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A. GELARDIN

2,249,691

FLASHLIGHT

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Fig. 1.

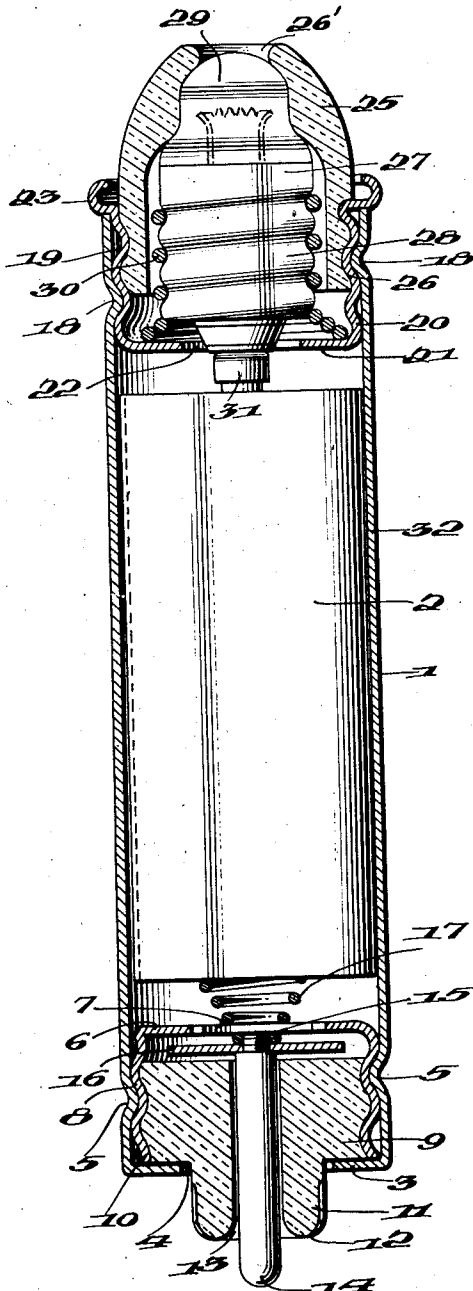


Fig. 2.

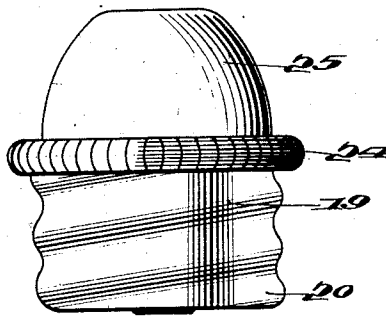
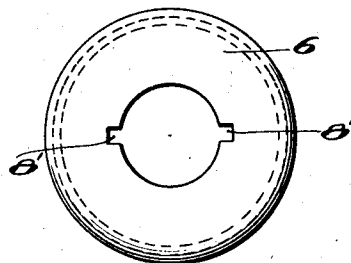


Fig. 3.



Inventor

Albert Gelardin

By

Martin T. Fisher,

Attorney.

UNITED STATES PATENT OFFICE

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FLASHLIGHT

Albert Gelardin, New York, N. Y.

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5 Claims. (Cl. 240—10.66)

This invention relates to flashlights and particularly that type which may be readily carried on one's person, although the principles are equally applicable to flashlights of larger size.

The object of the invention is to provide a flashlight of improved construction resulting in a more durable flashlight, which may be readily disassembled, for the purpose of replacing either the lamp or cell, sturdy in construction and having a pleasing appearance.

Additional objects of the invention are to provide a light with an improved switch construction and an improved head construction. Other advantages of structure and operation will appear from the following description of the present preferred embodiment of the invention, illustrated in the accompanying drawing, in which:

Figure 1 is a sectional elevation of the new flashlight construction;

Figure 2 is a side elevation of the improved head construction; and

Figure 3 is a plan view of one end of a detail of the switch construction.

One of the salient features of the instant invention is a novel type switch in which either a momentary light may be secured by pressing a push button to temporarily close the circuit, or a steady light may be secured by manipulation of a cooperating element to hold the circuit closed as long as desired. More specifically, this cooperating element holds the push button in circuit closing position.

Another outstanding feature of the invention resides in the provision of a unitary type head in which the bulb is completely enclosed; when it is desired to replace the cell the head may be readily removed as a unit, thus protecting the bulb at all times from damage whether the same is attached to the casing or removed therefrom as when a cell is being replaced.

Referring to Figure 1, a casing 1 is provided and disposed therein is a cell 2. It is understood, of course, that one or more cells may be used without departing from the spirit of the invention. At one end of the casing, which will be termed the switch end, is provided an intumed flange 3, the inner edges of which surround an aperture 4. The side walls of the casing adjacent the flanged end are also provided with a pressed thread 5 which may be of the form of a continuous spiral or may be composed of a series of indentations along a spiral axis.

