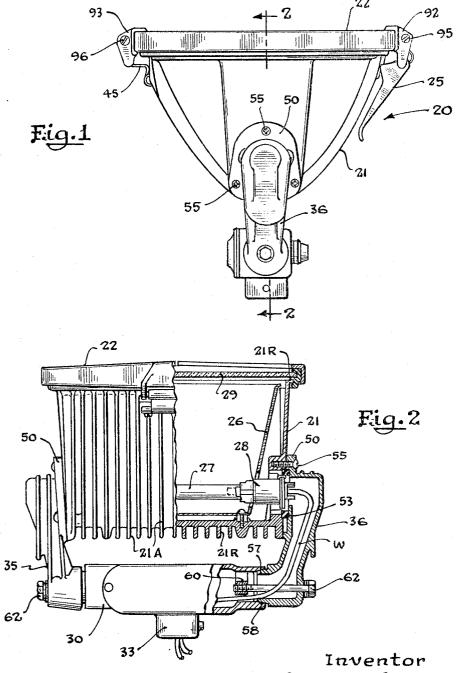
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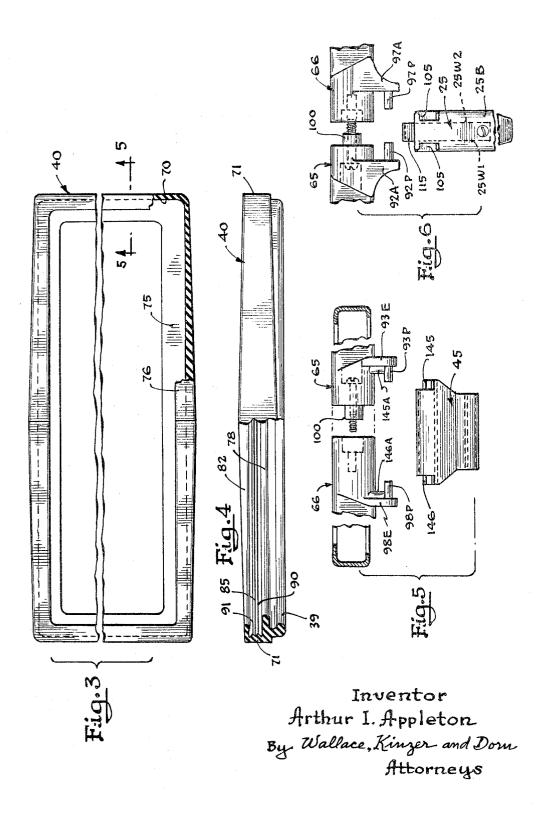
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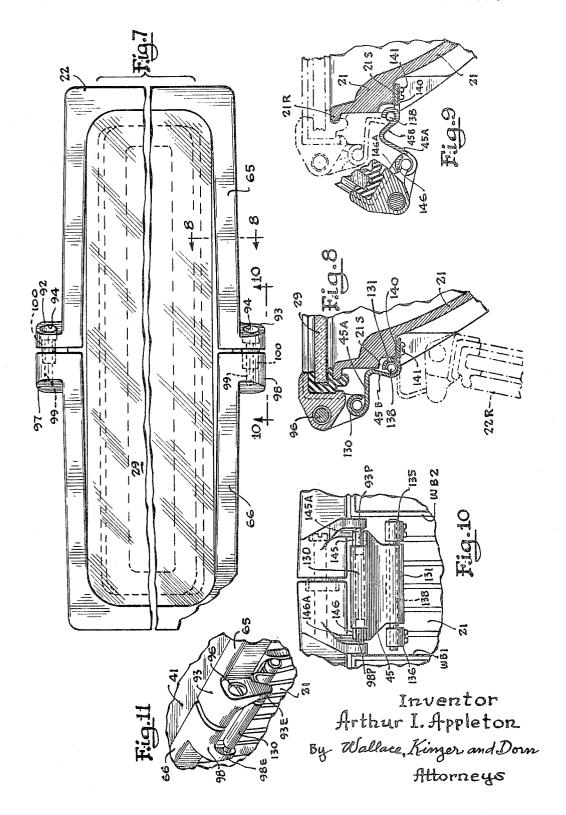
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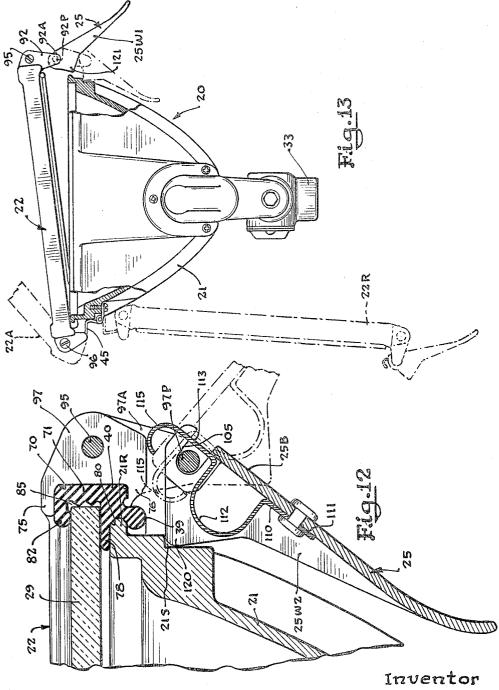
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3,290,496 LAMP FIXTURES Arthur I. Appleton, One Bridlewood Road, Northbrook, Ill.
Original application Oct. 17, 1962, Ser. No. 231,115.
Divided and this application Sept. 29, 1965, Ser. No.

