

Feb. 19, 1935.

G. H. BARBER ET AL

1,992,140

FLASH LIGHT

Filed June 25, 1930

FIG.1.

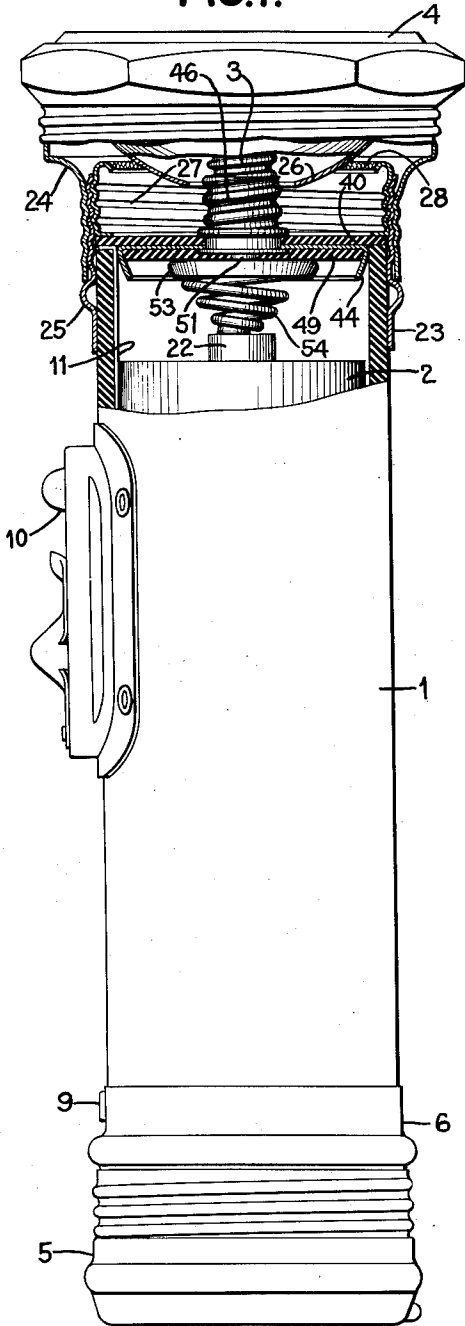


FIG.2.

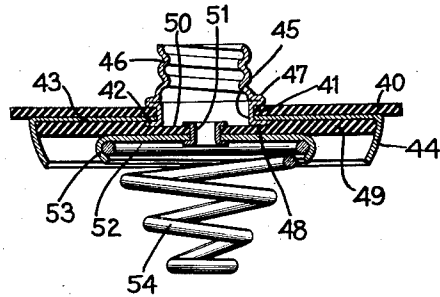
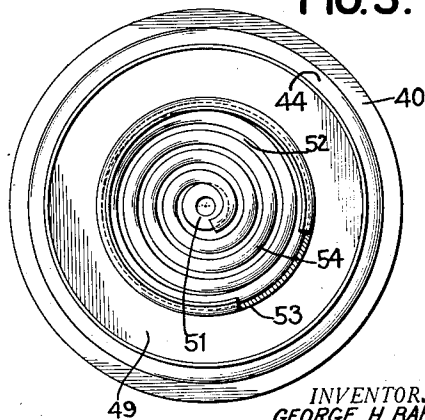


FIG.3.



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FLASH LIGHT

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5 Claims. (Cl. 240—10.66)

This invention relates to flashlights and more particularly to electric flashlights wherein the cell or battery is carried within the flashlight.

The objects of the invention are to provide a new and more desirable flashlight of this type; to provide for more ready removal of the battery or dry cell from the flashlight when desired; to position the dry cell in such manner that it can be taken hold of at its end for removal when the bottom cap is removed from the flashlight; to avoid, in some aspects of the invention, the use of springs or other loose parts in the bottom cap; to provide shock absorbing means between the lamp or lamp socket support and the dry cell; to provide means for mounting the shock absorbing means so that it will not fall out upon removal of the dry cell; to utilize the shock absorbing means for partially ejecting the dry cell when the cap is removed; to permit access to both ends of the dry cell when necessary for forcibly ejecting the same; to provide a lamp socket support, preferably insulatory, at the upper end of the housing; to provide readily removable retaining means for holding said lamp socket support in place; and to secure simplicity and cheapness of construction and ease of operation.

