Feb. 8, 1949. J. G. LIPPINCOTT 2,461,118

FLASHLIGHT TORCH

Filed May 14, 1945

Fig. 1.

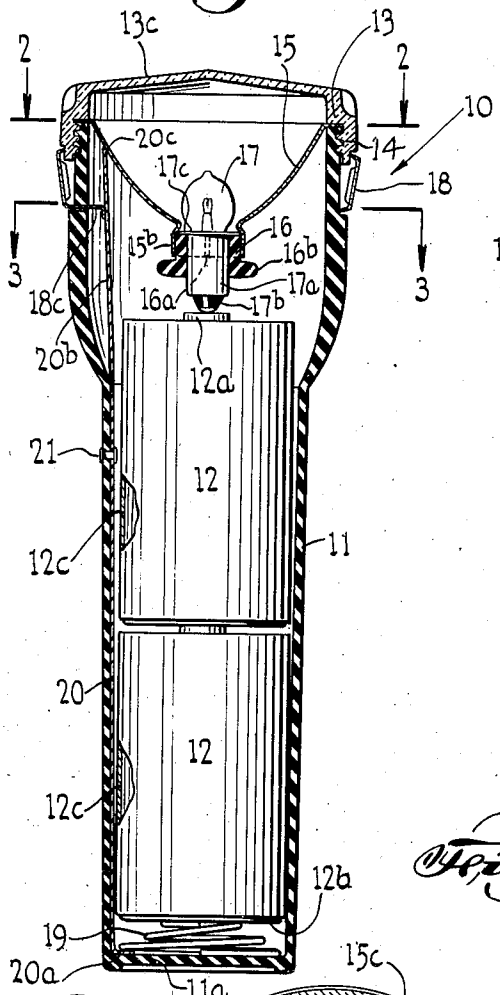


Fig. 4.

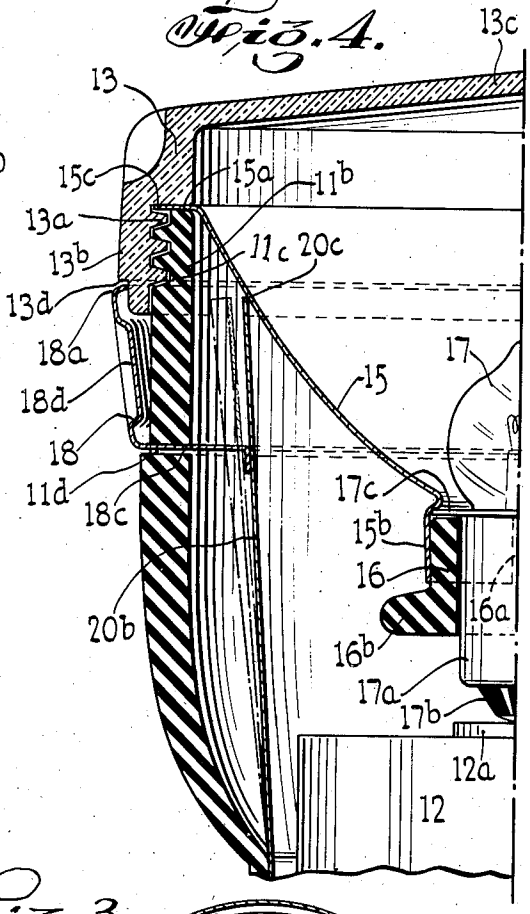


Fig. 2.

