Oct. 20, 1959 J. H. DIEDRING 2,909,653

SPRING LOCATED OUTLOOK LENS

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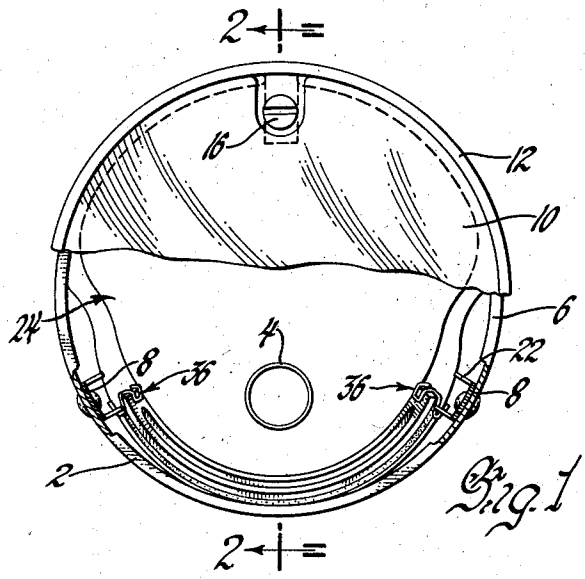


Fig. 1

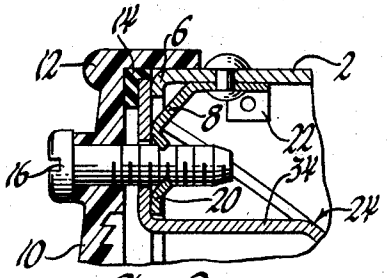


Fig. 2a

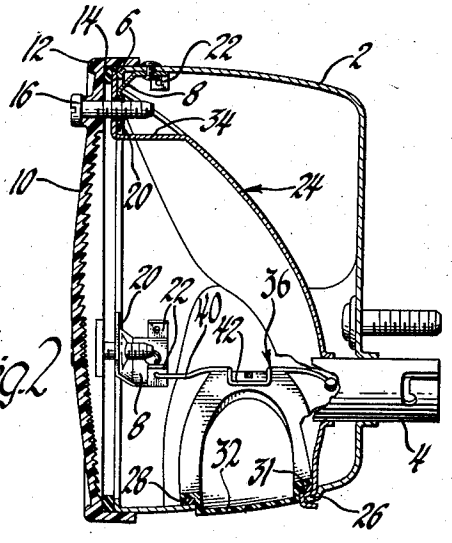


Fig. 2

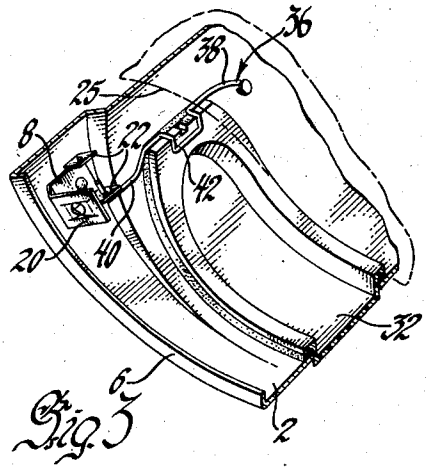


Fig. 3

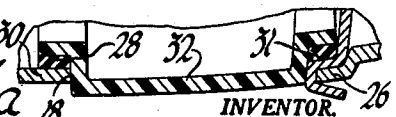


Fig. 3a

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SPRING LOCATED OUTLOOK LENS

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3 Claims. (Cl. 240—8.3)

This invention relates to a spring located outlook lens and, more particularly to a wire spring lens retainer for retaining a lens within a lens opening in a vehicle lamp.

It has always been difficult to mount a lens in a lamp in such a manner as to ensure a continued tight seal between the lens and the lamp casing. It is the practice to position a sealing gasket between the lens surface and the casing flange on which it is positioned in order to minimize this problem. However, it has been found by experience that such gaskets develop a permanent set over a period of time, thus tending to reduce the sealing pressure between the lens, gasket and body. This reduction in sealing pressure makes the seal between the parts less effective. This difficulty exists where the lens is made of either glass or plastic and where, as is the common practice in the art, the lens is retained within the lens aperture by means of a nut and bolt or equivalent assembly.

