May 15, 1934. C. B. KURTZ 1,958,627

LAMP

Filed Feb. 6, 1933 2 Sheets-Sheet 1

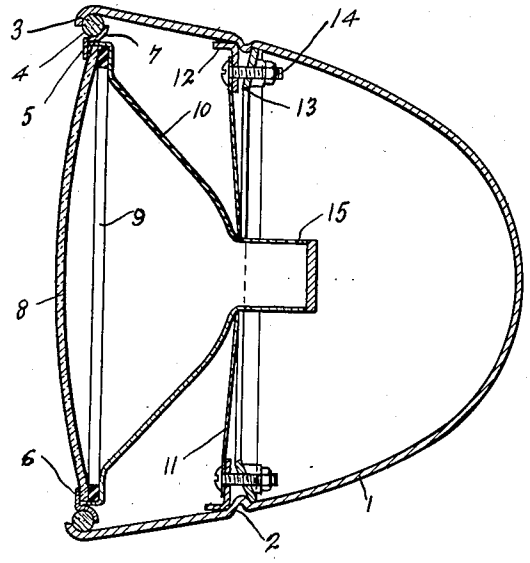


Fig. 1

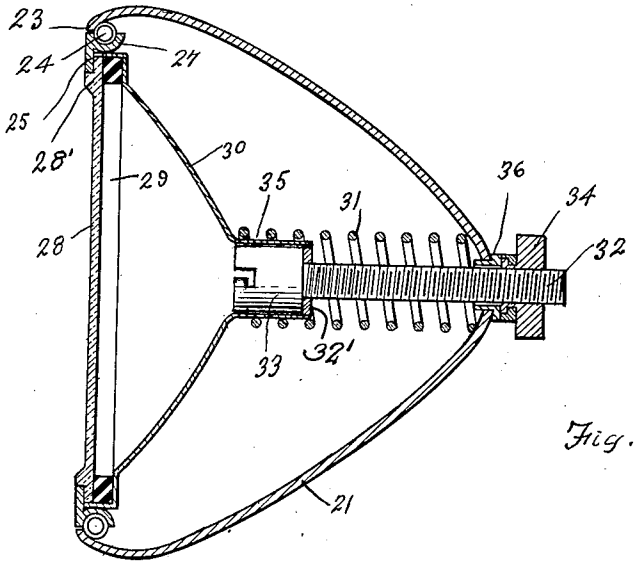


Fig. 2

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Filed Feb. 6, 1933 2 Sheets-Sheet 2

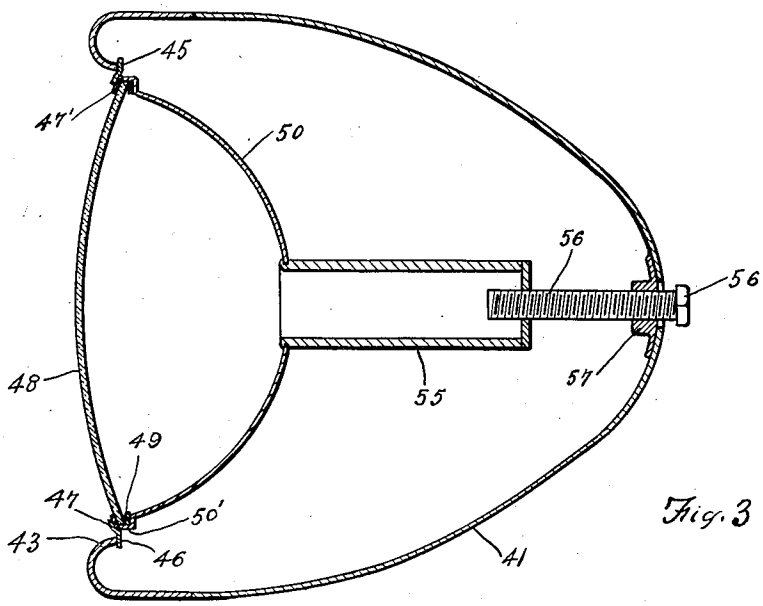


Fig. 3

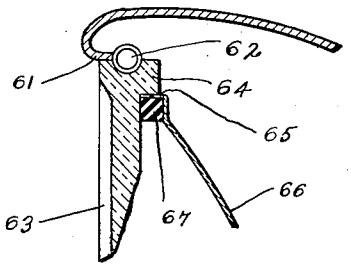


Fig. 4

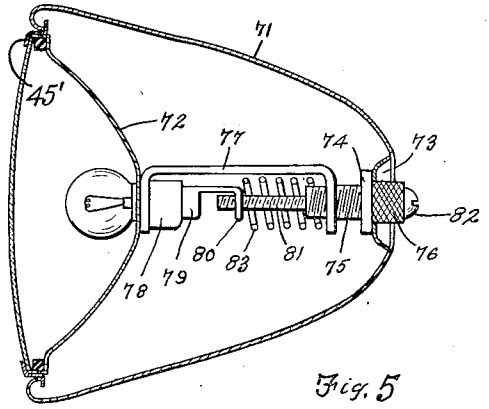


Fig. 5

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UNITED STATES PATENT OFFICE

1,958,627

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Application February 6, 1933, Serial No. 655,309

