Dec. 26, 1939. O. K. REINHARDT 2,184,531

FLASHLIGHT CONSTRUCTION

Filed Dec. 5, 1936

Fig. 1.

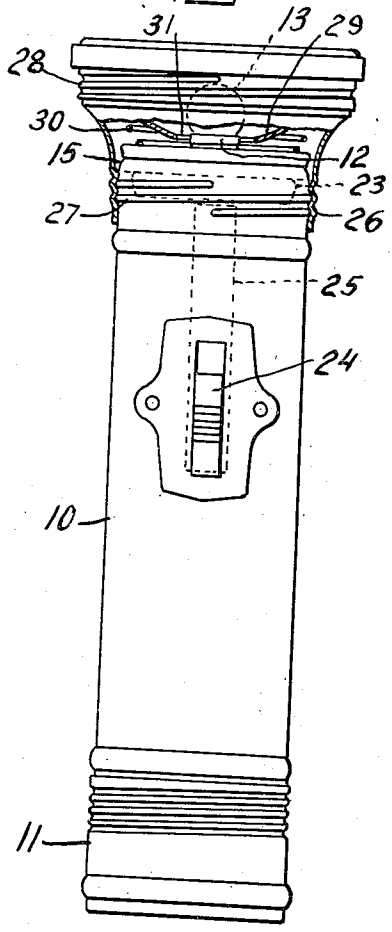


Fig. 2.

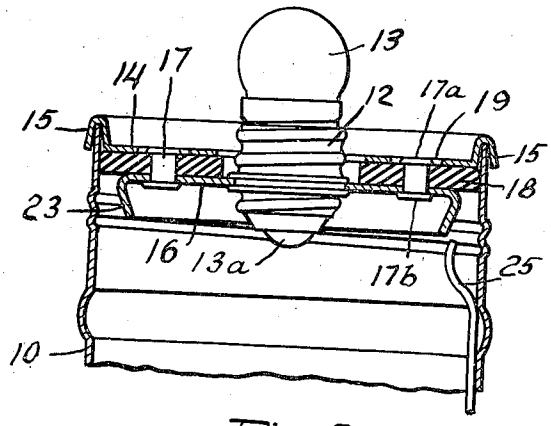


Fig. 3.

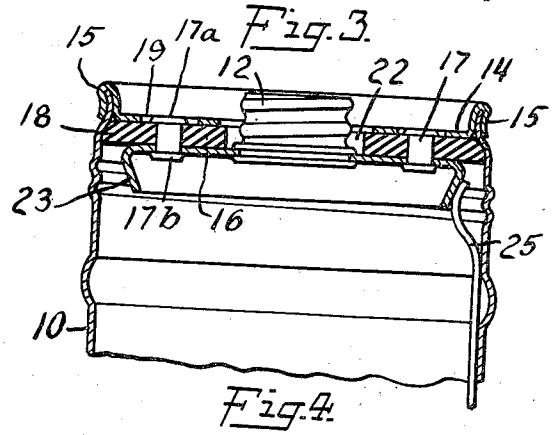


Fig. 4.

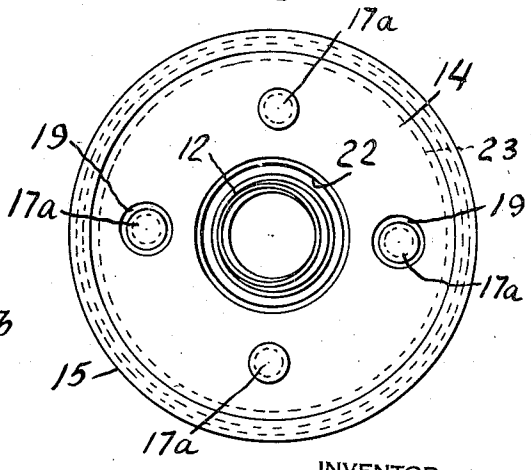
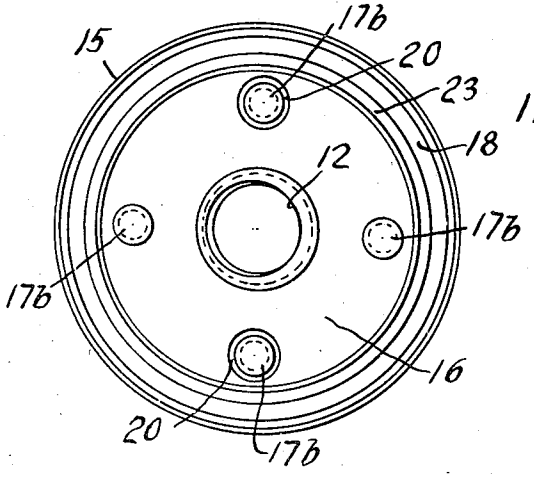


Fig. 5.



