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FLASHLIGHT

2,931,894

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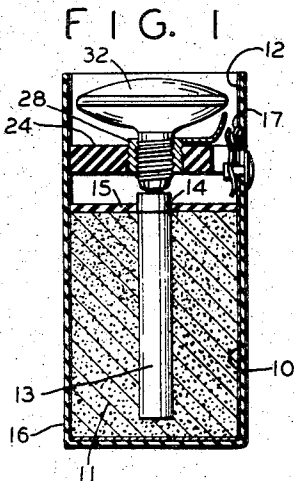
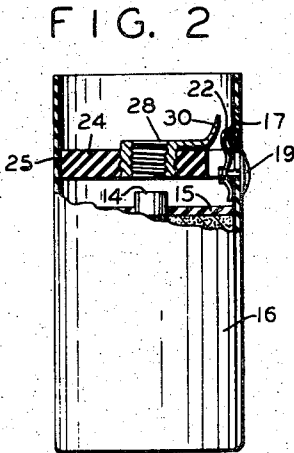


FIG. 3

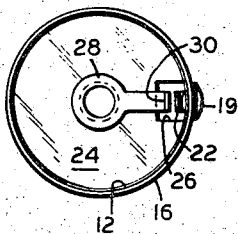


FIG. 4

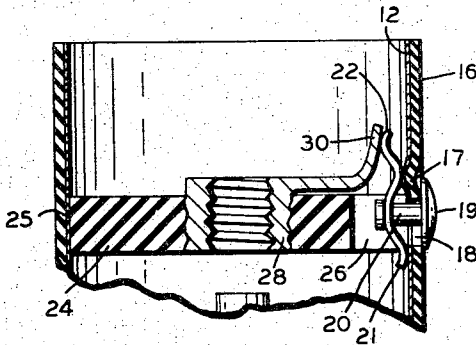
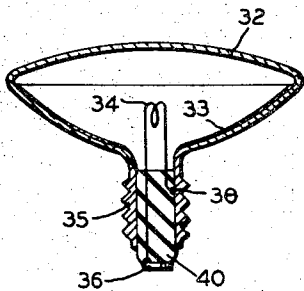


FIG. 5



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FLASHLIGHT

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2 Claims. (Cl. 240—10.61)

This invention relates to flashlights and has for an important object thereof the provision of a novel flashlight of inexpensive design and construction having improved performance characteristics.

Conventional flashlights of today usually comprise a hollow metal casing having one end closed, adapted to receive one or more dry cell batteries, and a screw threaded cap adapted to engage the opposite end of the casing. The cap customarily houses, or holds, in assembled relation, within the casing, a reflector, a lens and a light bulb. Suitable means, in the form of a switch mechanism, are provided to establish an electrical connection between the batteries and the light bulb.

Flashlights of this type, while generally satisfactory, are subject to a number of objections and disadvantages. To begin with, they are expensive, perhaps too expensive to be practical any longer. In the second place they throw an inferior beam of light. In use, the reflector soon oxidizes, becomes dull and tarnished which reduces the efficiency of the flashlight. When a bulb is replaced or the reflector is cleaned, finger print smudges frequently collect on the reflector again reducing the intensity of the beam. The bulb itself, which is generally held in place by a screw threaded connection may become loosened or in some other way the proper setting of the filament with respect to the reflector may be disturbed. This again reduces the efficiency of the light.

In accordance with my invention the cost of the casing is substantially reduced, or even eliminated, by using the outer casing of the dry cell, or cells, as the casing of the flashlight itself. It is contemplated that the exposed surface of the zinc casing will be protected by being coated in some suitable manner as, for example, by plastic which also prevents the hand of the user from coming in contact with the zinc casing.

Furthermore, in accordance with my invention, the end of the battery casing, instead of being provided with the conventional screw threaded cap, is preferably formed with an integral extension to serve as a housing for the reflector and filament. Also, in keeping with my invention, instead of employing the conventional lens, reflector and bulb of the prior art I propose to increase substantially the efficiency of the light by employing a sealed-beam type of light bulb in which the base, reflector, filament and lens are constructed as a single unit.

