Nov. 21, 1950 E. H. BRILL 2,530,505

FLASHLIGHT SWITCH OPERATING MECHANISM

Filed May 1, 1946

Fig. 1.

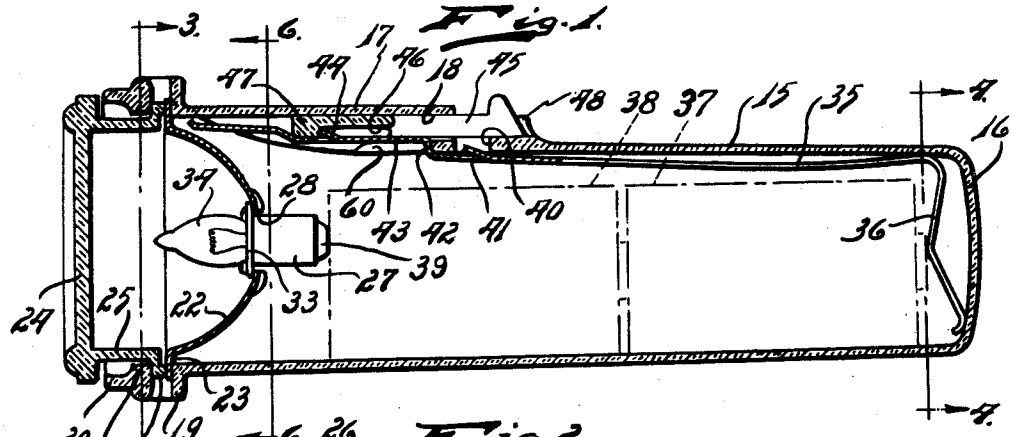


Fig. 2.

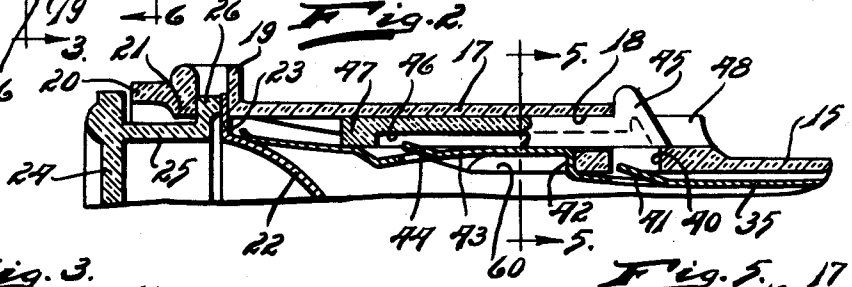


Fig. 3.

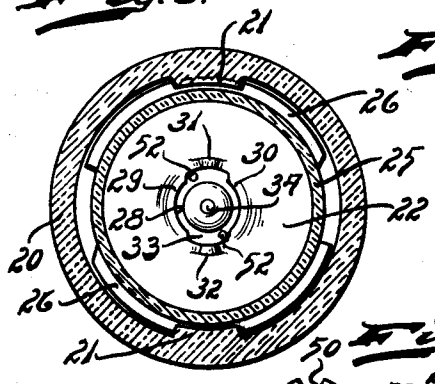


Fig. 4.

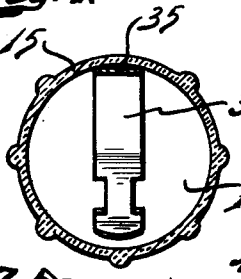


Fig. 5.

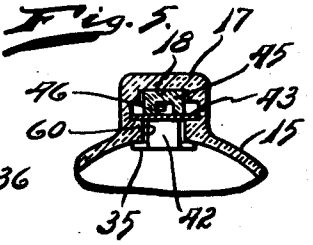


Fig. 6.

