Sept. 25, 1962 J. SCHNEIDER 3,055,535

OUTDOOR LIGHTING FIXTURE

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FIG. 1

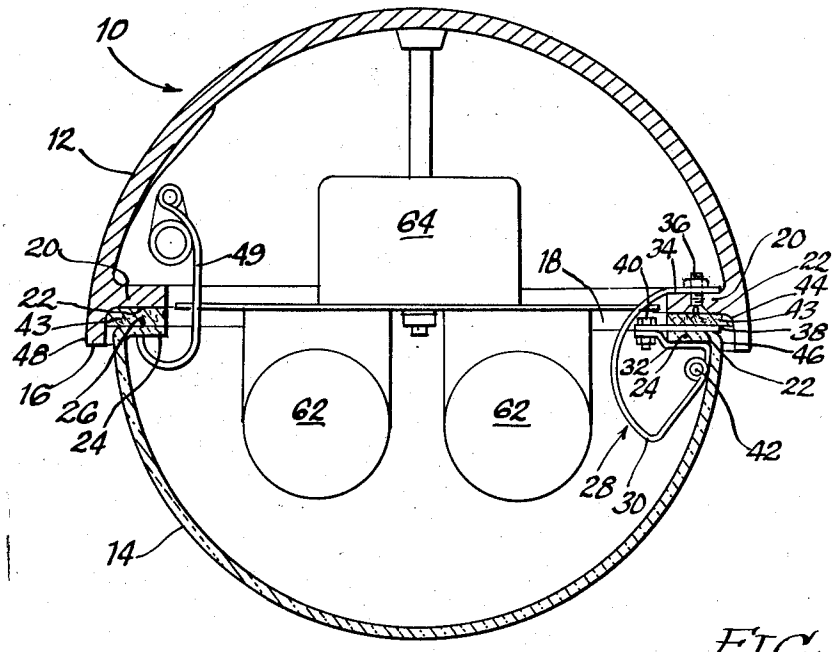


FIG. 2

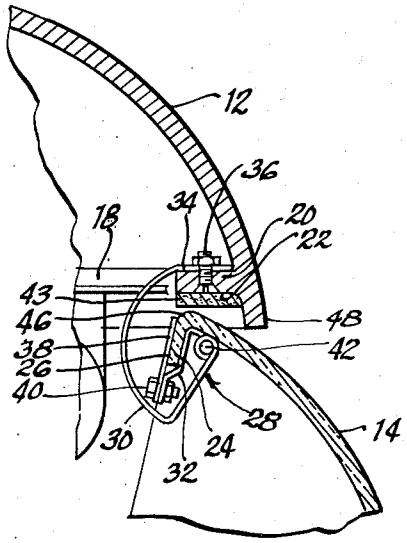
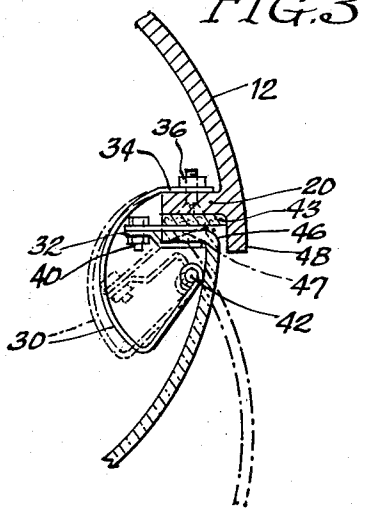