4 Claims. (Cl. 240—41.5)

This invention relates to headlights, particularly for use on automobiles, and is for the purpose of providing a structure which can be readily assembled and disassembled, and that when assembled will act effectively as an integral construction. My invention is particularly directed to the elimination of headlight elements which are put together or taken apart with a sliding fit and which consequently cannot be held thoroughly tight after the parts have worn to some extent. 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 drawings and the following description set forth in detail certain mechanism embodying the invention, such disclosed means constituting, however, only some of various mechanical forms in which the principle of the invention may be used.

In said annexed drawings:

Figs. 1, 2 and 3 are longitudinal central sections of three different forms of my headlight; Fig. 4 is a detail showing a modified construction for seating the lens; and Fig. 5 is a view illustrating another means of assembling the lamp and also means to focus the bulb.

Referring now to Fig. 1, the lamp casing consists of a bowl-shaped element 1, preferably of stamped or spun sheet metal having an inwardly directed groove 2 and an open front around which the edge of the bowl is bent in as at 3, the groove 2 being in a plane parallel to the plane of the front of the casing. The elements of the assembly are all adapted to be put into the casing through the front, no other openings being provided except such small ones as may be necessary for electric wiring, not shown, or for focusing arrangements where such are provided. Such of the assembly elements as are larger than the front opening are resilient so that they can be bent and slipped through.

In assembling the lamp, a solid metal spring ring 4 is snapped into place against the under side of the bead 3. Just behind this, a longer ring 5 of flat spring material having a flat front surface 6 parallel to the front of the bowl and bent back and outwardly as at 7 along its outer portion to fit the rear of the ring 4, is put in. This ring is shown in the drawings as of exactly the size to pass through the front opening of the casing, but as a matter of fact, it may be a little larger than this, having enough resiliency to be worked in. The lens 8, which may be of any commercial type having a suitably formed edge, but which must necessarily be smaller in diameter than the bowl opening, is brought against the inner edge portion 6 of the ring 5, and backed by a gasket 9 of cork, rubber, or the like. A reflector 10, flattened and flanged at the outer circumference to bear against and over the edge of the gasket 9, bears against the rear of this gasket and is pressed thereagainst by a leaf spring 11 which is supported at its outer ends upon a pair of seating rings 12 and 13 which are held upon opposite sides of the groove 2 by screws 14. The reflector has a central rearwardly directed tube or sleeve 15 to hold the lamp socket proper, the latter not being shown herein since it may be of any standard type.

In the modification shown in Fig. 2, the casing 21 is shallower than the casing 1 with a shallower front bead 23. An annular coiled spring 24 bears against the rear of the bead 23 and also holds a seating ring 25 in place. This seating ring is of heavier stock than the ring 5, Fig. 1, and need not be resilient since it is a close fit within the opening defined by the bead 23. It is flat in front and grooved as at 27 in the rear, the groove being for the reception of the spring 24.

Lens 28 for use with this form preferably has a flange 28′ somewhat in from the circumference to fit the ring 25. A gasket 29 backs the edge of the lens and is in turn pressed forward by the edge of the reflector 30. The reflector is pressed into position by the coiled spring 31 axially placed in the casing 21. Fig. 2 also illustrates a focusing arrangement comprising a threaded rod 32 movable axially by a nut 34 through which it passes. The nut 34 is rotatable in a bushing 36 in the rear of the lamp casing 21, but is held against axial movement by the same bushing.

A plate 32′ secured to the forward end of this rod carries a lamp socket 33 fastened thereto, the plate and socket being slidable within the sleeve 35 of the reflector 30.

