

May 14, 1935.

C. B. KURTZ

2,001,030

LAMP

Filed May 14, 1934

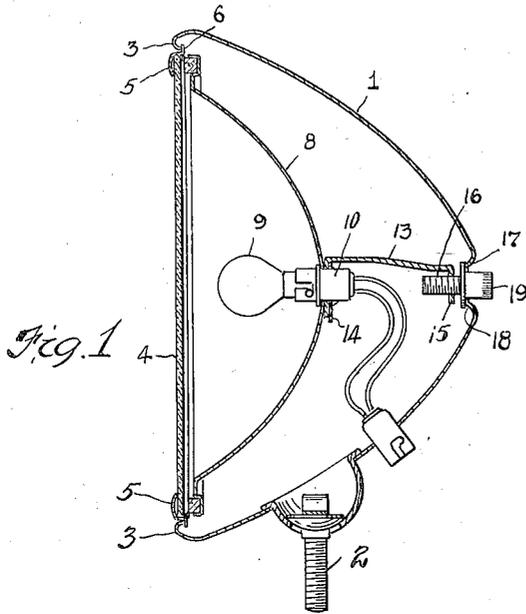


Fig. 1

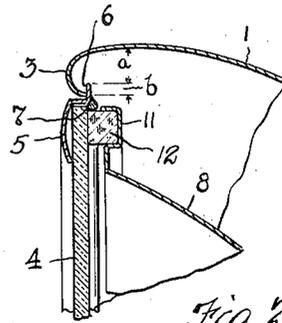


Fig. 2

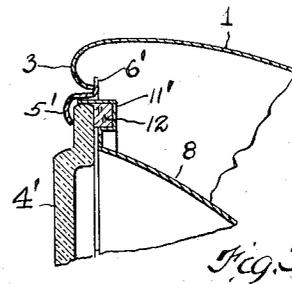


Fig. 3

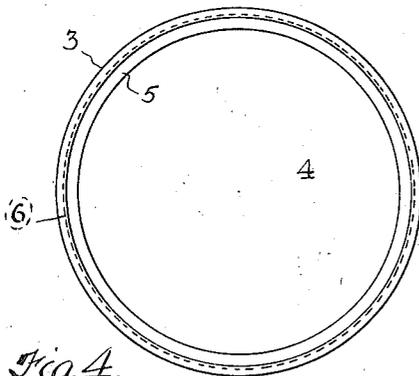


Fig. 4

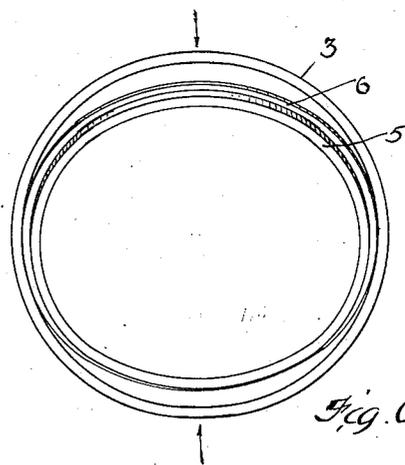


Fig. 5

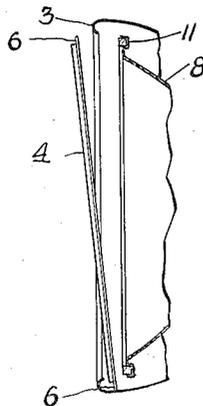


Fig. 6

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2,001,030

LAMP

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Application May 14, 1934, Serial No. 725,535

5 Claims. (Cl. 240—41.5)

The present invention relates to an improvement in lamps, particularly adapted for use in automotive vehicles. The general object and nature of my invention is to provide such a lamp which can be readily assembled and disassembled, and in which the number of separable parts is reduced to a minimum.

It is a further object of the invention to provide such a simplified structure which may be produced in large quantities and manufactured at fairly low expense. Additional objects and advantages of the invention shall become apparent as the following description proceeds.

To the accomplishment of the foregoing and related ends, said invention, then, consists of the means hereinafter fully described and particularly pointed out in the claims.

The annexed drawing and the following description set forth in detail certain structure embodying the invention, such disclosed means constituting, however, but one of various structural forms in which the principle of the invention may be used.

In said annexed drawing:—

Fig. 1 is a sectional view, taken upon a vertical plane of a lamp structure embodying the principle of my invention; Fig. 2 is an enlarged fragmentary portion of Fig. 1; Fig. 3 is a view similar to Fig. 2 but showing a slight modification of construction; Fig. 4 is a front end view of the lamp showing the lens or closure member in place; Fig. 5 is a partial side view illustrating the manner of installation and removal of the lens or closure member; Fig. 6 is a front end view, taken on a plane normal to Fig. 5 and also illustrating the manner of installation or removal of the lens.

