Sept. 7, 1937. A. W. SCHAFF 2,092,590

FLASHLIGHT HEAD

Filed Dec. 1, 1936

Fig.1.

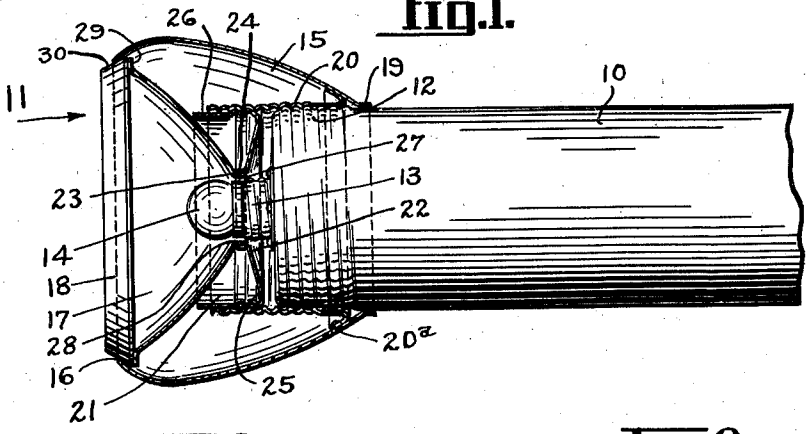


Fig.2.

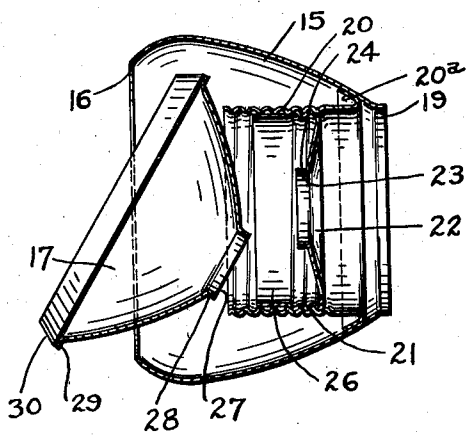


Fig.3.

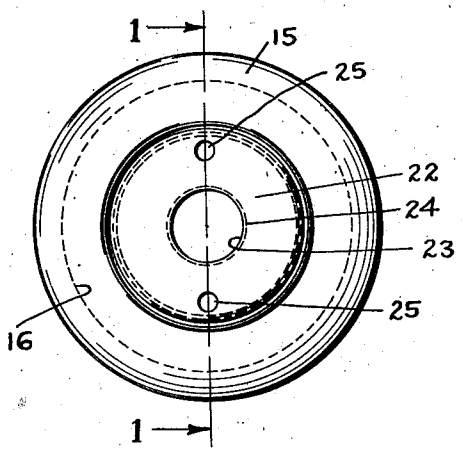


Fig.4.

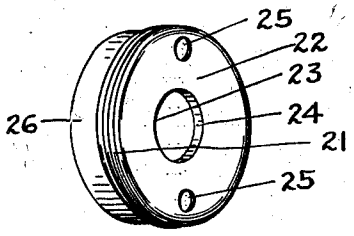
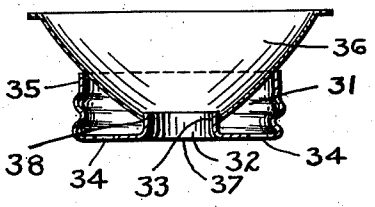


Fig.5.



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FLASHLIGHT HEAD

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Application December 1, 1936, Serial No. 113,652

7 Claims. (Cl. 240—10.66)

This invention relates to electric flashlights of the portable or hand type, and more particularly to an improvement in detachable head units for flashlights.

One object is to provide a flashlight head unit of the above nature in which the reflector and lens may be readily inserted through and removed from the front of the head shell, and will be centralized and firmly retained in position by an internal screw sleeve interfitting with said reflector.

A further object is to provide a flashlight head unit of the above nature in which the lens has a beveled edge and is removably retained in operating position by a resilient distortable outer head shell.

A still further object is to provide a flashlight head unit of the above nature which will be simple in construction, inexpensive to manufacture, strong, compact, ornamental in appearance and very efficient and durable in use.

