April 16, 1957 M. D. JUDKINS 2,789,209

FLASHLIGHT

Filed Oct. 29, 1954 2 Sheets-Sheet 1

Fig. 1.

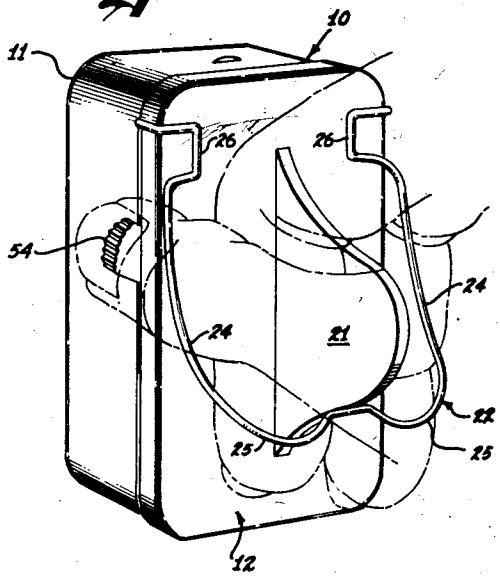


Fig. 2.

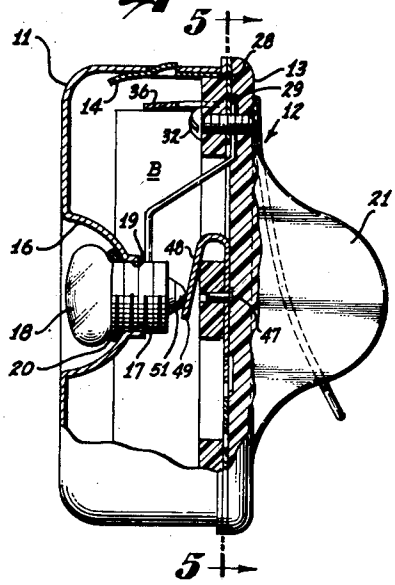


Fig. 3.

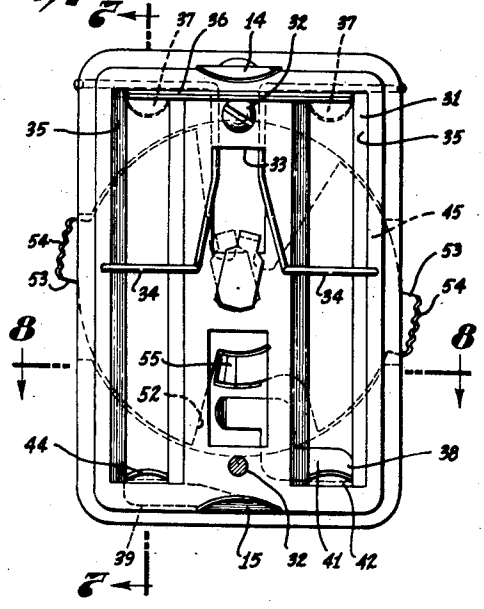
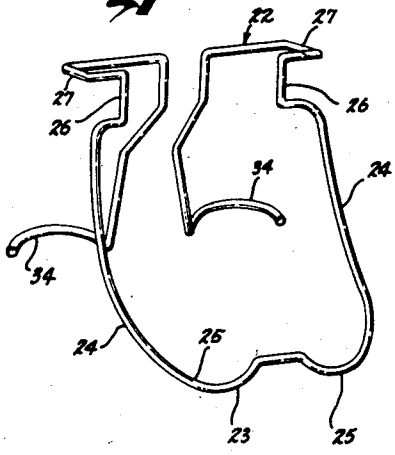


Fig. 4.



MARION D. JUDKINS,
INVENTOR.

BY George N. Smyth

ATTORNEY

April 16, 1957 M. D. JUDKINS 2,789,209

FLASHLIGHT

Filed Oct. 29, 1954 2 Sheets-Sheet 2

Fig. 5.

