Aug. 14, 1928. 1,680,484

F. G. STIMSON

EXTRA BULB CARRIER

Filed Aug. 9, 1927

Fig.1.

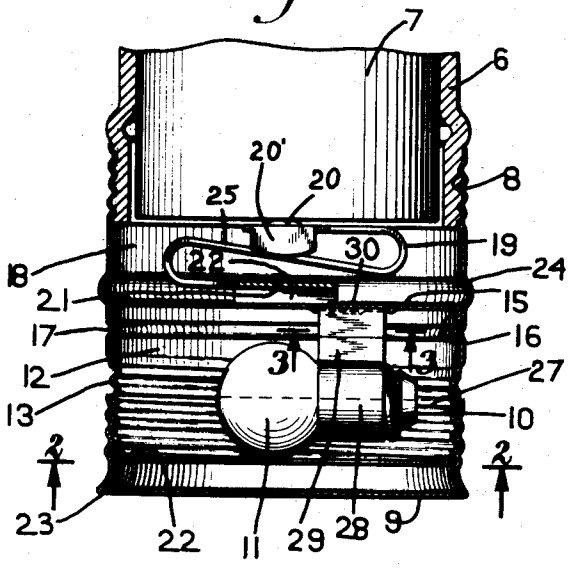


Fig.2.

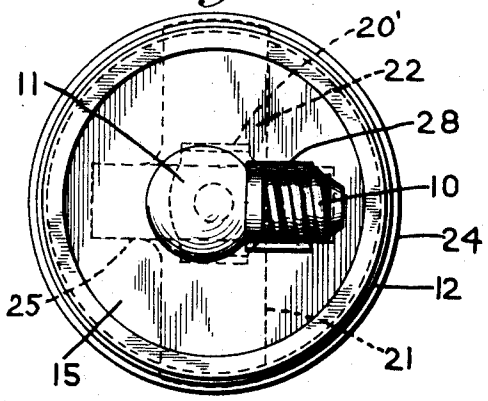


Fig.3.

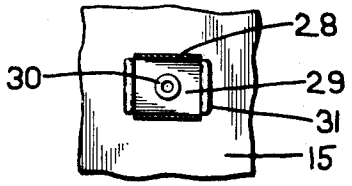


Fig.4.

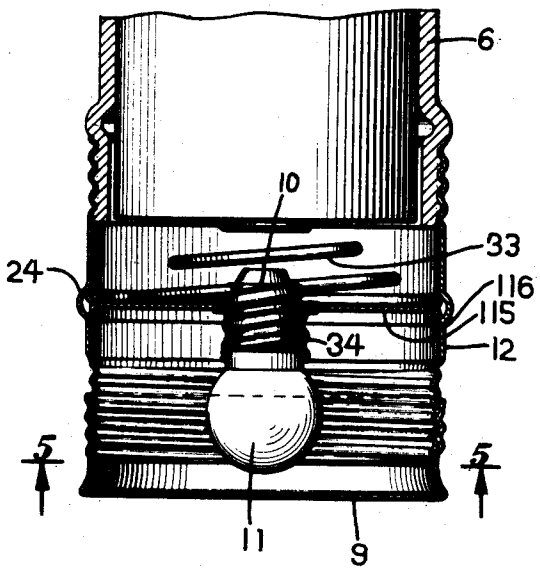
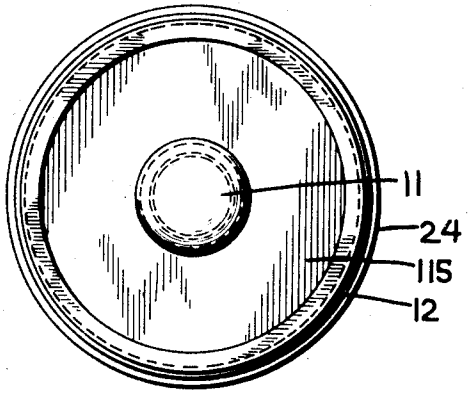


Fig.5.



Inventor

Frank G. Stimson

By his Attorneys.

Bohlebei & Ledbetter

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UNITED STATES PATENT OFFICE.

FRANK G. STIMSON, OF LONG ISLAND, NEW YORK, ASSIGNOR TO YALE ELECTRIC CORPORATION, OF NEW YORK, N. Y., A CORPORATION OF DELAWARE.

EXTRA-BULB CARRIER.

Application filed August 9, 1927. Serial No. 211,671.

