March 17, 1936. F. T. HOECK 2,034,188

FLASHLIGHT

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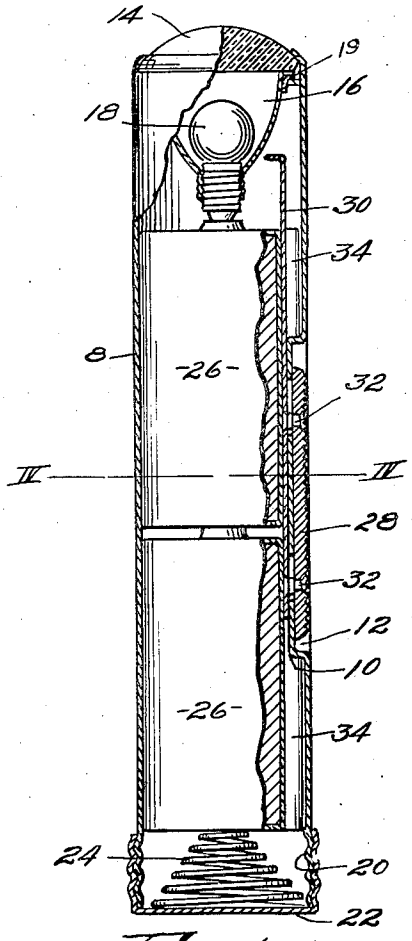


Fig. 1

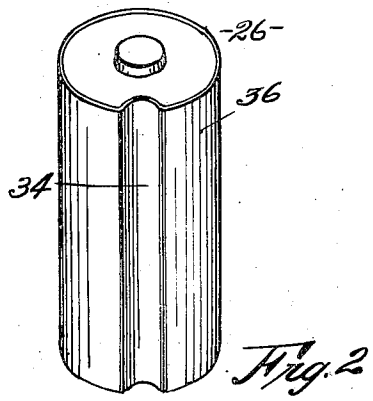


Fig. 2

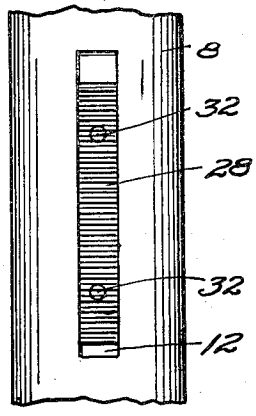


Fig. 3

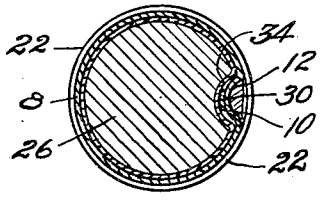


Fig. 4

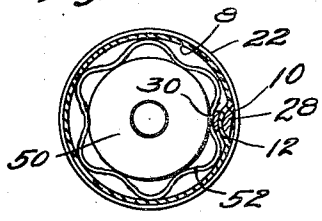


Fig. 5

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FLASHLIGHT

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5 Claims. (Cl. 240—10.66)

This invention relates to flash lights of the type wherein a hollow casing is employed to support the bulb and switch mechanism and to house dry cell batteries, all to the end that a hand-type flash light of compact nature is produced, and the primary object of this invention is the provision, in such a light, of specially formed dry cell batteries and casing, all of which have parts in complementary relation to preclude relative rotation between the batteries themselves and the hollow casing housing the same.

Another important aim of this invention is to provide a flash light casing having an embossment internally thereof that is received by a specially formed offset created in the batteries of the flash light to the end that all of the available space within the casing might be utilized to contain batteries larger than would be possible if the concepts of this invention were not embodied in the light structure.

It is a further object of this invention to provide a novel and unique flash light battery that has an offset formed in the face thereof in the nature of one or more grooves or analogous indentations for the purpose of complementary structure in a flash light casing when the battery is in operative position.

It is well known in this art that practically all dry cell batteries now on the market may be used in most any of the standard casings. There has heretofore never been means provided whereby a manufacturer could require a particular form of battery to be employed with the casing which he produces. This invention not only fulfills a need of this character, but likewise provides batteries that may be combined with the conventional type of casing to take the place of batteries of the form now being used.

With the foregoing broad general objects and advantages in mind, the invention will now be described by reference to the accompanying drawing, wherein:

Figure 1 is a longitudinal, central, sectional view through a flash light made to embody the present invention, parts being broken away for clearness.

Fig. 2 is a perspective view of the specially formed battery made to be combined with the casing shown in Fig. 1.

Fig. 3 is a fragmentary, side elevation of the casing.

Fig. 4 is a cross section through the flash light taken on line IV—IV of Fig. 1, and

Fig. 5 is a cross sectional view taken through a flash light casing containing a battery made in accordance with a modified form of the invention.

In producing a flash light of the character contemplated, there should be a hollow casing 8 formed to present a cylindrical cross section with a substantially longitudinal embossment 10 internally thereof which forms a cavity 12. One end of hollow casing 8 supports the well known lens 14, below which is the reflector 16 that surrounds and supports bulb 18. An angle ring 19 of insulating material separates reflector 16 and casing 8, as shown in Fig. 1. The other end of casing 8 is provided with screw threads or the like 20, which serve to removably hold cap 22 in operative position. A spring 24 is interposed between cap 22 and one of the batteries 26 that are housed within casing 8.

