July 29, 1941. W. B. MASLAND 2,251,148

COMBINED FLASHLIGHT AND BULB REMOVER

Filed July 6, 1939

Fig. 1.

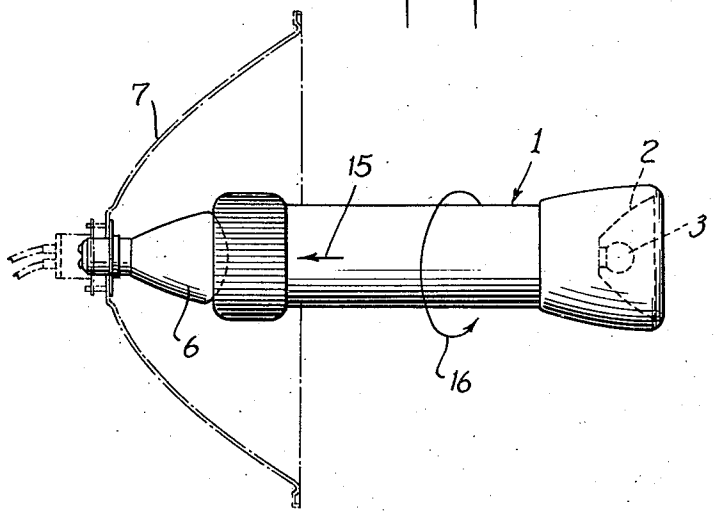
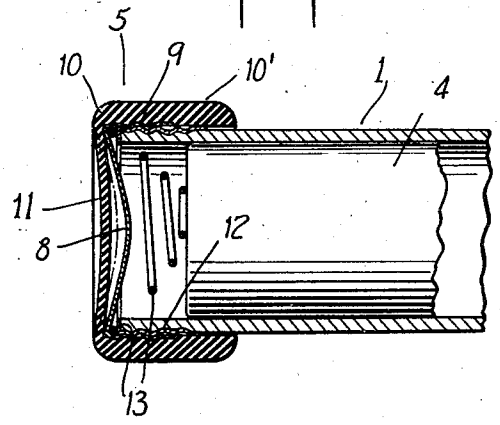



Fig. 2.




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## COMBINED FLASHLIGHT AND BULB REMOVER

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4 Claims. (Cl. 294—20)

This invention relates to means for removing headlight bulbs from reflectors and particularly to a combined flashlight and such means.

One object of the invention is a flashlight provided with novel means for removing miniature incandescent lamp bulbs from headlight reflectors.

Further objects of the invention will hereinafter appear.

For a better understanding of the invention reference may be had to the accompanying drawing forming a part of this application wherein—

Fig. 1 is a side elevational view of a flashlight embodying the invention; and

Fig. 2 is a sectional view through one end of the flashlight and bulb removing means.

Referring to the drawing I have illustrated the invention as embodied in a flashlight 1 of conventional shape and embodying at one end a conventional reflector 2 and flashlight bulb 3, and embodying within the interior thereof a conventional battery element 4.

The end of the flashlight opposite the end containing the flashlight bulb 3 is provided with a closing cap designated generally by the numeral 5, which closing cap, as will be described, functions both to retain the battery element 4 within the casing of the flashlight and as a convenient and effective tool whereby a miniature incandescent bulb 6 may be readily removed from a headlight reflector 7. The closing cap 5 comprises an inner substantially rigid or non-yielding disc-like cover plate 8, which is dished inwardly to provide a concave surface toward the left and integrally formed with this member 8 is an annular sleeve-like portion 9, the latter being secured to the casing of the flashlight in any suitable manner, as for example by being screw-threadedly attached to the end of the housing as shown. The inner cap element 8, 9 is housed in an outer cap member 10 of rubber or the like, the annular portion 10' of the rubber cap 10 firmly gripping the screw-threaded part 9 of the inner cap member. The rubber cap 10 is preferably of soft, flexible, resilient rubber, and particularly the end disc portion 11 thereof. In the particular embodiment shown the casing of the flashlight 1 is made of molded insulating material and is provided with a metallic shell sleeve 12 at the end which is screw-threaded for receiving the screw-threaded part 9 of the inner cap, this inner cap 8, 9 being preferably of metal such as copper and the like. The closing cap 5 carries a conventional spring 13 for engaging the battery element 4 and holding it in position, etc. The sleeve part 10' of the closing cap preferably projects beyond the metallic sleeve 12 when the cap is in the closed position, as indicated in the drawing, and this sleeve part 10' is indicated as being somewhat thicker than the disc part 11 and this is the preferred construction, although not essential.