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 drawing illustrating one embodiment by which the invention may be realized, and in which:

Figure 1 is a view showing, in side elevation, a flashlight embodying this invention, parts being sectioned to disclose the entire construction.

Figure 2 is a sectional view showing the lamp socket support on an enlarged scale.

Figure 3 is a view looking from below and showing a lamp socket support of Figure 2.

Referring to Figure 1, the reference numeral 1 indicates the body portion or casing of the flashlight, the same being shown in the present disclosure as cylindrical with both ends open, and of insulatory material although the invention is also applicable to a metallic casing. The casing 1 is adapted to receive a dry cell or battery 2 which also is preferably cylindrical and of a size substantially fitting within the cylindrical casing 1 with an appropriate clearance circumferentially and of a length somewhat shorter than the casing for purposes which will hereinafter appear. As is usual in devices of this character a miniature electric lamp, whereof the base is indicated at 3, is carried at one end behind a

suitable lens 4, and a bottom cap 5 is provided at the other end of the casing 1 for closing the same and holding the dry cell in place. For convenience in reference, the end of the flashlight having the lamp will be referred to as the upper end and the end having cap 5 will be referred to as the lower end or bottom, although it is to be understood that these terms are used for the sake of convenience and are not restrictive in any sense as to necessary relative positions of the parts. It may be noted at this point that the lower end of the casing is shown provided with a threaded bottom cap collar 6 and that the bottom cap 5 is correspondingly threaded to be screwed onto or off of said collar 6. The bottom cap 5, furthermore, is of suitable metal and may, if desired, obtain positive engagement with the shell or zinc cup of the dry cell and form, in effect, a contact portion, said shell constituting one of the electrodes of the dry cell and the construction thereby obtaining electric connection between the electrode and the collar 6. A suitable contact strip or other electrical connection not shown, extends along the inside of the casing 1, being connected at its lower end, as by rivet 9, with the bottom cap collar 6 and being connected at its other end in any convenient manner with a suitable circuit closing device, such as the switch 10, the circuit being continued, as usual, by means of another contact strip 11 extending to the upper end of the casing 1.

The lamp socket support 40—49 is preferably round or disc-like to correspond to the cylindrical casing and of a size such that it will rest against or upon the end of the casing, as shown, to permit the lamp socket support to be removed from the end of the body portion to enable a finger or tool to be inserted into the casing to press against the dry cell to eject it in the event that the dry cell has swollen or corroded and becomes wedged in the casing. When this occurs, it is very difficult to extract the dry cell for replacement with a new one unless provision is made for pushing the deteriorated cell out. This construction therefore enables the end to be displaced to gain access to the upper end of the dry cell for pushing it.

Under certain circumstances it will be unnecessary to open up the upper end of the flashlight for extracting the battery. It will be observed that the parts are so related that the lower end of the dry cell may, if desired, project a short distance beyond the end of the casing 1, the bottom cap 5 being so threaded as to enable it to accommodate this projection of the dry cell. Con-

sequently, when the cap is removed there will be a projecting margin of the end of the dry cell accessible to be grasped by the fingers particularly when the shock absorbing means or spring 54 has expanded and in ordinary circumstances, this will suffice to permit withdrawal of the battery.

The lamp socket support rests upon the upper end of casing 1 and, as shown, upon the end of the contact strip and is provided with an interior depending annular metallic flange 44 of a size which substantially fits into the casing 1. Upon applying the lamp socket supporting disc 40 to the end of the casing said flange 44 enters the body portion and because of its fit therein will frictionally and electrically make contact with contact strip 11. To facilitate inserting of the flange 44, its lower edge is deflected inwardly as shown to form, in effect, a taper or frustro conical guide.

