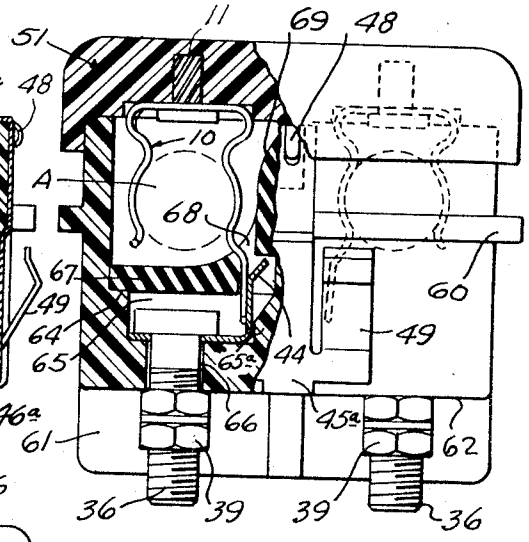
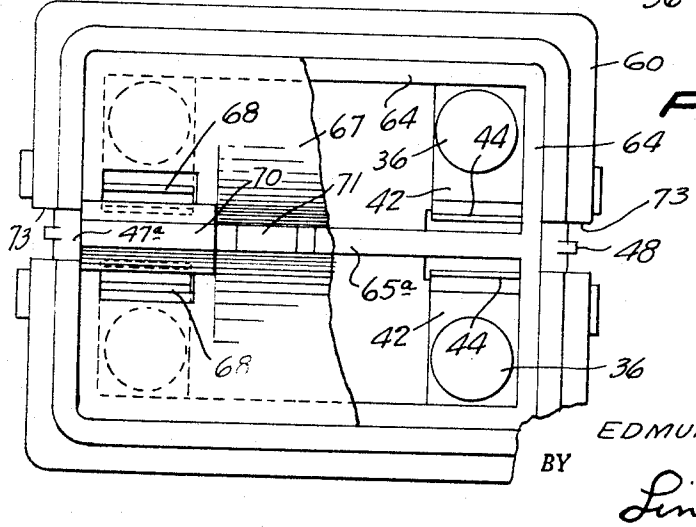


FIG. 10.



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3,432,789

FUSEHOLDER FOR ELECTRICAL CIRCUITS

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Filed June 16, 1967, Ser. No. 646,534
U.S. Cl. 337—242 13 Claims
Int. Cl. H01h 85/24, 85/32

ABSTRACT OF THE DISCLOSURE

A protector for electrical circuits employing more particularly standard type cartridge fuses retained in standard fuse clips upon a fuse block, panel board or within a holder for preventing the unauthorized tampering or accidental misplacing of fuses upon the fuse clips or within the holder therefor.

Cross reference

Patent No. 3,052,781 issued Sept. 4, 1962, discloses a single and double fuseholder employing standard cartridge type fuses retained therein by fuse clips separated at predetermined fixed distances from one another and carried by the cover of the fuseholder. The present protectors for electrical circuits are an improvement thereover.

