Aug. 31, 1954 C. W. EDMAN 2,688,062

COMBINED SWITCH AND MULTIPLE FUSE HOLDER

Filed April 10, 1953

FIG. 1.

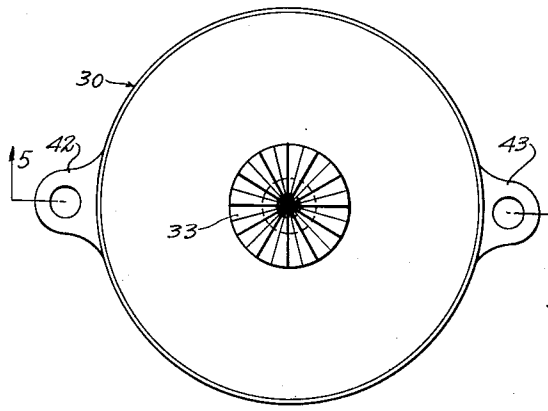
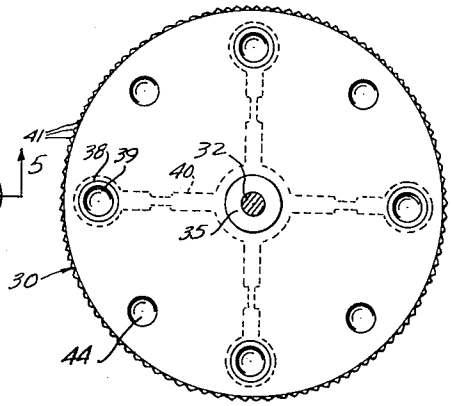


FIG. 6.



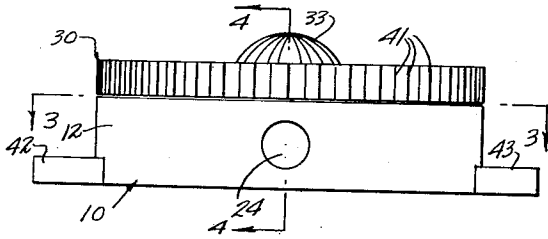


FIG. 2.

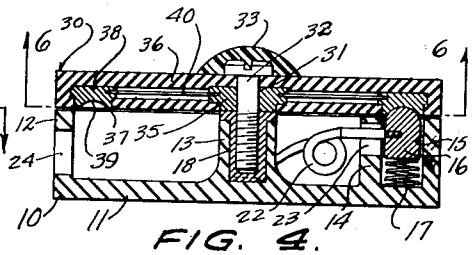


FIG. 4.

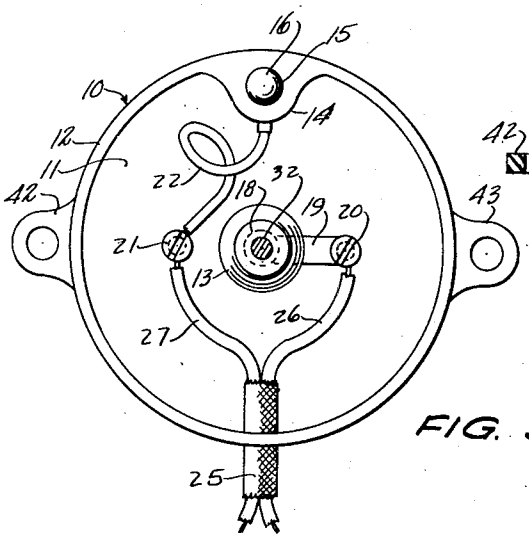


FIG. 3.

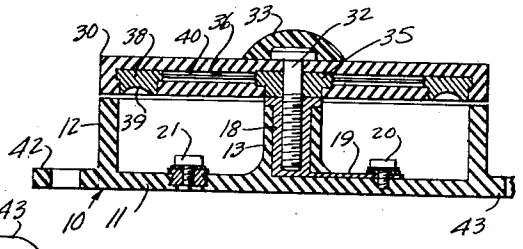


FIG. 5.

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COMBINED SWITCH AND MULTIPLE FUSE HOLDER

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2 Claims. (Cl. 200—125)

1

This invention relates to a combined switch and multiple fuse holder and more particularly to a switch and fuse holder combination in which fuses are successively movable into operative position to replace burned-out fuses.

It is among the objects of the invention to provide an improved switch and multiple fuse holder combination which is entirely safe to use and can be used both as a circuit controlling switch and to renew a fuse in the circuit whenever a fuse is burned out by a short circuit or overload current in the circuit; which can be firmly mounted on any suitable support, such as a radio or television cabinet; which includes a replaceable fuse unit; which places the fuses successively in operative position by manually turning the fuse unit; and which is simple and durable in construction, economical to manufacture, easy to use, and neat and attractive in appearance.

