United States Patent [19]

Dewhirst

[11] **3,780,284**

[45] **Dec. 18, 1973**

[54] **LAMP ENCLOSURE**

[75] Inventor: **Fred Arlington Dewhirst,** Indianapolis, Ind.

[73] Assignee: **Bell Telephone Laboratories, Incorporated,** Murray Hill, N.J.

[22] Filed: **Apr. 4, 1972**

[21] Appl. No.: **241,013**

[52] **U.S. Cl.** ..... **240/41 R,** 240/2 R, 240/2 AT, 240/51.11 R, 240/151, 40/132

[51] **Int. Cl.** **F21v 17/00**

[58] **Field of Search** ..... 240/151, 2 R, 2 AD, 240/2 AT, 8.3, 51.11, 41 R, 41.3, 41.6, 44, 41.5, 41.55; 40/130, 131, 132; D96/12 R, 12 K

[56] **References Cited**

UNITED STATES PATENTS

3,156,416	11/1964	Griffin	240/41.55
2,831,964	4/1958	Diedring	240/41 R
3,023,524	3/1962	Muse	D96/12 R

FOREIGN PATENTS OR APPLICATIONS

385,495	12/1932	Great Britain	240/41 R

Primary Examiner—Samuel S. Matthews
Assistant Examiner—Russell E. Adams, Jr.
Attorney—W. L. Keefauver

[57] **ABSTRACT**

The lamp enclosure comprises a rectangular open-ended casing having an inverted L-shaped flange circumscribing its inside surface adjacent to each end thereof, the lateral leg of each flange extending toward the adjacent end. A domed translucent lens is positioned within each end of the casing, and each lens has an outwardly turned rim around its perimeter that is placed in engagement with the lateral leg of the adjacent flange. A rectangular retaining ring is placed over each rim and fastened to the adjacent flange to hold each lens in place. A lamp holder assembly is pivotally secured to the inside surface of the casing and it includes a latch having a spring-loaded bolt for engaging an opening in a catch plate mounted in juxtaposition therewith, the catch plate having an inclined ramp to the front and back of the opening.

