Oct. 1, 1963 N. P. WORDEN 3,105,642

LAMP MOUNTING

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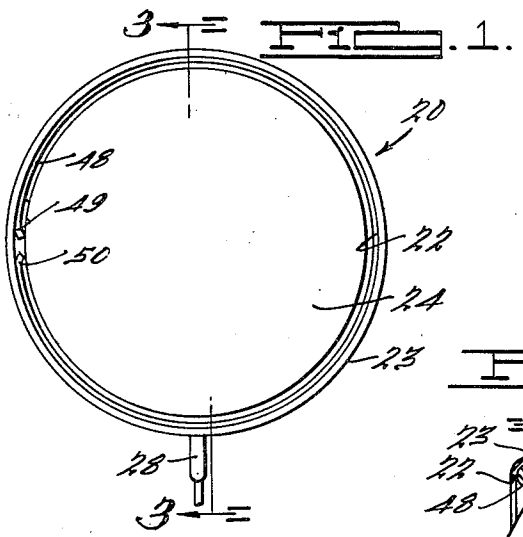


FIG. 1.

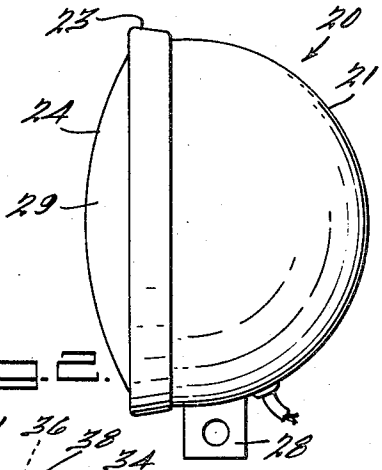


FIG. 2.

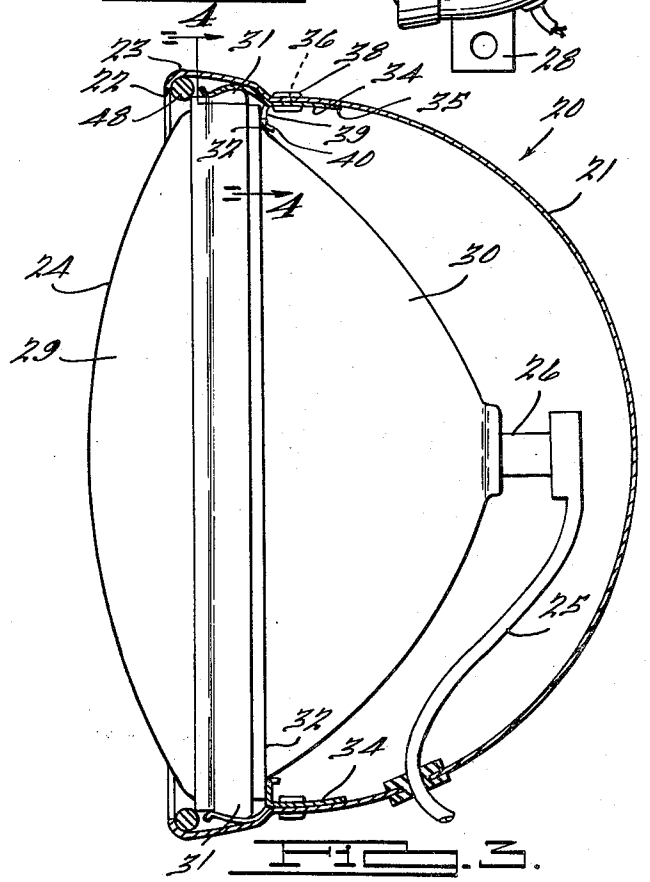


FIG. 3.

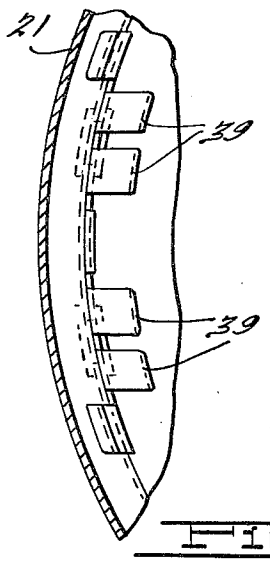


FIG. 4.