FIG. 3



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FIG. 4

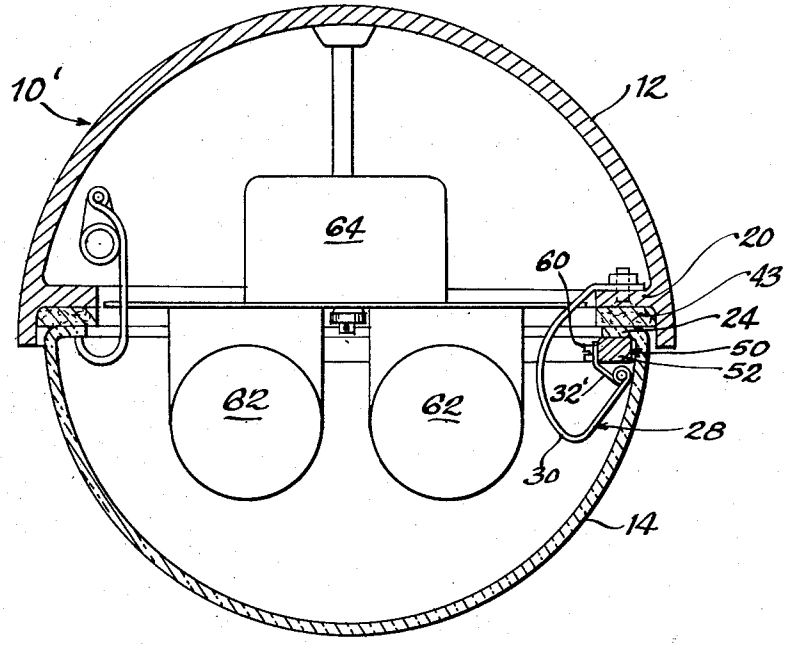
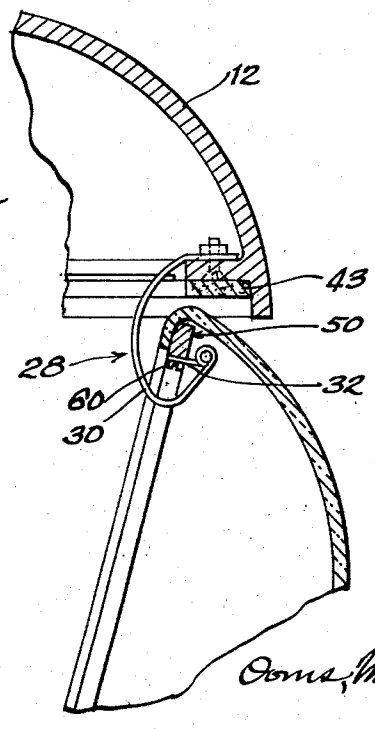


FIG. 5



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OUTDOOR LIGHTING FIXTURE

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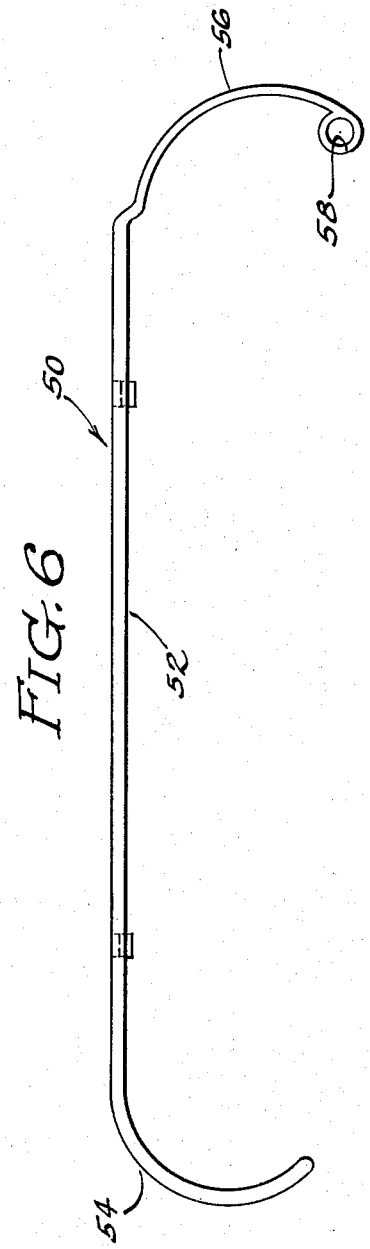