This invention relates to flashlights of the kind in which a cylindrical casing is adapted to contain an electric battery from which current is obtained for an incandescent lamp at one end of the flashlight and the battery is retained there within by a removable cap engaged over the other end of the casing.

This invention seeks to provide for the carrying of a spare or extra lamp with the flashlight to replace the one installed in operative position should it become broken or otherwise ineffective. To this end an extra lamp carrier is removably associated with the flashlight casing and is preferably substituted for the bottom cap to continue the general tubular shape of the flashlight and receive the usual bottom cap on its lower end.

A further object of the invention is the retention of the extra lamp in a manner to prevent breakage or damage thereto. Accordingly, the lamp is removably mounted within a chamber formed in the extra lamp carrier so that it cannot be struck or damaged should the flashlight be dropped, for instance.

A still further object of the invention is the provision of a spare lamp carrier in which the foregoing objects may be attained and which will cooperate with the usual or standard parts of the flashlight without requiring their modification, in a structure which is practical from the standpoint of ease and convenience of manufacture and facility in use.

Another object of the invention is the retention of the flashlight battery in proper position in electrical connection with the lamp under all conditions. Accordingly, the extra lamp carrier is adapted to receive a battery thrust element, such as that usually carried by the cap, and this thrust element may be removably mounted therein so as to be interchangeable between the extra lamp carrier and the cap for use with the cap when the carrier is not used.

According to the invention the spare lamp is contained within a chamber formed by a partition in a tubular carrier adapted to be threaded on to the lower end of the flashlight casing and to thereby replace the cap at that point and form a continuation of the battery containing tube. The spare lamp chamber is closed by the usual cap, it being threaded to receive the same and provision is made, if desired, for the reception of a battery thrust member, such as is usually carried in the cap, adapted to bear against the bottom of the battery to feed it constantly against the electric contacts under all conditions.

These and other objects of the invention and the means for their attainment will be more apparent from the following detailed description taken in connection with the accompanying drawings illustrating preferred embodiment thereof, in which:

Figure 1 is a fragmentary view, in vertical section, showing the end of a flashlight battery container with the spare lamp carrier associated therewith.

Figure 2 is a transverse sectional view on the line 2—2 of Figure 1.

Figure 3 is a fragmentary sectional view taken on the line 3—3 of Figure 1 and showing the construction of one form of spare bulb support.

Figure 4 is a view similar to Figure 1, but showing a modification of the extra lamp carrier.

Figure 5 is a transverse sectional view on the line 5—5 of Figure 4.

Referring now to the drawings, a fragmentary portion of the battery container or tube 6 is shown as containing a cylindrical electric dry cell, a fragmentary portion of which is indicated at 7, and this tube 6 is illustrated as formed at its lower end with threads 8 molded into the fibrous material of which the tube 6 is formed. Obviously, the threads need not be molded in the tube 6 but, on the contrary, a separate ferrule or tubular member carrying the male threads may be mounted on or about the end of casing 6 in any convenient fashion. These threads are normally designed to receive the female threaded portion of the bottom cap 9.

In spite of all precautions, and in spite of all of the shock absorbing features generally provided with flashlights of this character, the miniature electric lamp (not shown) electrically connected to the battery as the source of light is sometimes broken, dam-

aged, or becomes otherwise ineffective in use, which renders the flashlight temporarily out of commission unless the lamp is immediately replaced by one in operative condition. Such lamps are extremely fragile and cannot readily be carried about the person to replace the lamp in service, if that is suddenly put out of commission. Many situations arise, therefore, when a flashlight is urgently needed but no lamp is available to replace the one suddenly rendered ineffective.

In accordance with this invention a spare or extra lamp 11 is provided in a spare or extra lamp carrier 12 which is readily included in flashlights of standard design when desired and cooperates with the other parts of the flashlight to produce an operative whole. Accordingly, a cylindrical element 12 is formed at one end, inwardly, with standard female threads for engagement with the threaded end 8 of the flashlight casing 6, in place of the usual cap 9. The other end of this tubular carrier is outwardly threaded, as at 13, preferably with threads of the same character as those found on the lower end of the flashlight tube 6, so as to receive the standard cap 9 usually provided for the lower end of the flashlight tube 6.

Intermediate its ends the carrier 12 is provided with a circular plate or partition 15 formed with a flange 16 at its periphery to facilitate its fastening to the interior of the cylindrical carrier member 12. To facilitate the positioning of this partition 15, it will be noted, upon inspection of Figure 1, that the carrier 12 may be formed, if desired, with an inwardly pressed bead 17 with which the flange 16 engages and by which it is positioned in the carrier, a solder, of course, being also availed of to secure the parts together.

