Sept. 3, 1940. O. T. WOOD 2,213,660

FLASHLIGHT

Filed May 17, 1938

FIG. 1.

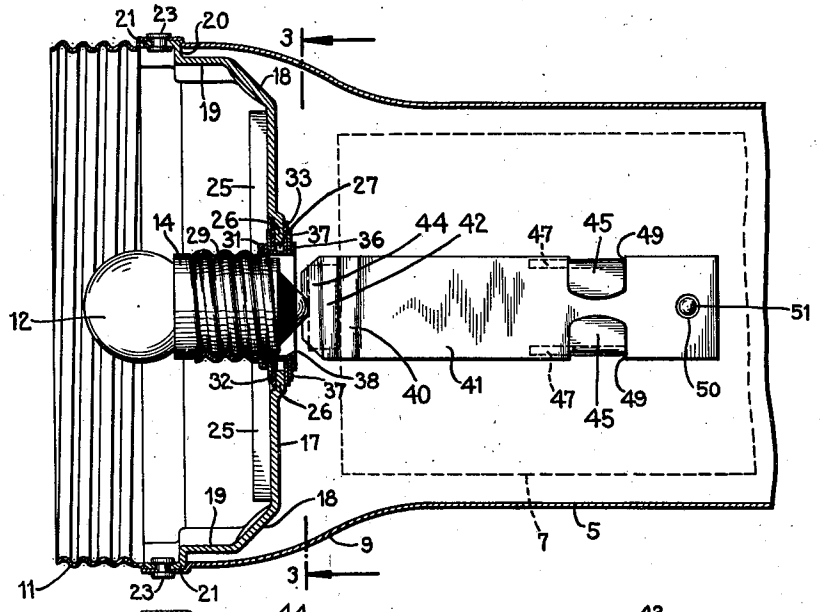


FIG. 2.

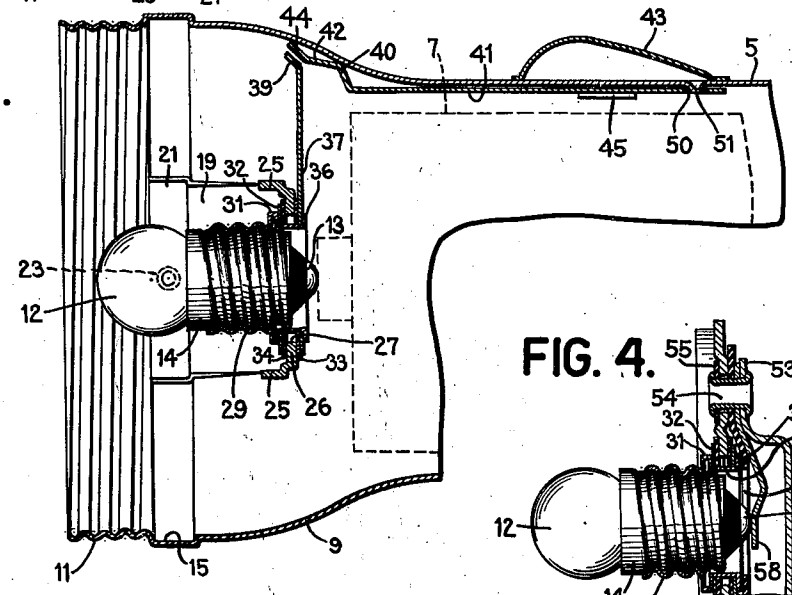


FIG. 3.

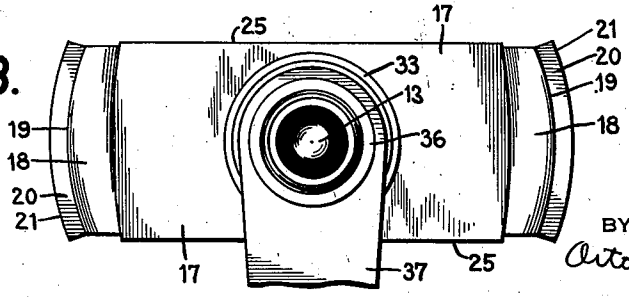


FIG. 4.