This problem of establishing and maintaining an adequate seal is especially acute where a plastic lens is used in an outlook aperture provided in the side wall of the lamp casing. In such instances, not only is there the problem of permanent set in the sealing gasket, but the use of either threaded attaching means or clamping elements at the ends of the lens tends to spring the center portion of the latter out of the aperture thereby breaking the seal. Obviously, an assembly of this type is undesirable because of the extreme weathering conditions to which lamps of the type described are subjected in normal use.

A solution to this problem is disclosed in the copending application of David P. Clayton and Lyle N. Williams, Serial No. 389,405, filed October 30, 1953, now Patent No. 2,866,082. As disclosed in this copending application, a generally U-shaped spring may be employed for engagement with the ends of the outlook lens to provide a bearing force thereon acting substantially tangentially to the lens face to urge the center portion of the lens into tighter position within the lens aperture. The resilient wire spring is locked vertically in position in the casing and has a length such that it is stressed on being assembled in the casing, a continuous resilient force thus being applied to the lens to compensate for any permanent set taken by the sealing gasket. The wire spring retainer of the present invention offers a different form of solution to the problem aforedescribed, and results in a resilient retainer of smaller dimensions than that of the copending application thereby avoiding interference with other parts of the lamp assembly and, in particular, the reflector of such a lamp.

It is therefore the primary object of this invention to provide a simple and inexpensive wire spring lens retainer which may be utilized in a compact lamp assembly without interfering with other parts assembled in the latter.

More specifically, it is intended within the scope of this invention to provide an improved wire spring lens retainer in combination with an outlook lens for establishing and maintaining an effective seal between the latter and the lamp casing. The resilient spring retainer of this invention is adapted to be mounted substantially axially of the lamp casing to either side of a reflector which may be positioned therein, thereby precluding interference between the retainer and reflector.

Further advantages of the present invention will become more apparent as the description proceeds, and in which reference is made to the following drawings in which:

Figure 1 is a front elevation, with parts broken away, of a lamp embodying the lens and retainer of this invention;

Figure 2 is a vertical section taken along line 2—2 of the lamp shown in Figure 1;

Figure 2*a* is an enlarged fragmentary view of a portion of Figure 2;

Figure 3 is a fragmentary perspective view of the wire spring retainer of this invention mounted at the end of an outlook lens;

Figure 3*a* is an enlarged fragmentary view of the outlook lens of Figure 2.

Referring now to the drawings, there is shown a lamp having a casing 2 with a suitable aperture in the rear wall thereof to receive a socket assembly 4 in which the usual bulb may be mounted. The forward end of the casing 2 is open and terminates in a radially inwardly directed flange 6. A plurality of fastening brackets 8 are circumferentially spaced about the inner side wall of the casing 2 adjacent the flange 6 thereof. The plastic or glass lens 10 having a rearwardly directed annular shoulder 12 closes the open front of the casing 2, there being an annular gasket 14 positioned between the inner face of the lens 10 and the flange 6 formed on the casing 2. The lens 10 is held in position on the casing by a plurality of bolts or speed nuts 16 which extend through the fastening brackets 8 in the usual manner.

It will be noted that at least two of the brackets 8 are axially aligned with the ends of an aperture 18 in the lower side wall of the lamp casing 2 beneath the socket assembly 4. Each of these brackets includes a radially inwardly directed fastener leg 20, engaged by the nuts 16, and two identical spaced radially inwardly directed legs 22 for a purpose which will appear more fully hereinafter.

The reflector 24 is positioned about the socket assembly 4 and has a lower portion located behind the aperture 18 and an upwardly and forwardly curved portion mounted within the casing 4. The lower portion of the reflector is clamped about a flange 26 which defines the aperture 18 within the casing 2. A gasket 28 surrounds the aperture 18 and is seated on the flange 30 of casing 2 and the shoulder 31 formed on the reflector. The outlook lens 32 is seated on the gasket 28 beneath the socket assembly. The upper portion 34 of the reflector is stamped out and projects forwardly and upwardly and is seated between the flange 6 of the casing 2 and the gasket 14, this portion of the reflector being suitably apertured to permit the speed nuts 16 to pass therethrough for engagement with the portion 20 of the bracket 8. It will thus be seen that the substantially dish-shaped reflector 24 extends throughout the vertical height of the casing 2. At least throughout is lower portion, the peripheral edges 25 (Figure 3) of the reflector 24 are radially spaced from the inner side wall of the casing 2.