On one side, to wit, the upper side, the partition may be provided, if desired, with a thrust member 19 to exert a longitudinal thrust upon the flashlight battery 7 in order that the same may be maintained in proper position within the flashlight casing 6 under all conditions. The thrust element is preferably formed so as to be capable of insertion in the cap 9 if no spare lamp carrier 12 is provided and capable of removal therefrom and insertion in the thrust member chamber 18 of the carrier 12 when the spare lamp carrier is used.

In the modification illustrated in Figure 1 the thrust member 19 is preferably stamped from a sheet of suitable resilient material and is so formed up as to present, substantially throughout its length, an arcuate or reversely bent shape. This form of thrust member comprises an arcuate resilient plate 21 having upturned edges or hooks 22 to assume a position within the usual form of bead or groove 23 on the inner bottom of the cap 9 or in the counterpart of that groove, the groove 24, formed in carrier 12 and the inherent resiliency of the element 21 may be relied upon to constantly urge the hooks 22 into intimate engagement with the inner wall of the bead or groove in the carrier 12 or cap 9, as the case may be, and at the same time permit the removal of the thrust member from the cap for insertion in the carrier or vice versa, as occasion arises.

The thrust member is formed centrally thereof, and on one side, with a laterally extending resilient member 25 which is reversely bent to extend across the center of the arcuate member 21 and is again reversely bent in substantially the form of an "S" to form a resilient battery engaging portion. The upper end of this S-shaped spring is formed with an upwardly pressed battery engaging protuberance 20 and on either side thereof with downwardly bent ears 20′ extending outwardly and downwardly on either side of the S-shaped spring to serve as positioning means and to engage the arcuate member 21 when the spring 25 is completely depressed thereon.

Beneath the partition 15 there is formed a spare lamp chamber 27. A universal bulb carrying means is illustrated in Figure 1, that is, a device which will carry a lamp 11 of any size. The lamp is disposed transversely of the axis of the flashlight, with the major axis of the lamp normal to the major axis of the flashlight and the lamp 11 or the threaded end 10 thereof is retained in position by means of a clip formed by the arms 28 of a U-shaped resilient member 29 which is secured to the partition 15 by means, say, of the eyelet 30 and is positioned against turning thereabout by the ribs 31 which are pressed outwardly from the partition 15 on either side of the base of the U-shaped clip 29.

Figures 4 and 5 show a modification of the invention, particularly applicable with lamps of the smaller sizes. In this instance, the partition 115 is soldered at the flanges 116 to the inner cylindrical wall of the central portion of the carrier 12 and is not shown positioned by the inwardly pressed stop previously described. However, it may be positioned as in the previously described modification. The partition extends sufficiently above the central groove 24 so that the free portion of the groove 24 may serve as a retaining means or receiving space for a coil spring 33 utilized, in this instance, as the thrust member. Centrally, the partition is perforated to receive a socket 34 similar, if desired, in every respect to the lamp sockets by which the electrical connections are made with the incandescent filament so that the major axis of the lamp is parallel to the major axis of the flashlight and preferably these major axes are coincident. The coil spring may thus surround the inwardly pro-

truding end 10 of the lamp in the thrust member chamber and no interference is occasioned by either, the lamp or the spring, with the other.

It will thus be seen that spare lamp carriers are provided which are interchangeable with other parts of the flashlight and which may be introduced into the flashlight assembly to utilize existing parts, such as the thrust member and the cap. Obviously either thrust member is applicable with either form of carrier.

Various modifications will occur to those skilled in the art in the composition and configuration of the component elements going to make up the carrier as a whole. Particularly it is to be understood that the invention is not to be limited in its broadest aspects to the cross sectional shape of the structures illustrated nor to the use of threaded connections between the various parts. Furthermore, the various parts are interchangeable all within the scope and spirit of the invention as set forth in the appended claim.

What I claim is:

A spare lamp carrier for flashlights including a tubular battery container having a threaded lower end, comprising a tubular carrier, a transverse partition therein formed centrally with an aperture, a volute spring battery thrust member carried within the carrier on one side of the partition and concentric with the aperture, a lamp socket so disposed within the aperture as to carry a spare lamp on the other side of the partition with the lamp terminal extending within the volute spring, said carrier being formed with female threads at one end to receive the threaded end of the battery container and with male threads at the other end to receive the bottom cap of the flashlight.

In testimony whereof I affix my signature.

FRANK G. STIMSON.