

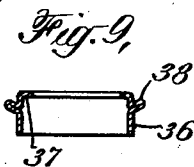
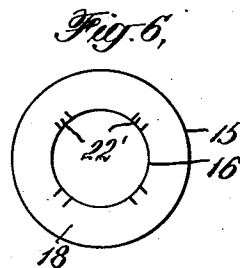
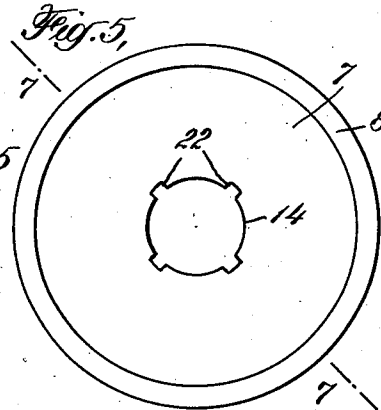
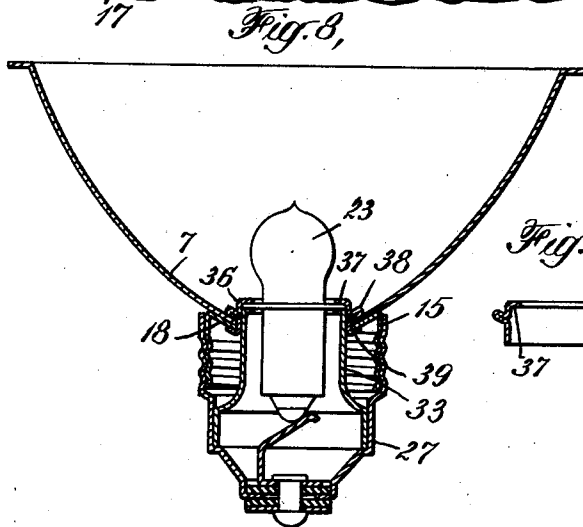
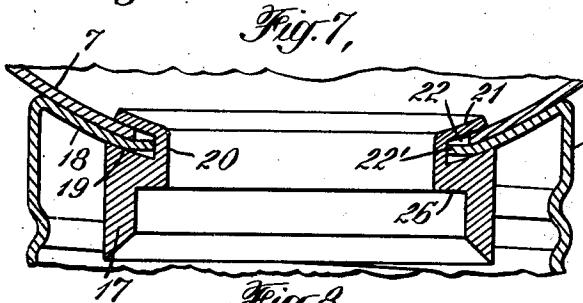
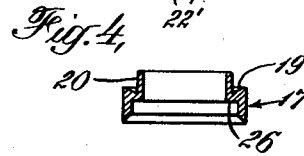
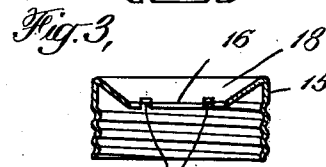
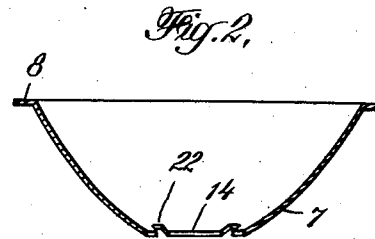
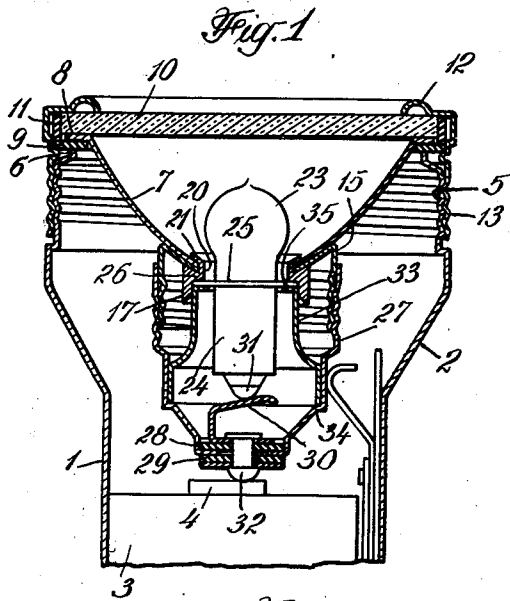
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2,268,878

FLASHLIGHT

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2,268,878.

FLASHLIGHT

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6 Claims. (Cl. 240—10.6)

This invention relates to hand lamps and more particularly to an improved reflector construction for use in hand lamps employing bulbs of the prefocused type.

In the old type of portable hand lamp, a bulb was employed having a threaded stem which was received in a socket mounted adjacent the head end of the lamp casing. A reflector was also arranged in the end of the casing and this reflector was provided with an opening through which the lamp bulb projected. Due to the threaded connection between the lamp bulb and its support, the arrangement of the lamp bulb in focus with the reflector was not always maintained. Any wearing of the threads or any variation in tightening the lamp bulb in its socket would shift its position and therefore move it with respect to the reflector.