In the use of my improved device the casing and battery which are formed integrally with one another, will be discarded when the power is exhausted and the sealed-beam bulb will be transferred to a new casing containing an integral battery.

Other objects and features of my invention will become apparent from a reading of the following specification in the light of the appended drawings, in which:

Figure 1 shows in side elevation, partly in section, a flashlight made according to my invention;

Figure 2 illustrates the flashlight of Figure 1 with the seal-beam lamp or bulb removed;

Figure 3 is a top plan view of a disk shaped lamp or bulb carrier that is also shown in Figures 1 and 2;

Figure 4 is an enlarged view in side elevation of the

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lamp carrier frame and a switch mechanism which are also shown in Figures 1 and 2; and

Figure 5 is a view in cross-section of the filament lamp or bulb shown in Figure 1.

Referring now to the drawings, wherein like reference characters designate corresponding parts throughout the several views, there is shown in Figure 1 a flashlight constructed according to my invention. As therein illustrated, a zinc casing 10 or a plastic casing lined with zinc contains suitable electrolytic paste 11 and extends as shown at 12, above the battery proper to provide a cylindrical housing. A layer of porous paper (not shown) preferably separates the zinc from the electrolyte. A carbon electrode 13 is embedded in the electrolytic material and terminates in a suitable metal cap 14, capable of conducting electricity. The electrolytic paste 11 and the carbon electrode 13 are hermetically sealed within the casing 10 by conventional pitch, as shown at 15. The zinc casing is provided with a plastic or paper covering 16 which may bear a trade name or other pertinent data.

Referring now to Figures 2 and 4, the zinc casing extension 12 is provided with an indentation at 17 and a suitable opening 18 to accommodate a switch. The switch comprises a switch button 19, a stem 20 and a curved wiper contact 21. The switch button 19 is made of any suitable insulating material such as hard rubber, Bakelite, plastic or the like. The stem 20 and the wiper contact 21 are made of any suitable conducting material such as copper, aluminum or the like. The stem 20 can also be made as an integral part of the switch button 19. In this latter embodiment the stem would be made of an insulating material as set forth above.

The opening 18 in the zinc casing 12 is preferably rectangular in shape and the switch button and stem are mounted for slidable movement therein as clearly shown in Figures 3 and 4. The indentation 17 bears against the curved wiper contact 21 when the switch is in its uppermost position ("on" position) as shown in Figure 4. This indentation helps to maintain positive contact between the upper part 22 of the wiper contact and a stationary portion 30 of a lamp socket 28. The wiper contact 21 has a spring-like quality and returns to its normal position as shown in Figures 1 and 2, when the switch button is returned to its lowest position ("off" position).

The lamp socket 28 is carried by a frame or disk 24 of suitable insulating material which is attached to the zinc casing and held in place by any suitable means such as cement, indentations or the like. The cement may be applied to the circumferential portion 25 of the disk as shown in Figure 2. The disk 24 is slotted at 26 (Figure 4) to allow for movement of the switch contact and stem as shown in Figure 3. The metallic socket 28 is firmly held in the disk 24 by any suitable arrangement. The socket which is provided with interior screw threads accommodates the exterior threads of a sealed-beam bulb 32. The stationary contact member 30 of the switch is an extension of the metallic insert 28 as clearly shown in Figure 4.

The sealed-beam bulb 32 is shown in detail in Figure 5. A parabolic reflector 33 is an integral part of the bulb and therefore no separate or external reflector is required. The filament of the bulb, as shown at 34 extends into a threaded base 35. One end of the filament is connected to a center contact 36 of the bulb. The other end of the filament is connected to the threaded metal base 35 as shown at 38. Suitable insulation 40 fills the base of the bulb and insulates the center contact 36 from the base 35. The bulb base 35 threadedly engages the insert or frame 28 and when the flashlight is assembled, the bulb contacts the metal cap 14 of the carbon electrode 13 through the center contact 36.

An important characteristic of the invention is that the filament 34 of the sealed-beam bulb is scientifically located with respect to the reflector portion of the bulb thus insuring the same exact reflection of maximum light at all times and under all conditions.

