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E. G. WILDE

3,167,258

LIGHT FIXTURE

Filed May 23, 1961

FIG. 1

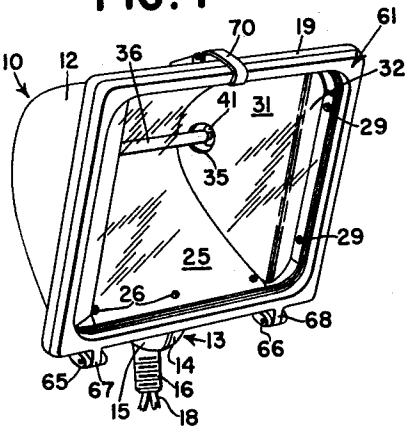


FIG. 2

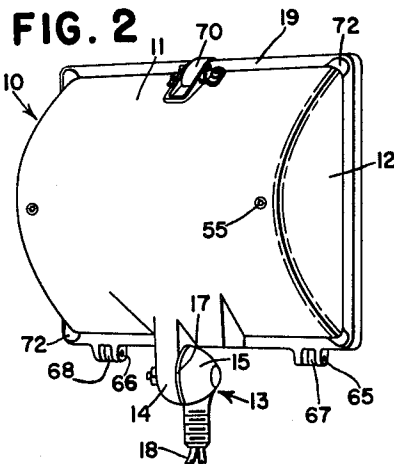


FIG. 3

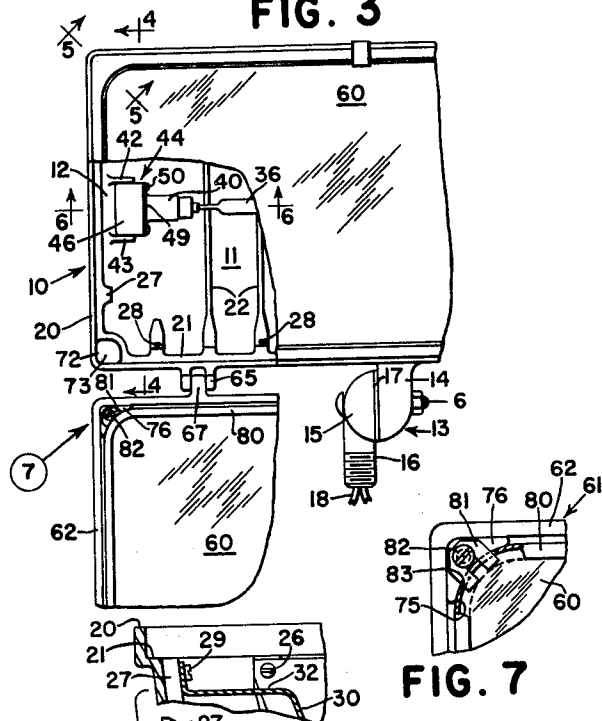


FIG. 4

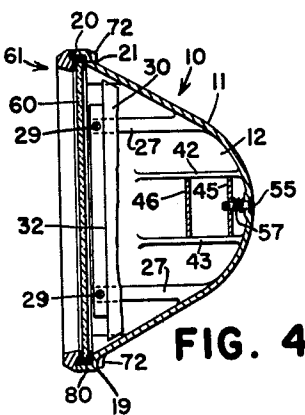


FIG. 7

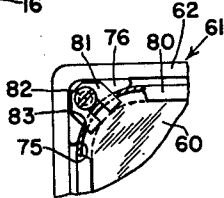


FIG. 5

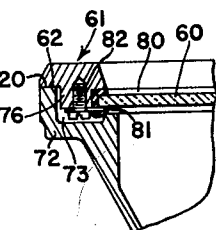
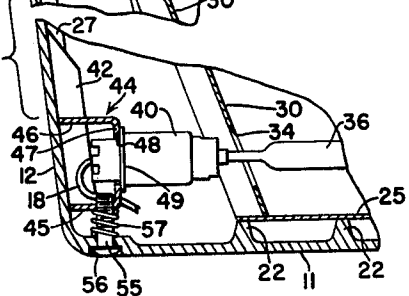


FIG. 6



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3,167,258

LIGHT FIXTURE

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9 Claims. (Cl. 240—41.3)

This invention relates to a light fixture and more particularly to a fixture adapted for having mounted therein a bulb or lamp capable of generating intense heat.