A recent development in a portable hand lamp construction includes the use of prefocused bulbs. Such bulbs are provided with an unthreaded stem and with a flange or shoulder surrounding the stem. The lamp bulb is inserted through the opening in the reflector with the stem projecting rearwardly from the opening and it is retained in position by engagement of the flange or shoulder with a seat arranged at the rear side of the reflector opening. The opposite side of the flange or shoulder on the lamp bulb stem is engaged by suitable means for retaining the shoulder or flange against its seat.

In the present invention I employ a reflector stamped from sheet metal and in place of the threaded boss of the die cast reflector for supporting the lamp holding means, I provide a threaded member which is secured to the bottom of the reflector and supports the lamp holding means. The threaded member is preferably secured to the reflector by means of a bushing which forms the seat for the flange or projection on the lamp bulb stem and which is spun over the edge of the reflector opening and the threaded member to secure the parts to each other. This construction provides a simple and inexpensive means for supporting the lamp holding means and permitting the use of stamped parts in place of the die cast parts heretofore used.

In the accompanying drawing I have shown several embodiments of the invention. In this showing:

Fig. 1 is a vertical, sectional view of the end of a hand lamp casing showing the invention applied;

Fig. 2 is a sectional view of the reflector;

Fig. 3 is a similar view of the threaded member which is secured to the reflector;

Fig. 4 is a similar view of the bushing by means of which the reflector and threaded member are secured to each other;

Fig. 5 is a plan view of the reflector;

Fig. 6 is a similar view of the threaded member;

Fig. 7 is an enlarged, sectional view on line 7—7 of Fig. 5 of the reflector, threaded member and bushing showing the manner in which these parts are secured to each other;

Fig. 8 is a sectional view of the reflector and lamp holding means showing another form of the invention; and

Fig. 9 is a sectional view of a sleeve employed in the construction of Fig. 8 in place of the bushing of the other form of the device.

Referring to Figs. 1 to 7 of the drawing, the reference numeral 1 designates generally a portion of a hand lamp casing having a flared upper end 2. A battery is mounted in the casing in the usual manner, the end of the upper cell of the battery being shown at 3. This cell is provided with a central electrode 4. The enlarged head of the casing is threaded as at 5 and is provided with a flange 6. A reflector 7 is mounted in the end of the casing, the reflector being provided with a peripheral flange 8 which rests upon the flange 6. A ring of insulating material 9 may be arranged between the flanges 6 and 8. A lens 10 is arranged on the flange 8 of the reflector and it may be surrounded by a strip 11 of insulating material. The reflector and lens are retained in position by an end cap 12 which is internally threaded at 13 to engage the threads 5 on the end of the casing.

As stated, I employ a reflector stamped from sheet metal and this reflector is provided with the usual central opening 14. To support the lamp bulb at the rear of the reflector I provide a threaded member 15 having a central opening 16 which is adapted to be aligned with the opening in the reflector. The threaded member 15 and the reflector are secured to each other by a bushing 17 which is originally of the shape shown in Fig. 4. As shown the end of the cylindrical portion of the threaded member is provided with a flange 18 extending inwardly and downwardly substantially in the shape of the parabolic reflector 7. The reflector 7 and the threaded member 15 are assembled as shown in Fig. 7 of the drawing and bushing 17 is inserted in the central openings with the flange 18 of the threaded member 15 resting upon surface 19 of

the bushing as shown. The bushing is provided with a central cylindrical portion 20 which is then spun over the adjacent portion of the reflector as shown at 21 to secure the parts to each other. The reflector 7 may be provided with a series of notches 22 surrounding the central openings. The threaded member 15 is likewise provided with a series of up-struck portions 22' around the opening 16 which are adapted to enter the notches 22 to cause the two members to become interlocked and prevent relative rotary movement of said members.

Any suitable means may be employed for supporting a lamp bulb from the threaded member 15. I may, for instance, employ the construction shown in my copending application Serial No. 194,023, filed March 5, 1938 (now Patent No. 2,235,024, granted March 18, 1941). In Fig. 1 of the drawing, a bulb 23 of the prefocused type is shown arranged in the reflector. This bulb is provided with an unthreaded stem 24 with a flange or projection 25 surrounding the upper portion of the stem. The bushing 17 is provided with a seat 26 and the lamp bulb is held in its proper position by forcing the flange 25 against the seat 26. The means for securing the lamp bulb in position may comprise a metallic cap 27 which is internally threaded to engage the threads of the threaded member 15. The bottom of this cap is provided with a central opening and a pair of insulating discs 28 and 29 are disposed around this opening on the inside and outside of the cap, respectively. A U-shaped contact arm 30 is mounted in the cap and is adapted to engage the base terminal 31 of the bulb 23. The contact arm is held against the inner insulating disc 28 by a rivet 32 which extends through the opening in the base of the cap and an opening in the contact arm 30. The head of the rivet engages the central electrode 4 of the battery. The opening in the base of the cap is sufficiently large to permit clearance between the cap and the rivet whereby the electrical connection is thus formed between the central electrode of the battery and the base terminal of the lamp.