Background of the invention

Manufacturers of standard cartridge type fuses produce a line of fuses having a cartridge or casing of the same outside diameter but in varying lengths according to their ampere ratings. For instance there is presently on the market a Midget cartridge fuse type 5AB having a casing of 13/32" in diameter and 1½" in length with a rating of 0–30 amperes. Also there is on the market standard type SC cartridge fuses each having a diameter of 13/32" but with varying lengths of, for example, 15/16" in length for 0–15 amperes; 1 13/32" in length for 16–20 amperes; 1⅝" in length for 21–30 amperes; and 2¼" length for 31–60 amperes. Manufacturers of fuse blocks, panel boards and holders for fuses have to space fuse clips apart thereon at predetermined distances so as to accommodate the different lengths of the foregoing type SC and Midget fuses. For example, one set of clips should be spaced apart so as to accommodate the fuses having 0–15 ampere ratings; a second set of clips should be spaced apart so as to accommodate the 16–20 ampere rating fuses; the third set of clips should be spaced apart so as to accommodate the 21–30 ampere rating fuses and the fourth set of clips should be spaced apart so as to accommodate the 31–60 ampere rating fuses. Owing to the length of 2¼" for the 31–60 ampere rating fuses none of the foregoing lower ampere rating fuses would fit within the clips spaced for the 31–60 ampere rating fuses. However, it is possible to interchange or replace fuses of the lower ampere ratings in any one of their sets of fuse clips and to prevent against over load currents that might occur incidental to the use of the improper fuse, I provide an adapter or stop for one or more the fuse clips whereby only a fuse of the required proper ampere rating can be applied to each set of fuse clips. These adapters can be made from electrical insulating materials such as phenolic or electrical conducting materials, such as brass and also can be fixedly applied to fuse clips with a suitable epoxy adhesive. I also

provide an indicating or non-indicating holder for one or a plurality of fuses including fuse clips to which said adapters or stops can be applied.

The fuse holders of the aforementioned Pat. No. 3,052,781 requires nuts and bolts for fastening the same to a panel board for example which is not required in the present fuseholders. The patented structure also does not include the present structure for preventing the accidental reversal of the cap of the fuseholder on the body thereof and also does not include the simplified structure of the present fuseholder whereby a pair of clips are employed for retaining the fuseholder on a panel board, the cap on the fuseholder body and an insulating partition within the fuseholder body for separating the fuses when positioned therein.

The present fuseholders have a high level of safety from possible electrical shock to personnel changing fuses therein as with the cap removed current carrying parts of the present fuseholder are insulated, removed or encased to prevent accidental contact with the same. The present fuseholder with the fuse clips in one position will accept fuses having a wide range of lengths of, for example, from 1¼" to 1⅝" in length and 13/32" in diameter. The fuse length to be accommodated by any set of fuse clips may be limited by inserting an adapter into one or both fuse clips. If longer fuses are to be used the fuse clips will have to be positioned accordingly.

On the present double fuse holder the clip and body are keyed to prevent reverse installation of the cap on the body so that if the cap should carry fuses of different ampere ratings they can only be inserted in the body in their proper location.

The caps of the present indicating and non-indicating fuseholders are of the same size and configuration permitting the same to be readily interchanged on the same body as well as reducing the cost which would be incurred by different caps for these purposes. The caps are friction fitted to the body and therefore can be removed and installed without the need for twisting or loosening or removal of fasteners therefor.

The present fuseholders can be mounted upon a panel board, for example, by means of snap clips that are an integral part of the fuseholder and the fuseholder is snapped into place in a rectangular mounting hole in the panel board without the need of tools or removing or installing mounting hardware. The snap-in clips will fit panel boards having a thickness range of 1/16" to 3/32".

The present fuseholder can be singularly arranged on the panel board or arranged in a series in a common mounting cut out of the panel board in any desired quantity or combination. This eliminates the necessity for providing a separate panel cut out for each fuseholders where a plurality of fuseholders are to be mounted side by side.

On the present single fuseholder the contact clips of the body thereof and the long leg of the fuse clips of the cap are alternated to provide even side tension on the cap. This assists in the mounting of the cap on the body and also prevents the caps from being raised up on one side when mounted.

In the accompanying drawings:

FIG. 1 is a top view of a single fuseholder according to the present invention.

FIG. 2 is a side elevation partly in section of said fuseholder.

FIG. 3 is an end view partly in section of the fuseholder.

FIG. 4 is a bottom view of the cap forming part of he fuseholder.

FIG. 5 is a cross-sectional view of said cap.

FIG. 6 is a perspective view of an insulating member forming part of the fuseholder.

FIG. 7 is a top view, reduced size, of the fuseholder body.

FIG. 8 is an exploded perspective side view of a single fuseholder prior to the mounting of the cap on the body thereof.

