W. M. GOEHREND.

ELECTRICALLY LIGHTED SWITCH.

APPLICATION FILED APR. 8, 1915.

1,184,234. Patented May 23, 1916.

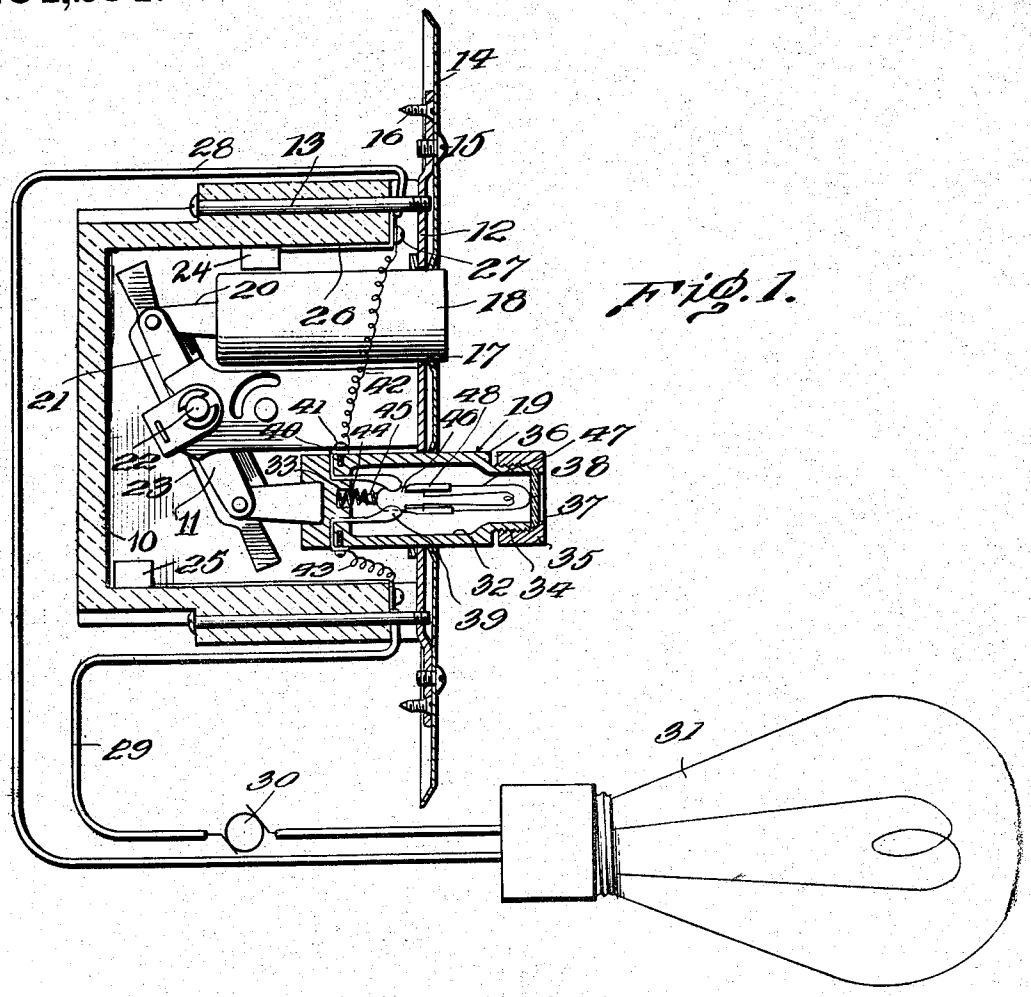


Fig. 1.

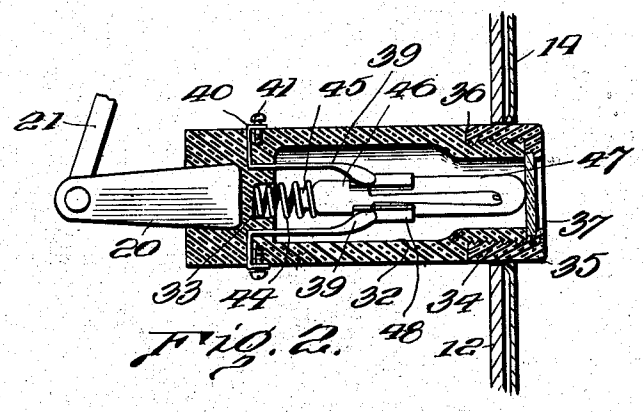


Fig. 2.