Mounted within the switch end of the casing is a cup-shaped annulus 6, the bottom portion of

the cup having an aperture 7 therein, thus resulting in the base of the cup terminating in a flange. The side walls of this cup have threads 8 imposed therein by pressing or any similar manner whereby both internal and external threads are simultaneously formed. The external threads cooperate with the casing threads 5 to retain the cup in assembled position in the end of the casing. The flanged end of the annulus 6 adjacent the aperture 7 is formed with oppositely disposed slots 8' which are utilized in assembling the cup-shaped annulus and casing, such as by engaging the slots 8' with a screw driver.

A threaded annular plug 9 of insulating material is mounted within the switch end of the casing between the flange 3 and the flange of the annulus 6, which flanges serve as movement limiting means for said plug. One external portion of said plug is provided with threads 10 which cooperate with the threads 8 of the cup-shaped annulus 6, while another portion 11 of a reduced diameter from the threaded portion projects through the aperture 4 of the casing and terminates in a rounded end having serrations 12 formed therein to facilitate manipulation of the plug. The plug is provided with a centrally disposed aperture 13 in which is mounted a push button 14 which may be of either conducting or non-conducting material. The inner end of the push button is provided with a threaded portion 15 of reduced diameter from that of the push button and threadedly engaged thereon is a metallic element 16, which may be either in the form of a bar or disc, adapted when pressed into engagement with the flange of the annulus 6 to establish electrical contact therewith. Also threadedly mounted on the threaded portion 15 of the push button is a helical spring 17 which spring is disposed between the end of the push button and the cell 2 and normally retains the metallic element 16 and the annulus 6 in noncontacting position.

It will be seen that by momentarily pressing the push button 14, contact may be established between elements 6 and 16, which is of utility when a light of short duration is desired. However, when a light of longer duration is desired, the same may be secured without constantly pressing the push button by screwing the threaded plug 9 toward the head end of the casing whereby the elements 6 and 16 will be held in contacting position by said plug and the same may be retained in such position as long as desired without further need of manipulating either the plug or the push button 14.

The head end of the casing 1 is also provided with threads which are similar in formation to threads 5 and may be formed in the same manner. Mounted within the head end of the casing is a cup-shaped base member 19 provided with threaded walls containing both external and internal threads 20, which threads are formed in a manner similar to the threads 8. The base member is formed at its lower end with an inwardly turned flange 21 surrounding an aperture 22. The outer end of the base member is formed with an outwardly disposed flange 23, the edge of which is reversely turned to form a rounded outer portion having serrations 24 whereby the base member may be readily manipulated for insertion or removal from the casing.

Mounted within the base member is a globe 25 which in the preferred embodiment is formed of translucent material. The globe is circular in cross section and at the portion of its largest diameter has external threads 26 formed thereon which cooperate with the threads 20 of the base member to retain the globe in operative position. The end of the globe opposite the threaded end is gradually reduced in diameter resulting in a somewhat dome-shaped configuration terminating in a constricted aperture 26'. The interior of the globe 25 is generally dome-shaped.

Mounted within the globe is a lamp 27 having the conventional base portion containing threads 28, the forward or glass end of the lamp 29 being disposed against the portion of the globe 25 surrounding the constricted aperture 26' whereby the forward end of the lamp is supported by engagement with the globe as indicated. The aperture 26' is of a smaller diameter than the diameter of the glass end of the lamp to prevent passage of the same through the aperture 26'. The opposite or base end of the lamp is supported by means of a spirally shaped spring 30, one end of which spring is formed in a suitable configuration to cooperate with the threads 28 of the lamp and engage therewith in threaded relationship. The opposite end of the spring is formed of convolutions of gradually increasing diameter, the outermost convolution of which is adapted to rest upon the flange 21 for support. By this construction, it will be seen that the lamp is supported entirely by engaging the globe 25 at its forward end and is held by the spring 30 at its base end within the base member 19.

By providing a globe of translucent material, when the lamp is illuminated by completing the circuit, light rays of low intensity will emanate in a glow through the globe 25 but rays of undiminished intensity will emanate through the unobstructed aperture so that a light of high intensity but of limited area may be concentrated or focused on the object being illuminated, whereas the surrounding area will also be illuminated in a less intensified manner due to the glowing light emanating through the walls of the translucent globe 25.

The tip end of the base of the lamp projects through the aperture 22 whereby the same may readily contact the center pole 31 of the cell 2.

In the preferred construction the casing 1 is formed of metallic material as is also the base member 19, the spring 30, the cup-shaped annulus 6 and the spring 17. By this construction it will be seen that a complete circuit may be established from the pole 31 of the batteries through the lamp, thence through the spring 30, base member 19, casing 1, annulus 6, metallic element 16, spring 17, to the outer pole or cup of the cell 2.

The circuit is interrupted by moving the metallic element 16 out of contact with the annulus 6.

As a modification of the described construction the threaded portion 15 on the push button may be made longer and adapted to contact the cell directly, in which event the spring 17, rather than be disposed between the push button and the cell, would be disposed between the forward end of the cell and the lamp and thus normally retain the lamp and cell out of contact. In this modified construction, it would then not be necessary for the casing 1 to be made of current conducting material. The plug 9 would serve in the same circuit closing and maintaining capacity in this construction as in the preferred construction described in the foregoing specification.