FIG. 9 is a side elevation partly in section of the body of a double fuseholder.

FIG. 10 is a top view of said double fuseholder with the insulating panel partly broken away.

FIG. 11 is a bottom view of the cap of the double fuseholder.

FIG. 12 is an end view partly in section of the double fuseholder.

FIG. 13 is an exploded perspective view of the double fuseholder prior to the mounting of the cap on the body.

FIG. 14 is an enlarged perspective view of the adapter for fuse clips.

FIG. 15 is an enlarged sectional view taken on line 15—15 of FIG. 8; and,

FIG. 16 is a cross-sectional view taken on line 15—15 of FIG. 15.

Referring now more particularly to the accompanying drawings wherein like and corresponding parts are designated by similar reference characters numeral **1** generally indicates the cap of the single fuseholder shown in FIGS. 1–8 inclusive. Said cap is of an electrical insulating material such as a phenolic compound melamine, urea formaldehyde or the like and has a flat top **2** with projections **3** and **4** extending from the ends thereof and an interior rectangular wall **5** from which extends shoulder **6** to a recess **7** while a second recess **8** extends deeper into said cap than recess **7** in the central portion of said cap. Recesses **9** are provided in wall **5** in each of said projections **3** and **4**. A pair of fuse clips each generally designated by the reference numeral **10** are retained each in an opposite end of recess **7** by drive pins **11** each extending through the flat bottom **12** of the fuse clips into cap **1**. Each fuse clip besides flat bottom **12** has an outwardly curved portion **13**, inwardly curved portion **14**, outwardly curved portion **15** and outwardly extending lip **16** providing one leg of said clip integral with said base. The clip further has an outwardly curved portion **17**, inwardly curved portion **18**, outwardly curved portion **19**, inwardly curved portion **20**, and a straight end portion **21** provided a second leg of said clip integral with said base and which end portion **21** extends beyond the lip **16** of the first leg while the portions **15** and **19** of the elgs are curved for detachably receiving ferrule B or C of a cartridge fuse A. Such fuse clips are made of a resilient electrically conducting material such as brass, copper, beryllium copper or the like.

In the indicating form of the fuseholder, the cap thereof as shown in FIGS. 4 and 5 have a neon or incandescent lamp **22** with one electrode lead **23** of the lamp being fixedly connected to or under the head of a drive pin **11** while a second electrode lead **24** of the lamp is twistedly connected to wire **25** of a resistor **26** while the other lead **27** of said resistor is fixedly connected to the other of said drive pins **11**. Said leads can be attached to said drive pins by solder or under the head of the drive pin. Lamp **22** and resistor **26** are positioned within recess **8** of said cap. The nonindicating cap **2** as shown in FIGS. 2 and 3 do not include such lamp and resistor.

The body of the single fuseholder generally indicated as **28** is also of an electrical insulating material and has a medial lateral flange **29** extending around the outside thereof, a flat bottom **30** and a partition **31** extending laterally across and from said bottom **30**.

Said body further has a pair of end walls **32**, a pair

of side walls **32***a*, an interior rectangular shoulder **33** extending inwardly from said walls to an elongated recess **34** in the bottom of said body. A pair of square openings **35** extend through said body bottom each into an opposite end of said recess **34**. A pair of bolts **36** each have a square shank **37** mating with one of said square openings **35** and extend through said body bottom. A pair of washers **38** each have one of said bolts extending therethrough and are positioned between said body bottom **30** and a pair of nuts **39** in threaded engagement with each of said bolts.

An insulator body has a pair of right angle walls **40** extending normal to a bottom **41** with each right angle wall positioned against an end wall **32** and a portion of one side wall **32***a*. Bottom **41** also has a pair of slots **43** with each slot alongside one of the side wall **40***a* of one of said right angle walls.

A pair of contact springs **42** each have a base with a square opening through which extends the square shank **37** of a bolt **36** and an upright curved leg **44** beneath one of said slots **43**.