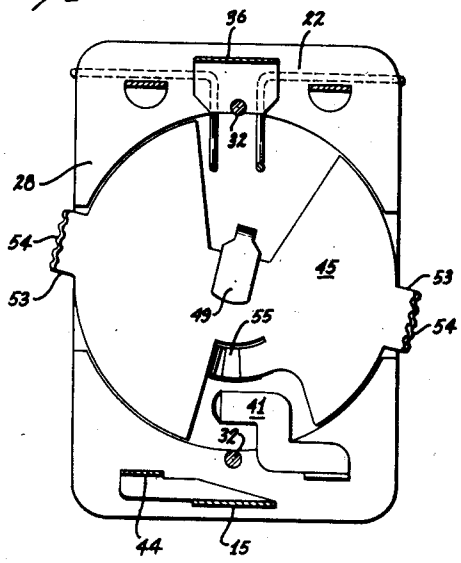


Fig. 7.

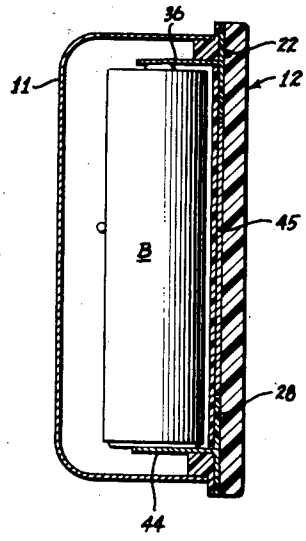


Fig. 6.

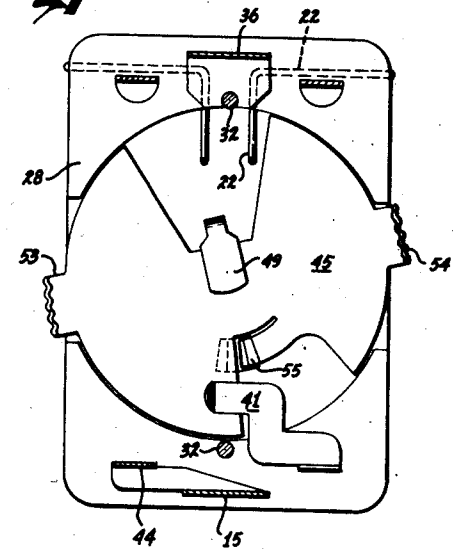
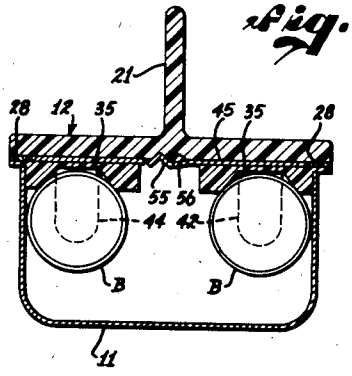


Fig. 8.



MARION D. JUDKINS,
INVENTOR.

BY George D. Smyth

ATTORNEY.

United States Patent Office 2,789,209
Patented Apr. 16, 1957

2,789,209

FLASHLIGHT

Marion D. Judkins, Manhattan Beach, Calif.

Application October 29, 1954, Serial No. 465,524

2 Claims. (Cl. 240—10.65)

The present invention relates to flashlights and more particularly to a flashlight which may be mounted to the fingers of either hand of the user.

The flashlight of the present invention is of the same general type as disclosed and claimed in my prior Patent No. 2,089,897, although the flashlight herein shown embodies features and advantages not present in my prior flashlight.

In the flashlight of my prior patent, a flexible strap was employed to mount the flashlight to a hand of the user but the flashlight was so arranged that the switch actuator was accessible to the thumb of but one hand. In other words, the flashlight could be conveniently used on but one hand and if used on the other, the switch actuator was not accessible to the thumb of that hand. The flashlight of the present invention may be mounted to either hand of the user and the thumb of the hand to which the flashlight is mounted may be used to operate the switch actuator. This is brought about by the provision of a pair of switch actuators so placed and carried by the housing of the flashlight as to be within reach of and accessible to the thumb of whichever hand the flashlight is mounted. This feature greatly increases the usefulness of the flashlight of the present invention for it may be mounted to the front or back of either hand and yet the switch thereof may be operated by the thumb of the hand to which the flashlight is mounted.