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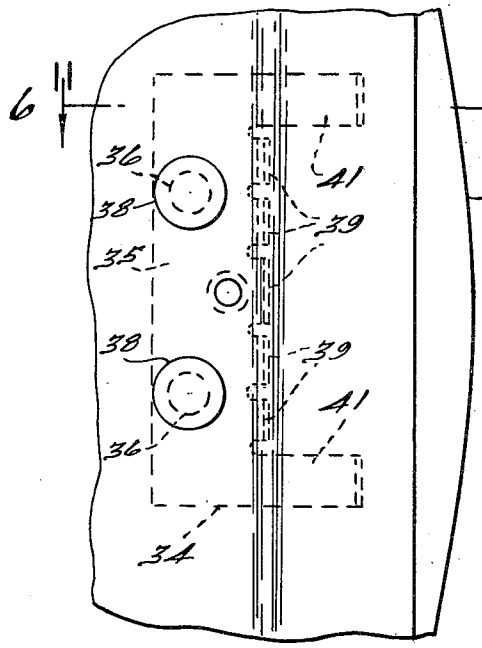
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LAMP MOUNTING

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FIG. 5.



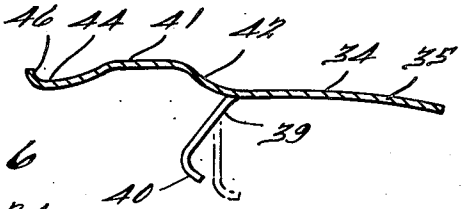


FIG. 7.

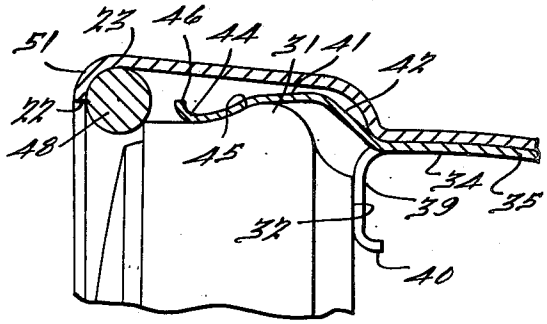


FIG. 6.

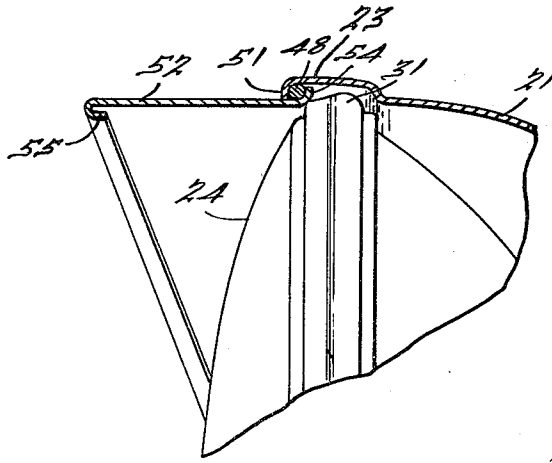


FIG. 8.

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LAMP MOUNTING

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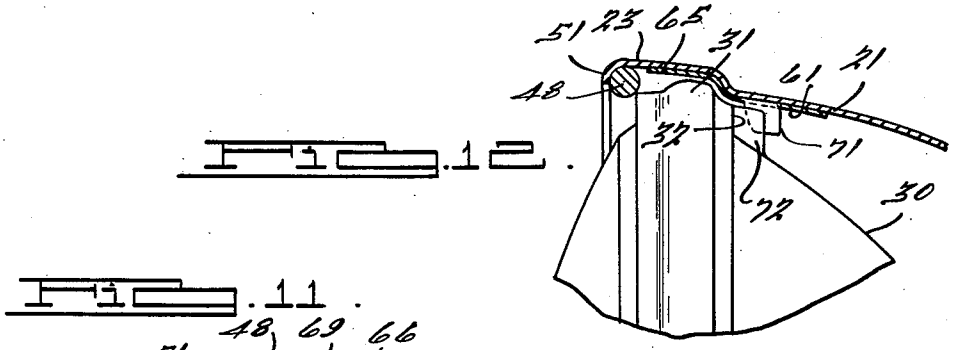


FIG. 12.

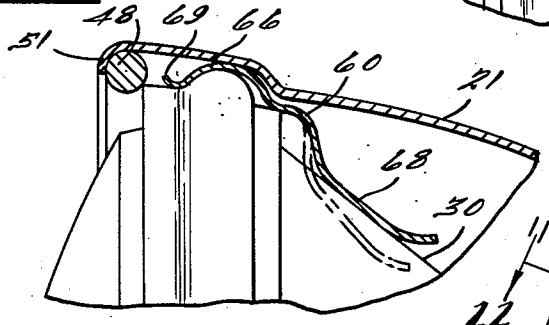


FIG. 11.