FIG. 6

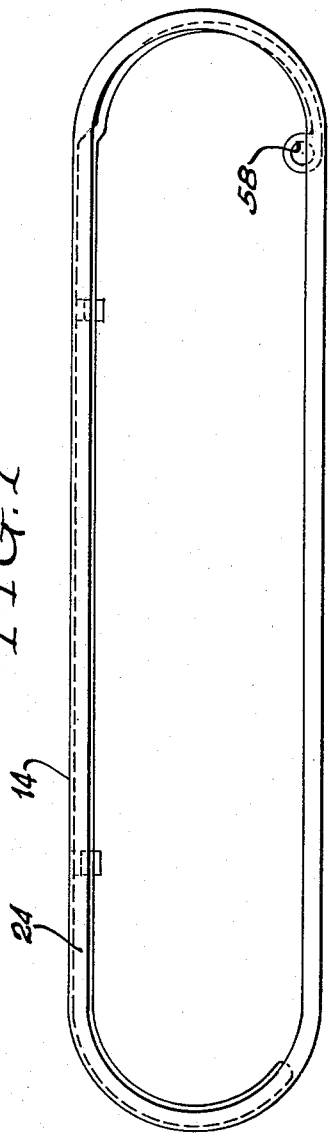


FIG. 7

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OUTDOOR LIGHTING FIXTURE

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7 Claims. (Cl. 220—35)

This invention relates to a light fixture, and more particularly to an outdoor light fixture in which the light bowl is connected to the fixture housing by internally mounted hinges.

Light bowls for outdoor lighting fixtures are usually removable to provide access to the interior of the housing for replacing burnt out lights or repairing the appliances inside. These light bowls are bulky and heavy, and since the outdoor lighting fixtures are usually mounted at some elevated location, it would be desirable for the light bowl to be connected to the fixture housing by hinges, so the serviceman will not have to support it while he is occupied with other repairs or installations. An objection to a hinge connection for such outdoor light fixtures is that exposure to the elements would corrode them in a short time and make them useless. It would, of course, be possible to eliminate or reduce the corrosion of these hinges by making them out of some corrosion resistant material such as stainless steel and the like. This, however, would be more expensive, and when these hinges are to be provided for thousands of street light fixtures, the added cost would be prohibitive. If the hinges were not exposed to the elements, corrosion would not be such a problem and the hinge could be made of cheaper material. It is not easy, however, to design a protected hinge for pivotally connecting a glass light bowl to a housing. This is because glass light bowls are fragile and hard to work with and they are seriously weakened by any drilling or milling.

What is needed, therefore, and comprises the principal object of this invention, is a light fixture wherein the transparent or translucent cover bowl is pivotally connected to the housing by inexpensive internally protected hinges.

Another object of this invention is to provide an outdoor light fixture housing in which a protected hinge is secured to a pivotally connected cover bowl without drilling or milling.

Yet another object of this invention is to provide an outdoor light fixture with an internally mounted hinge which is compact and economical to make, and simple to install.

These and other objects of this invention will become more apparent when understood in the light of the accompanying drawings and specifications wherein:

FIG. 1 is a cross-sectional view through the light fixture with the light bowl in closed position;

FIG. 2 is a cross-section of a fragment of the light fixture showing the light bowl in open position;

FIG. 3 is a cross-section of a fragment of the light fixture showing the shift of the elongated resilient hinge leaf and the path the edge of the cover bowl takes when the cover bowl is pivoted open;

FIG. 4 is a cross-sectional view through a modified light fixture with the light bowl in closed position;

FIG. 5 is a cross-section of a fragment of the modified light fixture showing the light bowl in open position;

FIG. 6 is a plan view of the channel shaped quick release member which is adapted to fit in the flanges of the fixture cover, and

FIG. 7 is a plan view of the channel shaped quick release member which is positioned in the flanges of the cover bowl.

Referring now to FIG. 1 of the drawings, an outdoor

street light fixture indicated generally by the reference numeral **10** is substantially cylindrical in shape and comprises a semi-circular housing section **12** and a semi-circular transparent or translucent glass cover bowl section **14**. The bowl section **14** has a radius slightly less than that of the housing section for reasons to become apparent below. Both the housing and cover bowl sections have perpendicular semi-circular end walls (not shown) so that when the cover is in closed position on the housing, a sealed cylindrical space is provided in the fixture. The peripheral edges **16** of the housing **12** define an opening **18**. Housing flanges **20** project inwardly from the slides of the opening **18** in spaced relation to the edges **16** of the housing. These housing flanges are in a common plane and are provided with outer planar packing member receiving surfaces **22** for purposes to be described below.