Other objects and advantages will become apparent from a consideration of the following description and the appended claims in conjunction with the accompanying drawing, wherein:

Figure 1 is a top plan view of a switch and multiple fuse holder illustrative of the invention;

Figure 2 is a side elevational view of the switch and multiple fuse holder illustrated in Figure 1;

Figure 3 is a cross sectional view on the line 3—3 of Figure 2;

Figure 4 is a cross sectional view on the line 4—4 of Figure 1;

Figure 5 is a cross sectional view on the line 5—5 of Figure 1; and

Figure 6 is a cross sectional view on the line 6—6 of Figure 4.

With continued reference to the drawing, the combined switch and multiple fuse device comprises a base 10, formed of electrically insulative material such as hard rubber or a synthetic resin plastic and including a flat bottom plate 11 of circular shape, an annular or cylindrical wall 12 extending perpendicularly from one side of the plate 11 marginally of the plate and a hollow boss 13 disposed centrally of the plate 11 and extending perpendicularly from the same side of the plate as that from which the wall 12 extends. A formation 14 at the inner side of the annular wall 12 provides a socket 15 in which is disposed a contact body 16 of electrically conductive material and a coiled compression spring 17 between the body 16 and the bottom wall 11 of the base, resiliently urging the body 16 outwardly of

2

the open outer end of the socket 15. An internally screw threaded sleeve or liner 18 is mounted in the boss 13 and is provided at its end disposed inwardly of the boss with a radially extending arm 19 connected at its outer end to a binding post 20 mounted on the inner side of the bottom wall 11 of the base. A binding post 21 is mounted on the inner side of the bottom wall 11 at the side of the boss 13 diametrically opposite the binding post 20 and a flexible conductor 22 extending through an aperture 23 in the socket formation 14 connects the binding post 21 to the contact body 16 disposed in the socket 15. The annular wall 12 is provided with an aperture 24 extending therethrough and a two-wire conductor 25 extends through the aperture 24 and has one wire 26 thereof connected to the binding post 20 and the other wire 27 thereof connected to the binding post 21 to connect the sleeve 18 and the contact body 16 into an associated electric circuit.

A cover 30 in the form of a flat plate of circular shape is disposed on the base 10 in covering relationship to the open side of the base and is provided with a central aperture 31. A screw 32 extends through the central aperture in the cover 30 and is threaded into the screw threaded bore of the sleeve 18 to mount the cover on the base for rotational movements of the cover relative to the base, the head of the screw at the outer side of the cover 30 being enclosed by a knob 33 of electrically insulative material so that a contact cannot be made with the exposed head of the screw.

A hub 35 of electrically conductive material is mounted in the cover 30 in surrounding relationship to the aperture 31 in the cover and has an aperture therein receiving the screw 32. This hub is insulated from the outer side of the cover and has its inner side in electrically conductive contact with the adjacent end of the sleeve 18.

The cover is provided with a plurality of radially disposed blind bores, as indicated at 36, medially of the width of the cover extending from the hub 35 to locations spaced inwardly from the peripheral surface of the cover and spaced apart at substantially equal angular intervals around the circular cover. In the arrangement illustrated there are four of these blind bores spaced apart at angular intervals of approximately ninety degrees but it is to be understood that this number may be varied within practical limits without in any way exceeding the scope of the invention. Apertures, as indicated at 37, are provided in the cover one at the

outer end of each of the bores 36 and these apertures extend from the inner surface of the cover to the corresponding bores 36 but do not extend to the outer surface of the cover. Electric contact plugs, as indicated at 38, are mounted one in each of the recesses 37 and each of these plugs has a concaved end surface, as indicated at 39, at the inner surface of the cover 30. Fuse bars, as indicated at 40, extend one through each of the bores 36 in the cover and each fuse bar is connected at one end to the hub 35 and at its other or outer end to the corresponding contact plug 38.

With the above described construction, whenever one of the contact plugs 38 is disposed at the outer end of the contact body 16 a circuit will be completed through the associated fuse bar 40. It will be noted that the outer end of the body 16 is spherically rounded to fit into the adjacent concave surface of the corresponding contact plug 38 so that the cover will be releasably held in position with a contact plug in engagement with the contact body, the rounded outer end of which is forced into the concave surface of the plug by the spring 17.

