Sept. 7, 1937. H. I. PHILLIPS 2,092,615

FLASHLIGHT SPARE BULB CARRIER

Filed Aug. 19, 1936

Fig.1.

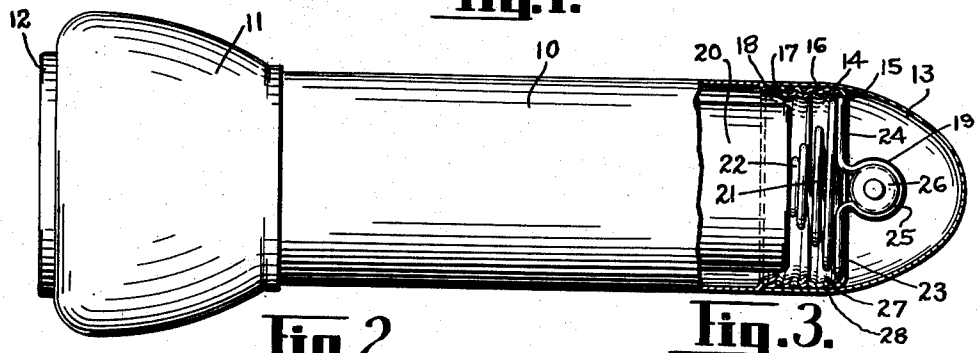


Fig.2.

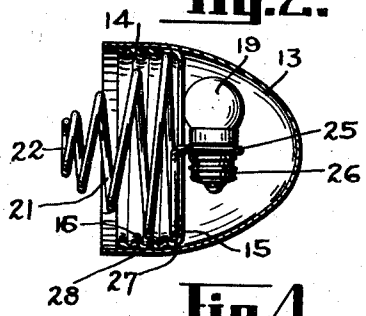


Fig.3.

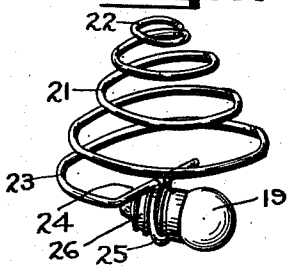


Fig.4.

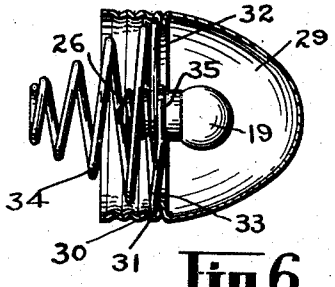


Fig.5.

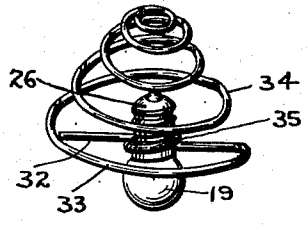


Fig.6.

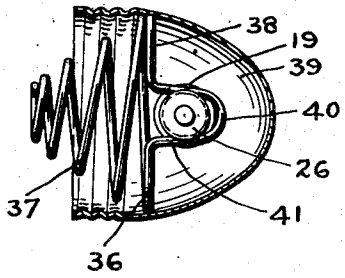
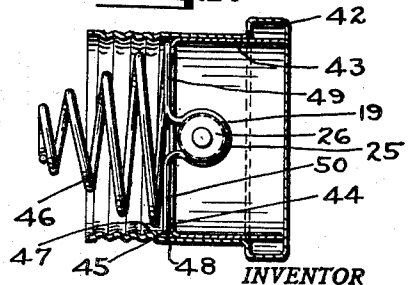


Fig.7.



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FLASHLIGHT SPARE BULB CARRIER

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Application August 19, 1936, Serial No. 96,828

6 Claims. (Cl. 240—10.6)

This invention relates to electric flashlights of the portable or hand type, and more particularly to such a flashlight in which the base cap is "streamlined" and provided with interior means adapted to retain a spare lamp bulb.

One object of this invention is to provide a flashlight of the above nature in which the spare bulb may be quickly and easily removed from the base cap whenever desired.

A further object is to provide a dry battery operated flashlight of the above nature in which the spare bulb is releasably retained within a clip section of the helical spring which engages the base of the battery.

