Sept. 10, 1940. J. BASH ET AL 2,214,317

ILLUMINATED SWITCH HANDLE

Filed April 20, 1938

FIG. 1.

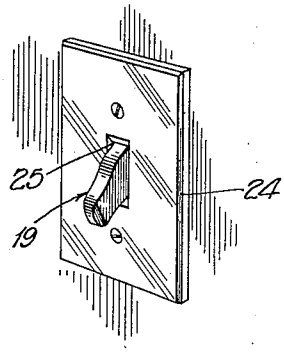


FIG. 2.

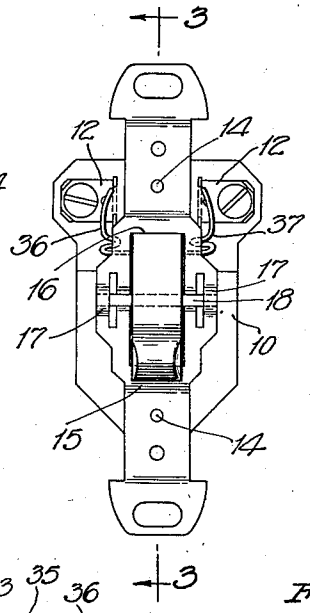


FIG. 3.

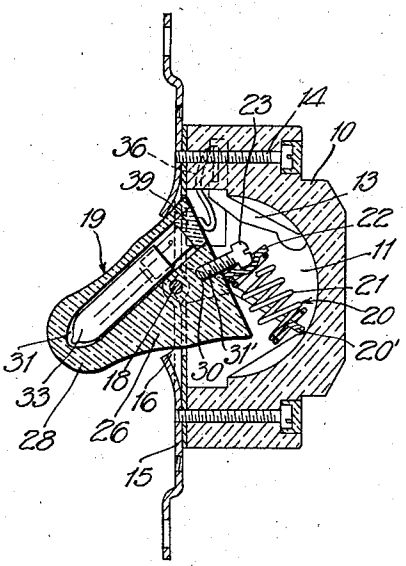


FIG. 4.

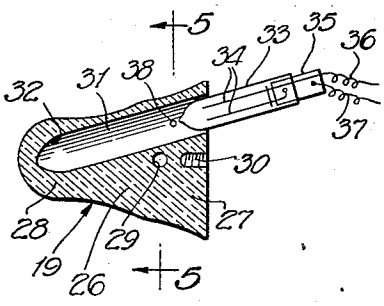


FIG. 5.

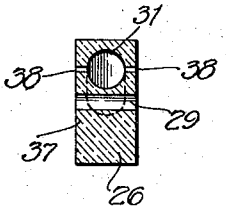


FIG. 6.

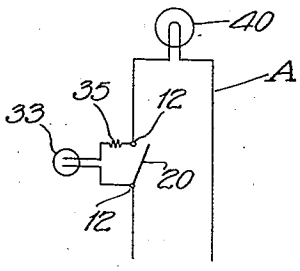


FIG. 7.

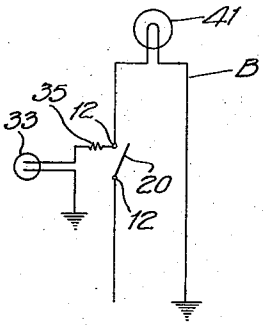


FIG. 8.

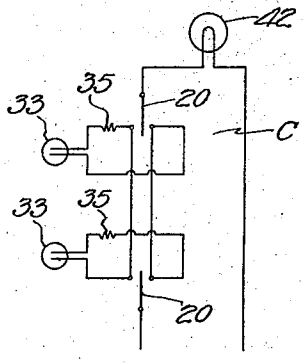
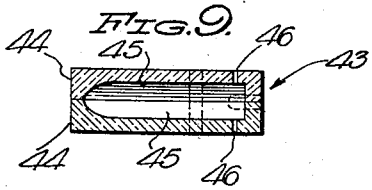


FIG. 9.



WITNESS:

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ILLUMINATED SWITCH HANDLE

Joseph Bash and Louis Sandry, Perth Amboy, N. J.

Application April 20, 1938, Serial No. 203,060

2 Claims. (Cl. 200—167)

This invention relates to improvements in illuminated switch actuating devices.

The primary object of the invention resides in an illuminated switch handle for electric switches of the pivoted snap type by which a person entering a dark room in which the switch is installed, may be guided to the switch, thus eliminating the danger of grouping in the dark, or the lighting of matches or other temporary illumination in an endeavor to locate the switch.

Another feature of the invention is to provide a switch handle which is illuminated when the circuit controlled by the switch is "open" and which illumination is automatically extinguished when the switch is actuated to circuit closing position.

A further feature of the invention is the provision of an illuminated switch handle which in itself constitutes an electric lamp unit, which when becoming defective, may be removed from the switch and replaced by an entirely new switch handle unit.

