Sept. 7, 1937. E. H. TOMPKINS ET AL 2,092,617

FLASHLIGHT HEAD UNIT

Original Filed May 2, 1936

Fig.1.

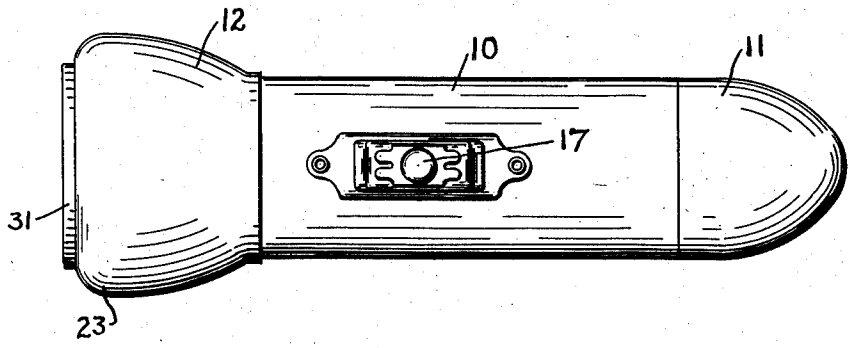


Fig.2.

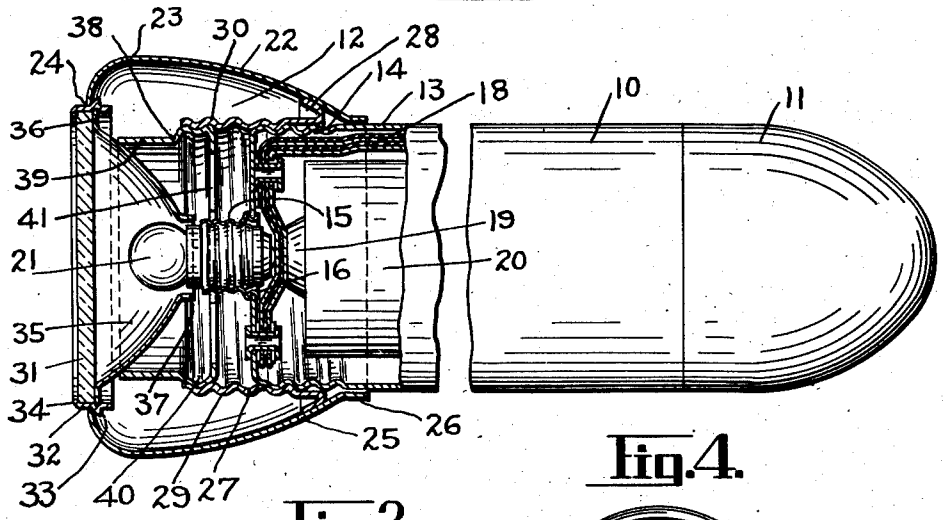


Fig.3.

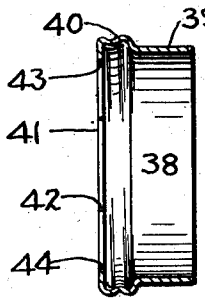
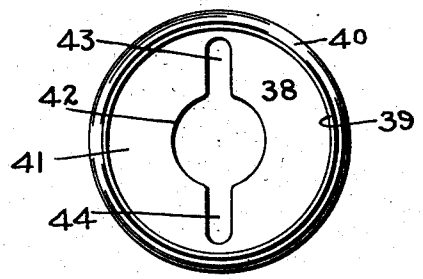


Fig.4.



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FLASHLIGHT HEAD UNIT

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Original application May 2, 1936, Serial No. 77,579. Divided and this application December 29, 1936, Serial No. 118,057

4 Claims. (Cl. 240—10.66)

This invention relates to electric flashlights of the portable or hand type, and more particularly to a head unit for such a flashlight.

This application is a division of our co-pending application for patent, Serial No. 77,579, filed May 2, 1936.

One object of this invention is to provide a flashlight head unit of the above nature which may be very easily assembled and disassembled.

Another object is to provide a flashlight head unit in which the lens, reflector, and associated parts may be removed from the front of said head unit.

A 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 has been illustrated on the accompanying drawing one form in which the invention may be conveniently embodied in practice.

In the drawing:

Fig. 1 is a side view of a flashlight embodying the features of this invention.

Fig. 2 is an enlarged broken side view of the same, the head unit being shown in section.

Fig. 3 is a detail sectional view of a spacing screw sleeve used to hold the reflector in place.

Fig. 4 is a front end view of the spacing screw sleeve.

Referring now to the drawing wherein like reference numerals designate like parts throughout the several views, the flashlight illustrated includes a central shell or body unit 10, a base unit 11, and a head unit 12. The body unit 10 comprises a tubular casing or shell, to the rear end of which the base unit 11 is suitably secured, and said body unit has a forward end 13 which is exteriorly threaded at 14. A lamp bulb receiving socket 15 may be crimped or otherwise secured, as at 16, to the shell end 13 and extends forwardly therefrom. A manually operated switch 17 is provided, whereby the conductor structure 18 may be connected to a contact 19 of a battery 20 and a lamp bulb 21 disposed in the socket 15, respectively.

The head unit 12 includes a pear-shaped cap member 22 which is circumferentially enlarged or bulged outwardly toward the forward end, as at 23, and is provided with a circular front opening 24. The cap 22 has an inwardly tapered rear section 25 terminating in a short cylindrical neck 26 which is adapted to freely encircle the closed forward end 13 of the shell 10.

