April 23, 1946. G. C. SINGER 2,398,970

ELECTRIC LAMP

Filed May 1, 1945

Fig. 1.

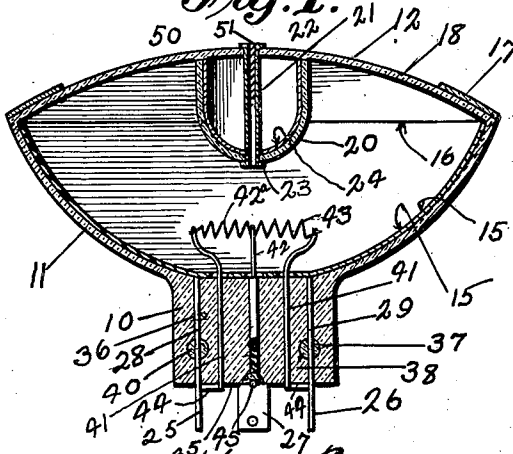


Fig. 2.

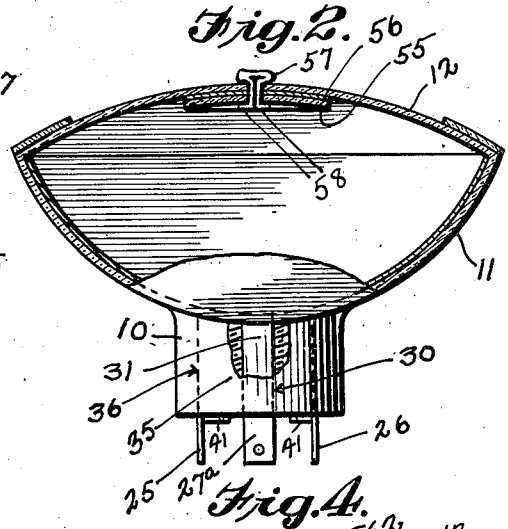


Fig. 3.

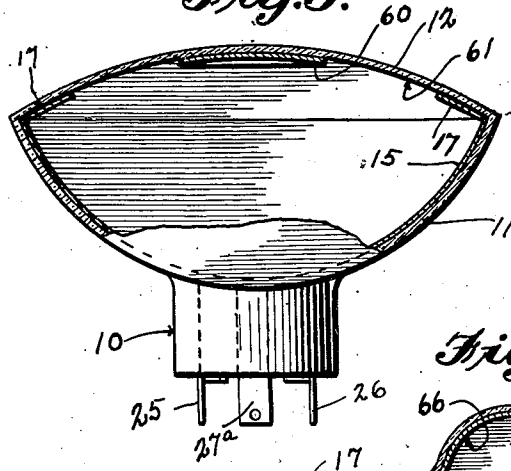


Fig. 4.

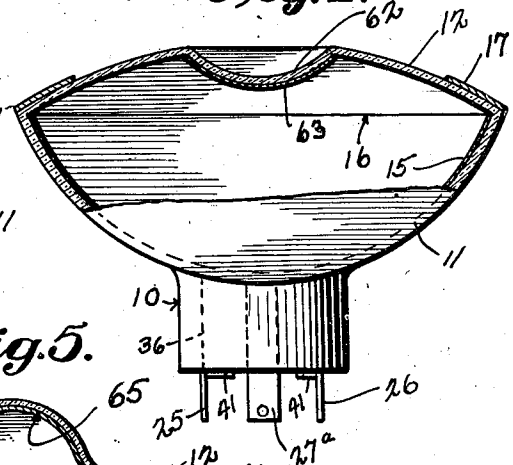


Fig. 5.

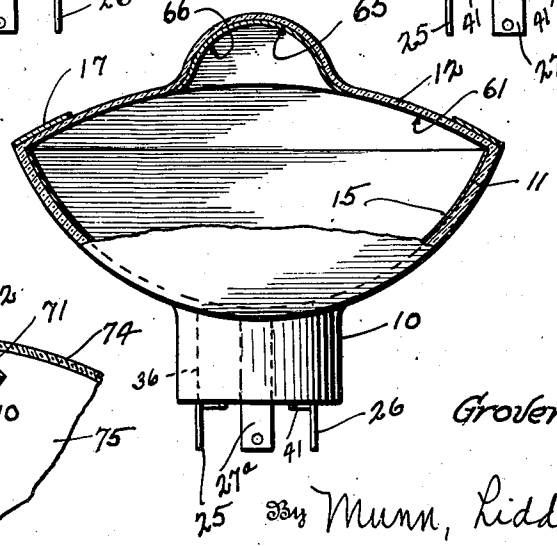
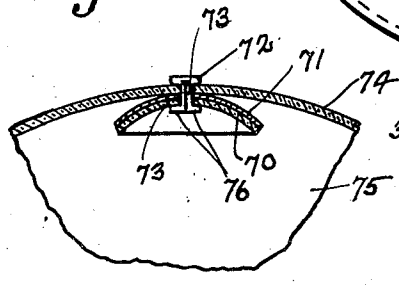


Fig. 6.



