Oct. 7, 1947. C. E. TSOUROS 2,428,479

LAMP CONSTRUCTION

Filed Sept. 22, 1944

Fig. 1

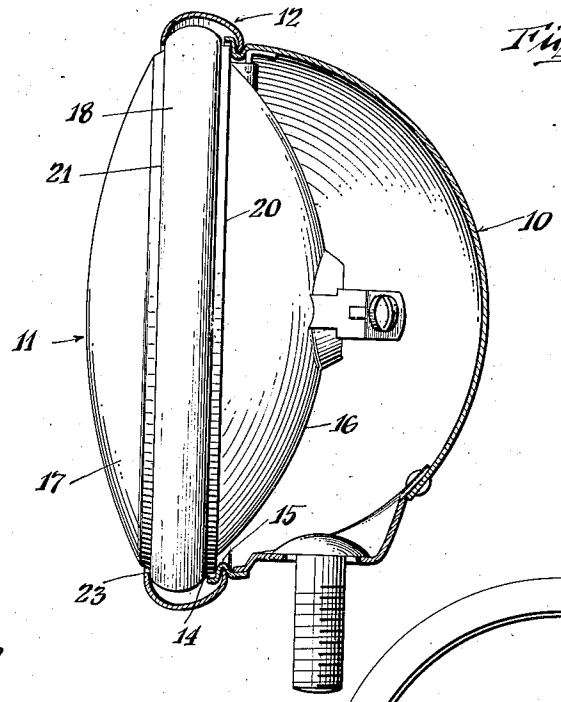


Fig. 2

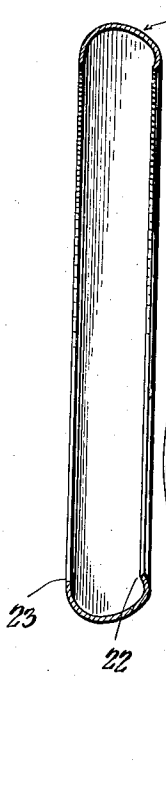


Fig. 3

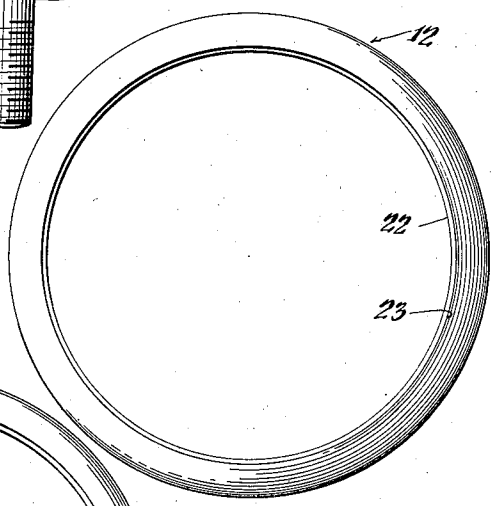
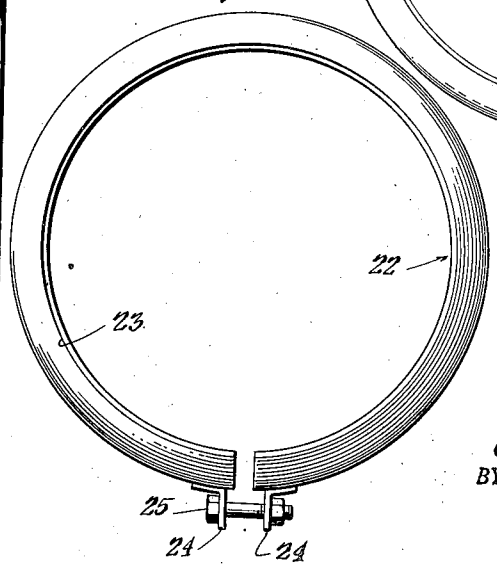


Fig. 4



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LAMP CONSTRUCTION

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2 Claims. (Cl. 240—41.5)

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This invention relates to improvements in electric lamp construction and particularly to an improved means for securing the lens and reflector of a lamp in proper relationship to a casing.

