

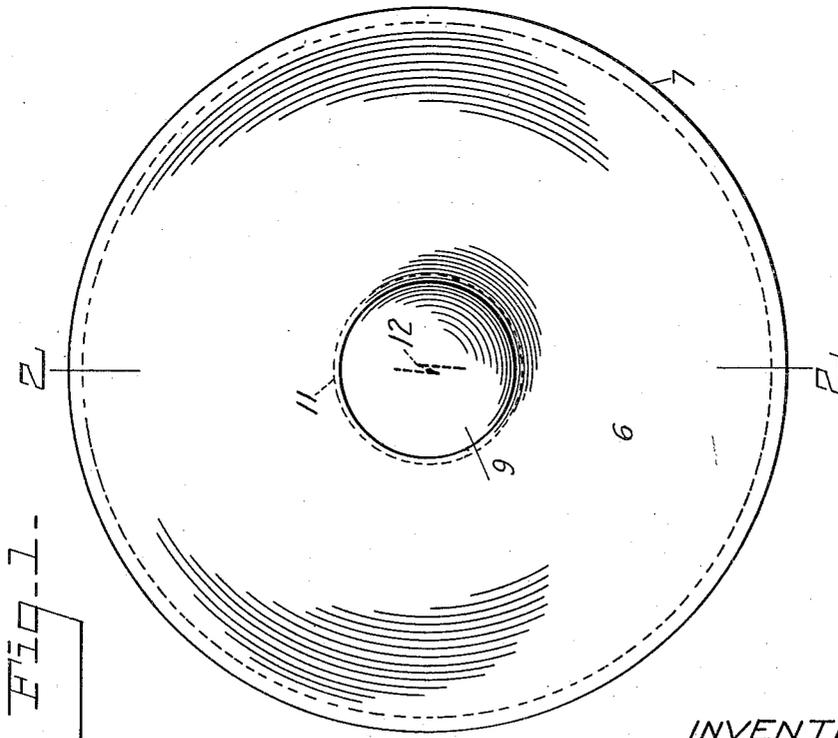
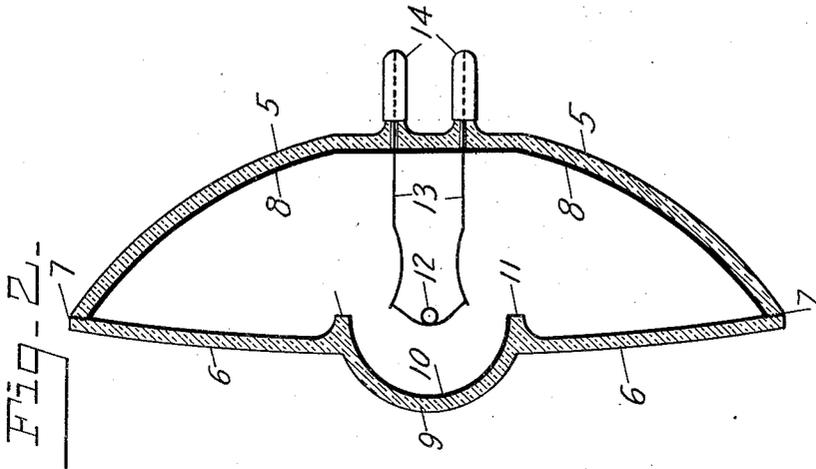
June 14, 1938.

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2,120,836

INCANDESCENT ELECTRIC LAMP

Filed Aug. 16, 1937



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UNITED STATES PATENT OFFICE

2,120,836

INCANDESCENT ELECTRIC LAMP

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Application August 16, 1937, Serial No. 159,264

4 Claims. (Cl. 176—34)

This invention relates to an incandescent electric lamp and more particularly to a light projecting lamp adapted for use in airplane lights, automobile headlights and for like purposes.

One object of the invention is to provide an incandescent lamp which will contain within itself a deflecting surface or surfaces for projecting the light forwardly, thus avoiding the use of an exterior reflector and eliminating the lamp bulb which is usually interposed between the filament and the reflector.

A further object of the invention is to provide such a lamp having within itself a front and rear reflecting surface arranged to project a relatively large amount of the light emanating from the filament and thus secure high efficiency in the lamp with a relatively small rear reflector.

A further object of the invention is to provide such a light which will properly diffuse the projected light and will be free from glare.

A further object of the invention is to provide such a lamp which will be simple in construction and which may be produced at a relatively low cost.

Other objects of the invention may appear as the lamp is described in detail.

In the accompanying drawing Fig. 1 is a front elevation of a lamp embodying my invention; and Fig. 2 is a sectional view taken on the line 2—2 of Fig. 1.