Inventor

W. M. Goehrend

By

Attorneys.

UNITED STATES PATENT OFFICE.

WILLIAM M. GOEHREND, OF ABERDEEN, WASHINGTON, ASSIGNOR OF FORTY ONE-HUNDREDTHS TO VIVIAN K. WYNDEARO AND TWENTY ONE-HUNDREDTHS TO ALBERT F. GOEHREND, BOTH OF ABERDEEN, WASHINGTON.

ELECTRICALLY-LIGHTED SWITCH.

1,184,234. Specification of Letters Patent. Patented May 23, 1916.

Application filed April 8, 1915. Serial No. 20,045.

To all whom it may concern:

Be it known that I, WILLIAM M. GOEHREND, a citizen of the United Statse, residing at Aberdeen, in the county of Chehalis and State of Washington, have invented certain new and useful Improvements in Electrically-Lighted Switches, of which the following is a specification.

My invention relates to new and useful improvements in electrically lighted switches, and more particularly to snap switches for use in controlling electric light circuits, the object of my invention being the provision of a snap switch of the push button type in which the operating button may be illuminated when the circuit, which the switch controls, is open and not illuminated when such circuit is closed. In other words, if the device is used in the lighting circuit of a room, the switch button will be illuminated when the lights in the room are not lighted and when the lights in the room are lighted, the switch button will not be illuminated.

A still further object of my invention consists in the provision of means for inclosing a small electric light bulb directly within a hollow switch operating button, and in the provision of either a transparent or translucent terminal for the button in order that the rays of light from the bulb may be seen. And a still further object of my invention consists in the provision of means for closing a branch of the main circuit which the switch controls through the bulb within the button at the times when the button is to be illuminated.

With these and other objects in view, my invention will be more fully described, illustrated in the accompanying drawings, and then specifically pointed out in the claims which are attached to and form a part of this application.

In the drawings: Figure 1 is a central vertical sectional view of a conventional form of snap switch of the double push button type, showing my invention applied thereto, the circuit which the switch controls, together with a light therein, being shown diagrammatically; Fig. 2 is an enlarged section of the illuminated push button, showing the circuit of such button closed.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

Referring first to Figs. 1 and 2 of the drawings, 10 indicates the casing or housing of a conventional form of push button operated, snap switch 11. This casing is preferably formed of porcelain and adapted to be seated in a recess formed in a wall or any other suitable place, its forward open end being closed by a longitudinally extending supporting plate 12 which carries the switch proper, this plate being connected to the casing by screws 13 in the usual manner. A face plate 14, adapted to engage against the wall in which the switch is seated, is attached to the plate 12 by screws 15 and may be attached to the wall by screws 16. Both the plates 12 and 14 are provided with vertically spaced, alined openings 17 to receive the push buttons 18 and 19 of the switch. These push buttons terminate at their inner ends in ears 20 which are pivotally connected to the ends of a lever 21 pivoted intermediate its length as shown at 22, swinging of the lever 21 controlling swinging of a centrally pivoted switch blade 23. The coacting mechanism between the lever 21 and switch blade 23 is of conventional type and, as it forms no part of my invention, need not be described. It should be noted, however, that this connection is such that there is no movement of the switch blade until the lever 21 has moved to its full extent in either direction. By this means, any possibility of undue arcing between the knife terminals of the switch blade 23 and the coacting knife blade receiving contacts 24 and 25, upon opening and closing of the switch, is prevented. These contacts 24 and 25 are supported in proper position within the casing 10 by bracket arms 26 secured to the casing by set screws 27 which also form binding posts for the wires 28 and 29 of the circuit controlled by the switch. A dynamo or any other suitable source of electrical energy furnishes current for this circuit and any number of electric lights 31 or other electrical devices to be controlled by the circuit may be included therein.