The glass cover bowl section **14** is adapted to close off opening **18** in the housing section **14** and is provided with inwardly projecting flanges **24** along its peripheral edges. The cover bowl flanges are all in a common plane and are provided with outer planar packing member engaging surfaces **26**. As seen in FIG. 1, when the cover **14** is closed against the housing **12**, the housing and cover bowl flanges will be adjacent to each other in spaced parallel relationship.

At least one hinge indicated generally by the reference numeral **28** is connected to a side of the fixture **10**, but it is apparent that a number of hinges may be provided in spaced relationship along the side if it should be necessary. Each hinge comprises an elongated resilient hinge leaf **30** and a rigid hinge leaf **32**. The resilient hinge leaf **30** is connected at one end to the upper surface **34** of the housing flange **20** by means of conventional nut and bolt mounting elements **36**. The rigid hinge leaf **32** is rigidly secured to the edges of the cover flange **24** by means of the clamping plates **38**. These clamping plates are adapted to be rigidly secured to the flange **24** by means of the clamping nut and bolt elements **40**. Both the resilient and rigid hinge leaf rotatably embrace the pivot rod **42** by conventional means (not shown). In this way the housing and cover sections are pivotally connected together.

A packing member **43** made of some water resistant material, and having opposed planar surfaces, is attached by any conventional means to the planar packing member receiving surface **22** of the housing flange **20** and to a portion of the inner surface **44** of the housing sides between the edge **16** of the housing opening **18** and the housing flanges **20**. The cover bowl section **14**, when closed, is so mounted on the housing **12** that the outer packing member engaging surfaces **26** of the cover flanges **24** will engage the packing member **43** to seal the fixture. Since all the hinge members are mounted inside the fixture, this arrangement effectively protects them from the corrosive effects of the elements, and permits the hinge to be made from inexpensive material, which need not be very resistant to corrosion.

The importance of the resilient quality of hinge leaf **30** can be determined from an inspection of FIGS. 1 and 2. Since the axis of rotation is inside the fixture when the cover bowl is opened, the edge **46** of the cover flange **24** would move through an arcuate path which would almost immediately intersect the packing member **43** secured to the housing section. Unless the packing member was very resilient or yieldable, this engagement would prevent the cover bowl from opening further, but because hinge leaf **30** is resilient, when the cover bowl opens, its weight will elongate and deform it, and this deformation will permit the axis of rotation of the hinge and the cover bowl to shift downwardly a sufficient distance to eliminate the engagement between the edge

46 of the flange 24 and the packing member 43. The deformation of the resilient leaf 30, the shift of the axis of rotation of the hinge 28, and the path 47, which the edge 46 of the cover bowl flange 24 takes, are shown in dotted lines in FIG. 3.

As seen in FIG. 1, the side 48 of the housing 12 adjacent the edges 16, overlaps the housing and cover flanges 20 and 24, due to its larger radius, and so provides a rain or water shield for the light fixture. This is very useful in preventing moisture from seeping through the packing material during intense rainstorms. The cover is held in closed position by means of a conventional pivotally mounted friction spring clamp 49, which is mounted on the opposite side of the housing from the hinge 28, as shown in FIG. 1.

On occasion it is necessary to completely remove the cover bowl 14 from the light fixture to replace defects in the bowl or the hinge. This is somewhat difficult to do in the example shown in FIG. 1 because it involves unscrewing the clamping nut and bolt elements 40 which embrace the flange 24, while the serviceman is working at an elevated position. For that reason, a quick release mechanism may be provided for the modified light fixture 10', as shown in FIGS. 4–7. This quick release mechanism operates to quickly and conveniently remove the glass cover bowl from the hinge elements.

As seen in FIG. 5, the quick release mechanism comprises a channel shaped support member indicated generally by the reference numeral 50. This support member comprises a rigid web portion 52, an arcuate side portion 54, and an arcuately shaped oppositely disposed resilient spring member 56. This resilient spring member can be bent so the support member 50 and arcuate member 54 can be positioned in the flanges 24 of the glass cover bowl 14, see FIGS. 4 and 7. When the resilient spring member 56 is released, the support member will be held in the flanges 24 of the cover 14 by spring tension. For ease in bending the resilient end portion, a finger receiving opening 58 is integrally formed at the end of the arcuate spring portion 56.