5 Claims, 3 Drawing Figures

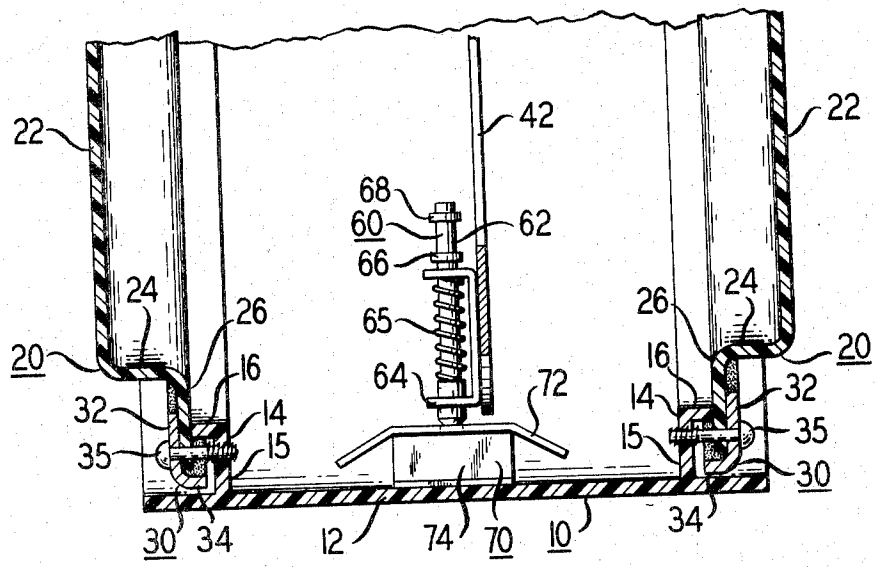


FIG. 1

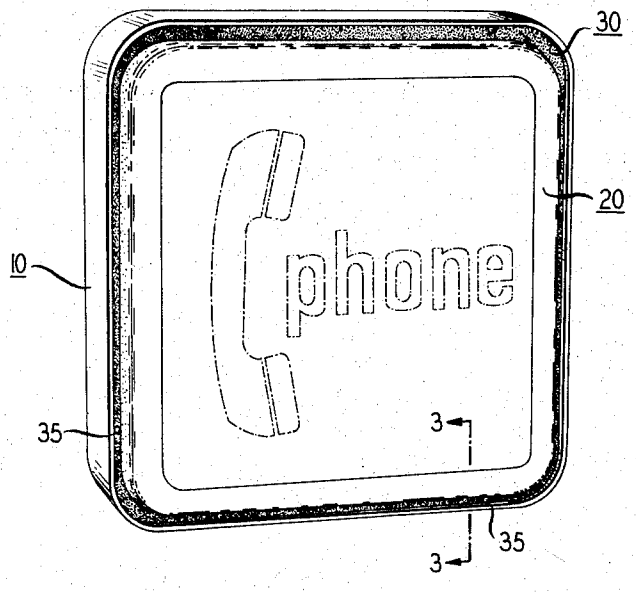

30
20
10
phone
35
3
3
35

FIG. 2

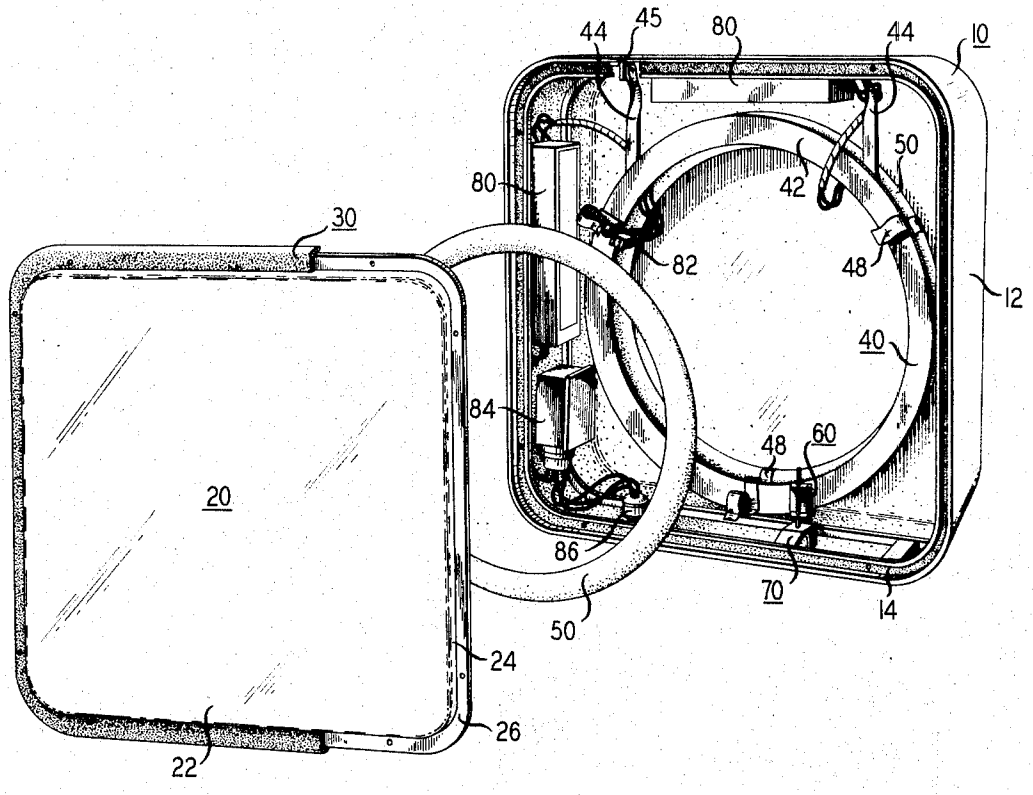
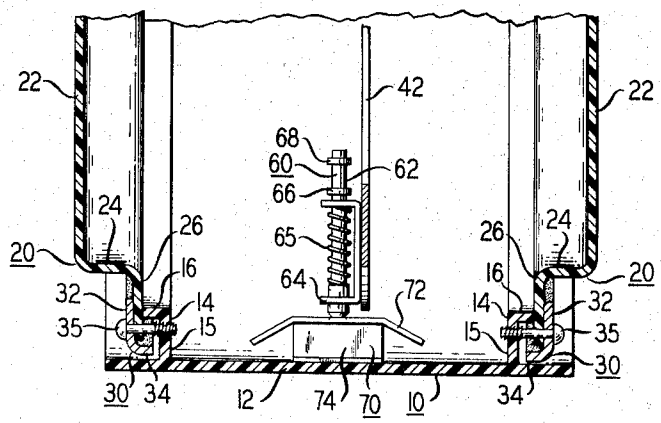