The invention is particularly applicable to electric lamps of the sealed-beam type, in which the lamp and reflector are a single unit, although it will be apparent that it is useful with conventional lamp forms. Sealed-beam lamps, however, are becoming increasingly popular in exposed installations, such as automobile, marine, and aircraft service, and the invention will be described in association with such lamps.

Sealed-beam lamps comprise a reflector portion and a lamp portion bonded together and evacuated after the lamp filament is installed therein. The joint between the reflector and lens portions is a continuous circumferential bead, having a shoulder for cooperation with an abutment or rim portion on the lamp casing for securement thereagainst. Lamp manufacturers have found it commercially impracticable to hold the width of the bead to an exact dimension and it is standard practice for such lamps to have a tolerance plus or minus .035" in the overall width of the bead.

It is common practice to retain such lamps within the housing or casing by means of a clamping ring, bezel or the like. Because of the total of .070" variation in the width of the bead, it has been difficult properly to secure the lamps within their casings by the presently used types of holding rings.

The present invention contemplates an improved holding ring, made of material such as spring steel. In cross section, the wall of the ring is curved, the concave surface being innermost. The ring is adapted to grip the casing and to engage a forward shoulder or abutment of the bead of the lamp, thereby holding the lamp in position. The width of the ring is so proportioned that it will properly hold within the casing a lamp having the minimum width of bead. When lamps having greater than minimum thickness are encountered, the inherent resiliency of the holding ring permits increasing its width suitably to accommodate the increased width of the lamp joint. Hence, lamps of minimum and maximum dimensions are properly maintained in operative relationship with their casings.

It is an object of the invention, therefore to provide an improved means for securing a lamp within a casing.

It is another object of the invention to provide

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an improved retaining ring for lamps, which may be distended to accommodate lamp structures having greater than normal dimension.

It is another object of the invention to provide an improved lamp embodying a sealed-beam lamp, a casing therefor, and an improved retaining ring for holding said lamp within said casing.

In the accompanying drawings:

Fig. 1 is an elevation partly in section of one type of lamp embodying the present invention;

Fig. 2 is a side elevation in section of the retaining ring;

Fig. 3 is a front elevation of one form of retaining ring; and

Fig. 4 is a front elevation of a portion of another form of retaining ring.

Referring to the drawings, a lamp illustrated in Fig. 1 comprises a casing 10, a lamp 11 and a retaining ring 12. The casing may be of conventional configuration, usually substantially hemispherical and is provided adjacent its equator with a shoulder 14 which may result from a rolled groove 15.

The lamp 11 is illustratively of the sealed-beam type and includes a reflector portion 16 and a lens portion 17. As is well known, the sealed-beam lamps are characterized by a bead-like peripheral joint 18 at which the reflector and lens portions are secured together. The joint 18 is usually so configurated that a rear wall 20 serves as the surface upon which the lamp is supported, and a forward wall 21 provides a shoulder or abutment which may be gripped by a suitable retainer for holding the lamp within the casing. Practical considerations of manufacture of the lamps render it impossible to maintain the width between walls 20 and 21 to precise dimension and the manufacturers of such lamps have standardized on a tolerance of plus or minus .035" in width between the respective walls.

Lamps of the sealed-beam type generally afford no means of securement to a housing other than with a retaining ring or equivalent. By reason of the aforementioned variation in the thickness at the joint 18, however, difficulty has been experienced in adequately securing the lamp within the casing by means of a standardized retaining ring. Such retaining rings will not adjust to the differences in the thickness of the lamp at the location of its attachment to the housing. It has therefore previously been necessary individually to fit a ring to a particular lamp.