A disc 40 of insulatory material is formed centrally with a hole 41. In register with this hole 41 is a hole 42 formed in a metallic disc 43 of lesser diameter than the disc 40, so that the outer peripheral portion of disc 40 can rest on the end of the flashlight casing. Disc 43 also has the downwardly extending peripheral flange 44. Discs 40 and 43 are held together by an eyelet member 45 formed on the bottom of a lamp socket 46, the interior diameter of the eyelet 45 being sufficient to permit the passage of or receive the lower end of a lamp base 3. For purposes of assembly, discs 40 and 43 are first assembled as a unit by means of the socket-eyelet member 45, 46. In constructing this eyelet member 45, it will be observed that socket 46 is pressed outwardly into a peripheral fold 47 which overlies the disc 40 and after the discs 40 and 43 have been applied over the cylindrical end 45 of the socket the extremity 48 is upset or flanged outwardly to clamp the discs 40 and 43 together. The parts united, as just described, form, in assembly what may be termed the first unit.

Immediately beneath the metal disc 43 is an insulatory disc 49 which may, if desired, be recessed in its top surface, as at 50 to receive the upset end of eyelet 45. To disc 49 is secured, as by a rivet or eyelet 51, a metal disc 52 preferably of smaller diameter formed with a downwardly extending peripheral flange 53 bent inwardly about a coil spring 54 forming the yielding shock absorbing contact member for the central terminal of the battery. Preparatory to assembly, spring 54 and disc 52 are united and disc 52 fastened to the insulatory disc 49 to form a second unit by means of the eyelet 51. Other ways of assembly are, of course, possible. For instance, spring 54 may be assembled to disc 52 by snapping it into the part 53 as a final operation after the other parts are assembled.

Then to assemble the lamp socket support, the fibre disc 49 is fitted within the flange 44 and is held thereby to the disc 43 by bending the flange 44 inwardly to a form substantially that shown. The shape of the flange 44 thus not only facilitates the centering of the lamp socket support on the flashlight casing and makes contact with the conductor strip 15, but also serves the added purpose of securing the parts together. It is to be noted that the eyelet 51 is a contact for the central terminal of the lamp base 3 and the electrical circuit from the central terminal 22 of the battery 2 to the central terminal of the lamp base includes the spring 54, the metallic disc 52 and the metallic eyelet 51, while the circuit from the zinc cup terminal of the battery 2 to the threaded

base of the lamp comprises, in part, the upper contact strip 11, flange 44, disc 43 and eyelet member 45.

Holding the lamp socket support in the flashlight, constitutes one of the important features of the present invention and is effected by simple and novel means. In the illustrated embodiment a threaded hood collar 23 is applied to the upper end of the casing 1 with the threaded portion thereof extending beyond the end, thus exposing the threads as both interior and exterior threads. The exterior threads are utilized to receive the hood 24 supporting the reflector 26 and lens 4. This hood 24 may be of any desired size and shape and the threaded portion thereof is preferably arranged to screw down and up the hood collar for the purpose of focusing the light. Preferably the reflector 26 is carried by this hood 24 and is centrally apertured with a hole of sufficient size to pass the lamp bulb and to avoid electrical contact with the lamp socket or the terminal portion 3 of the lamp. The interior threads of the projecting end of hood collar 23 are adapted to receive a threaded retaining ring 27 screwed thereto and arranged so as to engage the marginal upper face of the insulatory head or disc 40 to bear against it and hold it firmly on the upper edge of the casing 1. In order to facilitate the manipulation of this clamping collar for ready removal and replacement, its outer end is conveniently curled inwardly, as at 28, or otherwise formed, to provide a gripping surface and this gripping surface is preferably knurled or otherwise surfaced for enabling the user to obtain a frictional grip upon the same. It will be apparent that in use the hood 24 can be unscrewed and taken off, thereby exposing the retaining ring 27 which, in turn, can be unscrewed to thereby release the disc 40 for access to the battery thereby permitting its displacement. Replacement of the collar will clamp the support 40 in place and position the contact spring 54 ready to be engaged by the battery terminal when a new battery is slipped into place. The retaining ring 27 with the knurled grip 28 thus constitutes readily removable means for holding the lamp socket in position.