Another feature of the invention is to provide a switch handle wholly constructed of translucent material within which an electric-gas filled lamp of the neon type is housed and sealed, the handle body acting in the capacity of a globe and protecting the lamp against tampering by those unfamiliar with electricity when replacement of the switch handle is necessary by reason of a defective or "burned out" electric lamp.

A further feature of the invention is to provide an illuminated switch handle for electric snap switches which is simple and inexpensive of construction, easy to apply to snap switches now in use, and which requires but an infinitesimal amount of electric current to illuminate.

With these and other objects in view, the invention resides in the certain novel construction, combination and arrangement of parts, the essential features of which are hereinafter fully described, are particularly pointed out in the appended claims, and are illustrated in the accompanying drawing, in which:

Figure 1 is a perspective view of the illuminated switch actuating device in use upon a wall snap switch, the handle being shown in "off" position.

Figure 2 is a front elevational view of the switch with the escutcheon plate removed.

Figure 3 is a vertical sectional view on the line 3—3 of Figure 2.

Figure 4 is a vertical sectional view through the illuminated switch actuating device per se showing the neon lamp about to be inserted into position within the handle.

Figure 5 is a vertical transverse sectional view on the line 5—5 of Figure 4.

Figures 6, 7, and 8 are diagrammatic views illustrating the several uses of the invention.

Figure 9 is a horizontal sectional view through a modified form of switch handle body.

Referring to the drawing by reference characters, the numeral 10 designates the porcelain base of an electric switch of the pivotal snap type having a recess 11 opening through the front thereof. Fixed to the front of the base 10 adjacent the top thereof are spaced switch terminals 12—12 which are connected to fixed contact members 13 which extend into the top of the recess 11. Fixed to the front of the base 10 by screws 14 which pass through the rear of the base is a metal hanger bracket 15, the same bridging the recess and having a central rectangular shaped opening 16 therein. The bracket is formed with alined bearing ears 17 on opposite sides of the opening 16 which removably support a pivot pin 18. Pivotally mounted on the pin 18 and extending through the opening 16 is an illuminated switch actuating device 19 which will be specifically described hereinafter and which operates a toggle or "overthrow" switch mechanism 20 to "on" and "off" positions. The switch mechanism 20 includes a pivoted U-shaped switch element 20' adapted to bridge the fixed contacts 13 to close the circuit therethrough when the switch actuating device is moved to "on" position. The switch element is under the tension of a spring 21 which has one end seating against the bight portion of the U-shaped switch element and its other end seated against a cupped disk 22 which bears against the headed member 23 projecting from the rear of the switch actuating device 19. When the switch is set in position within a wall as shown in Figure 1, the base 10 and other working parts except the switch actuating device 19 are concealed by an escutcheon plate 24, the same having a central slot 25 for the projection of the switch actuating device 19.

With the exception of the illuminated switch actuating device 19 and its operative connection with the terminals 12—12, and the fact that the device 19 constitutes a combined handle and switch block, the construction above described is well known and is illustrative of one form of snap switch with which the invention may be used.

The illuminated switch actuating device 19 includes a translucent body 26 constructed of any suitable translucent composition of di-electric

material of any desired color having low heat conductivity. The body 26 may be molded to the desired shape to provide a rear base or switch block portion 27 and a forward reduced finger manipulating portion 28. A pin bearing hole 29 is drilled or otherwise formed in the body and passes transversely therethrough intermediate the base portion 27 and the manipulating portion 28 through which the bearing pin 18 extends. The rear end of the body 26 is flat and is provided with a centrally located threaded socket 30 into which the threaded shank 31' of the headed member 23 is threadedly received. The hole 29 and socket 30 are in substantial alinement with the longitudinal axis of the body 26.

The body 26 is formed with an elongated recess 31 which is round in cross section and extends inwardly from the rear flat face thereof. The recess extends inwardly from a point above the longitudinal axis of the body 26 and at an angle relative thereto and terminates adjacent the front end of the body in a tapering rounded end wall 32. Snugly fitting within the recess 31 is a cylindrical shape electric lamp of the neon type 33 having the usual terminal electrodes 34. Also fitting within the recess beside the lamp 33 is a resistor device 35 similar to the ordinary grid-leak resistor and to which one of the electrodes 34 is connected. A lead wire 36 extends from the other electrode and a lead wire 37 extends from the resistor 35, the said lead wires extending through small openings 38 in the body 26 to the exterior thereof. The wires 36 and 37 are respectively connected to the terminals 12—12 by solder and sufficient slack is provided in the length of the lead wires to facilitate the free pivotal movement of the switch actuating device when actuated to "on" and "off" positions. After the electric lamp 33 and resistor 35 have been inserted into the recess 31, the rear open end thereof is closed by sealing wax 39 to seal the parts within the recess against tampering and to prevent longitudinal shifting movement.