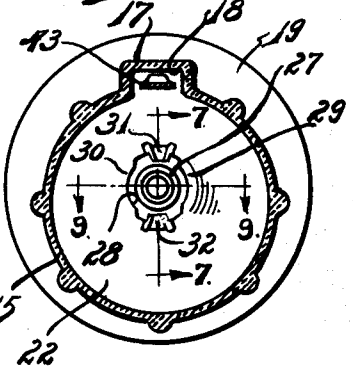


Fig. 7.

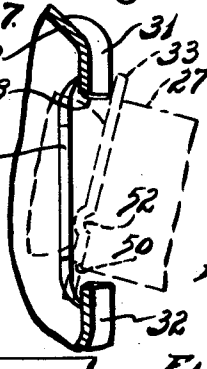


Fig. 10.



Fig. 9.

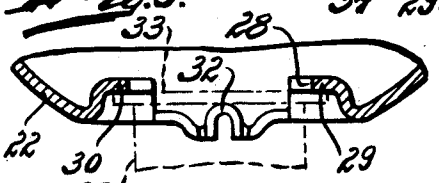
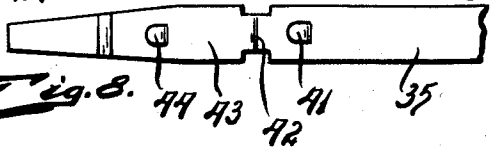


Fig. 8.



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FLASHLIGHT SWITCH OPERATING MECHANISM

Elkanah H. Brill, Birmingham, Mich.

Application May 1, 1946, Serial No. 666,231

2 Claims. (Cl. 240—10.66)

1

My invention relates to a new and useful improvement in a flashlight and particularly to the housing, a method of fastening the reflector in position, the attachment of the light bulb socket, the mounting of the lens and the mounting of the actuating trigger or switch, the same constituting an improvement and modification of the subject matter disclosed in an application Serial No. 628,791, filed by me on November 15, 1945, which is now abandoned. It is an object of the present invention to provide a flashlight in which threaded parts are entirely eliminated.

Another object of the invention is the provision of a flashlight so constructed and arranged that the various parts may be assembled easily and quickly and securely locked in position.

Another object is the provision of a slidable switch member so arranged and constructed that it may be easily inserted in position and when inserted in position will be irremovable without dismantling the reflector.

Another object of the invention is the provision in a flashlight of a reflector having an opening formed therethrough and provided with spaced apart tongues or ledge or slot which serve as a means for retaining the light bulb socket in position.

Another object of the invention is the provision of a flashlight which will be simple in structure, economical to manufacture, durable, compact and highly efficient in use.

Other objects will appear hereinafter.

It is recognized that various modifications and changes may be made in the detail of structure illustrated without departing from the invention and it is intended that such variations and modifications shall be brought within the scope of the claims which form a part hereof.

Forming a part of this application are drawings in which,

Fig. 1 is a longitudinal, central, vertical, sectional view of the invention,

Fig. 2 is an enlarged, fragmentary, vertical, sectional view through the switch operating mechanism,

Fig. 3 is a sectional view taken on line 3—3 of Fig. 1,

Fig. 4 is a sectional view taken on line 4—4 of Fig. 1,

Fig. 5 is a sectional view taken on line 5—5 of Fig. 2,

Fig. 6 is a sectional view taken on line 6—6 of Fig. 1,

Fig. 7 is an enlarged fragmentary sectional view taken on line 7—7 of Fig. 6,

2

Fig. 8 is a fragmentary plan view of the contact strip used in the invention.

Fig. 9 is an enlarged cross sectional view taken on line 9—9 of Fig. 6,

Fig. 10 is a plan view of the bulb used in the invention.

It is preferred to form the flashlight housing and the lens from a suitable plastic material although this is not essential. In the drawings I have shown the housing 15 having a bottom 16 and open at its opposite end. Adjacent its opposite ends the housing 15 is provided with the outwardly bulged portion 17 to provide a channel 18. A peripheral flange 19 projects outwardly from the forward end of the housing 15 and extending forwardly from this peripheral flange 19 is the axially directed flange 20, projecting in from the face of which are the spaced apart lugs 21.

