Jan. 29, 1957 R. W. WINTERS ET AL 2,779,832

FLASHLIGHT SWITCH

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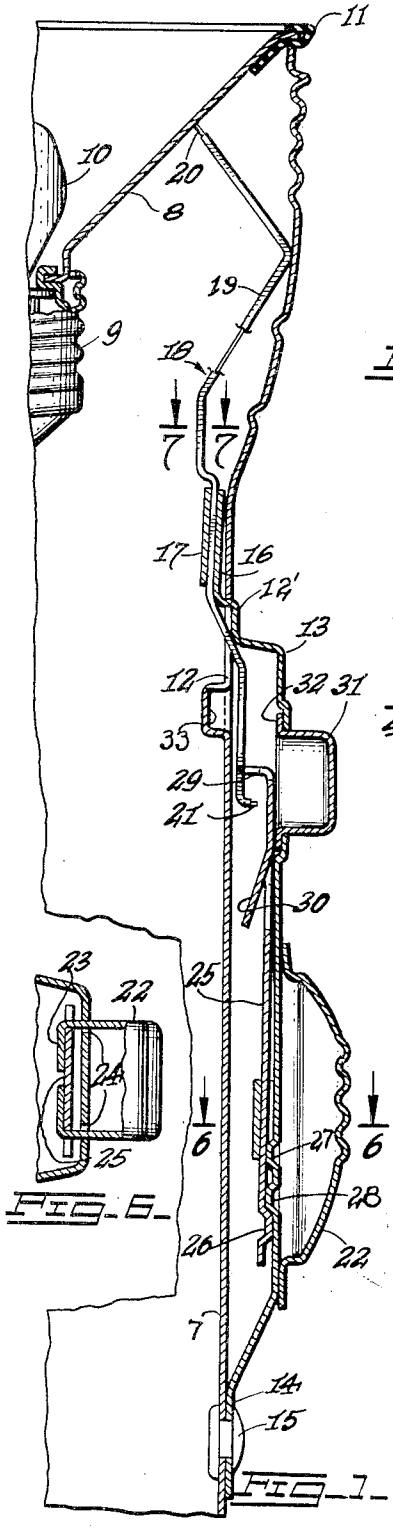


FIG. 1

FIG. 6

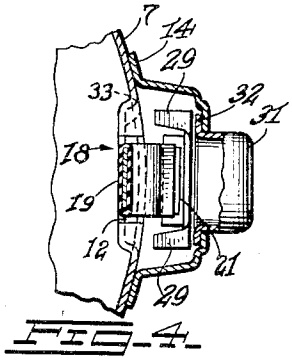


FIG. 4

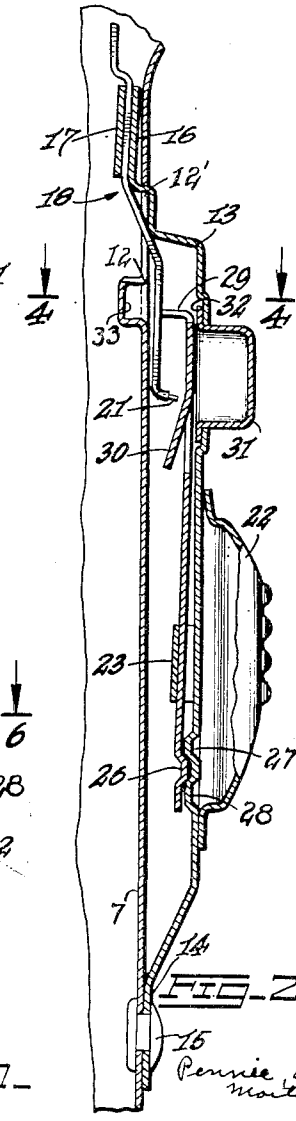


FIG. 2

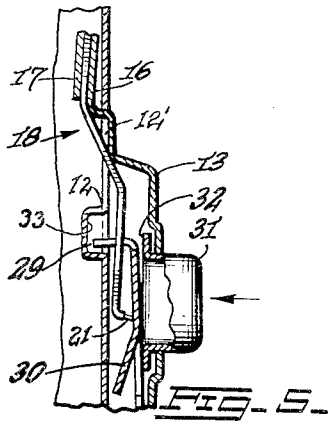


FIG. 5

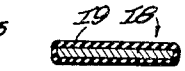


FIG. 7

FIG. 3

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FLASHLIGHT SWITCH

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6 Claims. (Cl. 200—60)

This invention relates to flashlights, and more particularly to an improved switch construction for controlling the supply of current to the incandescent lamp of a flashlight.