While the contact arm 30 urges the bulb toward the seat 26 additional means is preferably provided for positively retaining the bulb against its seat. A collar 33 is disposed in the cap with its rear end seated on a shoulder 34 of the cap. The forward portion of the collar surrounds the stem of the lamp bulb and is provided with a flange 35 which engages the flange or projection 25 of the lamp bulb to hold the lamp bulb on its seat.

In the form of the invention shown in Figs. 8 and 9 of the drawing the construction is substantially as heretofore described except that in place of the bushing 17 I provide a sleeve 36 which extends into the reflector and is provided with a seat 37 for the lamp bulb. This construction is used with larger reflectors than the reflector shown in Figs. 1 to 7 of the drawing and is for the purpose of moving the bulb axially when necessary to properly focus it. By using sleeves 36 of different size the lamp bulb may be placed wherever is necessary for the purpose of focusing the lamp with respect to the reflector. As shown a bead 38 is spun in the cylindrical portion of sleeve 36 and the reflector and threaded member 15 are arranged beneath this bead as shown in Fig. 8 in assembling the parts. The lower edge of the sleeve 36 is then spun over the adjacent surface of the flange 18 of the threaded member as indicated at 39 whereby the reflector

and the threaded member are clamped between the bead 38 and the spun-over edge 39 to secure the parts to each other. The bulb 23 is then mounted in position against the seat 37 by means of the cap 27 and the collar 33 in the manner heretofore described in connection with the form of the invention illustrated in Figs. 1 to 7.

By securing the stamped reflector and the threaded member 15 to each other by means of the bushing 17 or the sleeve 36 I therefore provide a means for supporting a bulb of the prefocused type in the reflector of a portable hand lamp in a manner similar to that heretofore employed in connection with die cast reflectors having a threaded part to which the lamp bulb supporting means could be secured. It is apparent that the construction provides efficient means for supporting the lamp bulb and at the same time is an inexpensive construction to produce, as compared with the constructions heretofore employed for this purpose. Throughout the claims the word "bushing" is used to designate either the bushing shown in Figs. 1 to 7 of the drawing or the sleeve shown in Figs. 8 to 9 of the drawing.

I claim:

1. A hand lamp comprising a reflector having a central opening, a member comprising a threaded sleeve having a flange shaped to correspond to the shape of the reflector adjacent said opening, the flange being provided with an opening in alignment with the opening in the reflector, a bushing arranged in said openings and spun over the adjacent portion of the reflector to secure the reflector and the member to each other, and a second threaded member carried by the sleeve for retaining a bulb in the reflector.

2. A hand lamp comprising a reflector having a central opening, a member secured thereto having a portion shaped to correspond to the shape of the exterior of the reflector adjacent the opening and having an opening in alignment with the opening of the reflector, a bushing arranged in the openings and spun over the adjacent surface of the reflector to secure the reflector and member to each other, said bushing being provided with a seat, said member comprising a threaded sleeve, and means secured thereto for supporting a bulb on said seat.

3. A hand lamp comprising a reflector having a central opening therein, a threaded member having a portion shaped to correspond to the shape of the exterior of the reflector adjacent the reflector opening and being provided with an opening arranged in alignment with the reflector opening, a member received in said openings having a surface to be engaged by the assembly of the reflector and the threaded member and having a part spun over the opposite side of the assembly to secure the reflector and the threaded member to each other, said threaded member comprising a sleeve, and bulb supporting means carried by said sleeve.

4. A hand lamp comprising a reflector having a central opening, a threaded sleeve having a flange shaped to correspond to the shape of the reflector adjacent the opening and having an opening in alignment with the reflector opening, a bushing having a surface receiving the flange and having a central portion extending through the openings and being spun over the surface of the reflector to secure the threaded member and the reflector to each other, and a threaded bulb supporting member carried by said threaded sleeve.

5. A hand lamp comprising a reflector having a central opening, spaced notches arranged around said opening, a member secured thereto having a portion shaped to correspond to the shape of the reflector adjacent the opening and having an opening in alignment with the opening of the reflector, said member being provided with upstruck portions adapted to be received in the notches in the reflector to prevent relative rotational movement of the reflector and the member, a bushing arranged in the openings and spun over the adjacent surface of the reflector to secure the reflector and member to each other, said bushing being provided with a seat, said member comprising a threaded sleeve, and means secured to the member for supporting a bulb on the seat.

6. A hand lamp comprising a reflector having a central opening, a threaded member having a flange shaped to correspond to the shape of the reflector adjacent the opening, the flange having an opening in alignment with the opening in the reflector, a sleeve arranged in said openings, a bead formed on the sleeve engaging the surface of the reflector, the lower end of the sleeve being spun over the flange to secure the threaded member and reflector to each other, said sleeve being made of predetermined length to position the bulb and compensate for variations in the size of the reflector, and bulb supporting means carried by the threaded member.

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