The particular means employed in the present construction to hold the flashlight to the hand of the user requires no adjustment to accommodate varying finger sizes, as did the strap of the flashlight of my prior patent. Thus, regardless of the size and shape of the fingers, the flashlight of the present invention can be very securely held or mounted to either of the user's hands.

A further feature of the present invention resides in the use of a single element to both mount the flashlight to the selected hand of the user and replaceably hold the batteries in position within the housing of the flashlight. This feature not only simplifies the production of the flashlight, but reduces the manufacturing costs as well. This single element in the now preferred embodiment of the invention comprises a length of resilient wire formed into an integral shape adapted to encircle the fingers of the hand and to extend interiorly of the housing to engage and hold the batteries in position within the housing.

To further simplify the production costs of the flashlight of this invention, the reflector element is formed integral with the one wall of the housing and comprises a dimple or concavity concentric with an opening for passing the base of the lamp bulb to be used with the flashlight.

The switch mechanism of the present invention has been simplified over the structure of my prior patent and is less likely to fail in use. The pair of actuator members are each positive in action and the construction is such that the thumb of the hand to which the flashlight is mounted may actuate the switch through a simple movement.

Other features and advantages of the present invention will be hereinafter apparent from the following description, particularly when taken in connection with the accompanying drawing, in which:

Figure 1 is a perspective view of the flashlight of the present invention shown mounted to the back of the right hand of a user;

Figure 2 is an elevational view, partly in section, to more fully illustrate the structure of the flashlight;

Figure 3 is a plan view of the closure element with parts broken away;

Figure 4 is a perspective view of the single element used to mount the flashlight to the hand and to replaceably mount the batteries in position within the housing;

Figure 5 is a section taken along line 5—5 of Figure 2 and showing the switch in the open position;

Figure 6 is a view similar to Figure 5 but showing the switch in the "on" position;

Figure 7 is a section taken along line 7—7 of Figure 3; and

Figure 8 is a section taken along line 8—8 of Figure 3.

The flashlight of the present invention, referring now to the accompanying drawing and more particularly to Figure 2 thereof, comprises a housing **10** including a casing **11**, preferably formed of some suitable metal and open at the one side thereof, and a closure element **12**. The closure element **12**, in the now preferred embodiment of the present invention, includes a substantially plate-like member **13** molded of a suitable non-conductive plastic. The closure element is adapted to be detachably mounted to the casing **11** to close the open side thereof, and to this end, the end walls of the casing are each formed with an aperture adapted to receive resilient dogs or latches **14** and **15** carried respectively at opposite ends of the closure element **12**. Once the latches **14** and **15** are lodged in the apertures the closure **12** is securely but detachably held to the casing **11**.

The normally front wall of the casing **11** is formed with a suitable dimple or concavity **16** which forms a reflector element integral with the front wall of the casing. The reflector-forming dimple **16** is concentric with an opening **17** for passing the base of a small flashlight bulb **18** and the edges of the opening are inturned and threaded to form a socket **19** in which the base of the lamp **18** is threaded. As the socket receiving the base is open at the rear thereof a resilient stop element **20** in the form of a small O-ring is preferably pressed about the base. This stop element, as clearly shown in Figure 2, locates the bulb **18** in a predetermined position relative to the reflector **16** and holds the glass envelope of the bulb out of engagement with the surface of the reflector. To increase the reflectivity of the reflector the outer face may be polished or buffed. In some uses it may be desirable to plate the entire casing with a finish having high reflectivity. In such applications it would not be necessary to polish or buff the reflecting face of the reflector.