Each end wall **32** has a slot **45** extending from the bottom to the top thereof and in flange **29** while bottom **30** has an indentation **46** at each end thereof in line with one of said slots **45**. The top of each end wall **32** has a recess **47** in line with the slot **45** of said end wall.

A pair of spring mounting clips each have a center leg **45***a* positioned in one of said slots **45**, a hook end **46***a* in the indentation **46** therebelow, a second hook **47***a* in slot **47** and a curved tongue **48** in said second end. Further, said spring mounting clips each have a pair of substantially V-shaped arms **49** extending alongside leg **45***a* on each side of the same and spaced from the corresponding end wall **32**. Each arm **49** has lateral medial crease **50**. Said spring mounting clips are preferably formed of a spring steel matreial.

In the use of the single fuseholder a cartridge fuse A has the ferrules B and C thereof detachably mounted in the clips **10** as shown in FIG. 6. Thereupon cap **1** is mounted on the open top of body **28** by inserting legs **21** of said clips each through one of the insulator openings **43** until it engages the leg **44** of one of the spring contact. At such time shoulder **6** engages the top edge of walls **32** and **32***a* of said body and tongues **48** press into the recesses **9** of wall **5**. To remove the cap **1** from said body therefore it is only necessary to pull the cap from the body due to the snap fit.

To mount the fuseholder upon a panel board D it is only necessary to push said body through a corresponding opening in said panel until flange **29** engages said panel. During this mounting operation arms **49** are compressed against end walls **32** until such time as they clear panel D whereupon they will spring back to the position shown in FIG. 2 retaining the fuseholder body on the panel.

Wires (not shown) are then connected to bolts **36** and current therefrom can pass through said bolts to spring clip **42**, clips **10** and fuse A.

When cap **1** contains lamp **22** and should the fusible element in the fuse be ruptured due to a current overload the current would pass from one clip **10** through lead **27**, resistor **26**, leads **24** and **25**, lamp **22** and lead **23** to the other clip **10** causing said lamp **22** to light and shine through the relatively thin translucent or transparent bottom of cap **1** to indicate the blown condition of the fuse.

Lamp **22** and resistor **26** can be cemented in place in said cap with the lamp and resistor as well as the leads embedded in the adhesive. The leads **23** and **27** can be soldered to the fuse clips **10**.

The present double fuseholder which is shown in FIGS. 9–13 inclusive has a cap generally indicated at **51** which is of an electrical insulating material and has a rectangular interior wall **52** from which extends a shoulder **53** to a second rectangular wall **54** with a pair

of spaced apart shoulders **55** providing a central recess **56**. A partition **57** extends from shoulder **53** across recess **56** and shoulders **55** providing two compartments within said gap. Partition **57** further has a tongue **58** extending from the edge of said partition and positioned to one side of the center of said partition. Two pairs of clips **10** are attached to said cap with each clip being mounted on one of the shoulders **55** by means of a drive pin **11** extending through the base of the clip into the shoulder **55**.

For the indicating fuseholder, the cap **51** as shown in FIG. 11 also contains a pair of neon or incandescent lamps **22** and a pair of resistors **26**. Each lamp **22** has a lead **24** connected to lead **25** of one resistor and a second lead **23** connected to a drive pin **11** and resistor lead **27** connected to the other drive pin **11** with each connected lamp and resistor being in recess **56** on a different side of partition **57**. Said lamps and resistors can be embedded in cement within recess **56** while cap **51**, as can cap **1**, can be of a transparent or translucent plastic. The cap **51** for the non-indicating fuseholder does not contain a lamp and resistor.