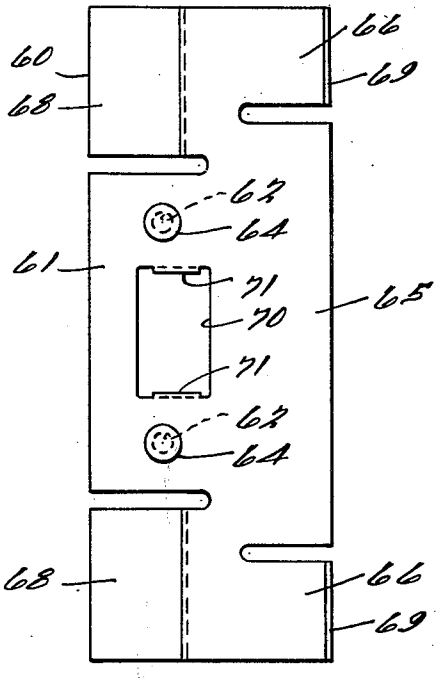


FIG. 9.

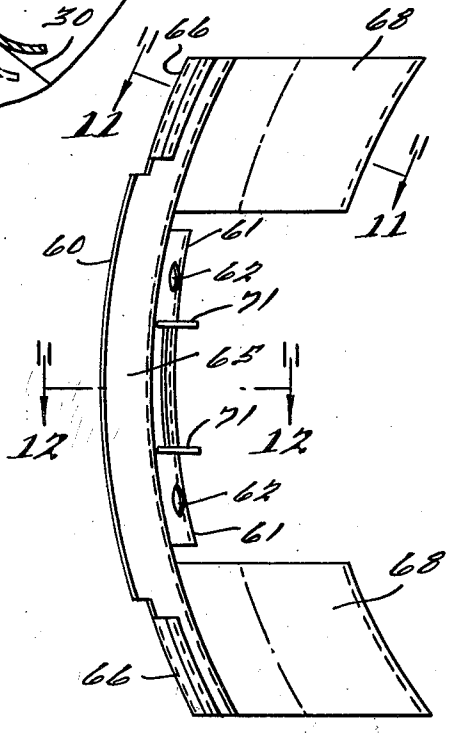


FIG. 10.

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LAMP MOUNTING

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Filed June 22, 1959, Ser. No. 821,869
1 Claim. (Cl. 240—41.5)

This invention relates generally to a lamp assembly and more particularly to a mounting structure for a unitary glass lamp suitable, for example, for use as a head light, spot light, working light, warning light or other light for a vehicle.

Because of the relatively fragile nature of totally enclosed glass lamps commonly termed "sealed beam" lamps, it is difficult to satisfactorily mount the lamp in a supporting enclosure with the rigidity necessary to prevent movement of the lamp relative to the enclosure yet provide for a certain flexibility in the mounting structure to accommodate dimensional errors in the lamp.

The lamp mounting structure of the present invention solves this problem by supporting the lamp in a pair of spring clips having a plurality of spaced resilient members that support and position the lamp in a novel manner. The spring clips are disposed adjacent a circular frontal opening of a lamp enclosure.

Accordingly, the broad object of the present invention is to provide a new and improved mounting means for a glass lamp.

It is another object of the present invention to provide a mounting means for a glass lamp that automatically compensates for dimensional errors in the lamp by utilizing a plurality of novel support members that are resiliently variable both radially and axially of a mounting enclosure of generally circular cross-section.

It is another object of the present invention to provide a supporting structure and enclosure for a glass lamp whereby the lamp can be assembled with the supporting enclosure without requiring the use of fixtures or special tools for the alignment thereof.

A more specific object of the present invention is to provide a mounting structure for a glass lamp comprising a plurality of spring clips secured within a lamp enclosure in spaced relationship. The spring clips have a plurality of resilient fingers for the retention and positioning of the lamp within the enclosure. The spaced clips maintain the lamp in relatively fixed position with respect to the enclosure by supporting the lamp both axially and radially thereof. The lamp may be locked into position in the supporting enclosure by a retainer ring of spring material that is accepted in a flanged rim on the lamp enclosure. The retainer ring further restricts axial movement of the lamp with respect to the enclosure.

