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INSULATED FLASH LIGHT

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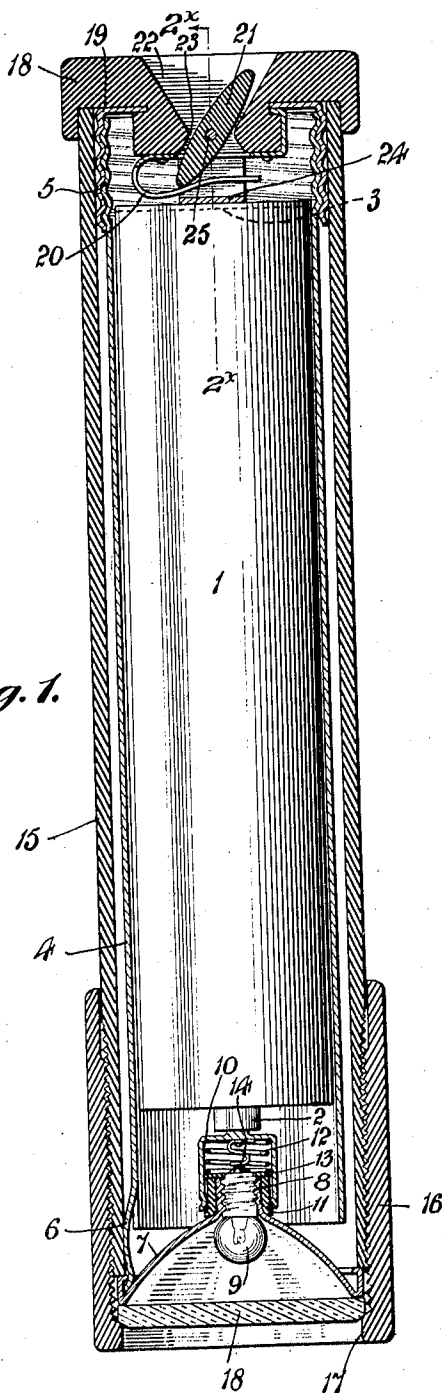


Fig. 1.

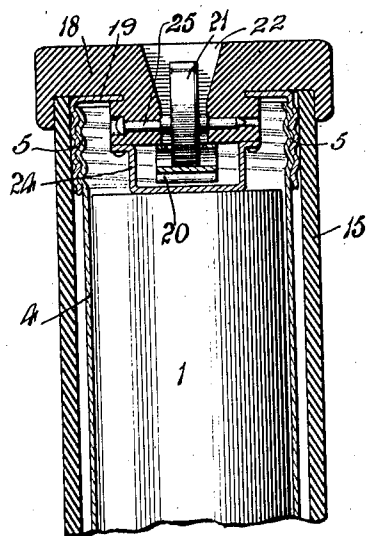


Fig. 2.

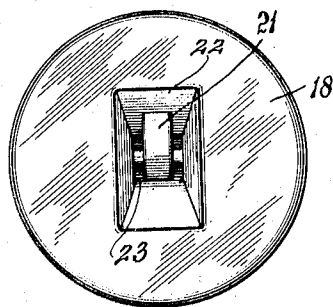


Fig. 3.

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INSULATED FLASH LIGHT

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This invention relates to flash lights and has for its object to provide a flash light casing having all parts capable of conducting electricity completely insulated from outside contact, so that it is especially adapted to electrician's use.

A further object of the invention is to provide a compact and serviceable casing having a switch buried therein so that it may not be actuated accidentally.

In case an operator's hand or other extraneous articles can complete a circuit thru a battery, its casing or switch mechanism, as is the case in many flash lights on the market today, a leakage of current occurs which shortens the life of the batteries, renders the article undependable because of the uncertainty of the amount of charge therein, and causes unnecessary expense to the owner. The principal danger is, of course, that the conducting parts of the flashlight may short high tension circuits about which an operator may be working, with consequent injury to the operator or to service equipment. In extreme cases, it is also possible that such a flashlight would constitute a fire menace.

Furthermore, the above detrimental conditions are generally accentuated in the conventional type of flashlight by the provision of a switch protruding from the exterior surface of the casing at some point, such as midway of the ends of the casing. A switch of this type may be accidentally closed so that merely by carelessly putting the flashlight in a drawer, the circuit of the battery may be closed when the light is thrown or dragged transversely of its length against such a switch, the switch sometimes becomes damaged, either causing a permanent leakage of current or the switch does not operate properly.

In view of the foregoing, a new casing is herein provided which is composed of a metallic interior wall or conductor and a non-metallic outer wall of good insulating quality. This casing has rather a heavy cap for protection of the lens at one end, and a further heavy cap at the loading end, the latter carrying a switch lever having its exterior end at all times below the exterior surface of the cap

and also composed of a non-conducting material.