Two resilient wire spring retainers 36 are provided, one each for engagement with the respective ends of the outlook lens 32. Each of these springs 36 has one end 38 riveted or otherwise secured to the inner side wall of the casing 2, while the other end 40 is adapted to be hooked or locked in one or the other leg 22 of the brackets 8. An intermediate portion 42 of each spring is bent inwardly and downwardly to engage the respective ends of the lens 32.

After the outlook lens is placed within the casing aperture and before the lens **10** is placed on the open front thereof, the respective springs **36** are stretched for engagement of their ends **40** with the legs **22** of brackets **8**, the intermediate portion **42** of each spring firmly engaging the end surfaces of the outlook lens **32**. The length of each retainer spring **36** is such that it is stressed on being so assembled, thereby continuously providing a resilient force on the lens to compensate for any permanent set taken by the gasket **28**. The bearing force applied to the ends of the lens **32** is not applied in a plane substantially at right angles to the inner surface of the lens as is the present practice, but is instead applied at an angle more nearly tangential to the lens face to urge the center portion of the lens into tighter position within the lens aperture. Thus the springs **36** are stretched axially of the lamp casing to either side of the peripheral edge **25** of the reflector **24**. Moreover, the brackets **8** may all be identical and mass produced inasmuch as each contains the legs **22** which may selectively cooperate with the portion **40** of each spring **36** in locking the outlook lens **32** within the aperture **18**.

While this invention has been described with reference to a plastic outlook lens, it should be understood that it is not necessarily limited to such application. This invention is equally as applicable to a glass lens and may be applied to a lens other than an outlook lens. Thus the form of the invention herein disclosed is but a preferred form, and other forms might be adopted which come within the scope of the claims which follow.

What is claimed is:

1. A lamp comprising a casing having a side wall, a plurality of brackets circumferentially spaced about said side wall interiorly of said casing, an aperture in the side wall of said casing, a resilient gasket surrounding said aperture, an outlook lens seated on said gasket within said aperture, and a resilient wire retainer engaging each end of said outlook lens, each of said retainers extending axially of said casing interiorly of the latter along said side wall, each of said retainers having one end grounded to said side wall and the other end detachably connected to one of said brackets, an intermediate portion of each retainer engaging a respective outlook lens end surface to apply a force thereto substantially tangential to the surface of said lens.

2. A lamp comprising a casing having a curved side wall and an opening therein, a plurality of fastener brackets circumferentially spaced about said side wall interiorly of said casing adjacent the opening therein, a source of illumination in said casing opposite said opening, a lens forming a closure for said casing opening, fastener means engaging said lens and said brackets to hold said lens in said casing opening, an aperture in the side wall of said casing, a resilient gasket surrounding said aperture, an outlook lens seated on said gasket within said aperture, and a resilient wire retainer engaging each end of said outlook lens, each of said retainers extending axially of said casing interiorly of the latter along said side wall, each of said retainers having one end grounded to said side wall and the other end detachably connected to one of said brackets, an intermediate portion of each retainer engaging a respective outlook lens end surface to apply a force thereto substantially tangential to the surface of said lens.

3. A lamp comprising a casing having a curved side wall terminating in an opening, a plurality of fastener brackets circumferentially spaced about said side wall interiorly of said casing adjacent said opening, a source of illumination in said casing opposite said opening, a cup-shaped reflector surrounding said source of illumination and curved forwardly at its top to terminate adjacent said casing opening, a lens forming a closure for said casing opening, fasteners engaging said lens and said brackets to hold said lens in said casing opening, an aperture in the side wall of said casing between the lower portion of said reflector and said lens closure, a resilient gasket seated in said aperture, an outlook lens seated on said gasket within said aperture, and a resilient wire retainer engaging each end of said outlook lens, each of said retainers extending axially of said casing interiorly of the latter along said side wall between the latter and the peripheral edge of said reflector, each of said retainers having one end grounded to said side wall and the other end detachably connected to one of said brackets, an intermediate portion of each retainer engaging a respective outlook lens end surface to apply a force thereto substantially tangential to the surface of said lens.

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