With these and other objects in view there have been illustrated on the accompanying drawing two forms in which the invention may be conveniently embodied in practice.

In the drawing:

Fig. 1 is a side view of the forward part of a flashlight with the head unit sectioned on the line 1—1 of Fig. 3.

Fig. 2 is a longitudinal sectional view taken through the head unit, and showing the lens and reflector in partially removed position.

Fig. 3 is a rear end view of the head unit shown in Figs. 1 and 2.

Fig. 4 is a perspective view of the reflector clamping member.

Fig. 5 is a sectional view of a modified form of reflector and screw sleeve assembly.

The invention herein disclosed is an improvement over the flashlight shown in a copending application, Serial No. 77,579, filed May 2, 1936, by Emerson H. Tompkins and Donald L. Spender, and assigned to a common assignee.

Referring now to the drawing wherein like reference numerals denote corresponding parts throughout the several views, the body of the flashlight is indicated at 10, and the head unit in its entirety is indicated at 11. The body 10 is herein shown as provided with exterior threads 12 at its front end and has an electric light bulb screw socket 13 secured to its front end for detachably holding an electric light bulb 14 in the usual manner.

The head unit 11 includes a pear-shaped outer resilient flexible shell 15 which is open at each end, the opening 16 at the front end being of sufficient diameter when the shell is slightly distorted to permit the insertion edgewise thereinto of a reflector 17 and a lens 18. This distortion may be accomplished by compressing the shell 15 at diametrically opposite points at its largest diameter, whereupon the shell 15 will be deformed into elliptical shape sufficiently to permit passage of the reflector 17 and lens 18 therethrough, as shown. The opening 19 at the rear end of the head shell 15 is of such size as to snugly fit upon the front end of the flashlight body 10 so that the threaded end portion 12 of said body will engage an interior threaded cylindrical sleeve 20 having an outwardly extending annular flange 20a secured to the inner surface of the shell 15, preferably by solder. The threaded portion of the sleeve 20 is extended forwardly from its connection with the shell 15 and is threaded through its entire length so as to provide a focusing adjustment for the reflector 17 with respect to the lamp bulb 14.

In order to support the reflector 17 and centralize it within the surrounding shell 15, provision is made of a cup-shaped screw clamping member 21 which is provided with an inner conical portion 22 extending forwardly and provided with a central opening 23 surrounded by a short cylindrical flange 24.

To facilitate the screwing of the clamping member 21 into and out of operating position within the threaded sleeve 20 the conical base 22 of the member 21 is provided with a pair of opposed circular holes 25 adapted to receive a double pronged tool, not shown. The threaded exterior portion of the clamping member 21 is provided with a smooth unthreaded cylindrical forward part 26, which is adapted to engage the rear surface of the intermediate portion of the reflector 17 to form an additional support therefor.

The reflector 17 is provided at its smaller rear end with an opening 27 of sufficient diameter to permit the free passage therethrough of the light bulb 14 and has a cylindrical sleeve 28 extending rearwardly therefrom. The sleeve 28 is of such diameter as to fit snugly in telescoping relation within the flange 24 of the clamping member 21. By means of this construction, it will be seen that the reflector 17 will be correctly centered with respect to the flashlight body 10 and the light bulb 14,—the flange 24 abutting tightly against the rear of the parabolic portion of the reflector 17 when the clamping member 21 is screwed forwardly by means of the double-pronged tool engaged in the holes 25.

The forward end of the reflector 17 is provided with a laterally extending annular flange 29 which abuts against the rear surface of the lens 18, the latter having a beveled outer rim 30 of such diameter as to normally engage the front opening 16 of the shell 15 and be held thereby in proper operating position.

In the form shown in Fig. 5, a cup-shaped screw clamping member 31 is provided having a central opening 32 surrounded by a forwardly directed interior annular flange 33. The base of the clamping member 31 is provided with opposed holes 34 similar to the holes 25 shown in the previous form. The rim of the member 31 is threaded at its rear end and provided with an unthreaded smooth forward portion 35, the edge of which is adapted to engage and support the rear surface of the reflector 36. In this form the bottom 37 of the member 31 is made flat instead of conical, and the reflector 38 has no flange about the small rear opening as in the previous form, thus reducing the cost of the manufacture thereof.