The peripheral surface of the cover 30 is roughened or knurled, as indicated at 41 in Figure 2, so that the cover can be easily rotated manually relative to the base 10 and the base is provided at its end in which the bottom wall 11 is positioned with outwardly projecting, apertured lugs 42 and 43 for securing the base to a suitable support so that the base will be firmly held in position for rotation of the cover relative thereto. If the fuse bar in operative position in the assembly is burnt out, a new fuse bar can be brought into operative position by merely rotating the cover through an angle of approximately ninety degrees relative to the base. The cover is also provided in its inner surface with rounded depressions, as indicated at 44, disposed one substantially midway between each two adjacent contact plugs 38, as illustrated in Figure 6, so that the cover can be releasably retained in positions at which none of the contact plugs 38 are in engagement with the contact body 16. As the cover is formed of an elecrtically insulative material, such as hard rubber or a synthetic resin plastic, positioning the rounded outer end of the contact body 16 in one of the depressions 44 will interrupt the circuit through the switch and multiple fuse assembly so that the assembly can be used as a switch to turn the current "on" and "off" as well as a replaceable fuse device for succesively moving fuses to operative position in the assembly.

It is contemplated that the cover will be provided as a replaceable unit so that when all of the fuses in a cover have been burnt out the device can be renewed by simply removing the cover containing the burnt out fuses by first removing the screw 32, and placing a new cover on the base and pivotally connecting the new cover to the base by the re-insertion of the screw.

The invention may be embodied in other specific forms without departing from the spirit or essential characteristics thereof. The present embodiment is, therefore, to be considered in all respects as illustrative and not restrictive, the scope of the invention being indicated by the appended claims rather than by the foregoing description, and all changes which come within the meaning and range of equivalency of the claims are, therefore, intended to be embraced therein.

What is claimed is:

1. A combined switch and multiple fuse holder comprising a base of electrically insulative material including a bottom wall, a hollow boss extending perpendicularly from one side of said bottom wall centrally thereof, and an annular side wall projecting perpendicularly from said one side of said bottom wall marginally thereof and coaxially of said boss and having an aperture therein, spaced apart binding posts mounted on said one side of said bottom wall for receiving the ends of conductor wires led into said base through the aperture in said side wall, an internally screw threaded sleeve of electrically conductive material secured in said boss, conductor means connecting one of said binding posts to said sleeve, a conductor body in said base at the inner side of said side wall spring urged in a direction away from said bottom wall, conductor means connecting the other of said binding posts to said conductor body, a cover of electrically insulative material disposed in covering relationship to the side of said base remote from said bottom wall and having a centrally disposed aperture therein, a screw extending through the aperture in said cover and threaded into said sleeve connecting said cover to said base for rotation of the cover relative to the base, a hub of electrically conductive material mounted in said cover in surrounding relationship to said cover aperture and disposed in electrically conductive contact with said sleeve, contact plugs of electrically conductive material mounted in said cover at angularly spaced apart locations spaced from said hub and successively movable into electrically conductive engagement with said contact body upon rotational movement of said cover relative to said base, and fuse bars extending radially of said cover and connected one between each of said contact plugs and said hub, said cover having radially disposed blind bores therein respectively receiving said fuse bars.

2. A combined switch and multiple fuse holder comprising a base of electrically insulative material including a bottom wall, a hollow boss extending perpendicularly from one side of said bottom wall centrally thereof, and an annular side wall projecting perpendicularly from said one side of said bottom wall marginally thereof and coaxially of said boss and having an aperture therein, spaced apart binding posts mounted on said one side of said bottom wall for receiving the ends of conductor wires led into said base through the aperture in said side wall, an internally screw threaded sleeve of electrically conductive material secured in said boss, conductor means connecting one of said binding posts to said sleeve, a conductor body in said base at the inner side of said side wall spring urged in a direction away from said bottom wall, conductor means connecting the other of said binding posts to said conductor body, a cover of electrically insulative material disposed in covering relationship to the side of said base remote from said bottom wall and having a centrally disposed aperture therein, a screw extending through the aperture in said cover and threaded into said sleeve connecting said cover to said base for rotation of the cover relative to the base, a hub of electrically conductive material mounted in said cover in surrounding relationship to said cover aperture and disposed in electrically conductive contact with said sleeve, contact plugs of electrically conductive material mounted in said cover at angularly spaced apart locations spaced

from said hub and successively movable into electrically conductive engagement with said contact body upon rotational movement of said cover relative to said base, and fuse bars extending radially of said cover and connected one between each of said contact plugs and said hub, said contact body having a rounded end surface remote from the bottom wall of said base, each of said contact plugs having a concave surface at the inner side of said cover releasably engaging the rounded end of said contact body, and said cover having in its inner surface rounded depressions disposed between adjacent contact plugs

engageable with the grounded end of said contact body to releasably hold said cover in positions in which said contact plugs are out of engagement with said contact body.

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