The operation of the flashlight 1 as a bulb removing tool is indicated in Fig. 1. For this purpose the flashlight 1 is gripped by the hand and the stretchable gripping disc 11 of the closing cap is pressed tightly against the bulb 6 with the pressure being indicated by the arrow 15. The disc 11 is thereby stretched and put under tension, but is reinforced by the concave element 8 as a base. With the flashlight in that position and pressed tightly against the bulb 6, as indicated in Fig. 1, with the rubber-like disc 11 firmly gripping the bulb, it is only necessary to apply sufficient rotary movement to the flashlight 1 as indicated by the arrow 16 to disengage the bulb 6 by releasing the bayonet joint or the equivalent lock with the bulb mount. This may be done with great facility because the cap 5 is of a construction and material to firmly grip the bulb 6, and the body of the flashlight forms a convenient hand grip for applying the needed pressure both axially and rotationally for unlocking and disengaging from the mount the bulb 6 which is often locked and held very tightly. Moreover, since the bulb may be removed without the operator engaging the bulb with his hand, the danger of injury or cutting the hand with a broken bulb is entirely eliminated. Also, as indicated, there is no slippage between the rubber cap and the metallic cap 8, 9, there being a fast holding bond between these parts notwithstanding the fact that no sealing composition may be used between these elements. Likewise there is a secure bond between the rubber 11 and the glass bulb in the act of removing the bulb 6 from the reflector which enables the desired twisting force to be applied to the bulb 6 in order to remove it no matter how tightly locked. It is also observed that the flashlight in outward appearance does not differ from the conventional flashlight notwithstanding the incorporation therein of the bulb removing feature. Moreover, this feature is incorporated in the flashlight without necessitating any substantial increase in cost.

I claim:

1. In a bulb removing tool for miniature bulbs employed in headlights and the like, a handle, a fixed rigid member mounted on one end of said handle and comprising a rigid non-yielding disc-like plate, the latter being dished out to provide

a concave surface, and a rubber-like element having a sleeve part also fixedly mounted on said handle and closely surrounding said rigid member and an integral central disc part bridging said concave surface, said central disc part engaging the periphery of the disc-like concave plate and normally spaced from but stretchably conforming to and engaging the concave surface of the plate as a base support when the tool is pressed against the rounded end of a headlight bulb, said rubber element and said rigid element thereby forming a means for firmly engaging and rotating the bulb for removal thereof from the headlight.

2. A bulb remover comprising in combination a cylindrical gripping member, a closure for one end thereof comprising an inner metal cap threadedly secured to said member and an outer cap of elastic rubber-like material, the annular portions of said outer cap firmly engaging the annular portion of said inner cap, said inner cap having a rigid surface portion concave toward the disc portion of said outer cap and serving as a backing therefor when said closure is pressed against a bulb for removal thereof by frictional engagement between the bulb and the elastic disc portion of the outer cap.

3. A bulb removing tool comprising a handle, a composite bulb engaging part carried by the handle, said part being formed with a concave rigid gripping surface facing outwardly, and with an outer rubber-like element mounted so as to bridge the concave surface but adapted to stretchably conform to and engage the concave surface when the tool is pressed against a bulb for unlocking and disengaging the same from its socket, said rubber-like element of said composite bulb engaging part comprising a sleeve part surrounding the handle and fastened thereto and a disc part which is made of thinner material than the sleeve part.

4. A bulb removing tool, comprising a tubular handle, a rigid member mounted on one end of said handle and having a concave surface facing outwardly and a rubber element having a sleeve part mounted on said handle and a central disc part bridging said concave surface and adapted to stretchably conform thereto when in engagement with a bulb, said rubber element and said rigid element together forming both a composite closure for said handle and a means for frictionally engaging the end of a bulb for removal thereof.

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