The lamp comprises a bulb, or container for the filament, which may take various forms and may be formed of any suitable materials. This container is provided in the rear of the filament with a forwardly directed reflecting surface and with a rearwardly directed reflecting surface arranged in front of the filament to intercept the light which is radiated forwardly from the filament and reflect the same against the forwardly directed reflecting surface. In the particular construction here illustrated the container for the filament comprises a rear wall 5 which is concave in form and of a transverse diameter substantially greater than its depth, thus imparting to the same a dish shape. A front wall or lens 6 is supported by this rear wall and is connected with the forward edge thereof in such a manner as to provide a tightly sealed joint, as by a fused connection, as shown at 7. The front wall or lens is usually of glass and the rear wall may, if desired, be of glass. The forwardly directed reflector may be arranged within the container in any suitable manner but is preferably provided by coating the rear wall with a suitable reflecting substance, such as aluminum, as shown at 8. In

the present instance, the reflecting surface is co-extensive with the inner surface of the rear wall. The rearwardly directed reflector comprises a forwardly curved part 9 arranged centrally of the lens 6 and preferably mounted therein and connected therewith in such a manner as to provide a sealed joint. For convenience of manufacture it is preferable that this forwardly curved part should be formed integral with the lens, as here shown, the reflecting surface being provided by coating the inner surface thereof with a reflecting substance, such as aluminum, as shown at 10. The lens itself has a slight forward curvature and, in the present construction, the forward portion of the forwardly curved part 9 projects forwardly beyond the lens, and the rear edge 11 thereof extends rearwardly substantially to the plane of the forward edge of the rear wall.

The filament 12 is supported between the two reflecting surfaces and is here shown as arranged centrally of the forward reflector and substantially in the plane of the forward edge of the rear wall so that it is located substantially at the focal point of the front reflector. The leads 13 for the filament extend through the rear wall, and are attached to contact pins 14, which have sealed connections with the rear wall so as to provide sealed terminals for the leads 13 for the filament.

The lamp bulb or container thus formed may be evacuated, or filled with inert gas, in the manner customary in incandescent lamps and with the arrangement shown it will be apparent that all rays of light which are radiated forwardly from the filament will be intercepted by the rearwardly directed reflector 10 and reflected thereby against the forwardly directed reflector, which in turn will reflect the same through the lens 6, along with the rays of light which pass directly from the filament to the forwardly directed reflector. Consequently the lamp itself projects a diffused light and is free from glare. The amount of diffusion may be varied by varying the curvature of the rearwardly directed reflector, which is here shown as semi-spherical in form. Inasmuch as the container constitutes the sole enclosure for the filament the spaces between the filament and the reflectors are unobstructed and there will be no interception or refraction of the light rays, such as there is when the filament is contained within a lamp bulb provided with a rearwardly directed reflector to reflect the light rays against an exterior reflector. This, together with the arrangement of the reflectors, results in the forward projection of a very large part of the light

emanating from the filament and imparts to the lamp an efficiency much higher than that ordinarily obtained with incandescent lamps having exterior reflectors.

5 While I have shown and described one embodiment of my invention I wish it to be understood that I do not desire to be limited to the details thereof as various modifications may occur to a person skilled in the art.

10 Having now fully described my invention, what I claim as new and desire to secure by Letters Patent, is:

15 1. In an incandescent electric lamp, a concave rear wall having a transverse diameter substantially greater than its depth and provided with a forwardly directed continuous reflecting surface extending from near the center of said rear wall to the forward edge thereof, a filament supported centrally of said rear wall and substantially in the plane of the forward edge thereof, a lens having sealed connection with the forward edge of said rear wall, and a forwardly curved part arranged centrally of said lens, having sealed connection therewith and provided with a concave rearwardly directed reflecting surface.

20 2. In an incandescent electric lamp, a concave rear wall having a transverse diameter substantially greater than its depth and provided with a forwardly directed continuous reflecting surface extending from near the center of said rear wall substantially to the forward edge thereof, a lens supported in front of said reflecting surface and having sealed connection with the forward edge of said rear wall, a part arranged centrally of and having sealed connection with said lens and provided with a rearwardly directed concave reflect-

ing surface, the rear edge of which is located close to the plane of the forward edge of the first mentioned reflecting surface, and a filament supported substantially in said plane and centrally of said rearwardly directed reflecting surface.

5 3. In an incandescent electric lamp, a concave rear wall having a transverse diameter substantially greater than its depth and provided with a forwardly directed parabolic reflecting surface extending from near the center of said rear wall substantially to the forward edge thereof, a lens supported in front of said reflecting surface and having sealed connection with the forward edge of said rear wall, a relatively narrow part arranged centrally of and having sealed connection with said lens and provided with a rearwardly directed concave reflecting surface, and a filament supported substantially in the focal plane of said rearwardly directed reflecting surface.

10 4. In an incandescent electric lamp, a concave rear wall having a transverse diameter substantially greater than its depth and provided with a forwardly directed reflecting surface, a filament arranged centrally of said rear wall and adjacent to the plane of the forward edge thereof, sealed terminals for said filament, and a forwardly curved lens having sealed connection with the forward edge of said rear wall and having a concave central portion provided with a rearwardly directed reflecting surface, the central part of said concave portion projecting forwardly beyond said lens and the edge thereof extending rearwardly beyond said lens substantially to the plane of said filament.

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