491,129

9 Claims. (Cl. 240-41.55)

This application is a division of application Ser. No. 10 231,115, filed Oct. 17, 1962 now abandoned.

This invention relates to lamp fixtures of the type equipped with a pivotal cover that normally seals the reflector housing, and in particular to improvements in the mounting for the cover which permit the cover to be 15 moved to a safe, out-of-the-way position in a unique fashion when changing lamps.

Better quality lamp fixtures of the so-called floodlight type, adapted in particular to illuminate outdoor parking areas, sporting events and the like usually have a cover 20 partly in section; equipped with a so-called lens retaining gasket designed to establish a weather-proof seal fit with the open end of the reflector housing. When the lamp is to be replaced, the cover is opened, exposing the interior of the reflector housing. It often happens that a careless workman forces 25 the cover to such an extent that the hinge connections or other pivotal connections that join the cover to the reflector housing are warped or broken, and an object of the present invention is to construct a fixture that avoids this possibility.

Another object of the present invention is to enable the cover of such a fixture to be swung easily, without risking damage to the hinge structure, to an out-of-theway position characterized by the cover being disposed in a plane substantially normal to the open front of the re- 35 flector housing. This results in the repairman having easy access to the interior of the housing and this is particularly helpful in those instances where the repairman is on a ladder. Stated in other words, a lamp fixture cover constructed in accordance with the present invention, in its 40 fully open position, does not occupy a plane much beyond its boundaries in its closed position. Specifically, this is accomplished by a unique hinge connection.

It was mentioned above that the cover of the lamp fixture is equipped with a lens gasket affording a weatherproof seal for the reflector housing when the cover is  $^{45}$ closed, and another object of the present invention is to construct such a gasket so as to achieve efficient sealing and maximum retention of the lens, as well as effective sealing of the reflector housing. Such construction is manifest in a peripheral pocket or seat for the lens, a resilient bead on the gasket clasping a like bead or rib on the reflector housing, and surfaces that enable a frame to be clamped to the gasket.

It will be realized that in opening and closing the cover, the bead of the lens gasket will rub the complemental part of the reflector housing. Repeated occurrences of this kind tend to wear and deaden the lens gasket, and another object of the present invention is to so construct a fixture as to lessen this tendency, specifically by so constructing the aforesaid hinge connection as to permit the bead on the lens gasket to be led into or out of engagement with the corresponding part of the reflector housing. Stated in other words, it is an object of this invention to facilitate seating of the gasket by way of a novel hinge construction.

Characteristically, in guiding or easing the gasket bead into clasping relationship with the projection on the reflector housing, it is assured at the same time that the lens will not strike and break on an unvielding part of the reflector housing, and this simultaneity of advantageous results is another object of the present invention.

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Other and further objects of the present invention will be apparent from the following description and claims and are illustrated in the accompanying drawings which, by way of illustration, show prefererd embodiments of the present invention and the principles thereof and what is now considered to be the best mode contemplated for applying these principles. Other embodiments of the invention embodying the same or equivalent principles may be used and structural changes may be made as desired by those skilled in the art without departing from the present invention.