A still further object is to provide a flashlight of the above nature which will be simple in construction, easy to assemble, inexpensive to manufacture, strong, compact, and very efficient and durable in use.

With these and other objects in view, there have been illustrated on the accompanying drawing several forms in which the invention may be conveniently embodied in practice.

In the drawing:

Fig. 1 is a side view partially in section of a flashlight embodying one form of this invention.

Fig. 2 is a longitudinal section of the streamlined base cap of the flashlight, showing the combined spring and spare bulb holder in assembled position.

Fig. 3 is a perspective view of the combined spring and spare bulb holder by itself.

Fig. 4 is a longitudinal section similar to Fig. 2 of a modified form of base cap having a modified form of bulb holder and battery engaging spring assembled therein.

Fig. 5 is a perspective view of the bulb holder and spring shown in Fig. 4.

Fig. 6 is a longitudinal section of another modified form of base cap having another modified form of bulb holder spring located therein.

Fig. 7 is a longitudinal section of a cylindrical base cap with the first form of bulb holder shown in Fig. 1 assembled therein.

Referring now to the drawing in which like reference numerals denote corresponding parts throughout the several views, the numeral 10 indicates a cylindrical shell or casing of a flashlight of the portable or hand type, having a removable head cap 11 assembled thereon. A lens holding ring 12 projects forwardly and loosely through the head cap 11, and the latter is adapted to be secured to the forward end of the shell 10 by means of cooperating interior threaded portions, not shown, on said head cap and shell. A removable base cap 13 is adapted to be threadedly secured on the rear end of the shell 10 in a similar manner. The base cap 13, as clearly shown in Figs. 1 and 2, is provided with a spherical rear dome section and a cylindrical front section within which is a threaded cup-shaped band 14 having an inwardly projecting transversely disposed flange or rib 15 at the base thereof. The band 14 is soldered or otherwise permanently secured to the interior of the cylindrical section of the base cap 13 and has threads 16 which cooperate with external threads 17 formed on the reduced rear portion 18 of the body shell of the flashlight casing.

An active lamp bulb, not shown, is located in the head 11, and is selectively energized under the control of a manual switch, not shown, by a dry cell, or cells, 20 disposed in the shell 10. The active lamp bulb is identical with a spare bulb 19 located in the base cap 13, as will be described later.

For the purpose of resiliently pressing the dry cell forwardly toward the head end of the flashlight casing against the center terminal of the active lamp bulb, a tapered spiral coiled compression spring 21 is provided, the smaller diameter extremity 22 of which engages the end of the adjacent dry cell 20. The larger diameter coil 23 of the spring 21 seats upon the annular inwardly extending shoulder or rib formed by the flange 15 of the threaded band 14.

In order to detachably hold the spare bulb 19 within the domed section of the base cap 13, the extremity 24 of the larger rear end of the coiled spring 21 is made straight and bent diametrically with respect to the large coil 23 thereof, passing through the center axis of the spring 21. At the center of said straight section 24, provision is made of a rearwardly extending resilient circular longitudinal U-shaped clip loop 25 adapted to frictionally fit the threaded socket engaging portion 26 of the bulb 19, as clearly shown in Fig. 3.

Preferably the clip loop 25 is of such diameter that the threaded portion 26 of the bulb 19 may be screwed thereinto. The straight section 24 of said spring 21 is made of sufficient length as to cause the last or large coil 23 thereof to snap into a recess 27 formed between the end thread 28 of the band 14 and the flange 15 of said band when the assembled spring 21 and bulb 19 are assembled within the cap 13.

In case the metal of the flashlight casing itself is threaded, the modified form of base cap 29 shown in Fig. 4 may be employed. In this form

of base cap, an internal annular shoulder 30 is formed by crimping the metal of the cap inwardly, and a recess 31 is formed beyond the threaded section of the base cap to receive the straight end 32 and the large coil 33 of the coiled spring 34. As shown in Figs. 4 and 5, the straight end 32 of the spring 34 is disposed diametrically with respect to the large diameter coil 33 and is provided with a transversely disposed coiled section 35 located substantially concentric with respect to the axis of the spring 34, whereby the threaded socket engaging portion 26 of the bulb 19 may be detachably inserted by a screw action within said coiled section in the position clearly shown in Figs. 4 and 5.

