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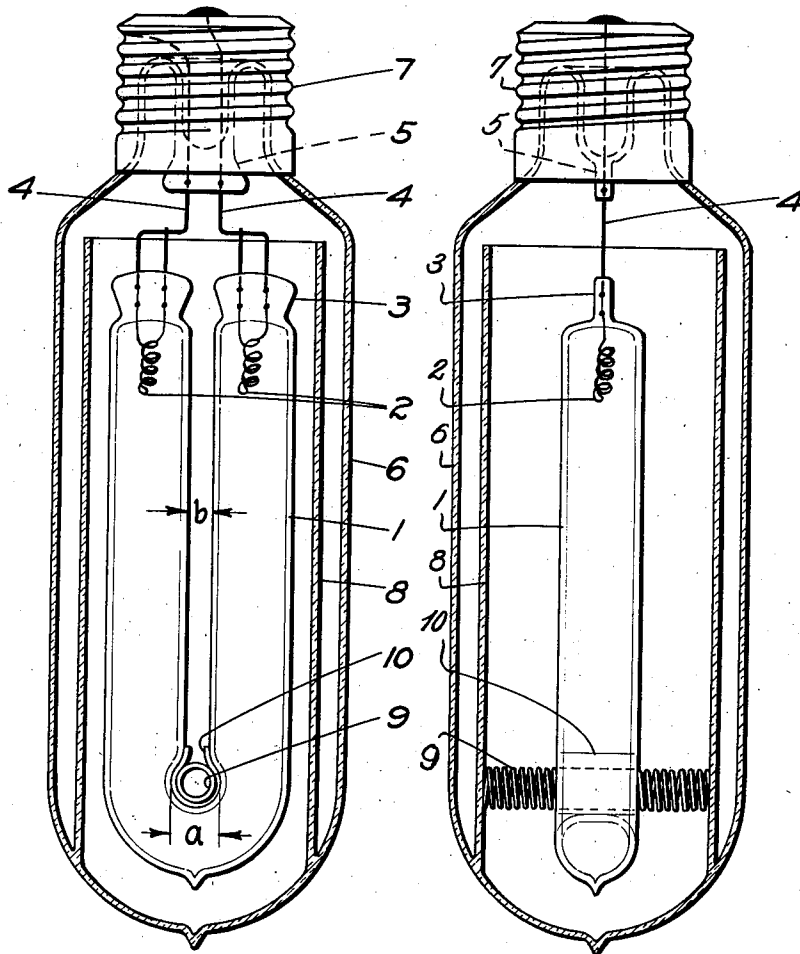
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LAMP UNIT

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Fig. 1

Fig. 2



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LAMP UNIT

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3 Claims. (Cl. 176-122)

The present invention relates to lamp units generally and more particularly the invention relates to such units comprising a heat conservator, such as an hermetically sealed envelope, and a gaseous electric discharge lamp device having a U-shaped container mounted in said heat conservator. The heat conservator is useful for retaining heat in the lamp container during the operation of the device to improve the efficiency of the device. A heat conservator is very advantageous for vapor discharge lamp devices, particularly those devices having a gaseous atmosphere comprising the vapor of a difficultly vaporizable material, such as a material the vapor pressure of which is less than 1 mm. at a temperature of 200° C.

The object of the present invention is to provide a simple, inexpensive means for supporting the U-shaped lamp container in the heat conservator of lamp units of the above type. Another object of the invention is to provide a supporting means which is easily mounted in the lamp unit during the manufacture thereof. A further object of the invention is to provide a supporting means for mounting in the lamp unit which obstructs the light emitted by the lamp device and affects the operation of the discharge lamp as little as possible. Still further objects and advantages attaching to the device and to its use and operation will be apparent to those skilled in the art from the following particular description.

The invention attains its objects by using a resilient, helically coiled spring clamped between the legs of the U-shaped container and pressing against the inner surface of the heat conservator. When desired, the spring does not press directly against the walls of the envelope; a cylindrical glass baffle interposed between the container and the envelope is used as a support for said spring, when desired.

In the drawing accompanying and forming part of this specification an embodiment of the invention is shown, in which—

Fig. 1 is a front elevational, partly sectional view of a gaseous electric discharge lamp unit embodying the invention, and

Fig. 2 is a side elevational, partly sectional view of the device shown in Fig. 1.

Like numbers denote like parts in both the figures.