In the modification shown in Fig. 3, the casing 41 is turned entirely back and inward at the front 43. The assembly comprises a resilient ring 45 which is substantially the inverse of the ring 5, Fig. 1, having its flat outer rim 46 bearing against the inside of the edge 43 and a forwardly and inwardly bent inner rim 47 supporting a gasket 47′ which, in turn, supports the rim of the lens 48. The lens is secured in position as before by the pressure of the reflector 50 against a gasket 49, the reflector having a rim flange 50′ to hold the elements in place. A tube 55 of substantial length is centrally placed in the rear

of the reflector. The closed bottom of this tube is perforated and threaded to receive a screw 56 which is threaded to a bushing 57 rotatably fastened inside the casing 41. The head 58 of the screw 56 is squared to take a wrench. This head is outside the casing. The screw 56 is not to focus the light, but is to put on the necessary pressure to hold the lamp assembly together.

Fig. 4 shows a modified assembly method, requiring the use of a lens having a special edge. Here the front edge of the casing is given a return bend as at 61. The inner edge of this bend supports an annular coiled spring 62 which lies in a groove of corresponding shape in the edge of the lens 63. The lens 63 has a rearward edge flange 64 which receives the forwardly directed rim flange 65 of the reflector 66. A gasket 67 between the reflector and the back of the lens completes the assembly.

Fig. 5 illustrates a method of assembling the reflector and casing, and also means to focus the bulb. In this figure the front elements of the assembly, such as the lens and seating ring 45', are shown as substantially the same form as in Fig. 3, but the mechanism here shown can be used with any front construction, either that of Fig. 1, Fig. 2, Fig. 3 or Fig. 4. The casing 71 and reflector 72 are the same as those illustrated in the other figures, except that the casing is indented and perforated at the rear central point, the indentation being indicated at 73. A flange 74 bears against the inner side of the indentation 73, this flange being one element of a screw assembly also comprising a threaded shaft 75 and a knurled head 76, the latter projecting rearwardly to the outside of the casing. The shaft 75 carries the correspondingly threaded rear end of a longitudinally disposed yoke 77, which is apertured at its forward end to permit passage of the lamp socket sleeve 78 and also to bear against the back of the reflector 72, thus transmitting the thrust from the inner rear end of the casing to the back of the reflector whereby the entire assembly is held together in the manner described for the other figures.

The lamp socket sleeve 78 carries a sliding socket member 79 with a rearward extension having a finger 80 intersecting the axial line of the assembly and having a threaded perforation on that line. A shaft 81 threaded in engagement with the perforation in the finger 80 and passing freely through the center of the shaft 75 terminates outside the rear of the knurled head 76 in a slotted head 82.

A coiled spring 83 surrounds the shaft 81 and bears at one end against the rear end of the yoke 77 and at the other against the finger 80, thus tending to move the sliding socket 79 forward and thus move the bulb forward. Retraction of the socket 79 and the bulb is accomplished by turning the slotted head 82, which moves the finger 80 backward along the shaft 81.

The assembly of Fig. 5 is dismounted by turning the knurled head 76 to bring the yoke 77 back, thus freeing the various front elements of the assembly, in the manner described for other forms of the device. The difference is that in Fig. 5 the knurled head 76 and the slotted head 82 are both taken out forwardly through the hole in the indentation 73. For convenience in handling the yoke 77 may be permanently fastened, as by solder or the like, to the back of the reflector 72.

Other modes of applying the principle of my invention may be employed instead of those explained, change being made as regards the mechanism 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, a casing having an inwardly directed flange, a reflector having a front annular flange, a glass closure supported by said reflector flange, the outer diameter of said reflector flange and closure being less than the inner diameter of said casing flange, an annular member having a radially outward portion engaging said casing flange and a radially inward portion engaging said closure, and means within said casing pressing said reflector outwardly.

2. In a lamp structure, a casing having an inwardly directed flange, a reflector having the diameter of its mouth less than the inner diameter of said casing flange, a transparent plate closing the mouth, an annular member having a radially outward portion engaging said casing flange and a radially inward portion engaging the edge of said plate and means within said casing forcing said reflector, plate and annular member outwardly, against the casing flange.

3. In a lamp structure, a casing having an inwardly directed flange, a light projecting device including a transparent closure within said casing, said light projecting device having its greatest outer diameter smaller than the inner diameter of said casing flange, an annular member having its front outer face engaging said casing flange and its rear inner face engaging said closure, and means within said casing pressing said light projecting device outwardly against said annular member.

4. In a lamp structure, a casing having a body extending to a main front opening for the introduction of a light projecting device and provided with an inwardly directed flange, a light projecting device including a transparent closure, means associated with said transparent closure and adapted in one relation of said closure and said inwardly directed flange to engage against the inner edge of said flange, said light projecting device and associated means having its greatest outer diameter larger than the smallest inner diameter of said inwardly directed flange, and means within said casing for pressing said light projecting device outwardly and seating the same against said inwardly directed flange.

CYRUS B. KURTZ.