In the drawings:

FIG. 1 is a side elevation of a fixture embodying the features of the present invention;

FIG. 2 is a partial sectional view substantially on the line 2-2 of FIG. 1;

FIG. 3 is an underside plan view, partly in section, of one form of lens gasket used in the present construction; FIG. 4 is a side elevation of the gasket shown in FIG. 3,

FIGS. 5 and 6 are elevation views of the lens frame sections:

FIG. 7 is a plan view of the cover including the lens and lens frame;

FIG. 8 is a detail section view substantially on the line 8—8 of FIG. 7 showing the hinge connections between the cover of the fixture and the reflector housing;

FIG. 9 is a view similar to FIG. 8 showing a different position of the cover;

FIG. 10 is a fragmentary view on the line 10-10 of FIG. 7;

FIG. 11 is a fragmentary perspective view showing further details of the hinge structure;

FIG. 12 is a sectional view on an enlarged scale at the front of the cover and housing illustrating latch details; and

FIG. 13 is a view similar to FIG. 1 with certain parts in section and illustrating the released condition of the cover latch.

## GENERAL DESCRIPTION

The characteristic features of the present invention are disclosed herein in connection with a lamp fixture 20, FIGS. 1 and 13, including a lamp and reflector housing of the parabolic type. The open front of the housing 21 is normally sealed by a closed cover 22 which, as shown in FIG. 12, is provided with manually releasable latch structure 25. The latch 25 when released, as shown in FIG. 13, enables the cover 22 to be moved in the direction of its fully open position, indicated by the dashed lines in FIG. 13, where the cover is in a plane substantial ly normal to the plane of the open front of the reflector

As shown in FIG. 2, the interior of the housing 21 contains a reflector 26 and a lamp 27 of the quartz type. The ends of the lamp are retained in socket elements as 28. Light from the lamp is cast through a "lens" 29 which is part of the cover. The term "lens" as used herein embraces any durable, transparent lamp shield.

The lamp fixture in the present instance is shown as including a swivel support or base 30 which also serves as a fuse and wire connection junction housing located at what amounts to the rear of the reflector housing which, incidentally, is provided at the exterior thereof with numerous relatively narrow radiator ribs 21A for dissipating the heat generated when the lamp is lit.

A pipe hub 33 is rigidly associated with the fuse housing 30 and enables the lamp fixture as a whole to be supported on a pole in an elevated position. The reflector housing is pivotally related to the junction housing and pipe fitting so that the reflector housing can be moved to the desired angular position relative to its support.

To this end, a pair of bracket arms 35 and 36 are arranged at the sides of the reflector housing 21, and the upper ends thereof are rigidly secured to the reflector housing. The lower ends of the brackets 35 and 36 are pivotally joined to the junction housing in a manner hereinafter described, and it will be realized that in aiming or positioning the reflector housing for floodlighting, the reflector housing 21 and the support arms 35 and 36 secured thereto are moved as a unit relative to the junction housing 30 and the pipe fitting 33.

When it is desired to gain access to the interior of the reflector housing, to change the lamp or for any other purpose, the latch 25 is released and the cover 22 is lifted. As a consequence, and referring to FIG. 12, a sealing bead 39 associated with a lens retainer gasket 40 15 for the lens 29 is disengaged from a corresponding bead or rib 21R at the open front of the reflector housing 21. As the cover is raised more and more, the bead 39 is slowly "peeled" relative to the rib 21R.

Under the present invention, this movement of the 20 cover is one accompanied by as little wear as possible on the gasket seal bead 39, and additionally the cover can be swung through more than 270° to its dotted line position 22R, FIG. 13, where, it will be observed, the lid or cover 22 is entirely in an out-of-the-way position, thereby contributing to the efficiency of completing such repairs or replacements as may be necessary within the housing 21.

This movement of the cover to its fully released or retracted position is manifest in a free, articulated move- 30 ment of the cover hinge 45, FIG. 13, thereby avoiding the possibility of breaking or warping the hinge as will be described in more detail hereinafter.

By the same token, in closing the cover, the seal bead 39 is guided or led with little wear thereon into its normal 35fully seated position illustrated in FIG. 12, and there is little likelihood that the lens will be broken on a solid part of the reflector housing. These results are due to the configuration of the hinge and the manner of its association to the reflector housing and the cover as hereinafter described.