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FLASHLIGHT

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4 Claims. (Cl. 240—10.6)

This invention relates to flashlights and more particularly to lamp socket supports therefor.

The invention has to do primarily with a flashlight which can be cheaply manufactured of sheet metal by simple forming operations.

One object of the present invention is to simplify and facilitate the construction and manufacture of a support for the lamp socket.

Another object of the invention is to simplify and facilitate the construction and assembly of the component elements going to make up a practical lamp socket support whereby the lamp may be located with respect to the reflector in a flashlight.

A further object of the invention is to facilitate the assembly of a lamp socket support in a flashlight.

Yet another object of the invention is to simplify and improve those parts of the electrical circuit in a flashlight within which the lamp socket support and lamp are comprised.

The invention also seeks a flashlight and associated parts which is practical from the standpoint of ease and cheapness of manufacture and simplicity and convenience in assembly and use.

In carrying the invention into effect, in its preferred embodiment, there is provided a lamp socket supporting bridge member which may, if desired, be formed from sheet metal or may be cast in channel shape, at least in part, for strength. The extremities of the bridge member extend upwardly and terminate, conveniently, in rectangularly offset transversely curved portions adapted to be received within a groove of corresponding formation formed in the wall of the flashlight. To facilitate assembly, the bridge member is formed centrally with an aperture to the rim of which a lamp socket is clamped with suitable provision for insulation therebetween and the lamp socket support also preferably carries, below the bridge member, a conductive contact member desirably extending toward the wall of the flashlight for engagement with a sliding contact member of the circuit closer whereby the circuit may be completed from, say, the zinc cup terminal of the battery to the shell terminal of the lamp thereby permitting the central terminal of the lamp to be exposed beneath the bridge member for contact with the central terminal of the battery.

If desired, the central terminal of the lamp may be brought into electrical connection with the central terminal of the battery through the instrumentality of a fixed contact on the bridge member in conductive relation with a yielding or shock absorbing contact for the central terminal of the lamp.

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 longitudinal sectional view, taken on the diameter and showing the upper end of a flashlight of this invention;

Figure 2 is a view similar to Figure 1 but taken in a plane at right angles thereto;

Figure 3 is a fragmentary detailed plan view, taken in the transverse plane indicated by the line 3—3 of Figure 1 and looking in the direction of the arrows; and

Figure 4 is a view similar to Figure 1 but showing a modified lamp socket support providing a shock absorbing contact between the central lamp terminal and the central battery terminal.

While the invention has been illustrated as applied to a cylindrical flashlight casing, it will be obvious, as the description proceeds, that it is equally applicable, in many respects, to any flashlight or hand lantern of any form or description.

As illustrated, the flashlight casing 5 is shown as of metal in cylindrical form and containing the battery 7. It is outwardly flared, as at 9, at its upper end on a continuous compound curve whereby a smooth surface contour of progressively increasing diameter is obtained. The upper open end of the flashlight is formed with threads 11 conveniently pressed therein for the reception of any desired lens ring which may, if desired, support the reflector and lens in a hood (not shown) whereby these assembled parts may be reciprocated thereon as a unit to bring the focus of the reflector in suitable and desired relationship with the filament of the lamp 12, 14.

Inwardly of the threaded upper open end of the flashlight, the casing is shown as formed with a groove 15 conveniently rolled therein to define a peripheral bead, outwardly thereof which may serve as a limiting stop for the flashlight hood. Preferably the groove 15 is of substantially rectangular cross-section. In this groove 15 is inserted and conveniently secured the lamp socket support of this invention.

As illustrated, the lamp socket support is a bridge member comprising an elongated flat strip-like mid-portion 17 the ends of which extend upwardly and outwardly as at 18 and then upwardly as at 19 whereby the longitudinal ele-

ments of the part 19 are perpendicular to the plane of the intermediate portion 17 of the bridge. Conveniently, the upwardly extending portions 18 and 19 are curved on a radius somewhat less than the radius of the flashlight casing in this plane to facilitate insertion of the bridge in the flashlight and the extremities of the two ends are then offset by laterally extending portions 20 and then upwardly extending portions 21, the upwardly extending portions 21 being of a size and shape to be conveniently received within the peripheral groove 15 aforesaid.