Heretofore lamp fixtures of this type have been permanently adjusted relative to proper focusing in relation to the reflectors at the factory or place of manufacture. In some fixtures there has been provision for adjustment adjacent the connectors or sockets which hold the lamps or bulbs. However, adjustment inside the fixture or fixture casing creates certain problems due primarily to the intense heat generated by the bulb. If the light has been burning, it must be shut down for a period so that the fixture becomes cool enough to prevent burns or discomfort to the maintenance man. With the light shut off, there is lacking the feature or advantage of being able to adjust the lamp while having visual inspection of its beam. In other words, the light must be shut down and the lamp adjusted. The light is then turned on and if the result is not satisfactory it must be again shut down and the lamps adjusted. In many instances the switch is at a distant point. Consequently adjustment is either a two man job or it may be done by one man who must move between the switch and light each time the lamp is adjusted. Since the fixture is normally in high location, this creates a relatively serious problem.

It is therefor one of the main objects of this invention to provide adjustment structure on the fixture by which adjustment may occur while the light is burning and without being subject to the intense heat of the bulb and reflectors.

It is also an object of the present invention to provide a lamp fixture of a unique and novel nature which is completely sealed against moisture and foreign particles and yet may be adjustable and opened without injury to the sealing elements of the fixture.

Other objects and advantages of the present invention will become apparent to those skilled in the art as the nature of the invention is better understood from the following disclosure and as shown in the accompanying drawings.

FIGURE 1 is a front and side perspective view of the entire lamp incorporating the structure of the present invention.

FIGURE 2 is a rear perspective view of the lamp shown in FIGURE 1.

FIGURE 3 is a front view of the lamp with portions broken away to show interior structure and showing a portion of the lens door in the open position.

FIGURE 4 is a sectional view taken substantially along the line 4—4 of FIGURE 3.

FIGURE 5 is a sectional view taken along the line 5—5 of FIGURE 3.

FIGURE 6 is an enlarged sectional view taken substantially along the line 6—6 of FIGURE 3.

FIGURE 7 is an enlarged view taken at the corner of the lens shown at 7 in FIGURE 3 and showing a portion of the gasket in section.

Referring now to the drawings, the lamp itself is composed in its preferred form of a cast aluminum casing 10 with a parabolic rear wall 11 and end walls, one of which is indicated at 12. The casing normally opens forwardly. The casing 10 is supported from underneath by means of a two-piece knuckle joint 13 composed of one part 14 integral with the casing 10 and a second part 15 having a depending hollow section 16 threaded on the outside for

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mounting on a support, not shown. Wires 18 extend through the knuckle joint 13. The two parts 14, 15 are connected by a bolt and nut combination 6 which may be loosened to permit tilting of the lamp at the desired inclination. A gasket 17 is positioned between the parts 14, 15.

The casing 10 has an outwardly projecting rectangular flange 19 with a forwardly facing peripheral edge 20 and a peripheral shoulder or ledge 21 just rearward of and inward of the edge 20.

The casing 10 has a series of internal ribs 22 projecting inwardly from the internal surface of the wall 11. The ribs 22 extend completely around the surface of the wall 11 and terminate at the shoulder 21. A highly polished U-shaped or, to be more exact, a parabolic shaped reflector panel 25 is positioned on the ribs 22. The ribs 22 are tapped at 28 to receive tap screws 26 which fix the panel 25 thereto. The ribs 22 are sufficiently close together that they provide adequate support for the panel. The ribs 22 also serve as a means for dissipating the intense heat of the lamp since they provide a layer of air between the reflector panel 25 and the casing wall 11.