The foregoing summarizes manifest features of the present construction, and hereinafter will be set forth details enabling the foregoing to be accomplished.

## DETAILED DESCRIPTION

The fixture with respect to which the present invention is disclosed is specifically adapted for illuminating relatively large outdoor areas, and will usually be installed in an elevated position. It is usually the case therefore 50 that the housing will be so tilted as to cast light at an optimum angle relative to the support to which the pole fitting 33 will be secured by the brackets 35 and 36.

Thus, the brackets 35 and 36 are substantially Cshaped, and the inwardly bent end portions thereof that 55 are remote from the pole fitting 33 are provided with face plates as 50, FIGS. 1 and 2, configured to lie in planes substantially parallel to the sides of the housing 21. The bracket arms are of hollow form as shown in FIG. 2 to enable the lead-in wires as W to extend from the junction housing 30 to the lamp socket.

The opening at each face plate 50 through which the wire as W extends is surrounded by a seal ring 53. Thus, the seal ring 53 is interposed between the face plate and the opposed surface of the reflector housing. The face plates 50 are secured to the housing 21 by screws 55 which are also effective to bring about a seal fit of the seal ring 53 with respect to the surface of the housing 21 and the related face plate 50 between which it is inter-

It will be recognized that the supports or arms 35 and 36 are secured to the housing 21 to move bodily therewith relative to the pipe fitting 33. To enable the housing 21 to be "aimed" or adjustably moved to the desired

35 and 36 that are opposite the ends of the junction housing 30 are formed with annular tapered projections 57 adapted to fit into corresponding tapered sockets 58 presented at the ends of the junction-housing 30. In other words, socket joints are afforded between the end of the junction housing and the bracket arms 35 and 36.

Female-threaded elements 60 are located within the socket ends of the junction housing 30, and a retainer screw 62 is disposed in an opening in each bracket 35 and 36 to extend parallel to the axis of the fuse housing. The threaded end of each screw 62 is threadedly joined to the female-element 60.

In this manner, the reflector housing 21 with the arms 35 and 36 as a part thereof is adjustably connected to the junction housing. Thus, the desired angle for the housing 21 is selected prior to tightening the screws 62, and the tapered surfaces 57 and 58 assure an effective friction lock for maintaining the tilted position of the reflector housing.

The lens 29 is resiliently retained in the gasket 40, and the latter is effective to afford a weather-proof seal for the front open edge of the reflector housing 21.

Referring to FIG. 12, the open front of the reflector housing 21 is defined by the rib or projection 21R identified above, and this projection extends about the entire periphery of the edge defining the open front of the housing 21.

The cover 22 for the reflector housing includes a lens frame specifically disclosed herein as including substantially identical split half sections 65 and 66. These are shown in end elevation in FIGS. 5 and 6, and in plan view in FIG. 7. Such an arrangement of half sections for the lens frame enables the lens and the lens gasket to be conveniently associated therewith as will be demonstrated hereinafter.

Referring to FIGS. 7 and 12, the cover section 65 and 66 are configured to present, at the inner walls thereof, substantially C-shaped grooves or recesses 70 which are so configured as to enable the outer wall 71 of the lens gasket 40 to be firmly pressed thereinto and retained thereby. It will also be observed that the groove 70 formed in the inner wall of each frame section 65 and 66 is defined in part by an upper flange 75 spaced above a lower flange 76. The arrangement of parts is such that the flange 75 sub-45 stantially overhangs the flange 76, the lens gasket being firmly pressed into place between the flanges 75 and 76.

The lens gasket 40 is afforded by a body of rubber or similar resilient material and includes a first or lower flange 78 which is spaced sufficiently above the bead 39 to afford a peripheral groove-like pocket or seat 80 adapted to receive the rib or bead 21R of the reflector housing 21. The gasket 40 includes a second or upper flange 82 so spaced from the flange 78 as to define a pocket or groove 85 therewith in which the periphery of the lens 29 is tightly pressed to be gripped by the flanges 78 and 82.

The flange 78 of the gasket 40 is adapted to embrace the inner peripheral margin of the lens 29 as shown in FIG. 12, and resiliently bears on the front edge of the housing 21 to cushion the lens when the cover is closed. The gasket flange 82 is adapted to extend about the periphery of the outer face of the lens or corresponding shield 29, being interposed between the lens and the cover flange 75.