A suitable metallic reflector 22 is provided. Projecting outwardly from the reflector 22 are the spaced apart lugs. 23. Construction is such that when the space between the lugs 23 is brought into registration with the lugs 21, the reflector may be moved downwardly so that the spaced apart lugs will seat upon the face of the flange 19. A suitable lens 24 is provided formed integral with which is the cylindrical body 25 having the outwardly projecting flange 26 at its ends. As shown in Fig. 3, there are two of these flanges 26 which are spaced apart so that the lug 21 may pass through the spaces between the flanges 26 and permit the movement of the member 25 into position. When in position the member 25 may be rotated so as to bring the flanges 26 beneath the lugs 21 and thus the lens is securely held in position. The flange 26 bears against the lugs 23 of the reflector 22 and thus the reflector is also held securely in position. By providing the lens 24 with a tubular extending body 25 there is permitted the use of a shallow parabolic reflector 22 allowing the light bulb 34 to extend its point into the hollow of the lens. Where other than a parabolic reflector is desired, one having a deeper depth for a light bulb, then the lens 24 may be provided with a shorter extension 25, or with none at all.

The light bulb 34 is formed integrally with a socket 27 on which is formed a peripheral flange 33. Formed through the base of the reflector 22 is an opening 28. At diametrically opposite points the lugs 29 and 30 are pressed inwardly at the opening 28 and spaced therefrom by 90° are the diametrically opposite lugs 31 and 32 which are pressed outwardly and which are formed substantially U-shaped in cross-section.

The peripheral flange 33 is formed with a notch 50 at one side thereof and provided on one of its faces with bosses 52 which project slightly outwardly from the face. To insert and secure the light bulb and socket into position, the notch 50 is brought into registration with either the lug 31 or the lug 32. In Fig. 7, I have indicated the socket in dotted lines with the notch 50 in registration with the lug 32. The socket is then tilted so that the flange 33 is passed inwardly at the socket 50 to lie inwardly of the lug or tongue 32. The socket 27 is then rotated until the notch 50 is brought into registration with the tongue or lug 31, whereupon socket 27 may then be moved into straight position from the tilted position with the inner face of the flange engaging the outer faces of the lugs 29 and 30. By rotating the socket 27 until the bosses 52 engage the outer faces of the lugs or tongues 29 and 30, the socket 27 thus becomes fixed in position as the reflector is made from sufficiently resilient material to permit a slight springing when the bosses 52 ride under the lugs 31 and 32. When this position is reached the socket 27 is thus held in position and is rigid for all practical purposes.

It is believed obvious that the removal of the bulb or socket 27 may be effected in the reverse operation of the steps necessary to insert the socket 27 in position.

An elongated, resilient, metallic contact strip 35 is provided and inserted in the housing 15. This strip has the angularly turned end 36 which is bent at its middle to engage and contact with the battery 37, which, in turn, contacts the battery 38 which is contacted with the contact 39 carried by the socket or bulb 34.

Formed in the housing 15 is an opening 40 in which engages the tongue 41 pressed outwardly from the metallic strip 35. This metallic strip 35 is sufficiently resilient so that the tongue 41 will be pressed inwardly as it slides along the wall of casing 15 when the strip 35 is being placed in the housing 15 and will snap outwardly to engage in the opening 40 when in registration therewith. This strip 35 is also outwardly turned as at 42 to provide the portion 43 from which is struck the outwardly projecting tongue 44. The outwardly turned portion 42 is of narrower width than the general width of the strip 35 or the portion 43 to permit the ready insertion or removal of the contact strip 35. The portion 42 being guided in the slot 60 formed in the bulge portion 17 and opening into the channel 18. The outwardly projecting tongue 44 is adapted to engage in the end of the channel or groove 46 formed on the inner face of the slide plate or actuating bar 45 which rides in the channel 18 and slides between the oppositely disposed guide flanges 48. The forward end of this bar 45 is provided with a head 47 of tapered width which is adapted to engage the outwardly bent portion of the strip 35 and force the same downwardly into contact with the reflector 22 when the bar 45 is moved forwardly as shown in Fig. 2. It will be noted that the actuating bar 45 rides on the strip 43 and serves as a wedge when moved forwardly for holding the strip in contact against the reflector.