The end walls 12 are also provided with internal reinforcing ribs, such as at 27, which extend from the casing wall 11 to the shoulder 21. The ribs 27 are suitably tapped to receive screws 29 which hold end reflector panels 30, 31. The panels 30, 31 have parabolic edges conforming to and lying against the internal surface of the reflector panel 25. The panels 30, 31 are also highly polished to reflect light. The outer edges of the end panels 30, 31 are flanged or formed outwardly, at 32, to have offset portions lying adjacent the ends of the ribs 27 which receive the aforementioned screws 29. The end panels 30, 31 are provided with circular openings 34, 35 through which opposite ends of a highly concentrated incandescent quartz lamp or bulb 36 may extend. The openings 34, 35 are sufficiently large to accommodate adjustment of the lamp relative to the casing 10 or reflector panel 25.

Highly critical in operation of the quartz type lamp is its proper positioning relative to the reflector panel 25. Normally the positioning is done very accurately at the factory. The bulb is normally positioned substantially in the focus axis of the panel 25. However, due to handling and shipping the bulb is often received out of proper focus in respect to the reflector. Consequently there is provided adjusting means in the casing structure itself which permits minute positioning of the bulb or lamp 36.

Opposite ends of the bulb 36 extend into sockets or connectors 40, 41, each having bulb receiving means. Since the connectors 40, 41 and their supporting structure are identical, details thereof will be limited to that adjacent the end panel 30 and in respect to the connector 40. Cast intergally with the casing end wall 12 are a pair of parallel spaced apart ribs or tracks 42, 43 which extend fore and aft toward the open end of the casing 10. Positioned between the tracks 42, 43 is a U-shaped bracket 44 with inner and outer leg portions 45, 46 having opposite edges contacting and adapted for sliding relation with the tracks 42, 43. The bracket 44 also has a bight portion 47 facing the end deflector 30 and has an opening 48 therein through which the end of the connector 40 may extend. The connector 40 has a rigid flange 49 lying against the bight portion 47 and connected thereto by screws 50. As is obvious, the connector 40 faces the respective opening 34 in the reflector panel 30.

The leg portion 45 is tapped to receive an adjusting element in the form of a set screw 55, the shank of

which extends through the casing wall 11 adjacent the rearmost extremity thereof. The casing 11 is countersunk at 56 to receive the screw head. Surrounding the screw 55 and extending between the casing wall 11 and bracket leg 45 is a coil spring 57 which normally biases the bracket 44 and connector 40 outwardly toward the open side of the casing. The screw 55 is provided with a suitable wrench receiving means or head to permit rotation thereof. The head is generally larger than the opening for the bolt and consequently a seal is retained.

By viewing the various figures of the drawings, it becomes apparent that positioning of the quartz lamp 36 to its exact focus point relative to the reflector panels may be done by turning the screws, such as at 55, at opposite ends of the casing 11. By so doing the maintenance man may adjust the bulb 36 at a position rearward of the casing 11 where he will be shielded from the intense heat of the bulb and also while viewing the effective results of his adjustments.

The casing 10 is closed at its open end by lens structure which includes a tempered lens 60 and a supporting rim or lens frame 61 which conforms substantially to the rectangular shape of the flange 19. The rim 61 is provided with a peripheral rearwardly facing edge 62 which normally faces and lies adjacent the forwardly facing edge 20 of the flange 19. The main portion of the lens frame 61 is a ledge lying opposite the shoulder or ledge 21 of the casing 10 and defining therewith a peripheral groove receiving the peripheral edge of the lens 60. The casing 10 has two pairs of depending lugs 65, 66 spaced apart to accommodate a pair of lugs 67, 68 on the lens frame 61. The lugs 65, 66, 67, 68 are hinged interconnected to permit the lens structure to swing open and shut. Atop the casing wall 11, there is mounted thereon a spring clip 70 of a conventional over center lock design which is adapted to extend over the rim 61 and retain the rim 61 under pressurized contact with the casing 10.