A conventional flashlight generally comprises an elongated cylindrical case carrying an incandescent lamp at one end and housing dry cells for energizing the lamp. The energizing circuit for the lamp is customarily controlled by a switch usually located on the side of the cylindrical case. It is desirable that such a switch be capable of holding the lamp circuit closed without continued manual pressure on the switch, as when an uninterrupted light is desired, and this in addition to so-called push button or flash operation in which the switch is held closed manually against a spring bias to close the circuit and which opens the circuit when the pressure is released. It is further desirable that means be provided to lock the switch in the open position so as to prevent accidental and undesired energization of the lamp.

It is the object of the present invention to provide an improved flashlight switch mechanism of simple and inexpensive construction which is capable of being selectively operated to provide intermittent or flash closing of the lamp circuit, hereinafter called a flash position, closing of the circuit without continued manual pressure, hereinafter called the closed position, and locking of the switch in the open position against accidental closing, hereinafter called locked position. A further object of the invention is to provide a switch construction of the character described which employs a minimum of simple readily formed parts and which is dependable in its operation and easy to assemble.

In describing the invention in detail, reference will be made to the accompanying drawing, in which an embodiment thereof is illustrated.

In the drawing:

Fig. 1 is a longitudinal sectional view of a part of a flashlight equipped with an improved switch mechanism embodying the present invention, the switch being illustrated in the locked position;

Fig. 2 is a sectional view similar to Fig. 1 showing the switch in flash position;

Fig. 3 is a sectional view similar to Figs. 1 and 2, showing the switch in the closed position;

Fig. 4 is a sectional view taken along the line 4—4 of Fig. 2;

Fig. 5 is a sectional view showing the switch in the position in which it is closed for flash operation;

Fig. 6 is a sectional view taken along the line 6—6 of Fig. 1; and

Fig. 7 is an enlarged sectional view of the conductor strip taken along the line 7—7 of Fig. 1.

A portion of the metallic cylindrical case of a flashlight is shown in section at 7. The flashlight case 7 is of conventional elongated cylindrical construction. Its forward end is enlarged to accommodate a reflector 8 which holds at its apex a socket 9 carrying a lamp bulb 10. The reflector 8 is suitably insulated from the case 7 by a gasket 11 of insulating material, and may be secured to the case by a conventional threaded ring, not shown. The lamp energizing circuit passes from the case 7 through the switch mechanism to be described, to the reflector 8, and thence to the lamp socket and lamp. As is known, this circuit is completed through the battery and the rearward end of the case, and thence through the case to the switch mechanism.

A transversely extending recess 33 forming a pocket-like opening in the cylindrical wall of the case 7 is indented into the case wall, as shown in Figs. 1 and 4. An opening 12 is provided through the front wall of the recess 33 and the cylindrical case wall 7 forwardly of the recess, as shown. A switch box 13 in the form of an elongated inverted U-section housing with marginal flanges 14 is secured to the outside of the cylindrical wall of the case 7 with the forward end of the switch box extending over the case opening 12. The rearward end of the switch box 13 may be secured to the case by a rivet 15 passing through the rear of the marginal flange 14, and the forward end is held down by an extension 16 of the flange 14 which passes through the forward end 12' of the opening 12 and carries tabs 17 that embrace and support a conductor strip 18. In assembling the parts the end extension 16 is passed through the opening 12 into contact with the wall of the case, and the single rivet 15 holds the entire assembly in place. This conductor strip 18 is formed of conductive metal and is coated with a layer of rubber, plastic or other suitable insulating material 19 (Fig. 7), except at its forward and rearward ends 20, and 21, which are bare. Forwardly of the supporting tabs 17, the strip 18 is arched or bent into contact with the case 7, while its forward end 20 makes electrical contact with the lamp reflector 8. Rearwardly of the supporting tabs 17, the strip passes outwardly of the case 7 through the forward end of the opening 12 and rearwardly within the switch box 13, ending in an outwardly directed upturned end 21 disposed somewhat to the rear of the opening formed by the recess 33. This outwardly directed end 21 of the strip 18 serves as a switch contact point, as hereinafter explained.