Referring to Fig. 1 the gaseous electric discharge lamp device comprises a U-shape, tubular container 1 having an electrode 2 mounted adjacent the end of each of its legs and having a

gaseous atmosphere therein comprising a starting gas, such as argon, neon, xenon, or a mixture of such gases, at a pressure of approximately 1 to 10 mm. and the vapor of a difficultly vaporizable material, such as sodium. The electrodes 2 are electron emitting when heated and consist of a metal filament, such as a tungsten filament, bent double and coiled helically, and a coating of material having high electron emissivity characteristics, such as barium oxide, on said filament.

Each of the electrodes 2 is mounted on a pair of current leads sealed into the external pinch 3 of said container 1 which are connected outside the container 1 to a single current lead 4. Said current leads 4 are sealed into the pinch part 5 of the envelope 6. Said container 1 is thus suspended in said envelope 6 by said leads 4. The envelope 6 is evacuated and is provided with a base 7 having two separate electrical contacts thereon to which the current leads 4 are connected. A cylindrical glass baffle 8 which is open at both ends is interposed between the container 1 and the envelope 6 and is fused at one end thereof to said envelope 6.

The curved part connecting the legs of the tubular container 1 is smaller in diameter than the legs of said container 1 and the diameter of the circular opening A between the legs of the container is larger than the distance B between said legs. A helically coiled, resilient spring 9 having a straight axis is inserted in said circular opening and presses against the side of said opening. The spring likewise presses against the inner surface of the baffle 8 to hold the lower part of said container 1 firmly in position centrally in said envelope 6 and away from the baffle 8. A small plate 10 of heat insulating material, such as mica, is interposed between said springs 9 and the sides of the circular opening A. Preferably the spring 9 is greater in length than the diameter of the baffle 8 and is inserted in its position between the legs of the container 1 before said container 1 is introduced into the envelope 6 during the assembling of the lamp device. When the container 1 is introduced into the envelope 6 the spring is compressed longitudinally and is thus caused to expand radially so that it presses against the curved part of the container 1 as well as against the baffle 8. Since the circular opening A is greater in diameter than the distance B the helical spring 9 is clamped by the curved part of the container 1 for more than 180°. The spring 9 is thus prevented from moving along the length of the container 1. The

structure described above is a simple one and the container 1 is prevented from moving with respect to the envelope 6 during the use and the transportation of the lamp device by a positive acting, resilient support means.

During the operation of the device the adjacent parts of the container legs are at a higher temperature than the remote parts thereof, due to the mutual heating thereof. The mounting of the spring 9 between the legs of the container is, therefore, advantageous since the heat conducted away from said container 1 by said spring 9 has no effect on the vapor pressure in said container 1. Even though, in a particular device, the spring 9 may reduce the temperature of the parts of the container 1 contiguous therewith below the condensation temperature of the metal vapor the structure described is still advantageous since the light obstructing deposits of condensed material form on the inner sides of the container 1 rather than the sides thereof facing the envelope 6. The spring 9, due to its small size and its position between the legs of the envelope 6, intercepts a minimum of light.

While we have shown and described and have pointed out in the annexed claims certain novel features of the invention, it will be understood that various omissions, substitutions and changes in the forms and details of the device illustrated and in its use and operation may be made by those skilled in the art without departing from the broad spirit and scope of the invention, for example, a double-walled vessel having the space between the walls thereof evacuated is used in place of the envelope 6, when desired; the container 1 comprises three or four parallel legs

and the spring 9 is used in a like manner with like advantages when desired, and when desired, another spring similar to spring 9 is mounted adjacent the ends of the container 1 in a similar manner.

What we claim as new and desire to secure by Letters Patent of the United States is:—

1. A lamp unit comprising in combination a heat conservator, a gaseous electric discharge lamp device having a U-shaped container mounted in said heat conservator, and a resilient means interposed between the legs of said container and pressing against the walls of said conservator to support said container centrally in said conservator and away from the walls thereof.

2. A lamp unit comprising in combination a heat conservator, a gaseous electric discharge lamp device having a U-shaped container mounted in said heat conservator, and a resilient means interposed between the legs of said container at the curved part thereof and pressing against the walls of said conservator to support said container centrally in said conservator and away from the walls thereof.

3. A lamp unit comprising in combination a heat conservator, a gaseous electric discharge lamp device having a U-shaped container mounted in said heat conservator, and a resilient means interposed between and clamped by the legs of said container and pressing against the walls of said conservator to support said container centrally in said conservator and away from the walls thereof.

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