The body **59** of the double fuseholder is also of an electrical insulating material and has a lateral flange **60** extending around the exterior thereof as well as a cross-shaped partition **61** extending from the bottom **62** of said body. Said body further has an interior rectangular wall **63** extending to a shoulder **64** providing an open top recess in said body. A pair of recesses **65** are each positioned between shoulder **64** and a center partition **65***a*. A pair of square openings **66** extend through the bottom of each of said recesses **65** and bottom **62** of said body. A contact spring **42** is positioned above each of said openings **66** with a bolt **36** extending through the bottom of the contact spring, and opening **66** and retained by nuts **39**.

An insulator body **67** of electrical insulating material is mounted upon shoulder **64** and partition **65***a* and has an upright partition **70** between the opposite ends of wall **63** dividing the open top recess of said body into two compartments corresponding to the compartments on opposite sides of partition **65***a* and also partition **57** of said cap **51**. Said insulator body **67** further has two pairs of openings **68** with each pair thereof adjacent to but on opposite sides of partition **70**. Said partition **70** also has curved faces **69** on both sides thereof with each face curving downwardly towards one of said openings **68**. Partition **70** further has a top edge recess **71** shaped and positioned for receiving tongue **58** of cap **51** only when said cap is mounted on said body in a given position. Bottom **62** has a pair of indentations **72** each in an opposite end thereof while said body has a recess **45***b* in each of its opposite ends for receiving one of the spring mounting clips **45***a*. That is, hook end **46***a* of each spring mounting clip **45***a* is mounted in one of said bottom recesses **72** and the opposite end **47***a* extends over wall **63** engaging the top of partition **70** so that the two spring mounting clips **45***a* retain the insulator body **67** in the fuseholder body. Each spring mounting clip **45***a* has a pair of resilient legs **49** extending normal to bottom **62** and between said bottom and flange **60** and also a spring tongue **48** adjacent hook end **47***a*. Flange **60** also has a pair of recesses **73** each in line with one of said recesses **45***b* and in each of which one of said spring mounting clips extends.

In the use of the double fuseholder two cartridge fuses A are such mounted in the pair of clips **10** in each of the compartments of said cap **51**. Thereupon, the cap **51** is mounted upon the top of body **59** with tongues **48** pressing against the end portions of the cap wall **52** retaining the cap on said body until lifted therefrom. When placing the cap on the body, legs **21** of said clips **10** are each guided by a face **69** of partition **70** into and through one of the openings **68** until the leg **21** is in contact with leg **44** of the spring contact **42**. Thereupon bolts **36** can be connected to an electrical circuit (not shown) so that current can pass through each pair of bolts **36**, spring contact **42**, clips **10** and the fuse A. If required, the fuses A mounted in cap **51** can have different ampere ratings or have the same ampere ratings depending upon the circuit to which they are connected.

When an indicating cap **51** such as shown in FIG. 1 is employed and either of the fuses A therein should become ruptured or blown due to an overload of a current passing thereto, the current would pass from the clip **10** bypassing the ruptured fuse to the resistor **26** and lamp **22** connected to said clips causing the lamp **22** to light and the light would show through the relatively thin transparent or translucent top of the cap **51**. However, it is to be appreciated that a cap **51** without the resistors and lamps mounted therein can equally as well be used.

When cap **51** is lifted from body **59**, the terminals consisting of bolts **36** and spring contacts **42** are covered by partition **67** so that a user thereof cannot receive an electrical shock when removing or replacing fuses or the cap on said body.

Also the double fuseholder can be mounted on a panel board by merely pushing said body through a correspondingly shaped opening in the panel board until flange **60** abuts one face of the panel board whereupon the spring legs **49** would snap against the opposite face of the panel board retaining the fuseholder thereon.

A plurality of single fuseholders or plurality of double fuseholders or a combination thereof can be mounted side by side upon a panel board for example by providing an opening in said panel board of a configuration for this purpose.

Should the fuses A mounted in the cap **51** have different ampere ratings they can only be mounted upon the body **59** in their proper position due to the fitting of tongue **58** into recess **71**.

