

Sept. 9, 1947.

W. B. MILLER

2,427,017

FLASHLIGHT

Filed Oct. 1, 1945

Fig 1

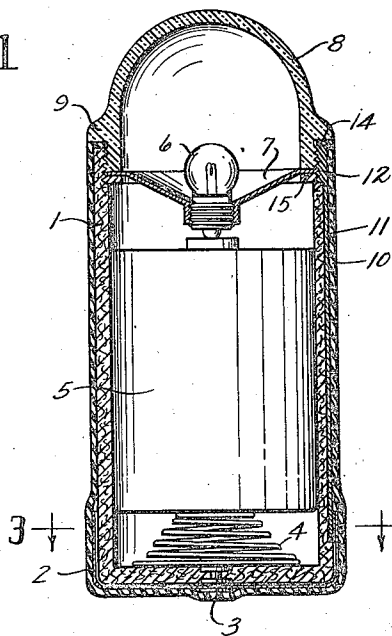


Fig 2

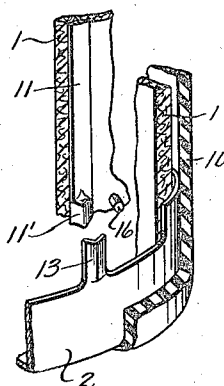


Fig 4

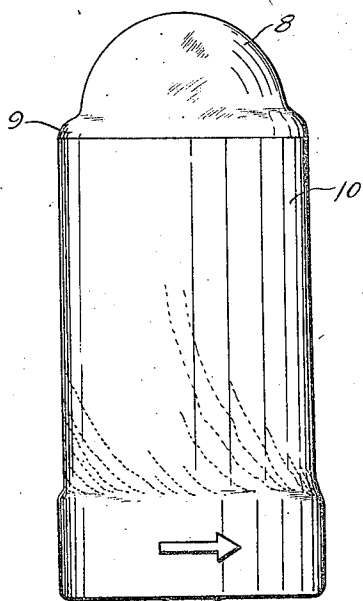
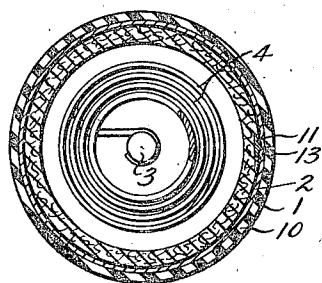


Fig 3



-INVENTOR-
WESLEY B. MILLER

BY *Clare Kooty*
Thomas C. Wyatt
ATTORNEY

UNITED STATES PATENT OFFICE

2,427,017

FLASHLIGHT

Wesley B. Miller, Freeport, N. Y.

Application October 1, 1945, Serial No. 619,727

3 Claims. (Cl. 240—10.68)

(Granted under the act of March 3, 1883, as amended April 30, 1928; 370 O. G. 757)

1

The invention described herein may be manufactured and used by or for the Government for governmental purposes without payment to me of any royalty thereon.

This invention relates to a new and improved construction in a portable, self-contained, illuminating device, commonly referred to as a flashlight. Although not confined to such use this invention has been designed especially for use with life rafts, collapsible boats, life preservers or the like, and can be carried by aircraft or surface or submersible vessels.

The primary object of the invention is to provide a flashlight which will not be adversely affected by exposure to moisture or saltwater.

A further object of the invention is to provide a waterproof flashlight that will never fail to operate even under the most adverse conditions and after long periods of nonuse. To this end the invention provides a flashlight of extreme simplicity of design having no exposed metal parts and having all of the electrical connections and contact elements substantially, hermetically, sealed in a noncorrosive casing.

A further object of the invention is to provide a flashlight of greatly simplified construction to reduce the number of parts thereof, facilitating the assembly into complete units.

A further object of the invention is to provide a flashlight wherein the internal metallic parts are substantially, hermetically, sealed so that water and external gases such as sea-air cannot gain access thereto and exercise a corrosive effect thereon.

A further object of the invention is to provide a novel, simplified, electric switch construction for controlling the bulb circuit characterized by the absence of switch buttons or other elements extending through the casing.

Other and further objects and advantages of the present invention will be apparent to those skilled in the art from a consideration of the following description of a specific embodiment of the invention shown in the accompanying drawings, in which:

Fig. 1 is an elevational sectional view.

Fig. 2 is an exploded fragmentary view illustrating the switch mechanism.

Fig. 3 is a cross-sectional view taken on the line 3—3 of Fig. 1, and

Fig. 4 is an elevational plan view, illustrating the method of operating the light in dotted lines.

Referring now more specifically to the drawing, the numeral 1 designates an inner tubular casing, preferably constructed of fibre, or similar rigid

2

material, open at one end and closed at the opposing end and having a cap 2 movably mounted on the closed end constructed of suitable material such as copper, through which an electric current will flow. The cap 2 is movably mounted on the inner casing 1 by means of a stud 3 of conventional construction extending through the closed end of said inner casing 1, and upon which cap 2 pivots. Mounted on the stud 3 inside of the inner casing 1 is a coil spring 4 adapted to hold the central electrode of the battery 5 in constant close contact with the bulb 6 which is mounted in a socket in the reflector 7 in the conventional manner. The open end of inner casing 1 has internal annular threads to receive the external annular threads of the lens 8, said lens 8 being constructed of transparent plastic or similar material. The lens 8 has an integral outwardly projecting annular shoulder 9 for a purpose to be hereinafter explained. A flexible outer casing 10 constructed of neoprene or rubber or similar material fits tightly over the inner casing 1. The open end of the outer casing 10 has the inwardly extended annular lip 14 adapted to form a water-tight seal between the shoulder 9 of the lens 8 and the open end of the inner casing 1 when the light is in assembled position, which construction also serving as a positive locking means for holding the outer casing in position. A strap 11 of a suitable electrical conducting material is mounted on the outer wall of said inner casing 1, having an integral post 12 extending through the open end of the inner casing 1, forming a part of the internal threads of said inner casing, said post 12, when the light is assembled, forms a connection with the reflector 7 for the purpose of conducting an electric current to the bulb 6 mounted in said reflector 7. The switch mechanism for completing and breaking the flow of current to the bulb consists of a projection 11' on the lower end of the strap 11 formed to seat in the socket 13 on the cap 2, when the cap 2 is manually moved into closed position. The upper area of the cap 2 on both sides of the socket is cut away to permit the circuit to be broken upon movement of the socket 13 out of contact with the projection 11'.