Thus, it will be seen that the lens gasket includes a pair of grooves about the inner wall thereof respectively adapted to receive the lens 29 and the housing rib 21R. Advantageously, the inner surface of the wall 71 of the gasket which joins the flanges 78 and 82 is formed with a plurality of substantially V-shaped or saw-toothed seal 70 ribs 90 and 91, FIG. 4, adapted to bear against the peripheral rim of the lens.

The gasket 40, being resilient in nature, can be stretched incidental to fitting neatly the lens entirely within the gasket pocket 85. Thereafter, the two sections 65 and 66 angle, the inwardly directed end portions of the brackets 75 of the lens frame, each substantially U-shaped in plan,

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are pressed complementally onto the outer periphery of the lens gasket, and the ends of the frame sections are abutted.

The frame sections 65 and 66 are secured one to another by screws that join the abutted ends of the frame sections. To this end, the frame section 65 is formed at the free end thereof with a pair of ears as 92 and 93, FIG. 7, having openings as 94 therein adapted to receive the heads of retaining screws 95 and 96, FIG. 1. The free ends of the other frame section 66 are formed with projecting ears 97 and 98, FIG. 7, presenting openings as 99 adapted to threadedly receive the threaded portions of the screws 95 and 96.

Advantageously, the ears 92 and 93 of the frame section 65, FIGS. 6 and 7, are formed with relatively small 15 inwardly directed bosses 100 adapted to fit into corresponding sockets formed in the adjacent faces of the ears 97 and 98 of the frame section 66 incidental to facilitating assembly and enabling the ends of the frame sections to be registered. Such projections as 160 also in effect 20 amount to tongue and socket joints that reinforce the parting line between the frame sections 65 and 66.

It may be observed in connection with what has been described above, with regard to the joining of the frame sections, that the ears 92 and 97 have depending lugs 25 thereon, 92A and 97A, FIG. 6, which are in turn provided with integral inwardly directed pins 92P and 97P which afford a pivotal support for the latch arm or handle 25 at the juncture between the frame sections at one side of the cover frame. Thus, the latch arm 25 as shown in 30 FIGS. 12 and 13 includes a pair of spaced webs 25W1 and 25W2 each having a slot 105, FIG. 12, formed therein, and each such slot opens at the back 25B of the latch arm (FIG. 6) to enable the journal pins 92P and 97P to be easily slid relatively into the slots 105 as an incident to 35 supporting the latch arm 95 on the pins 92P and 97P.

The latch arm is of the toggle type and to this end a toggle spring 110 of the leaf type, FIG. 12, is connected to the latch arm 25, and is effective to hold the latch engaged when the cover is closed. The spring arm includes 40 an ear 111 riveted to the inner face of the back of the latch arm 25, and adjacent this connection the spring 110 is bowed substantially at 112 in the direction of the reflector housing. The leaf spring 110 next includes a straight portion 113 which spans the slots 105 in the por- 45 tions thereof not occupied by the pins 92P and 97P.

The straight portion 113 of the spring element 110 merges into a crooked toggle portion 115 which is the terminal and effective part of the leaf spring positioned to bear with spring force against the underside of the ear 97 50 which is a part of the frame section 66.

Normally, the latch arm 25, as shown in FIG. 12, has the crook or toggle portion 115 thereof forcefully bearing against the underside of the ear 97. In this state, a pair of cams 120 and 121 which project from the latch arm 25 toward the reflector housing 21 effectively engage the underside of a downwardly facing shoulder 21S of the reflector housing. The spring maintains the latch arm 25 in the position illustrated in FIG. 12, and hence the cover is secured against inadvertent opening.

The crook or spring toggle 115 is compressed when the latch handle 25 is moved forcefully cmounterclockwise as viewed in FIG. 12 to disengage the projections or latch cams 120 and 121 from the shoulder or cam boss 21S. In the full open position of the latch, the bent or toggle action end 115 of the leaf spring is disposed substantially in the dotted line position of FIG. 12 where it clears the lens frame and is effective to hold or bias the latch arm 25 in the released position thereof, generally in the attitude illustrated in FIG. 13.