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UNITED STATES PATENT OFFICE

2,398,970

ELECTRIC LAMP

Grover C. Singer, Brownsville, Tex.

Application May 1, 1945, Serial No. 591,375

9 Claims. (Cl. 176—34)

This invention relates to electric lamps.

An object of the invention is the provision of an electric lamp in which the bulb is formed of transparent materials with reflective materials applied to the inner surface of the walls of the globe and with a ring of reflective materials applied to the outer face of the outer end of the globe leaving a space within the inner periphery of the ring free to transmit light except for a central reflector located directly over the usual filaments in the globe.

A further object of the invention is the provision of an electric lamp having reflective materials on the inner surface of the usual transparent globe with a ring of reflective materials on the outer end of the globe, a reflector being located centrally at the inner face of the outer end of the globe, said reflector being applied directly to the inner face or attached thereto.

This invention will be best understood from a consideration of the following detailed description, in the accompanying drawing forming a part of the specification; nevertheless, it is to be understood that the invention is not confined to the disclosure, being susceptible of such changes and modifications as define no material departure from the salient features of the invention as expressed in the appended claims.

In the drawing:

Fig. 1 is a vertical section of one form of an electric lamp constructed according to the principles of my invention;

Fig. 2 is a view in elevation of a modified form of the electric lamp and partly in section;

Fig. 3 is a view in elevation partly in section of a further modified form of an electric lamp;

Fig. 4 is a view in elevation partly in section of a still further modified form of the invention;

Fig. 5 is a view in elevation partly in section of another form of the electric lamp.

Fig. 6 is a fragmentary view in section of a lamp showing a modified form of the central reflector illustrated in Fig. 2.

Referring more particularly to the drawing, 10 designates a base member formed of glass while 11 designates a globe likewise formed of glass and integrally with the base member. The outer end of the globe as shown at 12 is curved outwardly.

The inner surface of the globe is covered with reflective materials shown at 15 and these reflective materials cover the inner end of the base 10 and extend over the side walls of the bulb 11 and terminate in a horizontal plane indicated by the line 16. A ring 17 of reflective materials is applied to the outer surface of the end portion 12 of the bulb, leaving a portion 18 of the transparent cover free to transmit light rays.

A transparent cup-shaped member 20 is secured to the inner face of the cover 12 by a pin 21. This pin passes through an opening in the cover 12 and also extends through the inner end of the member 20. The ends of the pin, as shown at 22 and 23, are split and bent outwardly for retaining the cup-shaped member in place. This cup-shaped member has its inner surface covered with reflective materials 24.

The base member is provided with a plurality of prongs 25, 26, 27 and a fourth prong is shown at 27*a* at the front of prong 27 in Figs. 2 to 5, inclusive. The prongs are extensions of strips of material 28, 29, 30 and 31. The strip of material 30 is shown in dotted lines, while a portion of the strip 31 is shown above a portion of the strip 30. All of the strips are located between the inner wall of a passage 36 and a plug 35 which is cemented in said passage formed in the base 10.

It will be noted that the base 10 is provided with a semi-circular groove 37 which faces a semi-circular groove 38 in the plug 35, so that when the plug is being positioned cement 40 may be filled into the circular channel formed by the grooves 37 and 38 for securing the strips 28, 29, 30 and 31 in position.

There are four lead-in wires indicated by the numerals 41 and 42. These lead-in wires extend into the bulb 11 and filaments 42* and 43 are connected between pairs of the lead-in wires. It will also be noted that these lead-in wires have the respective connections 44 and 45 with the respective prongs 25 and 27.

The prongs are adapted to be inserted in the usual sockets so that current will pass through a pair of lead-in wires to the filaments attached thereto while another lead-in wire will be connected to the negative side of the current.

In assembling the lamp the cup-shaped member 20 is inserted through the passage 36 in the base member 10 before the plug 35 is sealed in place and the split ends 23 of the pin 21 are bent over the outer end of said cup-shaped member. By this construction the hollow pin 21 may be employed for removing the air from the bulb 11 and then the passage 50 in the pin may be sealed as shown at 51, or a passage may be formed in the plug 35 and the air exhausted through said passage.

It will be noted that the reflective materials are spaced from the lead-in wires in order to prevent a short circuit.

Referring more particularly to Fig. 2, it will be seen that a modified form of the lamp is provided and since all of the elements are substantially the same as that shown in Fig. 1 except the reflector 55, the same reference numerals will be employed for identical parts.

The reflector 55 consists of a concave disk of transparent materials which has reflective materials 56 located between the outer end 12 of the bulb 11 and the disk 55. This disk is held in place by a pin similar to a cotter pin as shown at 57. The prongs of the pin pass through openings in the outer end 12 of the globe through the reflective materials 56 and the disk 55. The inner ends 58 of the pin are bent over the outer face of the disk. This disk is small enough to be inserted through the passage 36 in the base member 10. A plug 35 is identical in construction with that shown in Fig. 1.

Since Figs. 3, 4 and 5 are identical in construction with Figs. 1 and 2 except the central reflector on the outer end 12 of the lamp, only the reflectors will therefore be described.