What is claimed is:

1. A lamp socket support for a flashlight comprising a fibre disc formed centrally with a hole, a metal disc formed centrally with a hole and of a diameter less than the fibre disc and formed with a peripheral flange, a lamp socket formed with eyelet means passing through the holes and clamping the two discs together, a second fibre disc disposed adjacent the metal disc and within the flange, said flange being deflected inwardly around the periphery of the second fibre disc to secure it in position, a second metal disc formed with a peripheral flange, an eyelet securing the second metal disc to the second named fibre disc substantially in the axis of the holes, a helical coil spring within the flange on the second named metal disc, said flange being deflected inwardly around a coil of the spring.

2. A lamp socket support for a flashlight comprising an insulatory disc, a metallic disc, said discs being formed, respectively, with holes in register, a lamp socket carried by the metallic disc concentric with the hole and passing through the hole in the insulatory disc, means to secure the insulatory disc and metallic disc together, a second insulatory disc secured to the metallic disc on the side opposite to the first named insulatory

disc, a conductive battery contact member and rivet means securing the contact member to the second insulatory disc on the side opposite to the metallic disc, said rivet means serving as a contact for the central terminal of a lamp in the socket.

3. A lamp socket support for a flashlight comprising an insulatory member, a metallic member, said members being respectively formed centrally with holes in register, a lamp socket in register with the holes, means securing the socket and said two members together, a second insulatory member disposed adjacent the metallic member, a yielding thrust member, means to secure the thrust member to the second insulatory member and passing through the second insulatory member centrally thereof to serve as a contact for a lamp.

4. In a lamp socket support for a flashlight comprising an insulatory disc, a metal disc formed centrally with a hole and having a peripheral flange, a lamp socket support carried with the insulatory disc centrally thereof, a second in-

sulutory disc adjacent the metal disc and within the flange, said flange being deflected inwardly around the periphery of the second insulatory disc to secure it in position and a battery contact member carried centrally of the second insulatory disc and passing therethrough to serve as a contact for the lamp.

5. A lamp socket support for a flashlight comprising an insulatory member, a metallic member, said members being respectively formed centrally with holes in register, a lamp socket clamping means secured to the socket and passing through the holes to clamp the said two members together, a second insulatory member disposed adjacent the metallic member, a metallic member fastened thereto, a yielding thrust member secured to said last named metallic member and extending therefrom in a direction opposite to the socket and means fastening the first named metallic member and the second named insulatory member together.

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CERTIFICATE OF CORRECTION.

Patent No. 1,992,140.

February 19, 1935.

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It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 2, second column, after line 48, insert the following paragraphs:

It will thus be seen that a lamp socket support has been provided which is displaceable and is readily secured in position and removed by novel, easily operable fastening means. The lamp socket support may, if desired, be assembled without the aid of more than one eyelet or the like. An improved yielding or resilient battery positioning element is also provided which is simple to manufacture and while particularly adapted to cooperate with the bottom cap shown is equally applicable to any flashlight bottom cap.

Various modifications will occur to those skilled in the art in the configuration, composition and disposition of the component elements going to make up the invention as a whole, as well as in the selective combination or application of the respective elements, and no limitation is intended by the phraseology of the foregoing description or illustrations in the accompanying drawings, except as indicated in the appended claims.

The term rivet has been used throughout to designate a generic fastening means. Obviously, eyelets or other fastening means are within the intendment of the invention.

And that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 19th day of March, A. D. 1935.

Leslie Frazer

Acting Commissioner of Patents.

(Seal)