In operation the sealed-beam bulb is screwed into the battery portion of the device. This puts the bulb in the circuit of the battery. When it is necessary to use the flashlight, the user pushes the button 19 to its uppermost position with his finger. This closes the circuit by contacting the member 21 with the base 28 through the contact portions 22 and 30. The potential of the battery is thus impressed across the filament 34 and light is emitted. When the battery is exhausted, the sealed-beam bulb is detached and the battery, with its integral casing and inexpensive switch, is thrown away. A new unit is obtained and the sealed-beam bulb is inserted therein.

It is to be understood that the battery portion may include as many cells as desired. No matter the number of cells, the casing is the same except that in between the two adjacent cells an additional zinc disk would be provided to close the bottom of the upper cell and to make contact with the metal cap 14 of the lower cell.

A flashlight constructed according to my invention eliminates many of the deficiencies of the prior art. The use of a sealed-beam bulb eliminates the need for a separate lens as well as an external reflector which is subject to tarnishing. The filament in the sealed-beam bulb is scientifically spaced with respect to the internal reflector insuring the accurate reflection of maximum light. The use of a wiping contact switch helps to remove corrosion which tends to build up on the switch contacts and zinc casing contact points. When the battery runs down and is no longer useful, detrimental accretion of corrosion may be present at the switch contact points. At this point the unit, except for the sealed-beam bulb, is disposed of, thus eliminating wasteful power dissipation at the contact points.

It should be understood that the foregoing disclosure relates to only a preferred embodiment of the invention and that it is intended to cover all changes and modifications of the example of the invention herein chosen for the purposes of the disclosure, which do not constitute departures from the spirit and scope of the invention.

Having thus described my invention, what is claimed is:

1. A flashlight comprising in combination a throw away portion and a detachable sealed beam lamp, said throw away portion comprising a casing closed at one end and open at the other end, electrolytic material contained within said casing at the closed end, a central electrode embedded within said electrolytic material, said casing, electrolytic material and central electrode forming a dry cell, a lamp socket of electrically conductive material having a stationary extension, a supporting member of insulating material mounted above said dry cell and having an opening for supporting said lamp socket above said central electrode, a movable member mounted on said casing near the open end thereof, said movable member and said lamp socket extension forming a wiper contact switch; said sealed beam lamp having a rear wall consti-

tuting a reflector and a front wall constituting a lens, a filament disposed behind said lens and in front of said reflector to provide maximum light reflection, a base projecting rearwardly from the center of the reflector for supporting said filament, said base including a metal casing portion, a center contact and insulating material for electrically insulating the metal casing portion from the center contact, said lamp filament terminating at one end of the center contact and at the other end of the metal casing portion; said sealed beam lamp mounted within the open end of the casing whereby the center contact of said lamp base contacts the central electrode of said battery and whereby the metal casing of the lamp contacts the lamp socket, so that upon contact between the movable member on the casing and the lamp socket extension the electrical potential of the battery is impressed across the filament of the sealed beam lamp.

2. A flashlight comprising in combination a throw away portion and a detachable sealed beam lamp, said throw away portion comprising a casing closed at one end and open at the other end, electrolytic material contained within said casing, a central electrode embedded within said electrolytic material, said casing, electrolytic material and central electrode forming a dry cell, a lamp socket of electrically conductive material, a supporting member of insulating material mounted above said dry cell and having an opening for supporting said lamp socket above said central electrode, a switch member mounted on said casing, said switch member and said lamp socket forming a switch element; said sealed beam lamp having a rear wall constituting a reflector and a transparent front wall, a filament disposed behind said front wall and in front of said reflector to provide maximum light reflection, a base projecting rearwardly from the center of the reflector for supporting said filament, said base including a metal casing portion, an electrode contacting portion and insulating material for electrically insulating the metal casing portion from the electrode contacting portion, said lamp filament terminating at one end at said electrode contacting portion and at the other end at the metal casing portion; said sealed beam lamp mounted within the open end of the casing whereby the electrode contacting portion of said lamp base contacts the central electrode of said battery and whereby the metal casing of the lamp contacts the lamp socket, so that upon contact between the member on the casing and the lamp socket the electrical potential of the battery is impressed across the filament of the sealed beam lamp.

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