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FLASHLIGHT CONSTRUCTION

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2 Claims. (Cl. 240—10.66)

This invention relates to hand lamps of the type comprising a casing for the reception of a source of energy and an illuminating element mounted at one end of the casing in position to cooperate with the energy source. More particularly, the invention is concerned with a novel hand lamp of this type which is of a simple and durable construction and which may be readily assembled at low cost by reason of its inclusion of novel means for securing the illuminating element in position on the casing.

In hand lamps as commonly manufactured, an illuminating element in the form of an electric bulb is mounted in a socket secured to one end of a cylindrical casing. The casing is adapted to receive a battery unit having a terminal at the top thereof which engages a contact on the base of the bulb. The other terminal of the battery is generally connected through a switch on the casing to the bulb socket, which is suitably insulated from the casing. It has been proposed heretofore to mount the bulb socket on an insulating disc and secure the disc in the casing near one end by forming a rib on the inside of the casing upon which the disc rests. The upper edge of the casing is then turned over the top of the disc to hold the disc in place against the rib. With this construction, the mounting for the bulb socket does not provide a tight closure at the top of the casing because the bending of the casing leaves a space between the edge of the insulating disc and the side wall of the casing. Also, it is necessary to bend the casing both before and after the disc is inserted therein in order to secure the disc in place.

The present invention is directed to the provision of a novel hand lamp in which the mounting for the bulb is of a simple construction and may be readily and securely connected to the casing by a simple operation to provide a tight closure.

A hand lamp constructed in accordance with the present invention comprises a casing for receiving one or more battery units. Mounted on the casing in position to close the upper end thereof is a supporting member carrying a lamp socket suitably insulated from the casing. A reflector having a glass plate over the outer end thereof is preferably secured to a head, and the latter is removably mounted on the upper end of the casing over the socket. The base of the reflector is provided with an opening through which the glass portion of a light bulb extends when the bulb is inserted in the socket. The threaded base of the light bulb extends through the socket and its supporting member and engages one terminal of a battery in the casing, the other battery terminal being electrically connected to the casing. A switch is mounted on the casing and is electrically connected to the insulated bulb socket carried by the supporting member, whereby operation of the switch completes a circuit through the battery and the light bulb.

In the preferred form of my invention, the supporting member for the bulb socket comprises an upper disc of metal or the like having a circumferential flange which extends over the top of the casing and closely engages the outer wall thereof to secure the supporting member in place. A lower disc, preferably of metal, is carried by the first disc within the casing and is suitably insulated from the casing. I prefer to insulate the lower disc from the casing by interposing a third disc of insulating material between the lower disc and the upper disc which supports it. The insulating disc is arranged to closely engage the inner wall of the casing around its periphery. A lamp socket is mounted on the lower disc and extends upwardly through openings in the insulating disc and the upper disc. The socket is arranged for electrical connection to the casing by means of a contact arm operated by the switch and adapted to engage the lower disc.

It will be apparent that with this construction the wall of the casing may be pressed against the periphery of the insulating disc so as to compress it and effect a tight closure of the top of the casing. The mounting for the bulb socket holds the latter securely in position at all times and is of a simple form which may be readily connected to flashlight casings of standard forms.

For a better understanding of the invention reference may be had to the accompanying drawing, in which:

Fig. 1 is a side view of one form of the new hand lamp with part of the casing and head broken away;

Fig. 2 is a detail view in section of the supporting member for the bulb socket mounted on the casing ready for attachment;

Fig. 3 is a similar view of the supporting member for the bulb socket attached to the casing;

Fig. 4 is a face view of the top of the supporting member for the bulb socket; and

Fig. 5 is a similar view of the bottom of the supporting member for the bulb socket.

Referring to the drawing, the number 10 designates a cylindrical casing for receiving one or more battery units. An end cap 11 is threaded

onto the casing at its lower end and is provided with the usual spring (not shown) for engaging the lower end of a battery unit in the casing and urging the unit upwardly therein. Mounted on the casing 10 at the upper end thereof is a socket 12 for receiving a lamp 13.