Other advantages and objects of the present invention will become apparent to those skilled in the art from the following detailed description thereof, wherein reference is made to the drawings, in which:

FIGURE 1 is a front elevational view of a lamp embodying certain of the principles of the present invention, shown mounted within a supporting enclosure;

FIG. 2 is a side elevational view of the lamp and enclosure of FIG. 1;

FIG. 3 is a cross-sectional view taken substantially along the line 3—3 of FIG. 1;

FIG. 4 is a cross-sectional view taken substantially along the line 4—4 of FIG. 3;

FIG. 5 is a top view of the lamp of FIG. 2 showing the mounting clip of the present invention in phantom view;

FIG. 6 is a cross-sectional view of the mounting clip

of the present invention, as shown in FIG. 3, and enlarged for clarity;

FIG. 7 is a cross-sectional view of the mounting clip similar to FIG. 6, showing the relative deflection of the rear lamp supports;

FIG. 8 is a cross-sectional view of a lamp enclosure with a lamp mounted therein and with an accessory visor attached thereto;

FIG. 9 is a top elevation of a modified form of mounting clip of the present invention;

FIG. 10 is a front elevational view of the mounting clip of FIG. 9;

FIG. 11 is a cross-sectional view taken substantially along the line 11—11 of FIG. 10; and

FIG. 12 is a cross-sectional view taken substantially along the line 12—12 of FIG. 10.

Referring to FIGS. 1 through 7 of the drawings, a lamp assembly 20, which may be and is herein described as being used as a head lamp for a vehicle such as a tractor, comprising a supporting enclosure 21 having a circular frontal opening 22 therein. A unitary glass head lamp 24, of circular cross section and commonly known as a "sealed beam" head lamp is disposed within the opening 22. The enclosure 21 has a radially outwardly extending rim 23 adjacent the frontal opening 22 thereof. An electrical conductor 25, for connection of the head lamp 24 to a source of electrical energy, is shown connected to a rear terminal 26 of the head lamp 24. A supporting bracket 28 is secured to the lower extremity of the enclosure 21 to facilitate mounting of the head lamp assembly 20 on a vehicle or the like (not shown). The enclosure 21 may be of any suitable configuration but preferably has a frontal opening 22 of circular configuration.

The head lamp 24 is provided with a generally convex frontal lens portion 29 and a generally conical reflector portion 30. The reflector portion 30 is radially convergent rearwardly of the lens portion 29. The head lamp 24 has a bead 31 along the outer peripheral edge thereof to facilitate engagement of the support means of the present invention with the head lamp 24, as will be described. A faced shoulder 32 is disposed radially inwardly and rearwardly of the peripheral bead 31 with the face thereof lying in a plane generally normal to the central axis of the head lamp 24.

In accordance with the present invention, the head lamp 24 is positioned and supported within the frontal opening 22 of the enclosure 21 by a plurality of resilient clips 34, representatively two, preferably made from high strength spring steel and disposed diametrically of the frontal opening 22. The clips 34 are identical in construction and, accordingly, a description of one of the clips will suffice. The resilient clips 34 are secured to the enclosure 21 as by riveting, welding or the like. The clip comprises an attachment portion 35 having a plurality of spaced holes 36 therein for the acceptance of a like plurality of rivets 38. The clip 34 is formed with a curvature similar to the curvature of the enclosure 21 at the point of attachment thereto. The clip 34 is provided with a plurality of spaced, independently flexible, radially inwardly extending positioners 39, each of which is provided with a folded end portion 40 to rigidify the lower extremity thereof and to form a cam surface to facilitate installation of the lamp. The spring positioners 39 extend generally normal to the attachment portion 35 of the spring clip 34 and are adapted to be flexed rearwardly (see FIG. 7) upon the insertion of the head lamp 24 through the frontal opening 22 and into the enclosure 21 of the head lamp assembly 20. The spring positioners 39 of the spring clip 34 are engageable with the faced shoulder 32 on the head lamp 24 to position the head lamp

24 axially of the enclosure 21 by resiliently limiting and restricting rearward movement thereof with respect to the enclosure 21. The spring clip 34 is provided with a pair of spaced forwardly extending fingers 41 that extend generally longitudinally of the enclosure 21 at opposite sides of the spring positioners 39. The fingers 41 have a radially outwardly extending portion 42 that provides a clearance space for the bead 31 of the head lamp 24 and a radially inwardly extending portion 44 having a configuration adapted to be engageable with a forward edge surface 45 of the bead 31 in locking engagement. The fingers 41 are provided with a folded terminal end portion 46 to strengthen the fingers 41 and to form a cam surface to facilitate the radial outward flexure of the fingers 41 upon insertion of the head lamp 24 thereunder.