A manually operable slide 22 is slidably mounted on the outer face of the switch box 13 toward its rearward end. The slide 22 is a hollow metallic member having integral central tabs 23 that extend through slots in the switch box top and are bent toward each other within the box to embrace a spring strip 25 and support it within the box and just below the top wall thereof. The spring strip 25, which is formed of resilient conductive metal, engages the under surface of the top of the switch box 13 and is slidably movable longitudinally of the switch box when the slide 22 is manually moved. An upstanding lug or detent 26 is struck from the spring strip 25 near its rearward end for releasable engagement with a pair of spaced lugs or detents 27 and 28 struck downward from the top wall of the switch box. The interengagement of the detent 26 with the detents 27 and 28 serves to define the three positions of the switch mechanism, as shown in Figs. 1, 2 and 3, the limits of movement of the slide and spring strip in opposite directions being fixed by the length of the slots 24.

The forward end of the spring strip 25 is provided with two downwardly bent spaced tangs 29 which are sufficiently spaced from each other to straddle the rearward portion of the conductor strip 18 within the switch box 13, as shown in Fig. 4. When the slide 22 is in the flash position, as shown in Fig. 2, the tangs 29 may move down into the opening formed by the recess 33, as shown in Fig. 4, to permit the forward flexible portion of the spring strip 25 to engage and contact the contact

point 21. When the spring strip is moved to the locked position shown in Fig. 1, engagement of the tangs 29 with the outside of the case 7 prevents movement of the strip 25 into contact engagement with the contact point 21.

A tongue 30 is struck down from the spring strip 25 near its forward end. This tongue acts as a contact in that it engages the bare contact point end 21 of the conductor strip 18 when the slide 22 and spring strip 25 are moved forward to the closed position shown in Fig. 3.

A push button 31 is supported in and extends through an opening near the forward end of the switch box 13, and its outward position is limited by a marginal flange 32 extending beneath the switch box wall, as shown. The base of the push button rests upon the forward flexible end portion of the spring strip 25, and the push button is normally held in and biased toward its outward position by the spring strip. The electric circuit through the switch construction is opened and closed by contact of or separation between the spring strip 25 and the bare rear contact point or end 21 of the conductive strip 18. When it is desired to lock the switch construction in the open condition, the slide 22 is moved rearwardly to the position shown in Fig. 1 in which the tabs 23 of the slide 22 abut the rearward ends of the switch box slots 24. In this position, the spring strip 25 is out of contact with the bare end 21 of the conductor strip 18 and the lamp circuit is accordingly open. Depression of the push button 31 when the slide is in this locked position cannot close the circuit because the spaced tangs 29 on the forward end of the spring strip 25 abut the outer surface of the case 7 and limit movement of the flexible forward end of the strip 25 toward the contact point end 21 of the conductor strip 18. When the slide 22 and spring strip 25 are moved forwardly from the locked position to the central flash position illustrated in Fig. 2, the spring strip tangs 29 are aligned with the opening formed by the recess 33, and manual depression of the push button 31 moves the forward flexible end portion of the spring strip 25 downward into contact with the bare contact point end 21 of the conductor strip 18 and so closes the lamp circuit. When the slide 22 and spring strip 25 are moved forwardly from the flash position to the closed position illustrated in Fig. 3, the tongue 30 on the spring strip contacts the end contact point 21 of the conductor strip 18 and so closes the lamp circuit and holds it closed.

The particular construction described may be modified as desired within the scope of the appended claims.

We claim:

1. A flashlight switch comprising, in combination with an elongated flashlight case carrying a lamp bulb adjacent its forward end and having an opening through its wall and a recess forming an opening in such wall, an elongated switch box secured to the outside of the case wall and extending over said opening and said recess, a conductor connected to the lamp bulb extending through the opening into the switch box and terminating in an outwardly directed contact point, an elongated spring strip in the switch box secured therein for sliding movement longitudinally of the case and having a flexible end portion overlying the contact point, a pair of spaced inwardly bent tangs on the flexible strip end portion, said tangs straddling the conductor and engageable with the case wall to prevent contact of the strip with the contact point, means extending outside said switch box and connected to said spring strip for sliding said spring strip longitudinally of said box between a locked position in which the tangs prevent contact with the contact point and a flash position in which the tangs are aligned with and may enter the recess and permit the strip to contact with the contact point, and a push button carried by the switch box over the flexible end portion of the spring strip for moving the strip end portion inwardly into contact with the contact point when the spring strip is in flash position.