In Figure 6 of the drawing, there is illustrated a diagrammatic view of the single pole switch hereinbefore described arranged in an electric circuit A with an electric incandescent lamp 40. The wires of the circuit are respectively connected to the terminals 12—12 of the switch and when the switch is open as shown, the circuit is shunted through the resistor 35 and neon lamp 33, thus causing the lamp 33 to glow and cause the switch actuating device 19 to be wholly illuminated. Although the circuit A is open and the lamp 40 is out, there is sufficient current passing through the filaments of the incandescent lamp 40 to supply current to the neon lamp 33. With the switch actuating device 19 illuminated, it is apparent that it may be readily seen in the dark, and a person will be guided to the switch without necessitating the lighting of matches or other forms of temporary light. When the switch actuating device 19 is actuated to operate the switch mechanism to "on" position, the current in the circuit A takes the path of least resistance and skips the neon lamp 33, thus causing the lighting of the incandescent lamp 40 and extinguishing the illuminated switch actuating device 19. It is therefore apparent that when the main light 40 is "on" the switch actuating device 19 is not illuminated, but when the light 40 is "off" the circuit through the neon lamp 33 is closed and the switch actuating device 19 illuminated.

The illumination of the switch actuating device 19 may be reversed from that just described, that is, the switch actuating device 19 may be made to light when the switch is in "on" position and become extinguished when the switch is in "off" position. In such use, the switch actuating device may act as a pilot to indicate when a main lamp is "on" and which lamp may be located in a different room from that in which the switch is installed. This use is illustrated in Figure 7 of the drawing wherein the electric circuit is designated B and includes a main electric lamp 41. One lead of the lamp 41 is ground as is one of the electrodes of the neon lamp 33. Thus when the switch element 20 is open, the circuit B is open as is the circuit through the neon lamp 33, but when the switch element is closed, the circuit through the lamps 41 and 33 is closed. The lamps 33 and 41 are illuminated together and are likewise extinguished together.

In Figure 8 the illuminated switch actuating device is embodied in a two-station control electric lighting system wherein two switches similar to that shown in Figure 6 are installed in different locations and either functions to close and open a light circuit C in which a main lamp 42 is arranged with two snap switches equipped with the illuminated switch actuating device. The lamps 33 of the switches are lighted when the circuit C is open and the main light 42 is extinguished. When the circuit C is closed, the main light 42 is lighted and the neon lamps 33 are extinguished.

From the foregoing description, it will be understood that the illumination of the switch actuating device may serve either as a guide for locating the switch in the dark, or may function as a pilot light to indicate when a circuit controlled by the switch is in closed condition.

In Figure 9 of the drawing, there is shown a modified form of switch actuating device translucent body being designated in its entirety by the numeral 43. In this form the body is made of two complementary sections 44—44 of translucent material having cavities 45 therein which coact to provide a recess for housing the neon lamp 33. Both ends of the cavity are closed which eliminates the sealing wax. The sections 44 may be adhesively or otherwise secured together and are provided with opposed openings 46 equivalent to the openings 38 hereinbefore described.

Should the neon lamp 33 become defective, the escutcheon plate 24 may be removed to gain access to the switch base 10 and the fastening screws which secure the base in position. By loosening the screws 14, the hanger bracket 15 may be separated from the base, the pivot pin 18 removed and the defective switch actuating device 19 replaced by a new one. If desired, the same switch handle body may be retained, the sealing wax 39 broken, the defective neon lamp 33 withdrawn from the handle body and replaced by a new lamp. In either manner of replacement, the lead wires 36 and 37 are broken from the switch terminals 12 but may be re-soldered thereto during the replacement operation.

By constructing the body of the switch actuating device 19 wholly of translucent material, the same when illuminated may be seen from any direction of approach, which is a decided advantage over certain types of illuminated switch handles and buttons in which only the tip end of the actuating element is illuminated.

While we have shown and described what we consider to be the preferred embodiment of our invention, it is to be understood that such changes

in construction as come within the scope of the appended claims may be resorted to if desired.

Having thus described the invention, what we claim as new and desire to secure by Letters Patent of the United States is:

1. A switch actuating device for toggle actuated electric switches comprising a solid translucent body having a rear switch block portion and a forward manipulating portion extending from the switch block portion, a pivot pin extending transversely through said body intermediate the switch block and manipulating portions thereof, a switch actuating element carried by and extending from the rear end of the switch block portion, a recess provided within said body and opening through the rear switch block portion thereof and extending forwardly into the manipulating portion, an electric lamp disposed within said recess, sealing means closing the open end of said recess, and conductor wires extending from the terminals of said lamp through openings in the walls of said recess substantially as and for the purpose specified.

2. An actuating device for electric snap switches comprising a solid body of translucent material of substantially uniform thickness and having opposed forwardly converging sides to provide a rear base portion and a reduced handle portion, said body also having a pivot pin opening extending transversely therethrough adjacent the rear base portion thereof, an elongated recess extending inwardly from the end of the rear base portion of said body and terminating within the reduced forward end of said body, said recess being round in cross section and disposed clear of said pivot pin opening, and an elongated cylindrical electric lamp snugly fitting within said recess and substantially filling the same and having electric conductor elements extending from the electrodes thereof to facilitate the connection of the lamp in a low voltage circuit.

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