44
45
80
44
10
80
42
50
30
82
48
12
40
84
48
60
20
86
70
14
50
24
26
22

FIG. 3


22
42
22
68
60
62
66
24
26
65
26
24
20
16
64
72
16
20
32
14
14
32
35
15
15
35
30
30
34
12
74
70
10
34

LAMP ENCLOSURE

FIELD OF THE INVENTION

This invention relates to lamp enclosures and within that field to internally illuminated signs.

BACKGROUND OF THE INVENTION

Two significant considerations in the design of an internally illuminated sign are simplicity of construction and ease of maintenance. The construction of the sign should be simple so that manufacture of the sign is facilitated and thereby made more economical. Once the sign is installed, it should be easy to service so that the user himself can maintain it or have it done at a modest cost.

SUMMARY OF THE INVENTION

The sign of the present invention incorporates both simplicity of construction and ease of maintenance. In one embodiment it comprises a rectangular open-ended casing consisting of a ribbon-like web and an inverted L-shaped flange circumscribing the inside surface of the web a short distance from each edge thereof. Each flange comprises an upstanding leg extending transversely from the web and a lateral leg extending transversely from the upstanding leg toward the adjacent edge of the web. A domed translucent lens is positioned within each end of the casing, and each lens has an outwardly turned rim around its perimeter that is placed in engagement with the lateral leg of the adjacent flange. A rectangular retaining ring overlies the top and outer edge of the rim of each lens and is fastened to the upstanding leg of the adjacent flange to secure the lens in place. The retaining ring in combination with the rim of the lens and the flange of the casing provide a water resistant seal.

A lamp holder assembly is pivotally mounted to the inside surface of the web and it includes a cold temperature starting ring having a latch mounted thereon and supporting a circular fluorescent lamp on the front and back thereof. The latch includes a spring loaded bolt and a catch plate is mounted on the inside surface of the web in juxtaposition with the latch, the catch plate including an opening for accommodating the latch bolt and an inclined ramp to the front and back of the opening. The lamp holder assembly is disengaged from the catch plate by withdrawing the latch bolt from the opening and swinging the assembly toward either end of the casing. The assembly is relatched by merely pushing it back to the center position whereby the latch bolt moves back into the opening in the catch plate. This feature permits easy removal and replacement of one or both lamps from either end of the sign.

DESCRIPTION OF THE DRAWING

FIG. 1 is a perspective view of an internally illuminated sign in accordance with this invention;

FIG. 2 is an exploded perspective view of the sign with one retaining ring lens and circular lamp removed; and

FIG. 3 is an enlarged section taken along line 3—3 of FIG. 1 and showing the catch and latch plate for holding the lamp holder assembly in place.

DETAILED DESCRIPTION OF THE INVENTION

Referring to the drawing, the internally illuminated sign includes a casing **10**, a pair of translucent lenses **20**, and a pair of retaining rings **30**, all of which are rectangular in shape. The casing **10** is open-ended and as shown in FIGS. **2** and **3** it comprises a ribbon-like web **12** having an inverted L-shaped flange **14** circumscribing its inside surface a short distance from each edge. Each flange **14** comprises an upstanding leg **15** extending perpendicularly to the web **12** and a lateral leg **16** extending perpendicularly to the upstanding leg, the lateral leg extending toward the adjacent edge of the web. The casing **10** is advantageously an integral structure formed from a metal extrusion, the flanges **14** being notched to permit the bending of the extrusion to form the curved corners of the casing and the ends of the extrusion being welded together to unitize the casing.