The retaining ring 12 of the present invention is spun or otherwise formed of spring material such as relatively thin cold rolled steel. The

central wall is deeply concave. The rear or right hand wall 22 of the ring, as viewed in Fig. 2, is preferably slightly re-entrant; said wall fits within and tightly grips the wall of the groove 15 provided in the housing 10. The opposite wall 23 is substantially flat and engages the forward shoulder 21 of the lamp.

The normal relaxed width of the ring 12 is such that with the minimum thickness of the joint 18, the lamp is tightly, but resiliently, held against shoulder 14. When a lamp having a maximum thickness of joint is encountered, said thickness being usually a matter of .070" greater than the minimum thickness, the resiliency of ring 12 permits it to expand to embrace such maximum thickness. A standard retaining ring, therefore, serves for all lamps within the usual commercial tolerance of bead width.

In some lamp constructions, it is practicable to have the ring 12 devoid of joint, there being enough resiliency in the ring and in the lamp casing 10 to permit the edge 22 of the ring to cam over the outer edge of the casing and snap into the groove 15. The reentrant edge 22 of the ring permits this. For larger lamps, in which the material of the casing 10 and/or the ring 12 may be of heavier gauge, the ring may be split, at its bottom and provided with tabs 24, 24 through which a screw 25 or equivalent, may pass, for securement by a nut or like device.

In such form, the relaxed diameter of the ring 12 will be sufficient to pass over the bead or joint of the lamp, and over the front edge of the lamp casing. After positioning, the screw 25 may be made up to tighten the ring.

Whereas it is obvious that among the several objects of the invention as specifically aforenoted are achieved, it is apparent that numerous changes in construction and rearrangements of the parts might be resorted to without departing from the spirit of the invention as defined by the claims.

I claim:

1. In combination with a lamp of the sealed beam type having a peripheral bead delineating between the lens and reflector sections of said lamp, a lamp casing of circular cross-section substantially equal in diameter to the diameter of said lamp immediately behind said bead, said casing being formed adjacent its forward edge with a deep circumference groove providing a substantially flat inner casing wall terminating in an inwardly extending radial shoulder, said wall and said shoulder defining a pocket to receive and engage with said lamp; and a lamp retaining ring of thin springable material having a concave inner wall terminating in a radially extending inwardly curved rear wall engageable with said casing groove and a radially extending substantially flat front wall engageable with the forward wall of said lamp bead; the normal width of said ring measured from edge to edge of the respective walls being less than the minimum standard width of the bead of a sealed beam lamp, and said ring being expansible to accommodate the maximum standard bead width of said lamp while retaining the curvature of the rear wall of said ring.

2. In combination with a lamp of the sealed-beam type having an external peripheral bead delineating between the lens and reflector sections thereof and a substantially cylindrical, relatively short, wall structure rearwardly of said bead, a casing having a front wall portion to relatively snugly receive said cylindrical wall and having, also, a relatively deep circumferential groove defining a shoulder engageable with the rear edge of said cylindrical wall surface to limit the extent of insertion of said lamp within said casing, and a retaining ring of thin, springable material having a stiff radially extending wall seating within said groove and a substantially radially extending front wall engageable with the forward surface of said cylindrical bead; the relaxed width of said ring measured from edge to edge of its respective walls being less than the minimum standard width of the said bead of a sealed-beam lamp, the forward wall of said retaining ring being elastic, so as to resiliently urge the said lamp rearwardly into the casing.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,313,716	Mazzeo	Aug. 19, 1919
1,681,042	Kuen	Aug. 14, 1928
1,884,076	Michel	Oct. 25, 1932
2,138,077	Taylor et al.	Nov. 29, 1938
2,267,707	Bosten	Dec. 30, 1941
2,363,147	Roper	Nov. 21, 1944
2,253,628	Krapp	Aug. 26, 1941
2,271,425	Harris	Jan. 27, 1942

FOREIGN PATENTS

Number	Country	Date
473,025	Germany	1929