The flashlight is primarily intended to be used mounted to the fingers of a hand of the user and the means used to mount the flashlight includes a locating or separator member **21** carried by the closure element **12**. This locating or separator member, as best shown in Figure 1, projects outwardly of the rear surface of the closure element **12** and is preferably formed integral with the closure element during the molding process. The member **21** is intended to be interposed between two fingers of the user's hand and, preferably as illustrated in Figure 1, between the index and middle fingers of the hand. With the member **21** interposed between the fingers of the user's hand the flashlight is located and held against lateral movement relative to the hand. To prevent separation of the flash-

light from the hand, the present invention provides a novel mounting means 22 in the form of a length of resilient wire. This wire is formed as clearly shown in Figure 4 and includes a formation 23 comprising a pair of legs 24 joined by spaced loops 25 for encircling the two fingers of the user's hand. The legs 24 at the end opposite the loops 25 are formed with U-shaped portions 26 which, as seen in Figure 1, engage against the outer or exposed face of the closure element 12. The wire is further formed to provide formations 27 which are adapted to extend over the side faces of the closure element 12 and then pass inwardly between the inner face of the member 13 of the closure element and a thin spacer plate 28 of non-conducting material, the inner face of the member 13 being provided with grooves 29 for passing the wire.

The plate 28 is interposed between the member 13 and a battery locating element 31 in the form of a plate having a shape substantially the same as the member 13, but being slightly smaller than the latter. The element 31 is formed of a non-conducting material and may be molded of a suitable plastic.

The battery locating element 31, spacer plate 28, and member 13 are held assembled by a pair of screws 32 passed through aligned openings in the element 31 and plate 28 and threaded into tapped bores formed in the member 13 of the closure element 12. As best shown in Figure 2, the one screw also mounts the latch element 14 which includes an inturned leg having an opening through which the one screw extends.

The segments of the wire forming the longer legs of the formations 27 are laterally deflected and then angularly passed through an elongate opening 33 formed in the battery mounting element 31. These wire segments terminate in spaced apart portions 34 of semi-circular configurations which form a pair of clasp elements each adapted to extend about a battery B, best shown in Figure 2, which forms the source of current for energization of the bulb 18.

To properly locate the pair of batteries, the plate element 31 is formed with a pair of spaced troughs 35 having converging walls for supporting and locating the batteries. Each of the troughs 35 at the one end thereof is formed with a narrow slot for passing a U-shaped conductor element 36, the opposite legs of which are laterally bent to form mounting tabs 37 which lie between the battery locating element 31 and the spacer plate 28. The tabs 37 are thus clamped between the element 31 and the plate 28 by the screws 32, as should now be understood. The conductor element 36 forms a bridging member interconnecting the two batteries to be mounted in the troughs 35 and also acts to hold the batteries against a pair of terminal members 38 and 39. The member 38 is formed, as best shown in Figure 3, with a somewhat Z-shaped body element 41 having a portion thereof clamped between the spacer plate 28 and the battery locating element 31. The member 38 includes a finger 42 extending laterally of the body element 41 and projecting through a narrow slot formed in the end of the one trough 35.

The terminal member 39 is formed integral with the latch 15 and includes a segment 43 lying between the battery locating element 31 and the spacer plate 28 and integrally joining the latch 15 and a finger 44 extending through a narrow slot formed adjacent the end wall of the one trough member 35.

It will now be seen that the batteries of the flashlight are located by the troughs 35 and each is electrically engaged at one end by the bridging member 36 and at the opposite end by fingers 42 and 44, respectively. The clasps 34 very securely hold the batteries in the position as located by the above elements, but yet permit the batteries to be removed when desired.

To control the flow of current from the batteries to the bulb 18, the present invention provides a novel switch element comprising a disc-shaped body member 45 mounted for rotation by a small pin 47 mounted in aligned apertures formed in the body 45, spacer plate 28, and the battery locating element 31. The body member 45, as best shown in Figure 3, is rotatably seated within an opening corresponding in size and shape to the same and formed in the spacer plate 28. An arm 48 partially lanced from the body member 45 is reversely bent back upon itself to form a contact member 49 for engaging the central terminal 51 of the lamp bulb 18, the screw base terminal of the lamp being grounded to the casing 11. The body member 45 is cut away, as indicated at 52, to form a somewhat radially extended edge which moves under and engages with the substantially Z-shaped body member 41 of the terminal 38 when the switch body 45 is rotated in a clockwise direction as viewed in Figure 3. The cut away portion 52 of the switch body 45 thus forms, as should now be understood, a movable contact element cooperable with a fixed contact formed by the one leg of the Z-shaped body member 41, the latter being grounded to the casing 11 by the latch 15.