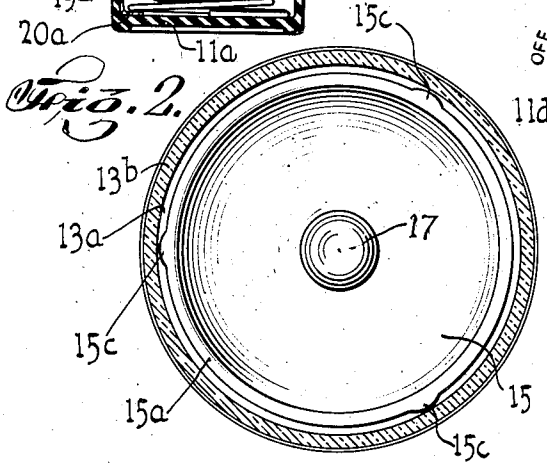
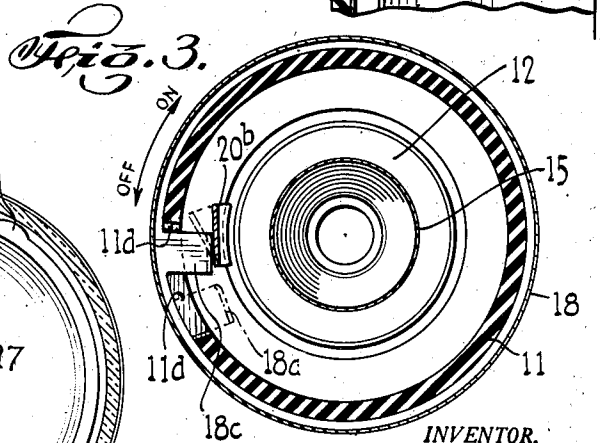


Fig. 3.



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FLASHLIGHT TORCH

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3 Claims. (Cl. 240—10.68)

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This invention relates to flashlight devices, and more particularly is directed to portable flashlights or torches of improved construction having an annular or ring type of operating switch.

Among the objects of the invention is to generally improve flashlights or torches of the character described which shall comprise few and simple parts that are readily assembled to form a rugged yet attractive appearing structure, which assembly lends itself to forming a designed article appealing to the eye, which shall be inexpensive to manufacture, and which shall be practical and efficient to a high degree in use.

Other objects of the invention will in part be obvious and in part hereinafter pointed out. The invention accordingly consists of features of construction combination of elements and arrangement of parts which will be exemplified in the construction hereinafter described and of which the scope of the application will be indicated in the following claims.

In the accompanying drawing in which is shown an illustrative embodiment of this invention:

Fig. 1 is a longtitudinal sectional view taken centrally through a flashlight torch showing the interior construction made to embody the invention.

Figs. 2 and 3 are enlarged detailed cross-sectional views taken through the head portion on lines 2—2 and 3—3 in Fig. 1; and

Fig. 4 is a greatly enlarged fragmentary sectional view of the head portion as shown in Fig. 1 showing the improved ring operating switch, reflector and incandescent lamp holder construction.

Referring in detail to the drawing, 10 denotes an improved hand flashlight of improved construction having an annular or ring type switch embodying the invention. As seen from Figs. 1 and 4, said flashlight 10 has a one-piece tubular casing portion 11 integrally formed with closed bottom 11a and an open or top end 11b for housing one or more electric battery dry cells 12 having insulating outer wrappers 12c of conventional construction and also has a lens cap 13 secured to said casing portion open end 11b by suitable means such as screw joint 14. The latter has an exterior thread 11c formed on the outer surface of the casing portion open end 11b adjacent and up to the rim edge thereof for engaging with interior thread 13a provided on a down turned flange 13b of said lens cap 13. The latter preferably has the lens or cover portion 13c thereof

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integrally formed with the flange 13b all shown in Figs. 1 and 4.

The battery casing portion 11 and the lens cap 13 preferably is molded of a suitable plastic material of any well known composition that can be made transparent as for use of said lens cap 13 and with a colored body as desired for the use of the casing portion 11, and finished all over including said threads 11c and 13a without machining to the exact proportion and shape as required. Said molded material forms a relatively rigid structure yet has a sufficient degree of give to counteract shocks due to blows and rough handling without being fractured or otherwise damaged, thus providing a so-called "shockproof" or "unbreakable" structure.