The mounting for the lamp 13 is shown in detail in Figures 2 to 5, inclusive. As there shown, the mounting comprises a disc 14 disposed in the cylindrical casing 10 slightly below the upper end thereof. The disc 14 is provided with a circumferential flange 15 which extends upwardly to the upper end of casing 10 where it is bent outwardly over the top of the casing and then downwardly along the outside of the casing. In order to secure disc 14 to the casing, the latter is bent near its upper end to form an annular recess on the outer surface thereof, as shown in Fig. 3, and the downwardly extending portion of flange 15 is bent inwardly along its periphery to conform to the recess. A second disc 16 of metal is secured to disc 14 by means of rivets 17, the two discs 14 and 16 being separated by an insulating disc 18. The disc 18 is of the same diameter as the inside of the casing so that it engages the inner wall of the casing around its periphery. As shown particularly in Figs. 2 and 3, two diametrically opposed rivets 17 have their upper heads 17*a* disposed in openings 19 in upper disc 14 so that the upper heads engage only the insulating disc 18, while the lower heads 17*b* of the rivets engage the lower surface of disc 16. The remaining two rivets 17, as shown in Figs. 4 and 5, have their upper heads 17*a* in engagement with the upper surface of disc 14 and their lower heads 17*b* disposed in openings 20 in the lower disc in engagement with insulating disc 18. Accordingly, the lower disc 16 is completely insulated from the cylindrical casing.

The lower disc 16 of the lamp mounting is provided with a central opening in which the lower end of lamp socket 12 is mounted. The socket 12 extends upwardly through an opening 22 formed in insulating disc 18 and upper disc 14. The disc 16 is also provided with a circumferential flange 23 extending downwardly and inwardly. A switch 24 is mounted on the outside of the cylindrical casing and has a contact arm 25 extending upwardly along the inner surface of the casing. When switch 24 is in its lower position, the upper end of contact arm 25 is below the circumferential flange 23 on lower disc 16 (Figs. 1 and 2). However, when switch 24 is moved upwardly, it carries the upper end of contact arm 25 into engagement with the outer surface of flange 23 (Fig. 3) thereby establishing electrical connection from the casing through contact arm 25, flange 23 of disc 16, to the lamp socket 12.

A head 26 is screwed onto a threaded portion 27 of the casing near the upper end thereof. The head extends above the casing and has an end cap 28 threaded thereto near its upper end. A lens (not shown) is carried by end cap 28 and is held in position against an inwardly extending flange at the top of the head by means of a reflector 29. The latter is of a generally conical shape and has a flange (not shown) at the top, which is clamped between the head 26 and end cap 28 to hold the reflector in position. A coil spring 30 is engaged at one end with a portion of the flange at the top of reflector 29 and is seated at its lower end on the upper disc 14 of the lamp mounting. At its lower end, the reflector is provided with a central opening 31 through which the glass portion of lamp 13 extends when the bulb is screwed into its socket. The opening 31 is slightly larger in diameter than the glass portion of lamp 13, so that head 26 and reflector 29 may be removed from the casing as a unit without removing the lamp.

When a dry cell battery of the usual form is inserted in the casing, the spring (not shown) on the inside of cap 11 urges the battery upwardly in the casing so that the central contact at the top of the battery forming one terminal thereof engages the central contact 13*a* at the lower end of lamp 13. The lower terminal of the battery is electrically connected to the casing through the spring on cap 11. However, since the socket for lamp 13 is insulated from the casing, the lower terminal of the battery is normally disconnected from the socket through the casing, so that the energizing circuit of the lamp is open. By moving switch 24 upwardly, contact arm 25 is caused to connect the socket to the casing and thereby complete the energizing circuit for the lamp.

It will be observed that the mounting for the light bulb of the new hand lamp is in a form which may be quickly and permanently secured to the casing by a simple operation. In connecting the mounting to the casing, I prefer to arrange the upper disc 14 over the end of the casing, as shown in Fig. 2, and then press the flange 15 around the upper end of the casing and crimp the pressed portion inwardly below the top of the casing, as shown in Fig. 3. The mounting may be secured to the casing in this way in a single operation, and accordingly the new lamp is adapted for commercial production at low cost. It will be apparent that in crimping the side wall of the casing, the insulating disc 18 will be compressed by the side wall (Fig. 3) so that it completely closes the upper end of the casing.

I claim:

1. A hand lamp comprising a metal casing, a metal supporting member having a peripheral flange extending outwardly over one end of the casing, an insulating member disposed in the casing inwardly from said supporting member and connected thereto, the casing having an inwardly projecting part between said members for securing the members against outward movement in the casing, and said flange engaging the end of the casing to secure the members against movement into the casing, a conductor secured to the inner face of the insulating member and spaced from the casing wall, whereby the conductor is insulated from the wall, a socket mounted on the conductor and projecting through said members, and a switch on the casing for electrically connecting said conductor to the casing.

2. A hand lamp comprising a metal casing, an insulating member fitted closely in one end of the casing, said end of the casing being bent inwardly over the insulating member to secure the member against outward movement in the casing, a plate secured to the outer face of the insulating member and having a part extending over said end of the casing to secure the plate and insulating member against movement into the casing, a conductor secured to the inner face of the insulating member and spaced from the side wall of the casing, whereby the conductor is insulated from the casing, a lamp socket connected to the conductor and extending through the insulating member and plate, and a switch on the casing for electrically connecting the conductor to the casing.

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