At each corner of the casing 10 there is cast a rearwardly projecting boss portion 72. The purpose of the boss portion 72 is to provide sufficient material at the corners to have a countersunk opening 73. Each corner of the lens 60 is rounded at 75 (FIGURE 7) and at each corner of the rim 61 there is provided an excess thickness 76 which is normally in alignment with the openings 73 of the casing 10. A U-shaped rubber gasket 80 with opposite legs thereof lying adjacent opposite or inner and outer surfaces of the lens 60 extends around the complete peripheral edge of the lens. The lens 60 is supported on the rim 61 by means of corner clips 81 which are thin plate elements partially overlying the edge of lens frame 61 and the inner surface of the lens 60. The clips 81 are supported on the corners 76 of the rim 61 by means of screws 82. As may be seen in FIGURES 3, 5 and 7, there is provided a slit, indicated at 83, in the gasket 80 through which the clip 81 may extend to contact directly the surface of the lens 60. It will be noted that one leg portion of the gasket 80 is outward of the clip 81 so that as the rim is closed the gasket leg will seal against the clip 81. In the closed position between the rim and casing it will also be noted that opening 73 accommodates the head of the screw 81. Also as is clearly evident in FIGURE 4, the gasket 81 normally rests against the shoulder 21 and the rim 61, thereby maintaining a perfect moisture seal completely around the lens 60. The spring lock 70 maintains sufficient pressure between the gasket 80, the lens 60, and the surrounding structure.

While only one form of the invention has been shown, it should be recognized that other forms and variations will occur to those skilled in the art. Therefore, it should be understood that the present disclosure was shown in detailed manner for the purpose of clearly and concisely illustrating the principles of the invention, and it was not the intention to limit or narrow the invention beyond the broad concept set forth in the appended claims.

What is claimed is:

1. A lamp fixture comprising: a lamp casing including a forwardly opening parabolic wall and integral end walls for closing the ends of the parabolic wall, said walls having a forwardly facing rectangular peripheral edge and an internal rectangular shoulder inwardly and rearwardly of the peripheral edge, said casing walls further having internal rib sections; a parabolic reflector facing forwardly and lying adjacent the ribs; means fixing the reflector to the ribs; end reflectors adjacent and fixed to the ribs on the end walls of the casing and having parabolic edges engaging the internal curvature of the parabolic reflector, said end reflectors having aligned openings; a pair of bulb connectors disposed between the end reflectors and the end walls of the casings and having bulb receiving means facing the respective openings; an elongated filament bulb disposed across the lamp casing substantially on the focus axis of the parabolic reflector and having opposite ends extending through the respective openings in the end reflectors and supported in the bulb receiving means; means mounting the connectors to said casing including tracks rigid with and internally of the end walls and extending fore and aft toward the open end of the casing, and guide means on the connectors engaging the tracks to permit movement of the filament bulb toward or away from the open end of the casing; means extending through the main casing connected respectively to the guide means for selectively adjusting the filament bulb relative to the reflectors, said latter means having adjusting elements external of the casing for effecting the adjustment; a rectangular shaped lens having rounded corners and inner and outer surfaces for closing the forward opening of the casing; a rectangular shaped frame bordering the lens and having a peripheral surface facing and normally in contact with the forward peripheral surface of the casing and a rectangular shoulder offset inwardly of the peripheral surface, said shoulder of said casing and said shoulder of the frame defining a rectangular peripheral groove accommodating the peripheral edge of the lens; a U-shaped gasket extending around the edge of the lens with the legs thereof disposed adjacent the inner and outer surfaces respectively of the lens; corner clips adjacent each of the rounded corners of the lens having portions thereof overlying and in engagement with the lens surface and fixed to the lens frame whereby said lens will normally be retained on the frame, said gasket having therein edge slits at the corners for accommodating the clips whereby said clips will be disposed between portions of legs of said U-shaped gasket and the inner surface of the lens.
2. A lamp fixture comprising: a lamp casing opening forwardly and closed by walls at its rear and ends, said walls having a forwardly facing rectangular peripheral edge and an internal rectangular shoulder inwardly and rearwardly of the peripheral edge; a parabolic reflector mounted in the casing and facing forwardly; end reflectors supported in the casing at opposite ends of the parabolic reflector and having substantially parabolic edges engaging the internal curvature of the parabolic reflector, said end reflectors having aligned openings; a pair of bulb connectors disposed between the end reflectors and the walls of the casings and having bulb receiving means facing the respective openings; an elongated filament bulb disposed across the lamp casing substantially on the focus axis of the parabolic reflector and having opposite ends extending through the respective openings in the end reflectors and supported in the bulb receiving means; means counting the connectors to said casing including tracks rigid with the casing walls and extending fore and aft toward the open end of the casing, and guide means on the connectors engaging the tracks to permit movement of the filament bulb toward or away from the open end of the casing; means extending through the casing connected respectively to the guide means for selectively adjusting the filament bulb relative to the reflectors, said