As seen in FIGS. 4 and 5, the rigid hinge leaf 32' is rigidly secured to the channel shaped support member 50 by means of a screw 60. With this arrangement, the cover bowl will open in exactly the same way as described in the light fixture of FIG. 1 so that repairs may be made to the lights 62 or to the appliances such as transformers or ballasts 64 mounted inside the fixture without removing the bowl. Should the bowl or hinge have to be replaced, it may be easily done by bending the arcuate portion 56 of the support member 50 sufficiently to withdraw it from the flanges 24 of the cover bowl, and when this is done, the cover bowl will be entirely separated from the fixture.

The invention may be embodied in other forms without departing from the spirit or essential characteristic thereof as set forth in the claims, and the present embodiment is therefore to be considered as illustrative and not restrictive, and it is intended to include all changes which come within the scope and range of the claims.

I claim:

1. A fixture for supporting appliances comprising a housing section and a cover section, said housing section having an opening, inwardly projecting housing flanges on the opposite sides of said housing opening and spaced from the edges thereof, said housing flanges in a common plane and having a planar outer packing member receiving surface, said cover section adapted to close said housing section opening and having opposed sides and a connecting web portion, inwardly projecting cover flanges on the edges of the opposite sides of the cover section, said cover flanges in a common plane and having a planar outer packing member engaging surface, said cover flanges adjacent to and in spaced parallel relation with said housing flanges when said cover section is in closed position, a hinge connected to one side of said fixture, said hinge comprising an elongated resilient leaf and a rigid leaf, said resilient leaf connected at one end to said housing flange and said rigid leaf clamped to the adjacent cover flange, a pivot rod rotatably connected to said rigid leaf and to the opposite end of said resilient leaf so that the housing and cover sections are pivotally connected together, said pivot rod and said hinge leaves disposed inside the fixture, a packing member mounted on said housing, and connected to the outer surface of said housing flanges and the inner surface of the portion of the housing sides between the edge of the opening and the inwardly projecting housing flanges, said cover section positioned so when it is closed, the outer packing member engaging surface of the cover flanges will engage the packing material to seal the fixture and protect the hinge elements inside from the corrosive effects of the elements, said resilient leaf deformable to permit the axis of rotation of the hinge to shift sufficiently to accommodate the movement of the adjacent edges of the cover flange and permit the fixture to be opened.

2. A fixture for supporting appliances, said fixture substantially cylindrical in shape and comprising a housing section, said housing section semi-circular in cross-section and the edges thereof defining an opening, inwardly projecting housing flanges on the opposite sides of the housing opening and spaced from its edges, said housing flanges in a common plane and having planar outer packing member receiving surfaces, a cover section for closing said housing section opening, said cover section semi-circular in cross-section and having a radius slightly less than the housing section, said cover section having inwardly projecting cover flanges on the edges of the opposite sides, said flanges in a common plane and having a planar outer packing member engaging surface, said cover flanges adjacent to and in spaced parallel relation with said housing flanges when said cover section is closed, a hinge connected to one side of said fixture, said hinge comprising an elongated resilient leaf and a rigid leaf, said resilient leaf connected at one end to a portion of said housing flange, and said rigid leaf clamped to the adjacent cover flange, a pivot rod rotatably connected to said rigid leaf and to the opposite end of said resilient leaf so that the housing and cover sections are pivotally connected together, said pivot rod and said hinge leaves disposed inside the fixture, a packing member having opposed planar surfaces mounted on said housing and secured to the packing member receiving surface of said housing flange and to the inner surface of the portion of the housing sides between the edge of the opening and the inwardly projecting housing flanges, said cover section positioned so the packing member engaging surfaces of the cover flanges will engage the packing member to seal the fixture housing and protect the hinge elements inside from the corrosive effects of the elements when the cover section is closed, said resilient leaf deformable to permit the axis of rotation of the hinge to shift sufficiently to accommodate the arcuate path followed by the adjacent edge of the cover flange as the fixture is opened.