A fuse clip adapter is shown in FIGS. 14–16 inclusive which adapter **74** is of an L-shaped configuration having a leg **75** with straight sides **76** and **79** and a base leg **78** having slanting shoulders **77** and **80** slanting inwardly towards sides **76** and **79** respectively of leg **75**. Said bottom **78** further has a slot **83** in the bottom face **81** thereof with a detent **82** extending across said slot adjacent leg **75**.

As referred to hereinbefore standard cartridge fuses A of different ampere ratings are produced with the same casing diameter but with different overall lengths. Thus when standard fuse clips are mounted upon a base they normally have to be spaced apart a distance to accommodate the length of the fuse to be mounted thereon. However, if the fuse clips are mounted apart a distance to accommodate a cartridge fuse of, for example, 21–30 ampere ratings and having a length of 1⅝" it is possible to attach one of the cartridge fuses of the shorter lengths and lower ampere ratings thereto.

Adapter **74** can be mounted upon a standard fuse clip as shown, by way of an example, in FIGS. 15 and 16 by sliding slot **83** over the head of the drive pin **11** holding the fuse clip to the base until detent **82** slides over said drive pin head and leg **75** abuts shoulder **6** and detent **82** abuts said drive pin head. Shoulders **77** and **80** of the adapter would thus slide between the curved portions **13** and **17** of the fuse clip and leg **74** would extend between the legs of the fuse clip. Thus, with a pair of fuse clips mounted for a 21–30 ampere rating fuse, for example, the addition of one adapter to one of the fuse clips would prevent the 21–30 ampere rating fuse to be mounted thereon, but would permit the accommodation of a lower ampere fuse. Still further, a pair of said adapters **74** could each be mounted on a different one of the fuse clips so that only a fuse having an 0–15 ampere rating, for example, could be mounted on the fuse clips and not a fuse of higher ampere rating.

In view thereof, a manufacturer can install fuse clips each pair of which all having the same spacing and yet accommodate the proper fuse only by the addition of

ne or two adapters or said adapter could be removed o accommodate any change in the electrical circuit amere rating connected thereto. Thus a fuse of an ampere ating greater than required by the electrical circuit conlected to the fuse clips could not inadvertently be atached to the fuse clips.

For purpose of an example only, an adapter **74** is shown in the drawings attached to one of the fuse clips **10** of the present fuseholders but it is to be appreciated that more than one adapter can be employed on more than one fuse clip and also the adapters can be mounted on fuse clips attached to other bases than the present caps.

The present invention is capable of considerable modifications and such changes thereto as come within the scope of the appended claims is deemed to be a part thereof.

I claim:

1. A holder for cartridge fuses comprising a body of electrical insulating material having an open top recess, a bottom, a pair of opposite ends and a flange extending from at least said body ends, at least a pair of terminals mounted through said bottom, an insulating member extending across said recess above said terminals and having at least a pair of openings each adjacent one of said terminals, at least a pair of resilient arms each fixedly mounted on one of said body ends between said body bottom and said flange, a cap of electrical insulating material mountable on said body for closing said body recess and at least a pair of fuse clips capable of detachably retaining a cartridge fuse thereon and attached to said cap for being positioned in said body recess, each of said clips having a leg capable of extending through one of said insulating member openings and contacting one of said terminals when said cap is mounted on said body.

2. A holder for cartridge fuses as claimed in claim **1** including a pair of mounting clips each positioned on one of said body ends, and having a hook shaped end engaging said body bottom, an opposite hook shaped end extending into said body recess, and one of said resilient arms connected thereto, said cap having a pair of recesses each in an opposite end thereof and each of said mounting clips having a resilient tongue capable of fitting into one of said cap recess for detachably holding said cap on said body.

3. A holder for cartridge fuses as claimed in claim **1** wherein said insulating member has at least one wall extending towards the open top of said body recess, a pair of mounting clips are each mounted on one of said body ends and has an end portion extending into said body recess against said insulating member wall holding said insulating member in said body and said resilient arms are each connected to one of said mounting clips.

