

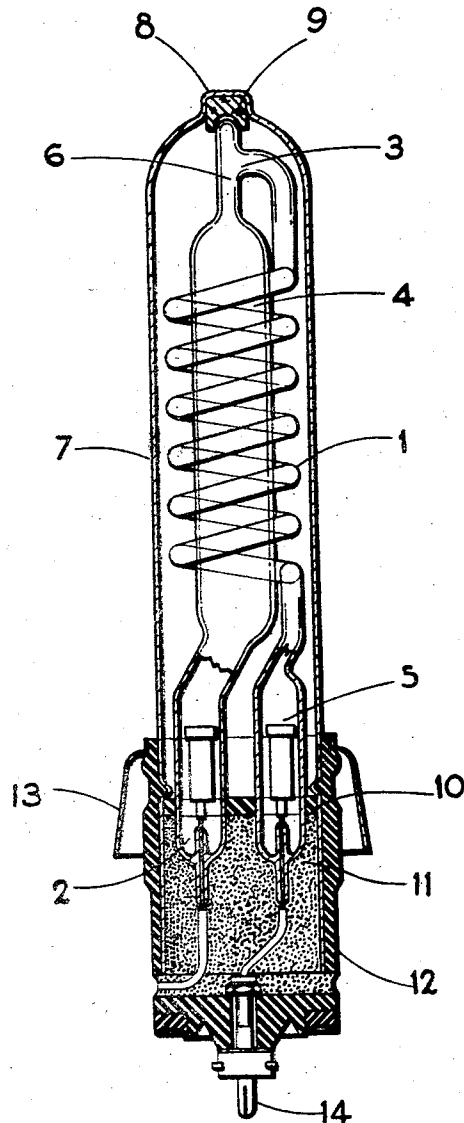
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F. COURDIL

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ELECTRIC LAMP

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INVENTOR
Fernand Courdil,
BY *Harry E. Newham*
ATTORNEY

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ELECTRIC LAMP

Fernand Courdil, Paris, France, assignor to
Société Anonyme pour les Applications de
l'Electricité et des Gaz Rares, Etablissements
Claude-Paz et Silva, Paris, France

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This invention relates to electric lamps generally and more particularly the invention relates to such lamps incorporating a luminous electric discharge device having a filling of gas and/or vapour and provided with a gas reservoir. Devices of this nature may be employed, for example, as light sources for search lights, beacons or signal lights of any desired color.

The object of the invention is to provide an efficient, long-lived, rugged, inexpensive, easily assembled, temperature insensitive electric lamp comprising a luminous electric discharge device. Another object of the invention is to provide a luminous electric discharge device useful in lamps of the above type. 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.

A luminous electric discharge device of the type specified, in accordance with the invention, comprises a central tube forming the gas reservoir and serving as a support for a second tube or tubes of smaller diameter arranged around the said first tube, the said tubes being joined together at one of their ends, whereas the other end of each tube is provided with an electrode.

The lamp preferably comprises an outer glass envelope which is independent of the two tubes and suitably designed so as to be removable relatively to them.

The outer envelope and the two tubes may be adapted separately or in combination to modify the color of the light emitted by the discharge; for this purpose, they may be made colored, light diffusing or luminescent. Furthermore, the atmosphere for the discharge may be constituted by a mixture of suitable gases or vapors (for instance neon and mercury in combination); with such a filling the different diameters of the two tubes may be employed for obtaining a discharge of different color in each tube; for this purpose the tube forming the gas reservoir is not made relatively too large in diameter.

When a metal vapor is employed in the filling of the device, the arrangement according to the invention affords the additional advantage of avoiding, by reason of the rise in temperature of the tube occasioned by the presence of the outer envelope, a condensation of the metal vapor in the gas reservoir at low temperatures of the surroundings; such condensation would inevitably occur if this reservoir were in contact with the atmosphere of relatively low temperature. The

use of the outer envelope thus at the same time protects the helical tube from the influence of low external temperatures, and maintains a luminous column of uniform color in this tube. It is obvious, moreover, that in this case, if it is merely desired to avoid the condensation effect, instead of the helical tube a tube or assembly of tubes representing any desired other shape or configuration may be adopted, provided of course, that these tubes surround the tube constituting the gas reservoir and are supporting by it, and that their diameters are noticeably smaller than the diameter of the gas reservoir tube; thus, for instance, the helical tube may be replaced by a number of tubes surrounding the gas reservoir tube.

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

In the drawing the discharge device comprises the helically coiled glass tube 1 the lower end of which contains one of the electrodes 2, and the upper end of which is joined by the part 3, to an extension 6 of the central tube 4; the other electrode 5 is arranged in the lower end of the central tube. The extension 6 of the central tube engages with a recess provided at the hemispherical end of the protective outer envelope or vitreous jacket 7, preferably, as shown, through an intermediary sleeve 9 of semi-resilient material, such as for example, cork. The lower ends of the two tubes are kept in place relatively to one another and to the outer envelope by means of an apertured closure member 10 and a mass of plastic material 11 in which they are embedded. The device is also provided with a sleeve 12 provided with a dependent flange 13 serving for preventing the access of rain water.

In this manner a particularly robust construction is obtained: the tube 4 which is made of substantially larger diameter than the tube 1, in addition constitutes a gas reservoir which permits of extending the operating period of the device at operating pressures low enough for yielding an adequate luminous output; the volume of this reservoir is adapted to the life which it is desired that the device should have.

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

1. A gaseous electric discharge lamp comprising an elongated container, electrodes sealed therein adjacent the ends thereof, a gaseous atmosphere therein, one part of said container being of larger diameter than another part there-

of, both of said container parts surrounding the discharge path between said electrodes, said part of larger diameter constituting a gas reservoir for said lamp and serving as a support for said part of smaller diameter, said part of smaller diameter being helical in shape and surrounding said part of larger diameter, an axial extension on said part of larger diameter, said extension being of smaller diameter than said part of larger diameter, said container part of smaller diameter being joined to the midportion of said extension the projecting part of said extension being a support for said lamp.

2. An electric lamp comprising, in combination, a vitreous jacket and a gaseous electric discharge device mounted in said jacket, said discharge device comprising an elongated container, electrodes sealed therein, a gaseous atmosphere

therein, one part of said container being of larger diameter than another part thereof, both of said container parts surrounding the discharge path between said electrodes, said part of larger diameter constituting a gas reservoir for said device and serving as a support for said part of smaller diameter, said part of smaller diameter surrounding said part of larger diameter, an axial extension on said part of larger diameter, said extension being of smaller diameter than said part of larger diameter, said container part of smaller diameter being joined to said extension, said vitreous jacket having a recess therein and a support of heat insulating material in said recess engaging with the projecting part of said extension to support said lamp in said jacket.

FERNAND COURDIL.