It will be recognized that the spring 110 in effect is trapped or encapsulated by the pivot lugs as 97P, FIG. 12. Therefore, when the latch is being opened, and the toggle end 115 of the spring being compressed, the straight portion 113 of the spring is deflected substantially linear- 75

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ly, and compression loading is forced into the spring loop 112, characterizing retraction of the toggle 115.

In achieving the foregoing advantageous relationships through the hinge structure, the hinge body or hasp 45 is off-set in the medial portion thereof so as to have two legs 45A and 45B, FIG. 9, substantially at 90° relative one to another. The hinge arm 45A is formed with an eye 130, and the hinge leg 45B is formed with an eye 131, FIG. 8. The eye 130 is pivotally related to the cover, and the eye 131 is pivotally connected to the reflector housing, as hereinafter described.

Referring to FIGS. 5 and 11, the two ears 93 and 98 related to the hinge 45 include depending lugs 93E and 98E. Pins 93P and 98P are integral with the ears 93 and 98 and extend toward one another as shown in FIG. 10, and the eye portion 130 of the hinge 45 receives the pins 93P and 98P at the open ends thereof. The cover 22 is therefore pivotally related to the hinge 45, the latter being located at the juncture of the frame sections 65 and 66 at the side of the cover opposite the latch handle 25.

As best shown in FIG. 10, the eye 131 of the hinge 45 is positioned between a pair of pin supports 135 and 136, the latter in turn being located at the side of the housing 21 opposite the latch arm 25. As shown in FIGS. 8 and 9, the pin supports include extensions 140, each of which is secured by a screw 141 to the underside of the shoulder 21S which, it will be recalled, is the part of the reflector housing engaged by the latch cams 120 and 121.

The pin supports 135 and 136 are spaced one from another a distance corresponding approximately to the width of the portion of the hinge 45 having the eye 131. The pin supports are formed with apertures or parts adapted to receive a hinge support pin 138, in turn inserted into the hinge eye 131. As shown in FIG. 10, pin 138 is retained against displacement by webs WB1 and WB2 at the back of the housing 21. Thus, the hinge 45 is pivotally or flexibly connected to the cover 22.

As noted above, the particular configuration for the hinge or hasp 45 permits the cover to be disposed in an out-of-the-way position identified by reference character 22R in FIG. 13, and in this position the cover itself is free-swinging, capable of being moved further in the direction of the pole support 33. This arrangement, it will be appreciated, precludes the possibility of the hinge being warped or broken or the parts associated therewith being damaged by a careless workman, in contrast to prior arrangements where the hinge parts have a limit position characterized by unyielding connections.

When opening the cover, the toggle latch is released. The toggle element 115 of the spring 110 holds the latch released, free of the housing, and in position to be effectively re-engaged when the cover is restored to normal position.

The hinge 45 is formed with stops which facilitate guiding of the gasket bead 39 relative to the rib 21R at the front edge of the reflector housing, as hereinafter explained. In fact, the stops facilitate seating of the gasket bead, and also serve to prevent the lens from striking the reflector housing when closing the cover.

Referring to FIGS. 5 and 10, a pair of flats or shoulders 145 and 146 are formed on the leg 45A of the hinge adjacent the respective open ends of the hinge eye 130. When the cover is closed, these shoulders are in a plane substantially normal to the plane of the lens 29 and, as shown in FIG. 9, face webs as 145A and 146A that are integral parts of the ears 93 and 98.

In closing the cover, and as viewed in FIGS. 8 and 9, the cover 22 is swung upwardly from the dotted line position in FIG. 8, about the axes of the pins 93P and 98P, until the webs 145A and 146A (see FIG. 9) strike the related stops 145 and 146 of the hinge structure. Thereafter, the hinge structure moves clockwise, FIG. 9, with continued forward swinging movement of the cover 22.

In other words, the cover and the hinge now move as a unit about the pin 138.

The hinge stops 145 and 146 are so located and oriented, as an incident to the hinge geometry, as to orient the cover for efficient closure. This is accomplished without the lens striking the reflector housing, and with gradual easing of the gasket bead 39 into full seated position about the related bead or rib 21R of the housing 21. Thus, once the cover picks up the hinge, the latter becomes a guide specifically adapted to guide the end of 10 the gasket bead 39 onto the end of the housing rib 21R nearest the hinge, this being substantially the condition indicated by full lines in FIG. 13. At this stage, the front of the cover (remote from the hinge) can be pressed down and pulled forwardly somewhat to ease, 15 guide and completely seat the bead 39.