3. A fixture for supporting appliances, said fixture substantially cylindrical in shape and comprising a housing section, said housing section semi-circular in cross-section and the edges thereof defining an opening, inwardly projecting housing flanges on the opposite sides of the housing opening and spaced from its edges, said housing flanges in a common plane and having planar outer packing member receiving surfaces, a cover section for closing said housing section opening, said cover section semi-circular in cross-section and having a radius slightly less than the housing section, said cover section having inwardly projecting cover flanges on the edges of the opposite sides, said flanges in a common plane and having a planar outer packing member engaging surface, said

cover flanges adjacent to and in spaced parallel relation with said housing flanges when said cover section is closed, a support member having a middle portion adjacent the side of the cover and at least one end portion adjacent at least one end portion of the cover, said support member being engaged by at least one of the cover flanges to be positioned inside the cover, a hinge connected to one side of said fixture, said hinge comprising an elongated resilient leaf and a rigid leaf, said resilient leaf connected at one end to a portion of said housing flange, and said rigid leaf connected to the support member adjacent the cover flange, a pivot rod rotatably connected to said rigid leaf and to the opposite end of said resilient leaf so that the housing and cover sections are pivotally connected together, said pivot rod and said hinge leaves disposed inside the fixture, a packing member having opposed planar surfaces mounted on said housing and secured to the packing member receiving surface of said housing flange and to the inner surface of the portion of the housing sides between the edge of the opening and the inwardly projecting housing flanges, said cover section positioned so the packing member engaging surfaces of the cover flanges will engage the packing member to seal the fixture housing and protect the hinge elements inside from the corrosive effects of the elements when the cover section is closed, said resilient leaf deformable to permit the axis of rotation of the hinge to shift sufficiently to accommodate the arcuate path followed by the adjacent edge of the cover flange as the fixture is opened, and at least one end portion of said support member deformable to permit disengagement of said cover flange and removal of the cover.

4. A lighting fixture comprising an arcuate housing having an opening across the bottom side, a flange extending horizontally inwardly from the wall of the housing adjacent the opening, a closure adapted to abut the bottom side of the housing to cover said opening, a flange extending horizontally inwardly from a wall of the closure for abutting relation with the flange of said housing when the closure is in position to cover the opening, means interconnecting said closure and housing flanges for movement of the closure between open and closed positions, said means including a hinge comprising an elongate resilient leaf spring connected at its upper end to the housing flange, a rigid leaf spring connected at one end to the closure flange, a pivot rod positioned in said closure below the closure flange and in substantially parallel relationship therewith, said rod being connected to the free lower end of said resilient spring and rotatably connected to the rigid leaf spring, said hinge including

the elongate leaf spring, rigid spring and rod being deposited within the fixture for protection against the elements of the atmosphere.

5. A lighting fixture as claimed in claim 4 in which the housing is substantially of semi-cylindrical shape and in which the closure is substantially of semi-cylindrical shape but of smaller radius than the housing with the open end of the closure adapted to abut the open end at the bottom side of the housing.

6. A lighting fixture as claimed in claim 4 in which the housing is substantially of semi-cylindrical shape and in which the closure is of substantially semi-cylindrical shape but of smaller radius than the housing and in which the closure and housing flanges extend inwardly from one wall and similar closure and housing flanges extend inwardly from the opposite wall to enable the closure to be received in abutting relationship with said flanges to conceal the housing opening.

7. A lighting fixture comprising an arcuate housing having an opening across the bottom side, a flange extending horizontally inwardly from the wall of the housing adjacent the opening, a closure adapted to abut the bottom side of the housing to cover said opening, a flange extending horizontally inwardly from a wall of the closure for abutting relation with the flange of said housing when the closure is in position to cover the opening, means interconnecting said closure and housing flanges for movement of the closure between open and closed positions, said means including a hinge comprising an elongate resilient leaf spring connected at its upper end to the housing flange, a rigid leaf spring connected at one end to the closure flange, a pivot rod positioned in said closure below the closure flange and in substantially parallel relationship therewith, said rod being connected to the free lower end of said resilient spring and rotatably connected to the rigid leaf spring, said hinge including the elongate leaf spring, rigid spring and rod being deposited within the fixture for protection against the elements of the atmosphere.

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