In Fig. 3 reflective materials 60 are applied to the inner surface of the central reflector, the inner surface 61 of globe 11 being clear glass.

In Fig. 4 the central portion of the outer end 12 is indented to form a convex central portion 62. Reflective materials 63 are applied to the inner convex surface of the member 62.

In Fig. 5 the central portion of the cover or outer end of the globe 11 is bent outwardly to form a concave inner surface 65 and this concave inner surface has reflective materials 66 thereon.

If desired, any of the members 20, 55, 62 or 65 may be formed of colored glass in order to vary the effect of the light which is reflected to the reflective material on the side walls of the globe 11, and then reflected forwardly.

In Fig. 6 is shown a modified form of the central reflector which consist of a concave mirror composed of a transparent member 70 formed of colored glass. The rear portion of the member 70 is coated with reflective materials 71.

The reflector is held in place by a pin having a head portion 72 with legs 73 extending through openings in the outer end 74 of a globe 75. The legs of the pin extend through openings in the members 70 and 71 and are bent outwardly as shown at 76 against the inner convex face of the member 70. This pin is preferably sealed in place to prevent the ingress of air to the globe 75.

The central reflectors not only prevent the light rays from forming a spot light, but provide a flood light of the rays passing through the outer end of the globe between the central reflector and the ring of reflective materials 17.

The ring 17 of reflective materials in Fig. 3 is applied to the inner surface of the outer end 12 of the globe and may be so applied in the other constructions.

I claim:

1. An electric lamp comprising a transparent globe, a base connected to said globe, reflective materials applied to the inner surface walls of the globe, the outer end of the globe having a ring of reflective materials applied to the outer face adjacent the periphery thereof, lead-in wires embedded in the base, filaments connected to the inner ends of the lead-in wires, and a reflector located at the central portion of the outer end of the globe.

2. An electric lamp comprising a transparent globe, a base connected to said globe, reflective materials applied to the inner surface walls of the globe, the outer end of the globe having a ring of reflective materials applied to the outer face adjacent the periphery thereof, lead-in wires embedded in the base, and filaments connected to the inner ends of the lead-in wires, the outer end of the globe having the central portion provided with a curved reflector.

3. An electric lamp comprising a transparent globe, a base connected to said globe, reflective materials applied to the inner surface walls of the globe, the outer end of the globe having a ring of reflective materials applied to the outer face adjacent the periphery thereof, lead-in wires embedded in the base, and filaments connected to the inner ends of the lead-in wires, the outer end of the globe being provided with a substantially convex reflector.

4. An electric lamp comprising a transparent globe, a base connected to said globe, reflective materials applied to the inner surface walls of the globe, the outer end of the globe having a ring of reflective materials applied to the outer face adjacent the periphery thereof, lead-in wires embedded in the base, filaments connected to the inner ends of the lead-in wires, the outer end of the globe being provided with a substantially convex reflector, and means for securing the reflector to the inner face of the outer end of the globe.

5. An electric lamp comprising a transparent globe, a base connected to said globe, reflective materials applied to the inner surface walls of the globe, the outer end of the globe having a ring of reflective materials applied to the outer face adjacent the periphery thereof, lead-in wires embedded in the base, filaments connected to the inner ends of the lead-in wires, a cup-shaped member formed of transparent materials and having reflective materials applied to the inner surface thereof, and means securing said cup-shaped member to the inner face of the outer end of the globe directly over the filaments.

6. An electric lamp comprising a transparent globe, a base connected to said globe, reflective materials applied to the inner surface walls of the globe, the outer end of the globe having a ring of reflective materials applied to the outer face adjacent the periphery thereof, lead-in wires embedded in the base, filaments connected to the inner ends of the lead-in wires, a reflector located at the central portion of the outer end of the globe, and means for securing the reflector to the inner face of the outer end of the globe.

7. An electric lamp comprising a transparent globe, a base connected to said globe, reflective materials applied to the inner surface walls of the globe, the outer end of the globe having a ring of reflective materials applied to the outer face adjacent the periphery thereof, lead-in wires embedded in the base, filaments connected to the inner ends of the lead-in wires, and a concave reflector formed in the outer end of the globe and disposed centrally of said outer end.

8. In an electric lamp having filaments therein, a globe formed of transparent materials, the inner face of the side walls of the globe being covered with reflective materials, the outer end of the globe having a circular band of reflective materials applied to the outer surface thereof adjacent the periphery of said end, and a reflector applied to the central portion, the periphery of the central reflector being spaced from the inner periphery of the circular band leaving

a circular clear space to permit the transmission of light rays from the lamp.

9. In an electric lamp having filaments therein, a globe formed of transparent materials, the side walls of the globe being provided with reflective materials, the outer end of the globe being provided with a ring of reflective materials adjacent the periphery of said end, and a reflector at the central portion of the outer end of the globe and having its periphery spaced from the inner periphery of the ring leaving a clear-space at said end for the transmission of light rays, the central reflectors being colored for reflecting colored light rays on to the reflective materials on the side walls of the globe, said colored rays from the central reflectors and light rays directly from the filaments being combined and reflected from the side wall reflector through the clear space to provide a soft non-blinding light.

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