4. A holder for cartridge fuses as claimed in claim **1** wherein said insulating member has at least one wall extending towards the open top of said body recess, said body bottom has a pair of indentations each adjacent one of said body ends, a pair of mounting clips are each positioned on one of said body ends, and each of said clips has a hook shaped end in one of said body bottom indentations, a second hook shaped end extending into said body recess against said insulating member wall retaining said insulating member in said body, a resilient tongue adjacent said second hook shaped end for detachably retaining said cap on said body and one of said resilient arms integral therewith.

5. A holder for cartridge fuses as claimed in claim **1** wherein said insulating member openings are positioned on opposite sides and ends of said body recess.

6. A holder for cartridge fuses as claimed in claim **1** including a lamp having a lead connected to one of said fuse clips, a resistor having a lead connected to another one of said fuse clips, a further lead of said lamp connected to a further lead of said resistor and said lamp and resistor being housed in said cap.

7. A holder for cartridge fuses as claimed in claim **1** wherein each of said resilient arms has an end connected to one of said body ends, a V-shaped longitudinal configuration and a free end spaced from said one of said body ends and each resilient arm extending normal to said body bottom.

8. A holder for cartridge fuses as claimed in claim **1** wherein each of said terminals consists of a bolt extending through said body bottom, and an L-shaped contact spring having a leg with an opening through which said bolt extends and a second leg extending towards one of said insulating member openings.

9. A holder for cartridge fuses comprising a body of electrical insulating material having a top with a recess therein, a bottom, and a pair of opposite end walls, a plurality of terminals extending through said body bottom into said recess, an insulating member extending across said body recess above said terminals and having a plurality of openings each adjacent one of said terminals, said insulating member having an upright wall separating said body recess into two compartments, a flange extending from each of said body ends, at least a pair of resilient arms each mounted on one of said body ends between said body bottom and said body flange, a cap of electrical insulating material capable of being mounted on said body top for closing said body recess and having a bottom recess, said cap having a wall separating said cap recess into two compartments and positioned for abutting said insulating member upright wall when said cap is mounted on said body, a plurality of fuse clips connected to said cap with each pair thereof in one of said cap compartments and capable of detachably retaining a cartridge fuse, each of said fuse clips having a leg capable of extending through one of said insulating member openings and contacting one of said terminals.

10. A holder for cartridge fuses as claimed in claim **9** wherein said insulating member upright wall and said cap wall positioned for abutting and extending in line when said cap is mounted on said body, said insulating member upright wall having a top edge recess and said cap wall having a tongue for mating with said insulating member upright wall recess when said cap is mounted on said body only in one position thereof.

11. A holder for cartridge fuses as claimed in claim **9** including a plurality of lamps each having a lead connected to a clip in a different one of said cap compartments, a plurality of resistors each having a lead connected to a second lead of one of said lamps and a second lead connected to a second one of said clips in a cap compartment and each connected lamp and resistor being positioned in one of said cap compartments.

12. A holder for cartridge fuses as claimed in claim **9** including a pair of mounting clips each positioned on an end wall of said body, each mounting clip having one end attached to said body bottom, a second end attached to said body top and extending into said body recess retaining said insualting member therein, a resilient tongue adjacent said second end for detachably retaining said cap on said body and having at least one of said resilient arms attached thereto.

13. A fuseholder for fuses of the same diameter, but different lengths comprising a supporting base of electrical insulating material, a pair of fuse clips each having a base and a pair of resilient spaced apart legs, each of said clip legs curving outwardly and then inwardly along its length at the end thereof connected to said base and then arcing in its medial portion, a pair of elongated headed members each extending through one of said clip bases into said supporting base and at least one stop having a base positioned between the curving leg ends of one of said clips, a slot receiving said elongated member head therein, a detent in said slot and an upright leg extending between the clip legs.

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