To actuate the switch body member 45 between the on and off positions, the body member is formed with a pair of radially extended arms 53, each of which carry normally extended fingers 54 which are preferably corrugated, as shown, to provide thumb engageable switch actuators which project beyond the opposite marginal portions of the closure element 12. To hold the switch body 45 against accidental movement from the on and off positions of the switch, the body 45 carries a finger 55 partially lanced from the central portion thereof and forming a detent member engageable in one or the other of a pair of spaced notches 56 formed in the inner face of the member 13 of the closure element 12 as the body member is moved into the on or off positions, respectively.

It will now be seen that with the casing 11 and closure element assembled through the latches 14 and 15, the present invention provides a flashlight which may be mounted to the inner or outer sides of either hand of a user and which is always operable by the thumb of the hand to which the flashlight is mounted. This is so for whether the flashlight is mounted to the right or left hand of the user, one or the other of the switch actuators 54 will be accessible to the thumb of the hand to which the flashlight is mounted.

The flashlight is very securely mounted to the hand of the user through interposition of the separator element 21 between adjacent fingers of the hand and the clamping action of the finger-encircling portions of the wire 22. As the wire is formed of resilient material, the finger mounting portions can flex to accommodate varying finger sizes without need of any adjustment.

Although the now preferred embodiment of the present invention has been shown and described herein, it is to be understood that the invention is not to be limited thereto, for it is susceptible to changes in form and detail within the scope of the appended claims.

I claim:

1. A flashlight, comprising: a casing open at one side thereof; a closure element; means for detachably holding said closure element to said casing to close the open side thereof; separator means integral with and projecting from the outer side of said closure element adapted to lay between two fingers of either hand of a user; resilient means carried by said casing for encircling the two fingers of the user's hand and holding the closure element to said fingers; means for mounting a lamp bulb to said casing; means integral with said resilient means adapted to engage a pair of batteries to removably hold the same within said casing; and means for electrically connecting said lamp bulb to said batteries; said means including a switch means having a pair of actuator members projecting exteriorly of said casing on opposite sides thereof for actuation by the thumb of the hand of the user to which the flashlight is mounted.

2. A flashlight, comprising: a casing open at one side thereof; a reflector carried by one wall of said casing; socket means for mounting a lamp bulb in said reflector; closure means detachably connected to said casing for closing the open side thereof; means for removably mounting flashlight batteries to said closure means; means for electrically connecting said lamp bulb to said flashlight batteries; a length of resilient wire having the opposite ends thereof anchored to said closure means and including a U-shaped portion normally disposed adjacent the exterior surface of said closure means, the bight section of said portion being formed with spaced loop elements for partially encircling adjacent fingers of the user's hand when the latter is inserted thereunder for resiliently mounting said flashlight to either hand of a user; a switch member controlling said electrical connecting means, said switch member including a disc-like body member rotatably mounted to said closure means;

a pair of switch actuating means comprising diametrically projecting arms integral with said body member and projecting exteriorly of the casing at opposite sides thereof and accessible to the thumb of the same hand to which the flashlight is mounted; and detent means integral with said body member selectively engageable with spaced apart notches formed in said closure means for holding said body member in a selected one of a pair of alternate positions defining "on" and "off" positions of said switch member.

References Cited in the file of this patent

UNITED STATES PATENTS

1,893,292	Larson	Jan. 3, 1933
2,065,307	Fullmer	Dec. 22, 1936
2,089,897	Judkins	Aug. 10, 1937
2,277,866	Sage	Mar. 31, 1942