Now referring more particularly to the drawing, there is shown therein a bowl-shaped casing member 1 which may be secured to a bracket, bar, or some similar support on an automobile by means of the threaded stud 2. The casing member 1 is fabricated from sheet metal and has an inwardly directed flange 3 on its forward or front end. The casing 1 and the flange 3 are stamped or spun from metal of such thickness and physical properties that they may be flexed or distorted from a normally circular form to an elliptical form. The flange 3, of course, defines a circular opening in the front end of the casing 1. A closure member consisting of the transparent glass lens 4 and the metallic ring 5 is adapted to be inserted in through the front, open end of the lamp.

Referring to Fig. 2, the outer diameter of the flange 6 of the closure member is greater than

the inner diameter of the flange 3 of the casing 1. The flange 6 is so located on the ring 5 as to form a shoulder fitting the flange 3.

The lens 4 may be permanently or separably attached to the ring member 5. The former construction is illustrated in Fig. 2, in which a ring member 7 is soldered or welded to the ring member 5 and serves to secure the lens 4 in a position attached thereto. In the modification shown in Fig. 3, the lens 4' is separable from the ring 5 and is normally held in position against the ring by means of the reflector 8.

An electric bulb 9 is carried in the medial portion of the reflector 8 by means of the socket 10. The outer or front edge of the reflector 8 is in the form of a channel 11. An annular gasket 12 which is of substantially square or rectangular cross-section is positioned in the channel 11 and adapted to bear against the inside face of the lens 4. Directing attention to Figs. 2 and 3, it should be noted that the outer diameter of the reflector 8 is less than the inner diameter of the flange 3.

A bracket 13 has a laterally projecting end portion 14 which is secured to the reflector 8 and socket 10. The other end 15 of the bracket 13 is threadably engaged by a stud 16. The stud 16 has a flange or collar portion 17 which is adapted to bear against the inwardly turned flange 18 of the casing 1. The flange 18 defines an aperture through which the knob 19 of the stud 16 may extend. It will thus be seen that rotation of the knob 19 and incidentally the stud 16, will serve to retract or urge the reflector 8 forwardly against the inner side of the lens 4 and ring member 5. Such adjustment is of particular advantage when the gasket 12 is supplied in varying thicknesses or may become worn during usage. The closure member, consisting of the lens 4 and ring 5 is installed or removed in the opening in the casing 1 by reason of the fact that the latter, and its flange 3 is distortable. That is to say, when pressure is applied to the casing member 1 substantially as indicated by the arrows in Fig. 6, the front opening of the casing 1 will be deformed from a circular to an elliptical shape, in which the major axis is greater than the outer diameter of the flange 6 of the closure member. In installation, the flange 6 of the ring 5 is placed in contact with the inner edge of the flange 3, and the lens 4 and ring 5 are held in a slightly inclined position with respect to the plane of the opening of the casing 1; the casing 1 is then flexed or distorted as above described and the lens 4 and ring 5 are moved closer toward a vertical position whereby the horizontal diameter of the flange 6

slips past the major axis of the temporarily elliptical opening. At the same time, the lower edge portion of the flange 6, as shown in Fig. 5 has an opportunity to drop down into contact with the inner surface of the casing 1 at a point adjacent to the base of the flange 3. When this position has been reached, the top or upper edge of the flange 6 is then permitted to clear the inner edge of the flange 3 and the lens 4 and ring 5 may be moved into a vertical plane position coincident with the plane of the open end of the casing 1. In this manner, the flange 6 has been inserted past the flange 3. Next the stud 16 is rotated by means of the knob 19 and the reflector thereby forced outwardly with respect to the casing 1 to press the lens 4 and ring 5 into contact with the flange 3.

Referring now to Fig. 2, it should be particularly noted that the distance a which represents one-half the difference between the outer diameter of the flange 6 and the inner diameter of the casing 1 at a point adjacent to the base of the flange 3 is greater than the distance b , which represents one-half the difference between the inner diameter of the flange 3 and the outer diameter of the flange 6. Or in other words, the inner diameter of the casing member 1 at a point adjacent to the base of the flange 3 and the inner diameter of the flange 3 define a space for the reception of the edge of the closure member which is greater than the overlap of the flange 6 with respect to the flange 3. The provision of the space or distance a is therefore necessary in order that a portion of the flange 6 may be moved thereinto and the diametrically opposite portion of the flange 6 may then be in a position to clear the corresponding portion of the inner edge of the flange 3.

The last described mode of operation is, of course, reversed when the closure member is removed from the casing 1.