2. A flashlight switch comprising, in combination with an elongated flashlight case carrying a lamp bulb adjacent its forward end and having an opening through its wall and an inwardly extending recess in such wall, an elongated switch box secured to the outside of the case wall and extending over the opening and the recess, a conductor connected to the lamp bulb extending through the case opening into the switch box and terminating in an outwardly directed contact point, an elongated spring strip in the switch box secured therein for sliding movement longitudinally of the case and having a flexible end portion overlying such contact point, a pair of spaced inwardly bent tangs on the flexible strip end portion, said tangs straddling the conductor and engageable with the case wall to prevent contact of the strip with the contact point, a downwardly extending tongue on the spring strip spaced longitudinally of the strip from the tangs, manually operable means extending outside the switch box and connected to the spring strip for sliding the strip between a locked position in which the tangs prevent contact with the contact point, a flash position in which the tangs are aligned with and may enter the case recess and a closed position in which the contact tongue engages the contact point, and a push button carried by said switch box over said flexible strip end portion for moving the portion inwardly into contact with the contact point when the spring strip is in the flash position.

3. A flashlight switch comprising, in combination with an elongated flashlight case carrying a lamp bulb adjacent its forward end and having an opening through its wall and an inwardly extending recess in such wall, an elongated switch box secured to the outside of the case wall and extending over the opening and the recess, a conductor connected to the lamp bulb extending through the case opening into the switch box and terminating in an outwardly directed contact point, an elongated spring strip in the switch box secured therein for sliding movement longitudinally of the case and having a flexible end portion overlying the contact point, a pair of spaced inwardly bent tangs on the flexible strip end portion, said tangs straddling the conductor and engageable with the case wall to prevent contact of the strip with the contact point, a downwardly extending tongue on the spring strip spaced longitudinally of the strip from the tangs, manually operable means extending outside the switch box and connected to the spring strip for sliding the strip between a locked position in which the tangs prevent contact with the contact point, a flash position in which the tangs are aligned with and may enter the recess and a closed position in which the contact tongue engages the contact point, a push button carried by the switch box over said flexible strip end portion for moving such portion inwardly into contact with the contact point when the spring strip is in flash position, and an interengaging means on the switch box and the spring strip for releasably holding the spring strip in the locked, flash and closed positions.

4. A flashlight switch comprising, in combination with a flashlight case having an opening in the wall thereof, a switch box secured to the outside of the wall and extending over said opening, an outwardly directed electrical contact point within the switch box adjacent the opening, a spring strip slidably mounted in the switch box and having a flexible end portion overlying the contact point at all times, said strip being normally spaced from but movable into contact with said contact point, a push button extending through the switch box over the flexible end portion of the spring strip for moving the strip into contact with the contact point, means extending inwardly from the flexible end portion of the spring strip and engaging the case when the strip is in one position to prevent movement of the spring strip inwardly into contact with the contact point, and means extending outside the switch box and connected to said spring strip for slidably moving the spring strip from the position in which the inwardly extending means engages the case and prevents contact to

a second position in which the inwardly extending means is aligned with the opening in the wall of the case.

5. A flashlight switch comprising, in combination with an elongated flashlight case having an opening in its wall, an elongated switch box secured to the outside of the wall and extending over the opening, an electrical contact point disposed within the switch box and directed outwardly from the case wall, an elongated spring strip within the switch box and having a flexible end portion overlying the electrical contact point at all times, said strip being slidably secured therein for movement longitudinally of the case, an inwardly bent extension on the end portion of the flexible strip engageable with the case wall to prevent contact of the strip and the contact point when the strip is in one position, and means extending from the outside of the switch box and connected to said spring strip for sliding said spring strip between positions where the inwardly bent extension is and is not aligned with the case opening, said means including a push button carried by the switch box over the flexible end portion of the spring strip for moving the end portion of the strip into contact with the contact point when the inwardly bent extension is aligned with and movable into the case opening.

6. A flashlight switch comprising, in combination with an elongated flashlight case having a recess forming an opening in its wall and carrying a lamp bulb adjacent its forward end, an elongated switch box secured to the outside of the wall of the case and extending over the recess, an electrical contact point disposed within the switch box and directed outwardly from the case wall, an

elongated spring strip in the switch box slidably secured therein for movement longitudinally of the case and having a flexible end portion overlying the contact point at all times, an inwardly bent extension on the flexible end portion of the spring strip engageable with the case wall to prevent contact of the strip with the contact point, a downwardly extending tongue part on the spring strip, means extending outside the switch box and connected to said spring strip for sliding the spring strip longitudinally of the box between a locked position in which said inwardly bent strip extension prevents contact with said contact point, a flash position in which said inwardly bent strip extension is aligned with and may enter said case recess and permit the straight portion of said spring strip to contact with said contact point, and another position in which the downwardly extending contact part of said spring strip engages said contact point, and a push button on the exterior of the casing, said push button being depressible to move the spring strip inwardly into contact with the contact point when the spring strip is in the flash position.

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