In the preferred construction the cell 2 is provided with an outer insulating covering indicated at 32, although in the modified construction described in the foregoing paragraph it will not be necessary that this covering 32 be provided.

It will thus be seen that the inventor has in his improved construction provided a highly desirable flashlight offering advantages over those now on the market, particularly by providing a compact head structure removable as a unit and at all times protecting the lamp carried by the head, whether the head is in operative position or removed from the casing, as when it is desired to replace a cell. Furthermore, a highly useful and durable switch structure is provided having means to maintain a steady light when desired without having to constantly press the push button. This steady light is effected by a threaded plug having a reduced diameter from that of the casing, the finger engaging portion of which projects through the rear of the casing and surrounds the push button. The outer diameter of the reduced portion of this plug is spaced materially from the edges of the casing whereby the plug may not be brought in to operation by accidental manipulation such as when the same is carried on the person or lying idly about. In order to operate the plug, which may be termed a locking plug, it is necessary to grip the reduced portion by engaging the serrations and screw the plug inwardly, which will then carry the push button forward by the plug engaging the metallic element 16 against the action of the spring 17 to form electrical contact between the metallic element and the annulus 6 to complete the circuit of the flashlight. The manipulating portion which is preferably of reduced diameter from that of the main portion of the plug 9 and which is exposed through the outer end of the casing for manipulating purposes is thus seen to be guarded, as distinguished from unguarded, as in the case where the manipulating portion is adjacent the outer periphery of the casing. Accidental manipulation of the locking plug is effectively prevented by such construction.

While the foregoing is a description of the preferred embodiments of the instant invention, it is to be understood that the invention is not to be limited to the exact construction shown but departures may be made from such disclosure; the invention is therefore intended to include all variations and modifications of construction which come within the spirit thereof.

Having thus set forth the nature and a description of my invention, what I claim is:

1. A flashlight comprising a casing, a lamp mounted at one end of the casing, a switch struc-

ture mounted at the opposite end of the casing, a cell operatively arranged in the casing between said lamp and switch, said switch comprising an element adapted to establish a circuit between said cell and lamp, resilient means normally urging said element into circuit breaking position, said element being adapted to be pressed into circuit making position against the action of said resilient means to cause said lamp to be illuminated, an inturned flange formed on said casing at the switch end, a flanged threaded annulus mounted in said casing adjacent said switch end with said flange spaced from the flange on said casing, an annular member positioned in said casing and having a finger operable portion projecting through said casing flange, a push button extending through said annular member, said annular member being threadably operable to hold said push button in circuit closing position, said spaced flanges on said annulus and said casing forming movement limiting means for said annular member, the flange of said annulus having oppositely disposed slots arranged therein to facilitate insertion and removal of said annulus in said casing.

2. A flashlight comprising a casing, a lamp mounted at one end of the casing, a switch structure mounted at the opposite end of the casing, a cell operatively arranged in the casing between said lamp and switch, said switch comprising an element adapted to establish a circuit between said cell and lamp, resilient means normally urging said element into circuit breaking position, said element being adapted to be pressed into circuit making position against the action of said resilient means to cause said lamp to be illuminated, an inturned flange formed on said casing at the switch end, a flanged threaded annulus mounted in said casing adjacent said switch end with said flange spaced from the flange on said casing, an annular member positioned in said casing and having a finger operable portion projecting through said casing flange, a push button extending through said annular member, said annular member being threadably operable to hold said push button in circuit closing position, said spaced flanges on said annulus and said casing forming movement limiting means for said annular member, said resilient means being arranged between said push

button and the cell and attached to said push button whereby a closed circuit is established by the push button contacting the flange of said annulus.

3. A switch for a flashlight, comprising in combination with the flashlight casing, a threaded member in engagement with the casing, an annular plug threadably engaged with said member, a push button contained within said annular plug, a spring for holding said push button out of contact with said threaded member, said plug being operable, upon rotation, to move the push button into electrical contact with said threaded member, said casing having an inturned flange formed at its end, said threaded member also having an inturned flange arranged at one end and in assembled position being spaced from said casing flange whereby the two flanges serve as movement limiting means for said threaded annular plug.

4. A switch for a flashlight, comprising in combination with the flashlight casing, a threaded member in engagement with the casing, an annular plug threadably engaged with said member, a push button contained within said annular plug, a spring for holding said push button out of contact with said threaded member, said plug being operable, upon rotation, to move the push button into electrical contact with said threaded member, said threaded member being provided with threads formed in the wall thereof by distorting the wall into a spiral formation whereby both internal and external threads are formed, the external threads engaging the casing and the internal threads receiving the threads of said annular plug.

5. A switch for a flashlight, comprising in combination with the flashlight casing, a threaded member in engagement with the casing, an annular plug threadably engaged with said member, a push button contained within said annular plug, a spring for holding said push button out of contact with said threaded member, said plug being operable, upon rotation, to move the push button into electrical contact with said threaded member, said annular plug being serrated at one end to facilitate manipulation thereof by the user.

ALBERT GELARDIN.