The object of my present invention con-

sists in the provision of means whereby that push button 19 which is operated to close the circuit through the wires 28 and 29 may be illuminated when such circuit is open. In order to accomplish this, I provide a push button 19 of novel type, said button being provided in its outer end with an elongated socket 32 terminating at its inner end in a reduced portion 33. The push button, at its outer end, is provided with a reduced screw threaded terminal 34 to receive a cap 35 which closes the outer end of the push button and which may be threaded to engage against the shoulder 36 formed by reducing the end portion of the button. The body portion proper of this cap is provided with an opening 37 to receive a piece of glass, mother-of-pearl, or other suitable transparent or translucent material 38.

Mounted within the socket 32 of the push button are spaced opposed contacts 39 of resilient metal, the free ends of which extend through the inner portion of the push button, as shown at 40, being provided exteriorly of the push button with binding screws 41. Current conducting wires 42 and 43 lead from the binding posts 27 to the binding posts 41 and so supply current to the contacts 33. A helical spring 44 seats at one end in the extended portion 33 of the socket and at its other end receives the reduced terminal 45 of an insulative socket 46 of a small electric light bulb 47 when the latter is seated in the socket of the push button. This socket is normally engaged between the resilient contacts 39 and is provided with spaced contacts 48 connected to the terminals of the filament and adapted to be engaged by the contacts 39 when the bulb is forced into the push button a sufficient distance against the action of the spring 44. The contacts of the light bulb and the contacts 39 are so proportioned that when the cap 35 is screwed onto the button to its full extent, these contacts will be brought into engagement with each other, while a quarter turn or so of the cap in a counterclockwise direction will release the light bulb sufficiently to permit the spring 44 to move it beyond reach of the contacts 39.

From the foregoing description, the operation of my improved electrically lighted push button switch will be readily understood and but little description is necessary. Whenever an illumination of the push button 19, which controls the closing of the switch, is desired, the cap 35 need only be tightened sufficiently to bring the contacts 48 into engagement with the contacts 39 and therefore close the circuit from the wire 28 through the wire 42, contacts 39 and 48, filament of the light, contacts 48 and 39, and wire 43 to the wire 29, and when such illumination is not required, the cap 35 may be loosened. Otherwise, the switch is manipulated in the usual manner.

It will of course be understood that while I have illustrated and described my invention in all its details of construction, I do not wish to be limited to such details as various minor changes, within the scope of the appended claims, may be made at any time, without in the slightest degree departing from the spirit of my invention.

Having thus described the invention, what is claimed as new is:

1. The combination with an electrical switch including binding posts adapted to receive current carrying conductors of the circuit which the switch controls, of a push button for operating the switch, said push button being formed with a socket, a closure of light transmitting material for the end of the socket, an electric light bulb mounted in the socket, and means for leading current from the binding posts to the filament of the light bulb, said means including insulated contacts carried by the light bulb and connected to the terminals of its filament, spaced resilient contacts carried by the push button and extending into the socket to engage the contacts of the light bulb, and conductors leading from the binding posts to the resilient contacts.

2. The combination with an electric switch structure including binding posts, of a switch operating push button formed with a socket in its outer end, a cap having threaded connection with the outer end of the push button and provided with an opening, a closure of light transmitting material for the opening, a helical spring mounted in the socket, an electric light bulb mounted in the socket and engaging at one end against the closure and at the other end against the spring, whereby turning of the closure will move the bulb longitudinally of the socket, contacts carried by the bulb and connected to the filament thereof, spaced resilient contacts disposed within the socket and adapted, upon movement of the bulb in one direction, to engage the contacts thereof, and conductors between the resilient contacts and the binding posts.

3. The combination with an electrical switch including binding posts adapted to receive current carrying conductors of the circuit which the switch is to control, of a push button for operating the switch formed with a socket, a closure of light transmitting material for the end of the socket, contacts in the socket in circuit with the binding posts, and an electric light bulb reciprocally mounted in the socket and movable into and out of engagement with the contacts therein through adjustment of the closure.

4. The combination with an electric

switch structure including binding posts, of a switch operating push button formed with a socket in its outer end, a cap having threaded connection with the outer end of the push button and provided with an opening, a closure of light transmitting material for the opening, a spring in the socket, an electric light bulb clamped between the spring and cap, whereby the bulb may be reciprocated in the socket by adjustment of the cap, and contacts in the socket in circuit with the binding posts and adapted to engage the contacts of the light bulb when the latter is forced inwardly.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM M. GOEHREND. [L. S.]

Witnesses:
F. J. BECKER,
ROBERT COATES.