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latter means having adjusting elements external of the casing for effecting the adjustment; a rectangular shaped lens having rounded corners and inner and outer surfaces for closing the forward opening of the casing; a rectangular shaped frame bordering the lens and having a peripheral surface facing and normally in contact with the forward peripheral surface of the casing and a rectangular shoulder offset inwardly of the peripheral surface, said shoulder of said casing and said shoulder of the frame defining a rectangular peripheral groove accommodating the peripheral edge of the lens; a U-shaped gasket extending around the edge of the lens with the legs thereof disposed adjacent the inner and outer surfaces respectively of the lens; corner clips adjacent each of rounded corners of the lens having portions thereof overlying and in engagement with the lens surface and fixed to the lens frame whereby said lens will normally be retained on the frame, said gasket having therein edge slits at the corners for accommodating the clips whereby said clips will be disposed between portions of legs of said U-shaped gasket and the inner surface of the lens.

3. A lamp fixture comprising: a lamp casing opening forwardly and closed by walls at its rear and ends, said walls having a forward rectangular edge; rectangular lens means supported on the casing for closing the forward open side thereof; a parabolic reflector mounted in the casing and facing forwardly; end reflectors supported in the casing at opposite ends of the parabolic reflector and having substantially parabolic edges engaging the internal curvature of the parabolic reflector, said end reflectors having aligned openings; a pair of bulb connectors disposed between the end reflectors and the walls of the casings and having bulb receiving means facing the respective openings; an elongated filament bulb disposed across the lamp casing substantially on the focus axis of the parabolic reflector and having opposite ends extending through the respective openings in the end reflectors and supported in the bulb receiving means, the openings being such as to accommodate fore and aft movement of the bulb; means mounting the connectors to said casing including tracks rigid with the casing walls and extending fore and aft toward the open end of the casing, and guide means on the connectors engaging the tracks to permit movement of the filament bulb toward or away from the open end of the casing; and means extending through the casing walls connected respectively to the guide means for selectively adjusting the filament bulb relative to the reflectors, said latter means having adjusting elements external of the casing walls for effecting the adjustment.

4. A lamp fixture comprising: a lamp casing including a forwardly opening U-shaped wall and integral end walls for closing the ends of the U-shaped wall, said U-shaped wall further having internal parabolic ribs; a parabolic reflector facing forwardly and lying adjacent the ribs; means fixing the reflector to the ribs; end reflectors adjacent and fixed to the ribs on the end walls of the casing and having parabolic edges engaging the internal curvature of the parabolic reflector, said end reflectors having aligned openings; a pair of bulb connectors disposed between the end reflectors and the end walls of the casings and having bulb receiving means facing the respective openings; an elongated filament bulb disposed across the casing substantially on the focus axis of the parabolic reflector and having opposite ends extending through the respective openings in the end reflectors and supported in the bulb receiving means, the openings being such as to accommodate fore and aft movement of the bulb; means mounting the connectors on said casing including tracks rigid with and internally of the end walls and extending fore and aft toward the open end of the casing, and guide means on the connectors engaging the tracks to permit movement of the filament bulb toward or away from the open end of the casing; and means extending through the casing walls and connected respectively to the guide means

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for selectively adjusting the filament bulb relative to the reflectors, said latter means having adjusting elements external of the casing walls for effecting the adjustment.

