Oct. 11, 1966 R. L. BUSTAMANTE 3,278,787

BULB ASSEMBLY

Filed July 12, 1963

FIG. 1.

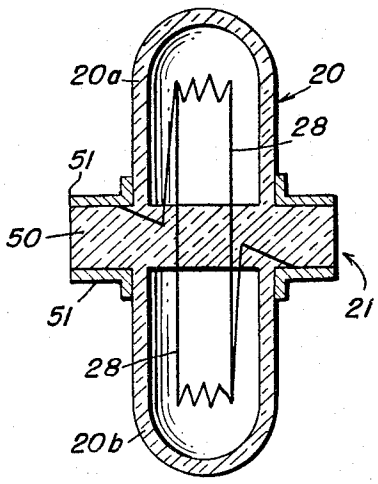


FIG. 2.

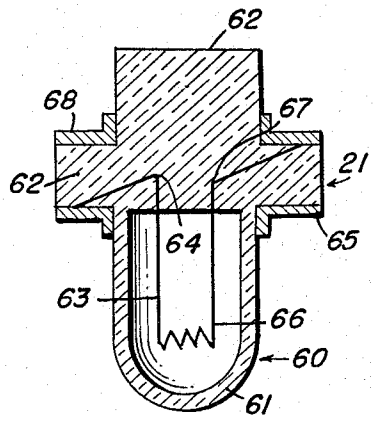
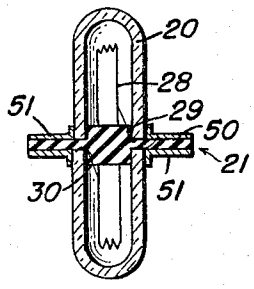


FIG. 3.



INVENTOR

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BULB ASSEMBLY

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6 Claims. (Cl. 313—204)

This application is a continuation-in-part of my copending application, Serial No. 524,129, filed July 25, 1955 and now Patent No. 3,114,509, dated December 17, 1963.

This invention relates to a new bulb assembly that is useful in an illuminating device such as a signal light or the like.

Illumination according to the present invention is provided by a novel light bulb assembly. This light bulb assembly is provided with an annulus element adapted to rest upon an annular contact ring which is mounted within a suitable housing. Electric current is provided to the annulus element and annular contact ring by means of an electrical conductor passing through the housing and connected to the contact ring. Electrical connection to ground is provided by a spring or the like means associated with the housing and the annular element to urge the annular element into contact with the annular contact ring.

Further understanding of the objects and advantages of the present invention will be had with reference to the accompanying drawings In the drawings, identical reference characters have been employed to denote the same or similar parts throughout the several views, and thereby indicate the advantageous interchangeability of parts that is realized by he several modifications of the present invention.

FIGURE 1 is a detailed cross-sectional view of the bulb assembly according to the invention;

FIGURE 2 is a vertical sectional view of a modification of the bulb assembly shown in FIGURE 1; and

FIGURE 3 is a vertical sectional view of another modification of the bulb assembly according to the invention.

Referring now to FIGURES 1 and 3, light bulb assemblies suitable for use according to the invention, indicated generally by the reference numeral **20**, are shown in cross-section detail and comprise upper and lower glass envelope portions **20***a* and **20***b*, and electrical filaments **28**. Lead wires from filaments **28** pass through and are supported by means of embedment in a pressure footing, glass bead, glass pearl, or oher centrally disposed insulating material **50**. The lead wires connect the filaments **28** with the exterior upper and lower metal annulus plates **51** for electrical connection with an insulated conductor, or with ground through a suitable contact. The lead wire connection from the right hand wire of filaments **28** is bent as at **29** and is attached to the upper annulus plate **51** on the upper surface of annulus **21** (or **21'**) which may be in contact with a suitable contact and ground. The lead wire connection from the left hand wire of filaments **28** is similarly bent as at **30** and connected to the corresponding lower annulus plate **51** which may be in electrical connection with a suitable contact ring and conductor wire. As shown in FIGURE 3, annulus **21** may be of greater width within the glass envelope of bulb **20**, than on the outside thereof for strengthening purposes.