Operation

In operation, assuming the parts of the flashlight to be in the assembled position shown in Fig. 1, when it is desired to disassemble the reflector and lens, to replace a broken lens, or for any other reason, the head shell 15 will first be unscrewed from the body 10. The clamping sleeve 21 will then be unscrewed by means of the two-pronged tool engaged in the holes 25 from the position shown in Fig. 1 to that shown in Fig. 2. By then distorting the head shell 15 by pressure upon opposite sides thereof, the lens and reflector may be moved rearwardly and tilted to the position shown in Fig. 2 and readily slipped out of the head shell.

While there has been disclosed in this specification two forms in which the invention may be embodied, it is to be understood that these forms are shown for the purpose of illustration only, and that the invention is not to be limited to the specific disclosures, but may be modified and embodied in various other forms without departing from its spirit. In short, the invention includes all the modifications and embodiments coming within the scope of the following claims.

Having thus fully described the invention, what is claimed as new and for which it is desired to secure Letters Patent, is:

1. In a portable flashlight, a body having an externally threaded forward end, a head unit adapted to be screwed upon said forward end including a shell having an internally threaded sleeve engaging said forward threaded end, a lens abutting the forward end of said shell, a reflector for supporting said lens, and an externally threaded cup-shaped member screwed into said sleeve to force said reflector and lens firmly against the forward end of said shell, said cup-shaped member having an interior cylindrical collar engaging a rearwardly extending cylindrical member on said reflector.

2. In a portable flashlight, a body having an externally threaded forward end, a head unit adapted to be screwed upon said forward end including a shell and an internally threaded sleeve secured within said shell and adapted to be screwed onto said body, a lens abutting the forward end of said shell, a reflector abutting said lens, and an externally threaded member screwed into said sleeve and engaging said reflector at a pair of circular lines to support said reflector in centralized position in abutment with said lens.

3. In a head unit for a portable flashlight, an outer shell having an opening in the forward end thereof, a lens abutting the shell at the edge of said opening, a reflector abutting said lens and having an opening in its inner end, and means adjustably carried by said head unit to clamp said reflector against said lens, said means having a member projecting into said opening of said reflector and movable longitudinally with respect thereto to hold it in centralized position.

4. In a head unit for a flashlight of the type described, an outer shell having openings at both ends thereof, a lens abutting the shell at the edge of the front opening, a reflector abutting said lens, a threaded sleeve for engaging the body of said flashlight secured in said shell and being concentric with and extending toward the front opening therein, and a reflector-clamping member screwed within said sleeve to clamp said reflector against said lens, said clamping member having an annular flange for telescoping with a similar annular flange on said reflector whereby said reflector will be centralized with respect to the opening in the shell when said clamping member is screwed forwardly into abutment with said reflector.

5. In a head unit for a portable flashlight, an outer shell having an opening in the forward end thereof, a lens abutting the shell at the edge of said opening, a reflector abutting said lens, a clamping member mounted for longitudinal movement in the shell to clamp said reflector against said lens and having reflector engaging portions disposed in longitudinal spaced apart transverse planes to engage said reflector at a plurality of spaced circular lines and hold it in centralized position.

6. In a head unit for a flashlight, an outer shell having a constricted opening in its front end, a lens abutting the shell, a reflector abutting said lens, a threaded sleeve disposed in said shell and extending forwardly toward said opening, and a member threadingly cooperating with said sleeve to clamp said reflector against said lens, said member having a pair of spaced forwardly extending members adapted to engage and support said reflector in centralized position.

7. In a flashlight head unit adapted to be detachably secured to a flashlight casing, an outer hollow enlarged lens-holding shell, a reflector in said shell, a threaded sleeve member permanently secured within the rear part of said shell, and an adjustable cylindrical screw clamp fitted within said sleeve, said screw clamp having a plurality of forwardly extending members to support and centralize said reflector with respect to said lens and shell at a plurality of spaced points.

ALMANZO W. SCHAFF.