In order to detachably secure the head unit 12 to the shell 10, provision is made of a cylindrical screw sleeve 27 disposed within the rear portion of the cap member 22 and spaced forwardly from the neck portion 26 thereof. The interior screw sleeve 27 is secured to said shell 10 by the instrumentality of an integral outwardly inclined forwardly extending flange 28 soldered or otherwise secured to said cap member. The sleeve 27 has threads 29 rolled into its forward portion 30, which threads are adapted to engage with the threads 14 of the shell 10, whereby the cap 22 may be connected to the casing end 13 and adjusted longitudinally relatively thereto whenever desired.

A flat glass lens 31 is held at the front of the head unit 12 by means of a resilient holding ring 32 having an annular rib 33 provided upon its periphery and disposed substantially intermediate its ends. The ring 32 also has an inwardly directed front bezel flange 34 for engaging the edge of the lens 31 to retain it in position. By means of the above construction, it will be seen that by pushing the lens inwardly and then twisting and slightly distorting the holding ring 32 elliptically, said ring 32 and then the lens 31 and reflector 35 may be removed from the head unit 12 through the opening 24. The ring 32 is of such diameter that it loosely fits the circular front opening 24 in the cap 22 and extends partly therethrough with the annular rib 33 abutting the inner surface of the cap 22 around the opening 24. The reflector 35 has an outwardly projecting annular flange 36 fitted within the holding ring 32. The front surface of the reflector flange 36 is adapted to engage the inner face of the lens 31 for maintaining the front face of said lens in contact with the flange 34 of the holding ring 32.

The reflector 35 is provided at its inner end with a cylindrical rear collar 37 of sufficient diameter to clear the bulb 21 when the cap 22 is longitudinally moved relatively to the central shell 10, and by adjusting the position of the head unit with respect to said shell, the reflected beam of light may be controlled as desired.

The reflector 35 is pressed against the lens 31 by a front clamping and spacing screw sleeve 38 which comprises a cylindrical smooth forward section 39, somewhat reduced in diameter, and a short threaded rear section 40 adapted to be screwed within the forward end of the rear screw sleeve 27. The rear of the front spacing sleeve 38 is closed by a flat wall 41 which is provided with a central aperture 42 having a pair of diametrically opposed radial slots 43 and 44 extend-

ing outwardly therefrom, but not reaching the circumference of said wall 41. The aperture 42 and the slots 43 and 44 serve to permit the introduction of a suitable double-jaw tool for turning the front spacing sleeve 38 whenever it is desired to adjust the pressure upon the reflector or to disassemble the spacing sleeve and reflector from the lens and lens holding ring.

Operation

When it is desired to disassemble the component parts of the head unit 12, the same will first be unscrewed from the shell 10. The points of a suitable tool, for instance a pair of scissors, will then be inserted in the slots 43 and 44 of the spacing sleeve 38, and by manually twisting said scissors, the sleeve 38 may be unscrewed rearwardly in the screw sleeve 27. This operation will release the reflector 35 from its clamping engagement against the lens 31. The lens-holding ring 32, the lens 31, and the reflector 35 may then be removed from the head cap member 22 by pressing these parts rearwardly, and then angularly tilting and compressing the ring 32 into an elliptical shape. After removal of the holding ring 32 forwardly through the front opening 24 in the head cap 22, the lens 31 and then the reflector 35 may also be removed therethrough.

While there has been disclosed in this specification one form in which this invention may be embodied, it is to be understood that this form is shown for the purpose of illustration only, and that the invention is not to be limited to the specific disclosure 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 head unit for a portable flashlight, a hollow cap having a circular front opening, a lens-holding ring detachably secured within said opening, a hollow reflector located within said ring and engaging said lens, and a cup-shaped spacing sleeve adjustably mounted in said cap with its front open end engaging said reflector, said spacing sleeve having spaced recesses in its rear base for permitting the introduction of an unscrewing tool.

2. In a head unit for a portable flashlight, a hollow cap having a circular front opening, a lens-holding ring detachably secured within said opening, a reflector located within said ring and engaging said lens, and a cup-shaped spacing sleeve adjustably mounted in said cap with its front open end engaging said reflector, said sleeve having a diametrical slot in its rear base for permitting the introduction of a double-pointed unscrewing tool, said slot having opposed narrow ends and a relatively large central aperture for embracing a flashlight bulb-holding socket located therewithin.

3. In a head unit for a portable flashlight having a substantially cylindrical body shell threaded at one end, a hollow cap having circular front and rear openings, the rear end of said cap being cylindrical for fitting over and concealing the thread of said body shell, a threaded sleeve secured within said cap for engaging said threaded body shell, a lens-holding ring in said front opening, a lens in said ring, a reflector abutting said lens and centralized by said ring, and a threaded cup-shaped spacing member screwed into the front end of said sleeve and engaging said reflector to clamp said lens between it and said ring, said sleeve being adjustable on said casing to change the focus of the flashlight without disturbing the clamping action of said spacing member.

4. In a head unit for a portable flashlight, a substantially cylindrical battery casing threaded at one end, a hollow cap having circular front and rear openings, the rear of said cap fitting over the body shell and concealing the threads thereof, a lens-holding ring in said front opening, a lens held by said ring, a reflector abutting said lens and adapted to press it against said ring, a cup-shaped member having a portion in engagement with said reflector to clamp it against said lens, said cup-shaped member having a threaded rear portion, and a threaded sleeve secured to said cap within the rear end thereof and screwed on the front of said casing for engaging said reflector-clamping member.

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