Seated on the rim of casing open end 11b and positively secured in place by the lens cap 13 there extends an outturned flange rim 15a of a metallic reflector 15. The latter carries to extend within the casing portion, a centralized holder portion 15b which has removably mounted to extend downwardly therethrough a thimble 16, through which projects the base 17a of an incandescent lamp 17 positioned in the assembled flashlight 10 with a center contact 17b of said lamp base 17a electrically connected with a center or carbon contact terminal 12a of the battery cells 12 as shown in Figs. 1 and 4. The thimble 16 may be made of metal, wood, or plastic material and may be partially split as at 16a to provide a frictional fit between centralized holder portion 15b and the lamp base 17a so as to releasably retain the thimble 16 against extending contact fins 17c of the shell of lamp base 17a for securing an electrical connection of said fins 17c with the reflector 15, and to firmly hold said lamp 17 in a steadied relatively fixed position with respect to the effective front surface of reflector 15. To facilitate removal of the thimble 16 and lamp 17, the thimble 16 may be formed with finger grip wings or flange 16b.

The lens cap 13 which includes the lens or cover portion 13c as well as flange 13b preferably is made of a single piece of transparent molded plastic with said interior threads 13a thereof formed to screw onto said exterior casing threads 11c to assure clamping the reflector rim flange 15a as described above. The latter may be formed with spaced radially extending lugs 15c adapted to engage with the threads 13a so that when the lens cap 13 is removed, the reflector 15 carrying the lamp 17 will be removed therewith as a unit and can be replaced as a unit in the well understood manner.

Embodying the invention a rotary type of switch means of improved construction is provided in the electric circuit between the zinc contact terminal 12*b* of the lower battery cell 12 and the lamp 17 through the reflector 15 and a conductor jumper strip 20. Said switch means comprises an annulus or ring member 18 encircling the exterior open top casing end 11*b* which has an inturned flange 18*a*, the latter retaining said ring member 18 on said casing end 11*b* for turning movement against an exterior abutment shoulder 13*d* provided on the lens cap flange 13*b* as shown in Figs. 1 and 4. Said ring member 18 may also be provided with a striker or shoe 18*c* radially inturned into the casing 11 to extend toward the exterior side of the reflector 15, the wall of said casing 11 being cut away at 11*d* to permit limited rotary movement as is indicated in Fig. 3 by the double ended arrow with "off" and "on" circuit markings.

The circuit from the lower or zinc battery cell contact terminal 12*b* is extended through a helical spring 19 resting on the interior casing bottom 11*a*, which spring 19 provides a resilient electrical connection with said lower zinc cell terminal 12*b* and one end 20*a* of conductor jumper strip 20. The latter may be made of suitable spring bronze or the equivalent and is secured by suitable means, such as a rivet 21 extending through the wall of casing 11 adjacent to the bulbous or bulged portion thereof which forms said top or open head end 11*b* as shown in Figs. 1 and 4.

The free end portion 20*b* of said strip 20 extends above the rivet 21 into said casing open head 11*b* preferably is made with a slight twist out of the plane of the portion of said strip below said rivet 21 so that the striker or shoe 18*c* on being rotated with the ring 18 for switching from "off" to "on" circuit position engages the twisted free end strip portion 20*b* and causes the extreme blade end 20*c* to make scraping contact electrical connection with the exterior side of the reflector 15 as shown in Figs. 3 and 4. This scraping contact in closing of the circuit by the strip end 20*c* through the reflector 15 is due to the flexing and camming movements of shoe 18*c* on the strip portion 20*b* which is effective against torsion stress of the twist structure of said strip portion 20*b* to products quick making and breaking of the circuits on rotating the ring 18.

From the above description and the drawing the practical operation of the flashlight torch 10 is now apparent. After the parts have been provided and assembled as has been described above, the battery cells 12 or the lamp 17 may be replaced by simply unscrewing the lens cap 13 from the bulbous casing head 11*b*. The reflector 15 with the lamp 17 will come off with the lens cap 13 as a unit and the lamp 17 may be replaced by simply withdrawing the thimble 16 from the holder 15*b*.

