

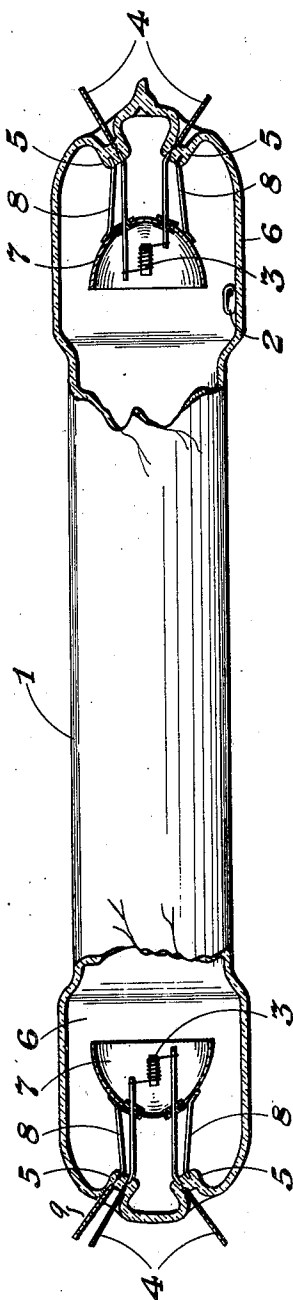
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GASEOUS ELECTRIC DISCHARGE LAMP DEVICE

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GASEOUS ELECTRIC DISCHARGE LAMP
DEVICE

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3 Claims. (Cl. 176-122)

The present invention relates to gaseous electric discharge lamp devices generally and more particularly the invention relates to such devices having electrodes which are at a high temperature during the operation of the device, such as thermionic electrodes, and a vaporizable material therein the vapor of which is light emitting during the operation of the device, such as sodium, cadmium, magnesium, mercury, or zinc.

The object of the invention is to provide a lamp device of the above type in which the light transmitting walls of the lamp are free from deposits of condensed metal vapor during the operation of the lamp. Another object of the invention is to provide an efficient vapor discharge lamp. 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.

In accordance with this object the invention comprises a reflector, such as a parabolic reflector, for a hot electrode in the lamp which collects the heat rays from the hot electrode and projects said rays along the discharge path between the electrodes. The heat rays passing along the discharge path heat the gaseous filling in said path as well as the wall of the lamp container surrounding said path and thus contribute in making the lamp more efficient. In lamps having an elongated tubular container and electrodes mounted at the ends thereof the projection of the heat rays along the discharge path is helpful in keeping the part of the container surrounding said path free from light absorbing deposits of condensed vapor. The heat rays from the hot electrode which were permitted to pass through the adjacent walls of the lamp container in prior devices are now used for a useful purpose inside the lamp to increase the efficiency thereof.

In the drawing accompanying and forming part of this specification an embodiment of the invention is shown in a side elevational, partly sectional view.

Referring to the drawing the lamp comprises an elongated, tubular, sealed container 1 having a starting gas, such as argon, neon, krypton, xenon or a mixture of such gases, and a quantity 2 of vaporizable metal, such as sodium, therein.

Two electrodes 3 are sealed into said container 1, one at each end thereof, and are axially mounted in said container 1. Each of said electrodes 3 consists of a heater filament, such as a tungsten or a nickel filament wrapped around a bar or rod of electron emitting material, such as barium

oxide, strontium oxide, or a mixture of such oxides, and is electron emitting when heated. Each of said electrodes 3 is mounted on a pair of current leads 4, each of which is fused into a nipple part 5 of said container 1. Two parabolic reflectors 7 each of which is supported by a pair of wires 8 fused into the parts 5 of said container 1 are mounted in said container 1 one at each end of said container 1. Each of the electrodes 3 is in the focal point of one of the reflectors 7. The open end of each of said reflectors 7 is in the direction of the discharge path between said electrodes 3. The current leads 4 for the electrodes 3 which pass through the reflectors 7 are insulated from said electrodes 7.

During the operation of the lamp the electrodes are heated to an elevated temperature by a heater current and the heat rays emanating from the electrodes 3 strike the reflecting surface of the reflectors 7 and are directed thereby in a beam along the container 1. The wall of the container 1 surrounding the discharge path between said electrodes 3 and the gas and the metal vapor in said discharge path are heated by said rays and are at a higher temperature during the operation of the lamp than would be the case were said reflectors 7 omitted. The lamp is an efficient source of light and the formation of light absorbing deposits of condensed vapor on the light transmitting walls of the container is prevented.

While I 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 spirit and scope of the invention, for example, one or both of the reflectors 7 is provided with a current lead 9 and is used as an auxiliary starting electrode, when desired, and the electrodes 3 are of the directly heated type well known in the art, when desired.

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

1. A gaseous electric discharge lamp comprising a container, thermionic electrodes sealed therein, a gaseous atmosphere therein comprising a metal vapor, and a parabolic reflector therein, one of said electrodes being mounted in the focal point of said reflector, said reflector being an auxiliary starting electrode and directing the heat rays from said electrode along the discharge path in said lamp.

2. A gaseous electric discharge lamp compris-

ing a container, thermionic electrodes sealed therein, a gaseous atmosphere therein comprising a metal vapor, and a parabolic reflector mounted therein, one of said electrodes being mounted in the focal point of said reflector, said reflector being spaced apart from the walls of said container and directing the heat rays from said electrode along the discharge path in said lamp.

10 3. A gaseous electric discharge device compris-

ing an elongated container, a gaseous atmosphere therein, thermionic electrodes sealed therein at the ends thereof and a reflector mounted in said container and spaced apart from the walls thereof, said reflector being in operative relation to one of said electrodes for distributing the heat rays generated at said electrodes along the discharge path between said electrodes.

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