If desired, these diametrically opposed offset ends 21 of the lamp socket supporting bridge member may be secured in the groove 15, in proper position, by rivets, eyelets or the like 23. The edges of the central plane portion 17 of the bridge member are conveniently formed with upwardly extending flanges 25 so that this intermediate portion of the bridge member is channeled shaped for strength.

On the axis of the flashlight, the bridge member is depressed as at 26 and the depressed portion 26 is apertured with an aperture 27 of a diameter somewhat greater than the diameter of the base 14 of the standard miniature lamp 12, 14. A lamp socket 29 is secured in this aperture 27. As shown, the lamp socket 29 is formed with a reversely bent portion 31 defining a bead which limits downward movement thereof and conveniently rests upon a metallic washer 32 insulated from the conductive bridge member portion 17 by a washer 34 of insulatory material which rests directly upon the bridge member in register with the aperture therein and supports the lamp socket. The lower end of the lamp socket passes through the aperture in this metallic washer 32 and insulatory washer 34 and the aperture 27 in the bridge member and is turned outwardly as a flange 36. Interposed between this flange 36 and the bridge member portion 26 is a metallic conductive member 37 through the aperture 38 of which the lower end of the lamp socket passes. The lower insulatory washer 33 is disposed between the conductive member 37 and the conductive lamp socket supporting bridge so that the assembled parts are clamped between the bead 31 on the lamp socket and the flange 36 on the end thereof but the lamp socket 29 and the conductive strip 37 are insulated by the insulating washers 33 and 34 from the metallic bridge member 17. To this end, as will be obvious, the aperture 27 in the bridge member is of a diameter greater than the diameter of the apertures in the washers 33 and 34 and conductive member 37 so that the lamp socket 29 is maintained out of electrical connection with the bridge member 17 and no short circuit can take place between the conductive casing of the flashlight and the shell terminal of the lamp.

The conductive strip is a generally elongated member apertured near one end for the reception of the end of the lamp socket and extending toward the wall of the flashlight casing. The extremity of this conductive strip is conveniently outwardly and upwardly bent as at 39 for engagement by a reciprocating contact strip 41 the end of which is conveniently offset as by first bending toward the casing wall, as at 40, and then longitudinally, as at 42, and again angularly preferably to bear upon the casing wall, as at 44. In any event, the end of the strip 41 is of a form such that when in the closed circuit position it is driven between the outwardly extending lamp screw shell contact 39 and the flashlight casing so that movement of the battery will not push the sliding strip out of contact with the extended lamp contact in any circumstances. Since the material of these bent ends 39 and 42 have some inherent resiliency, a wiping contact is obtained assuring a good clean electrical connection. The reciprocating conducting strip 41 is conveniently actuated from a thumb piece 43 slidable on the outer surface of the casing. The thumb piece 43 is formed with spaced tongues 45 which pass through longitudinal slots 47 in the flashlight casing 5 and through cut-out portions 49 of the reciprocating contact strip 41 and all bent underneath the strip 41 so that as the thumb piece is reciprocated, the contact strip is moved therewith. Conveniently, the lower end of the contact strip 41 is formed with an aperture 50 adapted to receive, in circuit open position, a lug 51 formed by an inwardly pressed portion of the casing to lock the conductive strip 41 in circuit open position.

The lamp socket support of Figure 4 differs from that hereinbefore discussed only in the provision of a fixed contact for the battery terminal in conductive relation with a shock absorbing contact for the lamp terminal. In this modification, the various component parts which are similar in shape or function to corresponding parts in Figures 1, 2 and 3 are given like reference characters. In this modification, a fixed battery positioning contact member is conveniently formed as a strip or ribbon of relatively stiff conductive material. The central contact portion 52 of this positioning contact is secured, as by the offset ends 53 thereof, by rivets or eyelets 54 passing through suitable oversized apertures in the apertured bridge member part 26. The eyelets 54 are thus out of contact with the rims of the apertures and are insulated from the bridge member by insulatory washers 55 and a strip 56 of insulating material, apertured as at 57, to expose the central lamp terminal 13. A yielding contact finger 58 is secured by one of the rivets 54 in conductive relation with an offset end 53 thereabove but insulated by strip 56 from the bridge part 26, so that the free end of the finger 58 is in position to be engaged by the lamp terminal 13. Thus current flows between the central terminal of the battery to the conductive stop member 52 and from thence through the conductive yielding finger 58 to the lamp terminal 13.