In assembling this light the inner casing 1 with the cap 2 positioned so that the socket 13 thereon is immediately adjacent the projection 11' on the contact strap 11, is inserted in the outer casing 10. The battery 5 is inserted within the inner casing 1 and seated on the coil spring 4. A retainer ring 15 is screwed into the open end of the inner casing 1, the bulb 6 is mounted in the

3

reflector 7 in the conventional manner and the reflector and bulb inserted in the open end of the inner casing 1 and seated on said retainer ring 15. The lens 8 is then screwed tightly to the open end of the inner casing 1, the lower end thereof exerting pressure against the reflector 7 upon movement into engaged position forcing the bulb 6 into close contact with the central electrode of the battery 5, the lip 14 being compressed tightly between the upper end of the casings 1 and 10 and the shoulder 9 of the lens 8 holding the outer casing in position and forming a water-tight connection and substantially hermetically sealing the operating mechanism of the flashlight within the waterproof casing 10. When it is desired to illuminate the flashlight, the body of the light is gripped in one hand of the user and the lower end of the flexible casing 10 is manually twisted with the other hand, springing the outer casing 10 until the socket 13 on the cap 2 receives the projection 11' on the lower end of the strap 11 completing the circuit of electric current from the battery 5 through the coil spring 4, the stud 3, the cap 2, the strap 11, 12 and the reflector 7 to the bulb 6. To break the connection when illumination is no longer desired the lower end of the casing 10 is again manually twisted moving the socket 13 out of contact with the strap 11. The pin 16 of fiber or similar nonconducting material, mounted in the inner casing 1, acts as a stop, preventing the socket 13 from moving past the projection 11' and limiting the movement of the cap 2 in either direction.

It is believed that the construction, operation and advantages of the embodiments of the present invention shown in the accompanying drawings will be entirely clear from the foregoing description. It must be understood, however, that the invention is not limited to the details of construction shown in the drawings and described above, since all modifications coming within the scope of the appended claims and their equivalent are included.

I claim:

1. A flashlight comprising an inner tubular casing having a cylindrical wall and a closed lower end and an internally threaded open upper end, a combined closure and lens element comprising a transparent upper part and having an open lower end externally threaded and engaged with said internally threaded end and including an outwardly projecting annular shoulder adjacent said open end, a battery in the inner casing, a bulb and reflector in the inner casing, means in the lower end of said inner casing to hold the battery in contact with the bulb, said closure element holding said bulb and reflector in position, a flexible waterproof outer casing adapted to receive said inner casing and having its upper end open, means mounted between said inner casing and outer casing and operable for conducting an electric current from said battery to said reflector and bulb, and an inturned lip on the upper end of said outer casing being clamped between said inner casing and said shoulder on said element to form a watertight seal when said element is secured on said inner casing.

4

2. A flashlight having a rigid inner casing and a flexible outer casing thereon both being open at the upper end, a spring mounted at the lower end of the inner casing, a battery in said inner casing seated on said spring, a metal reflector and a bulb therein disposed in the open end of the inner casing, a lens mounted on said inner casing and clamping the upper end part of said outer casing thereby forming a watertight closure and also holding the reflector and bulb in position in close contact with the battery, the lower end of the flexible outer casing being twistable relative to its upper end, metal means in contact with the reflector and extending through the inner casing adjacent the open end thereof, a metal strap mounted on the outer wall of said inner casing in connection with and extending from said metal means to a point adjacent the lower end of said inner casing, a metal cap rotatably mounted about the closed end of the inner casing and having electrical contact with the battery, and means on said cap to form a connection with said metal strap to complete the circuit to the bulb when said cap and the surrounding lower part of said outer casing are twisted slightly relative to the upper part of said outer casing and to the therein contained inner casing.

3. A flashlight consisting of an inner casing open at one end and closed at the other end, a battery in said casing, a light bulb and a conductive reflector mounting the bulb in said open end in electrical contact with the battery, a lens of plastic material having screw threaded engagement with said open end and including an outwardly projecting shoulder, a tubular outer casing of elastic waterproof material around said inner casing and having a closed lower end and also an open upper end bent inward and clamped between said shoulder and the inner casing, a cup-shaped switch of conductive material positioned between the closed bottoms of the inner and the outer casing, having contact with the battery and being turnable on said inner casing, and conductive means connected with said reflector and including a metal strap leading downwardly to a point adjacent said switch, the elasticity of said outer casing facilitating a slight twisting of the switch along with the surrounding lower part of the elastic outer casing around the inner casing for moving the switch into closing contact with said strap.

WESLEY B. MILLER.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,174,594	McGiff	Mar. 7, 1916
2,234,972	Lennan	Mar. 18, 1941
2,001,363	Joers	May 14, 1935
2,143,558	Joers	Jan. 10, 1939
1,340,550	Madigan	May 18, 1920
2,355,247	Slocum	Aug. 8, 1944
2,410,535	Van Daalen	Nov. 5, 1946