The assembled flashlight torch 10 may be switched "on" and "off" by rotating the ring 18 in the directions shown by the arrow in Fig. 3. The "on" switch position of the ring 18 swings the shoe 18*c* to cam the strip portion 20*b* forcing the end 20*c* thereof to scrape contact the reflector 15 thereby connecting and completing the circuit to light the lamp 17 as is clear from Figs. 1, 3 and 4. The "off" switched position of ring 18 swings the shoe 18*c* laterally away from the strip portion 20*b* releasing the latter so that the end 20*c* swings away from the reflector 15. To facilitate handling said switching ring 18, the latter may be provided with a knurled surface in the form of a central grip band 18*d* as shown in Figs. 1 and 4.

It is thus therefore seen that there is provided an improved flashlight torch in which the objects of the invention are achieved and which are well adapted to meet all conditions of practical use.

As various possible embodiments may be made in the invention for use for different purposes and as various changes might be made in the embodiments above set forth, it is to be understood that all the above matters here set forth or shown are illustrative and not in a limiting sense.

Thus having described my invention, I claim as new and desire to secure by Letter Patent:

1. A flashlight torch of the character described comprising a tubular casing of molded plastic material having an open end and formed with a closed bottom opposite the open end, a battery retained in said casing with one terminal thereof extending short of the level of said open end, a metallic strip mounted within said casing and resiliently connected with the other terminal of said battery, a lens cap of molded plastic material having means to cover said casing open end, a metallic reflector seated to extend into said casing open end and firmly retained in place by the lens cap, a lamp holder carried by the reflector to project centrally into the casing, an incandescent lamp fitted into the reflector and mounted in said holder with a terminal thereof contacting the first mentioned battery terminal, said strip having an integrally formed spring blade end extending within said casing top opening and normally in a flexed position out of contact with said reflector, and an annular switch member mounted on the exterior of the casing inwardly of said casing open end and movably retained for turning movement by said lens cap, said switch member having an integral portion extending into the casing open end for engaging said spring blade end to flex the latter from said normal position to make an electrical circuit from the battery to the lamp through the reflector, said casing open end being slotted for receiving the switch member integral portion to permit limited turning movement thereof.

2. In a flashlight torch having a casing formed with an open end portion, a metallic reflector seated on the rim of said open end portion, a lens cap removably mounted on said casing end portion for firmly securing the reflector in seated position, a ring member encircling said casing end portion and retained for rotary movement thereon by said cap, a metallic spring blade end extending within said casing end portion formed with an integral twisted free end normally sprung out of contact with said reflector, said ring member having means extending into said casing end portion for flexing said blade in effecting an electrical circuit through contact with said reflector on rotation thereof, and means for removably attaching said cap to the casing open end portion with the ring member remaining free for limited rotary movement, said blade flexing means including a camming shoe for actuating said twisted blade free end, the casing open end being slotted for receiving said shoe to permit limited turning in said blade flexing movement for making and breaking the electric circuit at the reflector.

3. In a flashlight torch having a casing formed with a bulbous open ended portion, a metallic reflector seated on the rim edge of said open ended

portion, a one-piece lens cap removably mounted on said casing open ended portion firmly securing the reflector in seated position, a ring member encircling said casing open ended portion and retained for rotary movement thereon by said cap, a metallic spring blade with an intermediate twisted structure adjacent an extreme free end thereof secured to extend within said casing open ended portion, said extreme blade end forming a contact circuit making and breaking means with said reflector, said ring member having a shoe extending into the casing open ended portion for camming the twisted blade end in effecting said making of the electric circuit, said casing end portion being slotted for receiving said shoe so constructed and arranged to limit the rotary movement of said ring member in making and breaking said contact circuit.

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