Each lens **20** includes a face **22**, a side wall **24** extending perpendicularly to the face, and an outwardly turned rim **26** extending perpendicularly to the side wall. The outside perimeter of the rim **26** of each lens **20** generally conforms to the inside perimeter of the web **12** of the casing **10.** In addition, the outside perimeter of the rim **26** is smaller than the inside perimeter of the web **12** but larger than the inside perimeter of the associated flange **14.** The inside perimeter of the rim **26** on the other hand is smaller than the inside perimeter of the associated flange **14.** Thus, each lens **20** sits inside of the web **12** and the face of the rim **26** engages the edge of the lateral leg **16** of the associated flange **14.**

Each retaining ring **30** generally conforms to the shape of the casing **10** and comprises a clamping portion **32** and a lip portion **34** extending laterally from the outside perimeter of the clamping portion. The inside perimeter of the clamping portion **32** is at least as great as the inside perimeter of the rim **26** of the associated lens **20,** while the outside perimeter of the clamping portion is greater than the outside perimeter of the rim but smaller than the inside perimeter of the web **12.** The lip portion **34** is greater in length than the thickness of the rim **26** but lesser in length than the combined thickness of the rim and the length of the lateral leg **16** of the associated flange **14.** As a result, when the retaining ring **30** is placed in engagement with the associated lens **20,** the clamping portion **32** abuts against the rim **26** and the lip portion **34** encompasses the edge of the rim.

As seen most clearly in FIG. **3,** each retaining ring **30** is secured to the associated flange **14** by fasteners **35** that have threaded end portions and unthreaded shank portions between the heads and the threaded portions that are of smaller diameter than the major diameter of the threaded portions. The fasteners **35** are screwed through the clamping portion **32** of the ring into the upstanding leg **15** of the flange, the rim **26** of each lens **20** having openings through which the fasteners extend. The fasteners **35** draw the retaining ring **30** toward the flange **14** and cause the clamping portion **32** to press the rim **26** against the lateral leg **16** of the flange. The tight engagement of the flange **14,** rim **26,** and retaining ring **30** in combination with the overlapping of the ring with the flange provide a water resistant seal for the sign. Furthermore, the clamping portion **32** is spaced from the upstanding leg **15** a greater distance than the length of the threaded portions of the fasteners **35,** and therefore when the fasteners are unthreaded from the upstanding leg to permit removal of the retaining ring **30** and lens **20** from the casing **10,** the fasteners are still

captive in the retaining ring. There is therefore no problem of losing the fasteners **35.**

As shown in FIG. **2,** a lamp holder assembly **40** is mounted between the ends of the casing **10.** The lamp holder assembly **40** comprises a cold temperature starting ring **42** supported on a pair of spaced arms **44,** the arms being pivotally mounted on a pair of brackets **45** (only one of which is shown) affixed to the inside surface of the web **12.** The arms **44** space the starting ring **42** from the sides of the casing **10** and permit the starting ring to be pivoted toward either end of the casing. Three lamp clips **48** spaced approximately 180° apart are joined to the starting ring **42** and support a circular fluorescent lamp **50** on each side of the ring, the clips holding the lamps a short distance from the sides of the ring.