When the cover has been substantially closed on the open end of the reflector housing, the latch arm 25 is then moved clockwise, FIG. 12, from the dotted line position to the full line position characterizing the locked 20 state of the cover.

The gasket itself, being resilient, enables the cover to be resiliently related to the reflector housing, and this in conjunction with the off-set hinge structure permits the cover to move bodily during seating thereof with the 25 least amount of wear on the gasket, and with virtually no chance of the lens striking the housing.

It will be seen from the foregoing that under the present invention the hinge, the cover and the toggle latch are so interrelated with one another as to permit 30 what can be viewed as a custom fitting of the cover on and over the open end of the reflector housing. Thus, the hinge for the most part has no fixed and determined relationship until the time that the bead of the lens gasket is being brought into engagement with the rib 21R 35 of the housing, and thereafter the geometry of the hinge assures proper seating of the gasket bead 39. Even during final seating, it is possible to continue the easing of the bead into place, especially in view of the yieldability of the latch spring.

Hence, while the preferred embodiment of the present invention has been illustrated and described, it is to be understood that this is capable of variation and modification.

## I claim:

1. In a lamp fixture, a reflector housing having an open front, a cover for the open front of the reflector housing including a lens, a lens frame and a lens retainer gasket interposed between the lens and the lens frame, said gasket embracing the periphery of the lens and including a peripheral resilient bead releasably clasping a corresponding bead of the reflector housing adjacent the edge of the open front thereof, a hinge flexibly joined to the cover at one portion thereof and flexibly joining the cover 55 to the reflector housing at another portion thereof, said hinge having an off-set portion therein that spaces the connection between the hinge and the cover appreciably away from the reflector housing, and a toggle latch for securing the cover including a toggle spring that maintains the latch 6 closed.

2. In a lamp fixture, a reflector housing having an open front, a cover for the open front of the reflector housing including a lens, a lens gasket in the form of a stretchable body of resilient material extended about the 65 NORTON ANSHER, Primary Examiner. periphery of the lens and including an inner peripheral

groove in which the lens is tightly gripped and resiliently retained by the stretchable gasket, a lens frame pressed on to and extended about the outer periphery of the lens gasket and including two frame sections having ends releasably joined one to another, and said gasket including a second groove fitting the reflector housing.

3. A fixture according to claim 2 wherein hinge means is provided at the juncture of the frame sections at one side of the frame.

4. A fixture according to claim 3 wherein the cover includes a latch at the juncture of the cover sections at the other side of the frame.

5. In a lamp fixture, a reflector housing having an open front, a cover for the open front of the reflector housing and including a lens, a lens frame and a lens retainer gasket interposed between the lens and the lens frame, said gasket embracing the periphery of the lens and including a peripheral resilient bead releasably clasping a bead at the open front edge of the reflector housing, and a hinge flexibly joined to the cover and flexibly joining the cover to the reflector housing, said hinge having one leg engageable with the reflector housing and another leg extending substantially 90° thereto away from the housing in the closed position of the cover, whereby the connection between the hinge and the cover is spaced from the housing permitting the bead of the gasket to be gradually led into engagement with the housing bead when closing the cover.

6. A lamp fixture according to claim 5 wherein the cover is provided with a toggle latch having a toggle spring adapted to engage a portion of the cover and a latch cam adapted to bear on the reflector housing.

7. A lamp fixture according to claim 5 wherein the hinge at one portion is pivotally connected to the reflector housing below said edge thereof and is pivotally connected to a depending ear of the cover at another portion, said hinge having a substantially 90° bend intermediate said portions.

8. In a lamp fixture, a reflector housing having an open front, a cover for the open front of the reflector housing including a lens, a lens frame and a lens retainer gasket interposed between the lens and the lens frame, said gasket embracing the periphery of the lens and including a peripheral resilient bead releasably clasping a corresponding bead of the reflector housing adjacent the edge of the open front thereof, a hinge flexibly joined to the cover at one portion thereof and flexibly joining the cover to the reflector housing at another portion thereof, and said hinge having an off-set portion therein that spaces the connection between the hinge and the cover appreciably away from the reflector housing.

9. A lamp fixture according to claim 8 including a latch for securing the cover, and spring means for yieldably mounting the latch in latching position.

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