A slide 28 is mounted on casing 8 within cavity 12 with its serrated face flush with the outer surface of casing 8. A spring finger 30 within casing 8 is associated with slide 28 through the medium of rivets or the like 32 and this finger 30 and slide 28 are movable longitudinally for the purpose of making and breaking a circuit which includes batteries 26 and bulb 18, all to the end that the latter may selectively form an illuminating medium.

The specially formed battery 26 which this invention contemplates may be exemplified by the one illustrated in Fig. 2. A longitudinally extending groove 34 is formed in the side wall 36 of battery 26 and in this particular instance extends the full length of the cell. The outside diameter of battery 26 is substantially the same as the inside diameter of casing 8 and when batteries 26 are moved to position, embossment 10 and grooves 34 will be complementary, as shown in Figs. 1 and 4. This relationship precludes rotation of the batteries 26 if they are introduced into case 8 and when more than one battery 26 is employed, the length of embossment 10 should be sufficient to enter the grooves 34 of all of said batteries. In the particular instance shown, spring finger 30 traverses a part of groove 34 in one of batteries 26 and the depth of groove 34 should be sufficient to compensate for the depth of embossment 10 and the thickness of spring finger 30. The results attained become obvious and it is manifestly evident that all of the space available is used for batteries 26.

Offsets of a character different from that shown may be employed in creating batteries that will be individual to specially formed casings and another manner of forming a battery is illustrated in Fig. 5. In this instance, the same casing structure is used, but a battery 50 is made cylindrical throughout its length and provided with a cor-

rugated jacket 52 that is made up of a number of undulations, any one of which may be registered with embossment 10 when battery 50 is moved to position. While this form does not permit the strongest possible battery, it does allow inserting a truly cylindrical battery of a diameter smaller than the inside diameter of casing 8 and formed to preclude its rotation after once positioned.

The electrical circuit in a flashlight such as shown in Fig. 1 may be traced as follows: Batteries 26, spring 24, cap 22, casing 8, finger 30, reflector 16, bulb 18 and thence back to the batteries 26. This circuit is closed when finger 30 is moved against reflector 16. Washer 19 insures against any passing of electrical energy around the finger 30.

It is understood that a large number of such modifications might be followed without departing from the spirit of the invention or scope of the appended claims.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent is:

1. A flash light of the character described comprising, in combination a tubular casing having a longitudinally extending, inwardly projecting embossment formed thereon to create a cavity in the outer face of said casing; a slide reciprocably mounted in the cavity; a longitudinally extending finger within the tubular casing operably joined to the slide for movement therewith along the inner face of the embossment; a bulb; and a plurality of cylindrical batteries, each having an external diameter substantially the same as the internal diameter of the tubular casing and a longitudinal groove formed from end to end therein, within said tubular casing, said grooves in the batteries being deep enough to afford free longitudinal movement of the finger, the sides of the said grooves being engaged by the said embossment to prevent their contact with the said finger.

2. In a flash light of the character described, a hollow casing having a slot formed therein; a movable switch member extending along the inner face of the casing having a finger-engaging member on the outer face of the casing and extending through the slot for moving the switch member; and a dry cell battery having a groove formed therein, within the casing, said movable switch member being within the groove of said battery, the face of said battery outside of said groove being in contact with the inner face of the casing to prevent lateral movement of the battery against the said switch member.

3. In a flash light of the character described, a hollow casing; a movable switch member mounted on the inner face of the casing; and a plurality of longitudinally aligned dry cell batteries, each having a groove extending from end to end thereof, within the casing, said grooves being aligned and said movable switch member being within the aligned grooves, the faces of the batteries outside of said groove being in contact with the inner face of the casing to prevent relative lateral movement of the batteries to positions at an angle to their normal, common longitudinal axis and against the said switch member.

4. In a flash light of the character described, a hollow casing having a slot formed therein; a movable switch member extending along the inner face of the casing having a finger-engaging member on the outer face of the casing and extending through the slot for moving the switch member; and a dry cell battery, having a groove formed therein, within the casing, said movable switch member being within the groove in said battery, the external cross sectional size and contour, on a plane extending transversely through the groove of the battery, outside of the groove, being substantially the same as the internal cross sectional size and contour of the hollow casing whereby to prevent lateral displacement of the battery against the said movable switch member.

5. In a flash light of the character described, a hollow casing having an inwardly projecting embossment formed thereon to create a cavity in the outer face of the casing; a movable switch member extending along the inner face of the casing on the embossment having a finger-engaging member in the cavity in the outer face of the casing; and a dry cell battery having a groove formed therein, within the casing, said movable switch member and embossment projecting into the groove of said battery, the face of said battery outside of said groove being in contact with the inner face of the casing to prevent lateral movement of the battery against the inner side of said switch member, the width of said embossment being greater than the width of said switch member to engage the battery along the sides of said groove to hold the same out of contact with the edges of said switch member.

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