In Fig. 6 another modified form of streamlined base cap is disclosed, in which the flange 15 and the shoulder 30 provided in the previously described forms are omitted, and a coiled spare bulb holding spring 37 is detachably secured in position by the frictional engagement of the largest coil 36 of said spring 37 and the straight end 38 with the spherical internal surface of the cap 39. In this instance, the clip loop 40 embracing the threaded end portion 26 of the bulb 19 is longitudinally disposed and elongated as at 41 to increase the resiliency thereof, and prevent any possible injury to the bulb 19 by pressure upon the portion 26 thereof.

In Fig. 7 the use of a spare bulb holding spring 46 similar to the spring 21 is disclosed as it appears when assembled in a cylindrical threaded type of base cap 42. In this case the cap 42 has an interior cylindrical shell 43 having a forward inturned end flange 44 which forms a stop shoulder 45, upon which the spring 46 may seat. In this instance, the stop shoulder 45 and the internal annular rib formed by the last thread 47 of the cap 42 forms a recess 48 into which the large end coil 49 of the spring 46 and the straight diametrically disposed end 50 thereof may snap to maintain the spare bulb-carrying spring 46 in proper position.

Operation

In operation, the spare bulb 19 may be readily snapped or screwed into the various forms of clip loops or coils provided in the straight diametrically disposed ends of the battery engaging coiled springs before said springs are assembled into the cap. The spare bulb carrying spring unit may then be readily assembled within the base cap by snapping its largest diameter coil into the recess between the end of the threaded section of the base cap and the transversely disposed ribs (Figs. 1, 2, 4, and 7) or into frictional engagement with the internal concave surface of of the cap as in the form shown in Fig. 6.

While there have been disclosed in this specification several forms in which the invention may be embodied, it is to be understood that these forms are shown for the purpose of illustration only, and that the invention is not to be limited to the specific disclosures but may be modified and embodied in various forms without departing from its spirit. In short, the invention includes all the modifications and embodiments coming within the scope of the following claims.

Having thus fully described the invention, what is claimed as new, and for which it is desired to secure Letters Patent, is:

1. In a portable flashlight, a battery containing casing, a removable base cap therefor, a battery engaging coiled compression spring frictionally retained within said cap, the rear end of said spring being diametrically disposed, and a spare bulb receiving resilient clip loop formed in the diametrically disposed spring end.

2. A combined battery engaging spring and spare bulb holder for a portable flashlight comprising a spirally coiled wire, the coils of said wire being increased in diameter from one end to the other, the large end of said spring having a transverse straight section, and means formed in said straight section to releasably hold a spare bulb.

3. In combination with a flashlight casing of the portable type, a base cap having an inwardly disposed annular rib provided therein, a tapered coiled compression spring adapted to seat on said rib, one end of said spring being bent out of concentricity with the coils thereof and having means formed thereon to releasably embrace a spare bulb, and means to releasably and frictionally retain said spring in said cap.

4. A combined battery engaging spring and spare bulb holder for a portable flashlight comprising a spirally coiled wire, the coils of said wire being increased in diameter from one end to the other, the large end of said spring having a transverse straight section, and a longitudinal resilient U-shaped section formed in said straight section to releasably hold a spare bulb.

5. A combined battery engaging spring and spare bulb holder for a portable flashlight comprising a spirally coiled wire, the coils of said wire being increased in diameter from one end to the other, the large end of said spring having a transverse straight section, and a circular longitudinal resilient section formed in said straight section to releasably hold a spare bulb.

6. A combined battery engaging spring and spare bulb holder for a portable flashlight comprising a spirally coiled wire, the coils of said wire being increased in diameter from one end to the other, the large end of said spring having a transverse straight section, and a circular transverse coiled section formed in said straight section to releasably hold a spare bulb.

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