When the form of construction shown in Fig. 2 is employed, namely, when the lens 4 and ring 5 are permanently secured together, the flange 6, of course, will necessarily be rigid and non-flexible. However, when the form of construction as shown in Fig. 3 is employed, the ring 5' and flange 6' may be flexible and first inserted before the insertion of the lens 4'. When the lens 4' is inserted, the ring 5' will be distorted in the same manner that the casing and flange 3 are flexed, and the lens 4' may then be passed to the inner side of the ring 5'.

It will thus be seen that my above-described invention provides a lamp structure consisting of only three essential, separable parts, namely, the casing, the closure member and the reflector. And both the closure member and the reflector together with its bracket 13 and stud 16 are removable and insertable through the front opening of the casing.

Furthermore, it will be seen that the above-described lamp structure obviates the necessity for the provision of several small removable parts such as screws, bolts, pins, wires or springs.

Other modes of applying the principle of my invention may be employed instead of the one explained, change being made as regards the structure herein disclosed, provided the means stated by any of the following claims or the equivalent of such stated means be employed.

I therefore particularly point out and distinctly claim as my invention:

1. In a lamp structure, the combination of a flexible metal casing member, a circular open end in said casing member, an inwardly turned flange

on said open end and integral with said casing member, a reflector having the diameter of its outer edge less than the inner diameter of said flange, a closure member for said casing member having a diameter greater than the inner diameter of said flange, said casing member and said flange being capable of distortion into the form of an ellipse whose major axis is greater than the diameter of said closure member whereby the latter may be inserted within said casing member, the difference between the normal inner diameter of said casing member at the base of said flange and the outer diameter of said closure member being greater than the difference between the normal inner diameter of said flange and the outer diameter of said closure member, and means connected to the rear face of the reflector and movably operable from outside said casing member for urging said reflector and said closure member outwardly.

2. In a lamp structure, the combination of a flexible metal casing member, a circular open end in said casing member, an inwardly turned flange on said open end, a transparent lens, a rigid metal rim associated with said lens, said rim having a greater diameter than the inner diameter of said flange, said casing member and said flange being capable of distortion into the form of an ellipse whose major axis is greater than the diameter of said rim whereby the latter together with said lens may be inserted within said casing member, said flange and said casing member defining a space adjacent the base of said flange for the reception of a portion of the outer periphery of said rim during the insertion and removal of said rim and said lens, said space being sufficiently deep to permit the diametrically opposite portion of the periphery of said rim to clear the adjacent inner periphery of said flange.

3. A lamp comprising a resilient metal casing having a circular open end, a closure within the casing and of a greater diameter than the open end, a shoulder on the closure spaced from the edge thereof and fitting the circular open end, the difference between the normal inner diameter of said casing at a point adjacent said open end, and the outer diameter of said closure, being greater than the difference between the normal inner diameter of said open end and the diameter of said closure, a reflector, and means within the casing engaging said reflector to retain the closure with its shoulder fitting the circular open end and operable to permit movement of the closure inwardly from the open end to withdraw the closure shoulder from the open end, whereby the casing may be distorted to change the open end to elliptic shape capable of permitting removal of the closure through the greater diameter of the elliptic opening thus produced.

4. A lamp comprising a resilient metal casing having an open end whose edge defines an opening of constricted dimensions relatively to the internal dimensions of the casing immediately adjacent to the opening, a closure having larger dimensions than the opening and smaller dimensions than said internal dimensions of the casing, and located within the casing immediately adjacent to the casing opening, a shoulder on the closure spaced from the edge thereof and fitting the casing opening, the difference between the normal inner diameter of said casing at a point adjacent said open end, and the outer diameter of said closure, being greater than the difference between the normal inner diameter of said open end and the diameter of said closure, a reflector,

and means within the casing engaging said reflector and retaining the shoulder with the edge of the casing opening occupied by the shoulder, said means being operable to permit movement of the closure inwardly to withdraw its shoulder from the open end, whereby the casing opening may be freed for distortion to a shape permitting passage of the closure therethrough.

5. In a lamp structure, the combination of a flexible metal casing member, a circular open end in said casing member, an inwardly turned flange on said open end, a reflector having the diameter of its outer edge less than the inner diameter of said flange, a closure member for said casing member having a diameter greater than the inner diameter of said flange, said casing member and said flange being capable of distortion into the

form of an ellipse whose major axis is greater than the diameter of said closure member whereby the latter may be inserted within said casing member, the difference between the normal inner diameter of said casing member at the base of said flange and the outer diameter of said closure member being greater than the difference between the normal inner diameter of said flange and the outer diameter of said closure member, and means connected to the rear face of said reflector, a portion of said means extending through a relatively small opening in said casing member and being accessible from outside thereof, said means being thereby movably operable for urging said reflector and said closure member outwardly from said casing member.

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