Other objects and advantages of the invention will become apparent as reference is had to the accompanying drawings, wherein is illustrated, by way of example, one embodiment of our invention and wherein:

Figure 1 is a longitudinal section of a flashlight embodying the said invention, the batteries being shown in elevation;

Figure 2 is a fragmentary section taken along line 2*-2* of Figure 1; and

Figure 3 is an end view of the cap and switch.

Similar characters of reference indicate similar parts in the several figures of the drawings.

1 designates a conventional battery covered with paper or cardboard and having terminals 2 and 3 arranged thereon in a well known manner. The battery 1 fits in a metallic casing 4 which, at one end, is threaded at 5 and at the other end is provided with an extension 6 for contacting with a reflector 7 threaded at 8 to form the socket for a lamp 9. Associated with the said socket is a casing 10, closed at one end and having a small abutment for contacting with the terminal 2 of the battery.

The casing 10 is provided at its outer end with an insulating ring or sleeve 11 which separates it from the socket portion 8, and within the casing 10 a spring 12 abuts an insulating ring 13 and urges the said casing 10 together with the battery 1 away from lamp 9, thereby steadying the battery in casing 4, at the same time insuring a permanent contact between the lamp socket and terminal 2. A spring contact 14 is attached to the end 10 and extends outwardly to a terminal of lamp 9.

A casing 15 composed of suitable insulating material surrounds the metallic conductor 4. An open ended cap 16 is attachable, as by means of threads, to casing 15, a slight projection or shoulder 17 thereon and the outer end of casing 15 forming a snare for the reflector 7 and also for a lens 18.

The opposite end of casing 15 enters the recessed face of a cap 18 in which is mounted

a threaded metallic member 19 adapted to engage the threaded end 5 of the inner casing 4.

The cap 18 is of insulating material and the engagement of the member 19 with the casing 4 holds the said cap in protective position forming the rear end of the flashlights.

Carried by the said cap 18 and in contact with the metallic member 19, a spring 20 is adapted to be moved by a switch lever 21 into contact with a metallic bracket 24 also carried by the said cap but normally insulated from the said spring 20 as shown in Figure 2. Upon operation of the switch lever to close the spring 20 against the bracket 24 a circuit is formed from the terminal 3 through bracket 24 and spring 20 to member 5 and thence to casing 4 where the current is conducted through the extension 6, reflector 7 and to one terminal 8 of lamp 9 while the other terminal is in contact with terminal 2 by way of the socket casing 10 and spring 14.

Centrally of the insulating cap 18, a slot 22 is provided with a reduced throat 23, at which point 23, a transverse pin 25 pivotally carries switch lever 21, the diverging sides of the slot forming stops for the open and closed positions of the switch lever. The lever is of such length that its outer end will not protrude beyond the outer surface of cap 18 regardless of its position. However, it is in a convenient position for actuation.

It is apparent that this switch is protected from accidental actuation or damage from carelessness as when the flashlight is carelessly laid aside. It is also apparent that complete protection is provided against any accidental contact of the metallic parts of the flashlight with outside circuits, and against the closing of a battery circuit through the internal parts of the flashlight or through conductors exterior to the flashlight, except in so far as the desired circuit may be closed within the flashlight by means of the provided switch.

The switch, while preferably located in the cap 18 could be located at any other desired place on the casing as, for instance, along the side, merely by providing a thick portion for reception of the submerged switch lever.

This invention may be developed within the scope of the following claims without departing from the essential features of the said invention, and it is desired that the specification and drawings be read as being merely illustrative, and not in a limiting sense, except as necessitated by the prior art.

What we claim is:

1. In a flashlight, a casing comprising a barrel and a cap for said barrel, a battery within said casing, a lamp connected to said battery, resilient means urging said battery from said lamp, a switch carried by said cap

for closing and opening the connection to said lamp, a bracket carried by said cap for preventing a premature closing of said connection, and a switch lever operable from the exterior of said cap for actuating said switch.

2. In a flashlight, a battery, a metallic barrel for said battery, a second barrel composed of insulating material enclosing said metallic barrel, a cap composed of insulating material mutually closing one end of each barrel, a metallic threaded portion depending from said cap adapted to engage said metallic barrel, a rim depending from said cap and adapted to shroud the end of said second barrel, a switch carried by said cap, a metallic element connecting said switch and said metallic threaded portion, and a non-conducting switch lever extending through said cap for actuation of said switch, said switch lever lying within the perimeter of said cap throughout its entire range of actuation.

3. In a flashlight, a casing comprising a barrel and a cap for said barrel, a battery within said casing, a movable switch member carried by said cap, a bracket engageable by said member, a lamp electrically connected to one terminal of said battery and said switch member, resilient means urging said battery in one direction so that its other terminal makes electrical contact with said bracket, and a switch lever operable from the exterior of said cap for moving said member into and out of engagement with said bracket.

In testimony whereof we affix our signatures.

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