The operation of the flashlight of this invention will be apparent from the foregoing description. Suffice it to say that the circuit from the central terminal of the lamp is from the central terminal 13 to the battery 7, through the battery to the zinc cup electrode thereof and to the metallic conductive wall of the flashlight, as through a common type of battery positioning spring not shown. The zinc cup electrode of the battery carries the usual tubular fiber casing whereby it is insulated from the conductive wall 5 of the flashlight except at the bottom of the battery, which as usual, is in contact with a battery positioning element in electrical connection with the battery casing. The metallic flashlight casing 5 then forms part of the electrical circuit, which is continued through the reciprocating strip 41 to the end 39 of the conductive member 37 which carries the current to the lamp socket 29 and from the lamp socket, of course, to the shell terminal 14 of the lamp.

While the various parts of the invention hereinbefore described are illustrated generally as

formed of pressed metal, it will be obvious that they may be similarly formed as castings or otherwise.

Various modifications will occur to those skilled in the art in the composition, configuration and disposition of the component elements going to make up the invention as a whole, as well as in the selection and/or combination of individual features to accomplish the ends sought, and no limitation is intended by the phraseology of the foregoing description, or illustrations in the accompanying drawing, except as indicated in the appended claims.

What is claimed is:

1. A flashlight comprising, in combination, a tubular casing formed with a threaded open end and an outwardly pressed bead inwardly of the threads and defining an inwardly facing annular groove rectangular in cross-section, a transversely extending lamp socket supporting flat strip-like bridge member whereof the extremities extend upwardly and outwardly and then upwardly and terminate, respectively, in rectangular outwardly offset portions for reception in the annular groove, said upwardly and outwardly extending portions and said offset portions being transversely curved, the lateral edges of the plane portion of the bridge member being formed with upwardly extending flanges, said bridge member being formed centrally thereof with a depressed apertured portion, a lamp socket, means to secure the lamp socket to the bridge member, means to insulate the lamp socket from the bridge member and circuit closing means insulated from the bridge member and electrically connected with the lamp socket.

2. A flashlight comprising, in combination, a tubular casing formed with a threaded open end and an outwardly pressed bead inwardly of the threads and defining an inwardly facing annular groove, a transversely extending lamp socket supporting flat strip-like bridge member whereof the extremities extend upwardly and outwardly and then upwardly and terminate, respectively, in offset portions for reception in the annular groove, said upwardly and outwardly extending portions and said offset portions being transversely curved, a lamp socket, means to secure the lamp socket to the bridge member, means to insulate the lamp socket from the bridge member and circuit closing means insulated from the bridge member and electrically connected with the lamp socket.

3. A flashlight comprising, in combination, a tubular casing formed with a threaded open end and an outwardly pressed bead inwardly of the threads and defining an inwardly facing annular groove, a transversely extending lamp socket supporting flat strip-like bridge member whereof the extremities extend upwardly and terminate, respectively, in offset portions for reception in the annular groove, said upwardly extending portions and said offset portions being transversely curved, a lamp socket, means to secure the lamp socket to the bridge member, means to insulate the lamp socket from the bridge member and circuit closing means insulated from the bridge member and electrically connected with the lamp socket.

4. A flashlight comprising, in combination, a tubular casing formed with a threaded open end and an outwardly pressed bead inwardly of the threads and defining an inwardly facing groove, a transversely extending lamp socket supporting flat strip-like bridge member whereof the extremities extend upwardly and terminate, respectively, in offset portions for reception in the groove, a lamp socket, means to secure the lamp socket to the bridge member and means to insulate the lamp socket from the bridge member.

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