Finally, the lamp holder assembly **40** includes a latch **60** attached to the starting ring **42** in juxtaposition with a catch **70** mounted on the inside surface of the web **12.** As shown most clearly FIG. **3,** the latch **60** comprises a cylindrical bolt **62** having a tapered lower end. The bolt **62** is supported by the legs of a U-shaped bracket **64** so as to be slidably displaceable along its axis, and a spring **65** biases it toward the catch **70.** Upward movement of the bolt **62** is limited by the compression of the spring **65,** while downward movement is limited by the catch **70** when the lamp holder assembly **40** is in its latched position and by a retaining ring **66** when the assembly is in its unlatched position. A second retaining ring **68** is provided at the upper end of the bolt **62** to provide a gripping surface for disengaging the bolt from the catch **70.**

The catch **70** comprises a catch plate **72** mounted on a support **74.** The catch plate **72** and support **74** have an opening in the center thereof that is somewhat smaller in diameter than the lower portion of the bolt **62,** and the catch plate has an inclined ramp to the front and back of the opening. Thus, after the bolt **62** has been disengaged from the opening in the catch **70** and the lamp holder assembly **40** has been swung toward either end of the casing **10** to replace one or both of the lamps **50,** the latch **60** is re-engaged by merely swinging the lamp holder assembly back to the center of the casing. The tapered lower end of the bolt **62** engages one of the inclined ramps of the catch plate **72** and the bolt is deflected upward until it moves into registration with the opening in the catch plate, whereupon the spring **65** snaps it into place. The tight fit between the tapered lower end of the bolt **62** and the opening in the catch **70** eliminates any rattling of the lamp holder assembly **40.**

Referring again to FIG. **2,** electrical power for the fluorescent lamps **50** is provided from ballasts **80** by way of sockets **82.** The ballasts **80** are connected to a waterproof junction box **84** which is in turn connected to an external power supply through a waterproof strain relief **86.**

Although a specific embodiment of the invention has been shown and described, it will be understood that it is but illustrative and that various modifications may be made therein without departing from the scope and spirit of this invention as defined in the appended claims.

What is claimed is:

1. A lamp enclosure comprising:

an open-ended casing including a web having a flange circumscribing its inside surface a short distance from the open end of the casing;

a lens positioned on the open end of the casing, the outside perimeter of the lens generally conforming to but being smaller than the inside perimeter of the web of the casing whereby permimeter of the lens is accommodated within the web, the outside perimeter of the lens further being larger than the inside perimeter of the flange of the casing whereby the perimeter of the lens is positioned in juxtaposition with the flange, the thickness of the perimeter of the lens and the location of the flange being such that the perimeter of the lens is recessed within the open end of the casing;

a retaining ring positioned in engagement with the perimeter of the lens and fastened to the flange of the casing, the outside perimeter of ther retaining ring generally conforming to but being smaller than the inside perimeter of the web and the inside perimeter of the retaining ring being smaller than the outside perimeter of the lens; and

a lamp holder assembly pivotally mounted to the inside surface of the web, the assembly including a latch, and a catch mounted to the inside surface of the web in juxtaposition with the latch.

2. A lamp enclosure as in claim **1** wherein the flange has an upstanding leg extending transversely from the web and a lateral leg extending transversely from the upstanding leg toward the open end of the casing, and the outside perimeter of the retaining ring is larger than the outside perimeter of the lens and includes a lip that encompasses the perimeter of the lens and overlaps the lateral leg of the flange.

3. A lamp enclosure as in claim **1** wherein the flange has an upstanding leg extending transversely from the web and a lateral leg extending transversely from the upstanding leg toward the open end of the casing, the portion of the lens adjacent to its perimeter engages the lateral leg of the flange, and the outside perimeter of the retaining ring is larger than the outside perimeter of the lens and includes a lip that encompasses the perimeter of the lens and overlaps the lateral leg of the flange, the thickness of the perimeter of the lens, location of the flange, and thickness of the retaining ring being such that the perimeter of the lens and the retaining ring are recessed within the open end of the casing.

4. A lamp enclosure as in claim **1** wherein the latch includes a spring loaded bolt, and the catch includes a plate having an opening therein for accommodating the bolt and an inclined ramp on either side of the opening.

5. A lamp enclosure as in claim **4** wherein the bolt has a tapered end and the opening in the plate accommodates a portion of the tapered end of the bolt.

* * * * *