May 18, 1926. 1,585,252

A. LEDERER

ELECTRIC GAS LAMP

Filed June 14, 1921

FIG. 1.

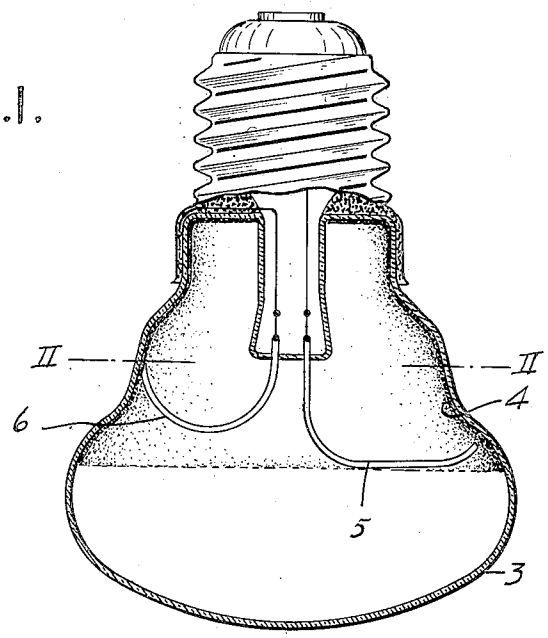
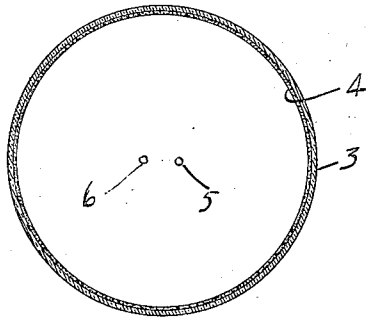


FIG. 2.



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Patented May 18, 1926. 1,585,252

UNITED STATES PATENT OFFICE.

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ELECTRIC GAS LAMP.

Application filed June 14, 1921. Serial No. 477,608.

My invention relates to electric lamps of the type in which gas enclosed in a transparent container is rendered luminous by the passage of electric current therethrough.

An object of my invention is to provide an electric lamp containing gas, substantially all of which is rendered luminous when the lamp is in operation.

Another object of my invention is to provide a lamp of the type described above that is capable of serving as its own reflector for the proper distribution of its light.

My invention comprises an electric lamp, the bulb or container of which is filled with a suitable gas. The gas usually employed in lamps of the type contemplated by the invention is one of the monatomic gases, neon being preferred. The lamp is provided with two electrodes, one of which is of relatively large area. The larger electrode, which is arranged in the upper half of the container, constitutes a mirror. By properly designing the shape and position of the larger electrode, it may serve as a reflector to efficiently distribute light emitted by the gas which is caused to glow when an electrical discharge occurs between the electrodes.

Referring to the drawing:

Figure 1 is a view, partially in elevation and partially in longitudinal section, of a lamp embodying my invention.

Figure 2 is a cross-sectional view taken on the line 11—11 of Fig. 1.

Lamps of the same general character as that of my invention have hitherto comprised one electrode consisting of wire and a second electrode either of wire, or having the form of a metallic ribbon or strip, or the like. The electrodes have extended into a bulb filled with gas, one of the electrodes being arranged to surround the other. In the lamps of the prior art, arranged as described above, a portion only of the surrounding gas is rendered luminous by the electric discharge occuring between the electrodes.

A lamp constructed in accordance with my invention comprises a bulb or container 3 of transparent glass, the upper part of which is shaped to constitute a surface on which a metallic electrode 4 may be deposited or secured in any suitable manner. A second electrode 5, which is provided with a suitable leading-in wire connected to the base of the lamp, extends adjacent to the electrode 4. The larger electrode 4 is connected by a suitable leading-in wire 6 to the other terminal of the lamp.

The bulb or container 3 is filled with a monatomic gas, such, for example, as neon. This gas has the property of becoming luminous when an electric current is discharged through it. This phenomenon occurs when either direct current or alternating current is employed and it is immaterial as to which type of current is employed with my improved lamp.

When the electrodes are energized, a discharge occurs which extends from the electrode 5 through the gas to substantially all parts of the electrode 4. By reason of the nature of the discharge substantially all of the gas within the container is rendered luminous. The electrode 4, which constitutes a reflector, distributes the light in accordance with the shape and position of the electrode.

The electrode 4 may consist of any suitable metal and may be formed to the desired shape and then secured in place within the bulb. Preferably, I deposit a layer of metal, such as silver, on the upper portion of the interior of the bulb.

A lamp constructed in accordance with my invention possesses the advantage that it will emit light of much more uniform quality than will a lamp having electrodes of relatively small surfaces. The arrangement whereby one of the electrodes acts as a reflector aids in securing this result. The heavy electrode is secured in such manner that its dislocation is substantially impossible under ordinary circumstances, thereby lessening the danger of breakage.

It is to be understood that the shape and size of the larger electrode as well as its position may be arranged as desired in accordance with the service for which the lamp is intended.

What is claimed is:

1. In an electric discharge lamp, the combination of a sealed envelope, a suitable gaseous filling therein, and a plurality of electrodes, one of which has an area of a different order of magnitude than the other, and the larger of which functions as a reflector and is positioned within said envelope.

2. An electric discharge glow lamp comprising a sealed envelope, a filling of gas therein, and a plurality of electrodes one of

which is adapted to function as a reflector for the light of the lamp.

3. An electric discharge glow lamp comprising a sealed envelope, a filling of gas therein, an electrode adapted to function as a reflector, and a second electrode positioned within said reflecting electrode.

4. An electric discharge glow lamp comprising a sealed envelope, a portion thereof being molded to the form of a reflector for securing the desired distribution of light, a filling of gas within said envelope and a plurality of electrodes, one of which is adapted to function also as a reflector.

5. An electric discharge glow lamp, comprising a sealed envelope, a portion of which is molded to the form of a reflector for securing the desired distribution of light, a filling of gas within said envelope, an electrode adapted to function also as a reflector, and an electrode surrounded by said reflecting electrode.

6. An electric discharge apparatus comprising a sealed envelope, a portion thereof being molded to the form of a reflector, a filling of gas within said envelope, and a plurality of electrodes within said envelope, one of said electrodes consisting of a metallic deposit on that part of the bulb which is molded to the form of a reflector.

7. In an electric discharge glow lamp, an electrode having the form of a reflector for controlling the distribution of light and provided with a mirror surface, said electrode being positioned within said lamp.

8. In an electric discharge lamp, the combination of a sealed envelope, a chemically inert gaseous filling therein, and a plurality of electrodes, one of said electrodes having a mirror surface.

9. An electric discharge glow lamp comprising a sealed envelope, a filling of gas therein and a plurality of electrodes within said envelope, one of said electrodes being in the form of a deposit and forming a hollow conducting body and the other electrode being positioned within the same.

10. An electric discharge glow lamp comprising a sealed envelope, a filling of gas therein and a plurality of electrodes within said envelope, one of said electrodes consisting of a deposit of conducting material on the interior wall of said envelope and forming a hollow reflecting surface, the other electrode being positioned within said hollow body.

In testimony whereof, I have hereunto subscribed my name this 28th day of June, 1921.

ANTON LEDERER.