5. A lamp fixture comprising: a lamp casing opening forwardly and having a forwardly facing rectangular peripheral edge and an internal rectangular shoulder facing forwardly and inwardly and rearwardly of the peripheral edge; a reflector within the casing; a bulb including bulb connector means within the casing; means mounting the connector means to said casing to permit movement of the bulb toward or away from the reflector, said mounting means including elements extending through the casing wall for selectively adjusting the bulb relative to the reflector; a rectangular shaped lens having inner and outer surfaces and rounded corners for closing the forward opening of the casing; a rectangular shaped lens frame bordering the lens and having a peripheral surface facing and normally in contact with the forward peripheral surface of the casing and a rectangular shoulder offset inwardly of the peripheral surface, said shoulder of said casing and said shoulder of the lens frame defining a rectangular peripheral groove accommodating the peripheral edge of the lens; a U-shaped gasket extending around the edge of the lens with the legs thereof disposed adjacent inner and outer surfaces respectively of the lens; corner clips adjacent each of the rounded corners of the lens having portions thereof overlying and in engagement with a surface of the lens and fixed to the lens frame whereby said lens will normally be fixed on the shoulder of the frame, said gasket having therein edge slits at the corners for accommodating the clips whereby said clips will be disposed between portions of a leg of said U-shaped gasket and the inner surface of the lens.

6. A casing having a U-shaped back wall opening forwardly and end walls and internal ribs extending inwardly from the internal face of the casing; internal reflector means bearing against the ribs and including a forwardly opening parabolic shaped reflector with opposite ends adjacent the end walls, and a pair of end reflectors adjacent to but spaced from the end walls; a pair of bulb connectors disposed at least partially in the respective spaces between the end reflectors and the respective end walls; an elongated bulb positioned substantially on the focus axis of the parabolic reflector with opposite ends thereof supported by and connected to the respective bulb connectors, there being openings in the end reflectors sufficiently large to permit movement of the bulb and bulb connectors; means in the spacing between the end reflectors and end walls mounting each bulb connector on the casing for movement fore and aft and in respect to the forwardly opening parabolic reflector including a pair of adjusting elements extending through the casing wall and operatively connected to the respective adjusting means for effecting movement of the respective ends of the bulb, said elements having portions external of the casing for effecting the movement.

7. The invention defined in claim 6 in which the casing is a completely sealed structure except for the forward opening and further characterized by a lens structure closing the forward opening and sealing the casing.

8. The invention defined in claim 7 in which the adjusting elements are threaded studs threaded through the back wall adjacent the respective end walls.

9. A sealed casing having a U-shaped back wall, end walls closing the ends of the U-shaped wall, and a lens structure sealing the forward opening defined by the U-shaped and end walls; internal ribs rigid with and extending inwardly from the internal face of the U-shaped casing wall; internal reflector means bearing against the ribs and including a forwardly opening parabolic shaped reflector with opposite ends adjacent the end walls, and a pair of end reflectors adjacent to but spaced from the end walls; a pair of bulb connectors in the respective spaces between the end reflectors and the respective end

walls; an elongated bulb positioned substantially on the focus axis of the parabolic reflector with opposite ends thereof supported by and connected to the respective bulb connectors, there being openings in the end reflectors sufficiently large to permit movement of the bulb and bulb connectors; and means in the spacing between the end reflectors and end walls mounting each bulb connector on the casing for movement fore and aft in respect to the forwardly opening parabolic reflector, and including a pair of adjusting elements extending through the casing wall and operatively connected to the respective connectors for effecting movement of the respective ends of the bulb, said elements having portions external of the casing for controlling the movement.

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