It is thus seen that the various parts automatically lock themselves into position upon assembly. To remove the reflector and replace the battery it is but necessary to rotate the lens 24 until the tongues 26 disengage from beneath the lugs 21 whereupon the various parts may be removed.

When the lens and reflector have been removed the strip 35 may also be removed as desired by pressing the same inwardly releasing the tongue 44 from bar 45, dropping out the bar 45 from the channel 18 and permitting access to release the tongue 41 so that the strip 35 may be pulled outwardly from the casing 15. It is believed obvious that I have produced a flashlight possessing a minimum number of parts and one which may be easily and quickly and economically manufactured and in which the use of threaded parts is entirely avoided.

What I claim as new is:

1. In a flashlight of the class described, a handle forming housing adapted for the reception of a battery and having an enclosing wall and open at one end; a longitudinally extending bulge on the periphery of said housing and extending rearwardly from adjacent the forward end thereof, said bulge having a longitudinally extending channel formed therein and opening outwardly thereof at its rear end, there being formed in said housing an opening and a slot in spaced apart relation and each communicating with the channel in said bulge; a bar slideably mounted in said channel and accessible from the exterior of said housing and having on its inner face a longitudinally directed groove terminating inwardly from the forward end thereof to provide a shoulder; a metallic strip within and extending longitudinally of said housing in parallelism with said channel and contacting at one end on one side of a battery positioned in said housing; a light bulb having a pair of spaced apart contacts, one of said contacts being in engagement with the opposite end of said battery; a metallic supporting member for said bulb and electrically connected to the other contact of said bulb, said bar being adapted upon forward movement, for moving the end of said metallic strip into contact with the said supporting member; an outwardly pressed tongue on said metallic strip engaging in the opening in the wall of said housing for normally resisting forward movement of said strip relatively to said housing; and an outwardly projecting tongue on said metallic strip projecting through said slot and engaging in said groove and adapted, upon rearward movement of said bar, for engaging said abutment shoulder and preventing withdrawal of said bar from said channel.

2. In a flashlight of the class described, a handle forming housing adapted for the reception of a battery and having an enclosing wall and open at one end; a longitudinally extending bulge on the periphery of said housing and extending rearwardly from adjacent the forward end thereof, said bulge having a longitudinally extending channel formed therein and opening outwardly thereof at its rear end, there being formed in said housing an opening and a slot in spaced apart relation and each communicating with the channel in said bulge; a bar slideably mounted in said channel and accessible from the exterior of said housing and having on its inner face a longitudinally directed groove terminating inwardly from the forward end thereof to provide a shoulder; a metallic strip within and extending longitudinally of said housing in parallelism with said channel and contacting at one end on one side of a battery positioned in said housing; a light bulb having a pair of spaced apart contacts, one of said contacts being in engagement with the opposite end of said battery; a metallic supporting member for said bulb and electri-

cally connected to the other contact of said bulb, said bar being adapted upon forward movement, for moving the end of said metallic strip into contact with the said supporting member; an outwardly pressed tongue on said metallic strip engaging in the opening in the wall of said housing for normally resisting forward movement of said strip relatively to said housing; and an outwardly projecting tongue on said metallic strip projecting through said slot and engaging in said groove and adapted, upon rearward movement of said bar, for engaging said abutment shoulder and preventing withdrawal of said bar from said channel; and an angularly turned inner end on the inner end of said strip engaging a closed end of said housing and bowed intermediate its ends.

ELKANAH H. BRILL.

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