Turning now to FIGURE 2, there is shown a modification which employs a single inverted bulb assembly indicated generally at **60** and provided with glass envelope **61** and a large pressure footing **62** which also acts as a

support for the bulb. In this instance, filament lead wire **63** is bent at **64** and connected to lower metal annulus **65**, and filament lead wire **66** is bent slightly at **67** and connected to upper metal annulus **68**. The lower annulus may be in contact with a suitable contact ring and electrical conductor, and the upper annulus may be in contact with a suitable contact leading to ground.

It will be appreciated at this time that the several light bulb modifications shown according to present invention offer advantages in simplicity, ease of manufacture, quick replacement and the elimination of screw threads, projecting lugs and similar means presently employed to secure bulbs in sockets. In so doing, the present invention permits light bulb constructions wherein a greater portion of the dimensions can be devoted to the glass envelope and filament assembly, resulting in the production of miniature bulbs with a materially greater amount of illumination per unit of overall dimensions, and this feature is heightened with the use of the present double bulb assembly.

It is also to be understood, moreover, that the dimensions shown for the several parts of the present invention, for the purposes of clarity, are not drawn to scale. Thus, the several parts, such as annulus **21** of the bulbs and annulus plates **51** may be of minimal thickness to insure the miniature size of the assembly.

In reviewing the several modifications of this invention, it will be appreciated that many obvious modifications may be made without departing from the spirit of this invention.

It is therefore to be understood by those skilled in the art that this invention should only be limited to the extent shown by the following claims.

What is claimed is:

1. A bulb assembly comprising a pair of glass envelopes connected end to end by means of an insulating pressure footing, said insulating pressure footing having an outwardly extending annulus portion, a pair of annulus plates, said annulus plates being disposed on each side of said outwardly extending annulus portion, a pair of electrical filaments, one of said electrical filaments being disposed in each glass envelope, one of the lead wires from each electrical filament being in electrical connection with one of said annulus plates, and the other lead wire from each electrical filament being in electrical connection with the other annulus plate.

2. The bulb assembly of claim **1** wherein the pressure footing is relatively enlarged inside the glass envelope, and the annulus portion, which is integrally formed with the pressure footing, is in the shape of a relatively flat disc completely surrounding the glass envelopes.

3. A bulb assembly comprising a glass envelope portion and a large coextensive support portion, said portions being connected end to end by means of an insulating pressure footing, said insulating pressure footing having an outwardly extending annulus portion, a pair of annulus plates, said annulus plates being disposed on each side of said outwardly extending annulus portion, an electrical filament disposed within said glass envelope, one of the lead wires from said electrical filament being in electrical connection with one of said annulus plates, and the other lead wire from said electrical filament being in electrical connection with the other annulus plate.

4. A bulb assembly comprising at least one relatively elongated glass envelope portion, and a pressure footing portion coextensive and integrally formed with the glass envelope portion, said pressure footing portion extending outwardly from the glass envelope portion as a rela-

tively thin and flat annular disc lying in a plane perpendicular to the axis of the glass envelope portion, a pair of relatively thin and flat annular contact rings, one ring being mounted on each side of the annular disc of the pressure footing and in contact therewith, such that the annular contact rings lie in parallel planes that are perpendicular to the axis of the glass envelope, and first and second electrode lead wires leading from an electrical filament inside the glass envelope and extending through the material of the pressure footing portion, each electrode lead wire being in electrical contact with one of said annular contact rings.

5. The bulb assembly of claim 4 wherein there are two axially aligned glass envelopes, one on each side of the pressure footing portion, with an electrical filament in each glass envelope.

6. The bulb assembly of claim 4 wherein there is a single glass envelope, and the pressure footing portion has a base portion extending therefrom which is axially aligned with the single glass envelope.

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