Upon the insertion of a head lamp 24 through the frontal opening 22 of the enclosure 21, the forwardly extending fingers 41 are biased radially outwardly to permit passage of the head lamp 24. Upon engagement of the shoulder 32 of the head lamp 24 with the radially inwardly extending positioners 39 on the clips 34, and the partial deflection thereof, the fingers 41 snap radially inwardly to engage the forward edge surface 45 of the bead 31 thereby to bias the head lamp rearwardly against the positioners 39 to locate the head lamp 24 axially and radially of the enclosure 21. A retainer ring 48, in the form of a circular loop of spring wire having spaced portions 49 and 50 so as to be collapsible, is insertable under an inwardly folded flange 51 on the frontal rim 23. Insertion of the spring retainer 48 behind the flange 51 locks the head lamp 24 against axial forward movement with respect to the enclosure 21. The spring retainer 48 is inserted under the lip 51 by compressing the retainer 48 prior to insertion thereof. The spring retainer 48 cooperates with the fingers 41, which exert an axial rearward bias on the surface 45 of the bead 31, to balance the axial forward bias of the positioners 39 on the head lamp 24.

Referring to FIG. 7, the relative flexure of the positioners 39 of the spring clip 34 is shown in phantom lines. Because the spring positioners 39 are individually bendable, they bias the head lamp 24 forwardly with respect to the enclosure 21 independently of one another. Therefore, variations in the shouldered surface 32 of the head lamp 24 will be accommodated and the bead portion 31 of the head lamp 24 will be maintained in a plane substantially normal to the central axis of the head lamp enclosure.

Referring to FIG. 8, the head lamp enclosure 21 is provided with a forwardly extending visor 52 having an outwardly folded lip 54 which is engageable behind the spring retainer 48. The visor 52 is provided with a folded frontal edge 55 to strengthen the visor.

A modified resilient mounting clip 60 is shown in FIGS. 9 through 12. The mounting clip 60 comprises an attachment portion 61 having a pair of spaced holes 62 therein for the acceptance of a pair of rivets 64. A forwardly extending locator portion 65 is shaped so as to be contiguous with the rim portion 23 of the enclosure 21. A pair of forwardly extending fingers 66 at the opposite sides of the locator portion 65 are resiliently engageable with the bead portion 31 of the head lamp 24.

The mounting clip 60 is provided with a pair of radially inwardly extending positioning arms 68 that are folded downwardly therefrom. The arms 63 are engageable with the conical rear surface 30 of the head lamp 24.

The forwardly extending fingers 66 are bent radially outwardly in curvilinear fashion so as to provide clearance for the peripheral bead 31 of the head lamp 24, then radially inwardly to engage the bead 31. A frontal edge portion 69 on each of the resilient fingers 66 is folded radially outwardly so as to provide a camming surface to facilitate insertion of the bead portion 31 of the head lamp 24 thereunder and to rigidify the fingers 66. A spring retainer 48 is inserted behind the inwardly folded flange 51 on the peripheral rim 23 of the enclosure 21 in a manner described hereinbefore.

The mounting clip 60 is provided with a central cutout portion 70 and with a pair of spaced inwardly extending ears 71 that accept a boss 72 on the head lamp 24 therebetween to index or position the head lamp 24 rotatively within the enclosure 21.

While it will be apparent that the embodiments of the invention herein disclosed are well calculated to fulfill the objects of the invention, it will be appreciated that the invention is susceptible to modification, variation and change without departing from the proper scope or fair meaning of the subjoined claim.

What is claimed is:

A lamp assembly including a lamp of circular lateral cross section having a peripheral bead at the front thereof, a radially extending indexing boss, and a generally conical convergent rear surface, a lamp enclosure having a closed rear portion and a circular frontal opening for receiving said lamp internally thereof, and a pair of one-piece spring mounting clips attached to said enclosure adjacent said frontal opening in diametrically opposed relationship, each of said clips having a pair of integral circumferentially spaced resilient fingers extending toward said opening resiliently engaged with the bead on said lamp to bias said lamp toward the rear of said enclosure and to restrict movement of said lamp radially of said frontal opening, each of said clips having a pair of integral circumferentially spaced fingers extending inwardly away from said frontal opening resiliently engaged with the rear surface of said lamp for restricting movement of said lamp in a direction toward the rear of said enclosure, each of said clips having a pair of integral circumferentially spaced radially inwardly extending positioning fingers engageable with an indexing boss on said lamp to preclude rotation of said lamp relative to said enclosure.

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