

March 6, 1934.

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1,950,131

LAMP CONSTRUCTION

Filed May 7, 1932

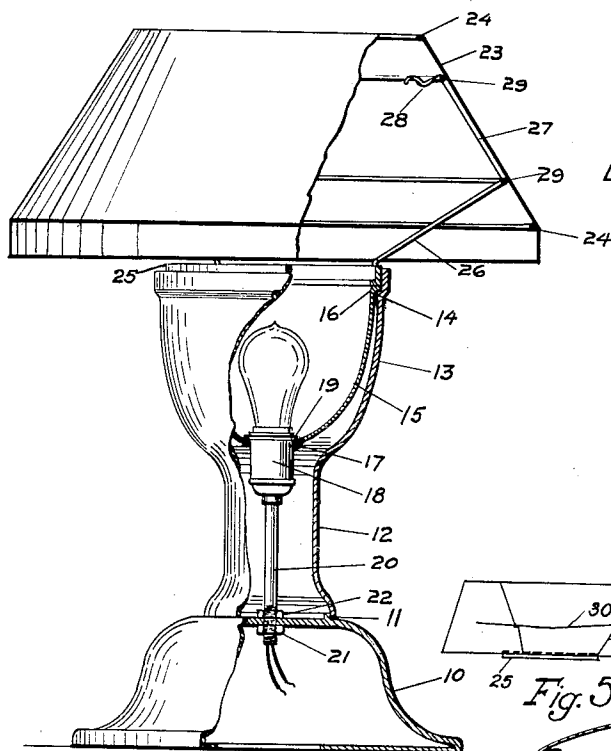


Fig. 1.

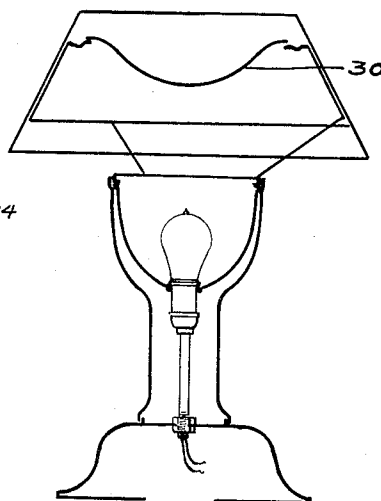


Fig. 2.

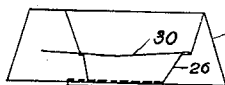


Fig. 5.

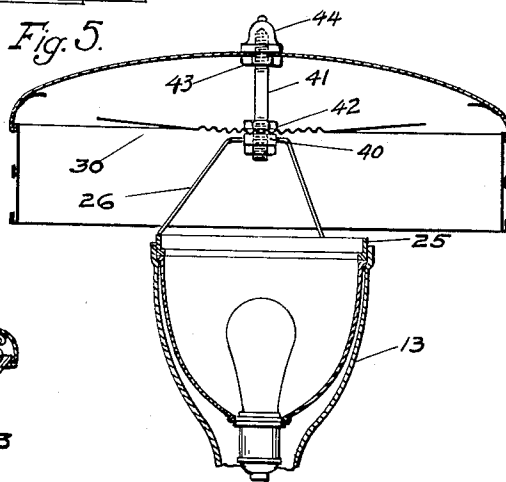


Fig. 4.

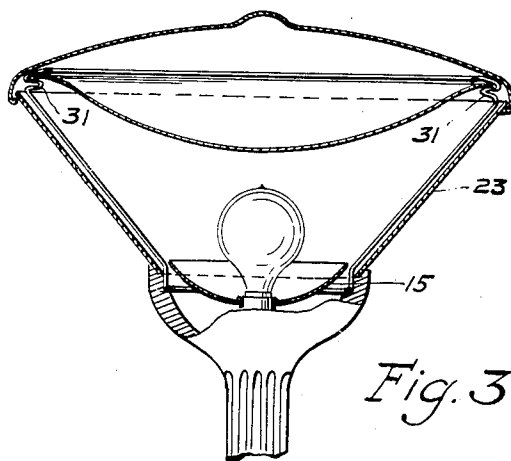


Fig. 3.

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UNITED STATES PATENT OFFICE

1,950,131

LAMP CONSTRUCTION

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Application May 7, 1932, Serial No. 609,902

3 Claims. (Cl. 240—81)

The invention relates to an improved construction of lamp fixture by which electric lamps may be effectively utilized for illuminating purposes without the possibility of glare and with the production of uniform diffusion of lighting which is distributed practically uniformly over the area illuminated.

A particular object of the invention is the provision of a lamp structure having the general characteristics stated above and in which specific effects of such characteristics may be obtained. For example, the lamp may in its primary embodiment produce an upwardly diffused indirect lighting effect; in a modified embodiment the lamp may produce through the use of a semi-transparent or translucent shade an upwardly directed diffused indirect lighting effect together with a localized direct diffused lighting effect; or in a further embodiment there may be produced a localized direct diffused lighting effect and a concentrated downwardly directed diffused lighting effect.

In carrying out the invention there is provided a container for the light source, which container is so proportioned that with the eye level with the top thereof the light source is not directly visible. Around the light source in the container there is provided a reflector of such shape and proportions as to project substantially all of the light rays from the light source upwardly and from the upper open end of the container so that substantially all the light emitted by the light source—regardless of the directions in which the light rays may be projected from said light source—is directed generally upwardly from the container for use in securing the desired illumination. Above the container there may be mounted by appropriate supports a semi-transparent or translucent shade, the specific effect of which will be hereafter more particularly described, and also there may be supported over the container and within the shade, on the shade supports or other supporting members, a diffusing reflector producing a specific lighting effect as hereinafter more fully described.

The invention will be best understood by reference to the accompanying drawing which is illustrative and shows preferred embodiments thereof, in which:

Figure 1 shows a form of table lamp in elevation with parts in section;

Figure 2 shows diagrammatically the lamp of Figure 1 but including a downwardly diffusing reflector;

Figure 3 shows diagrammatically a form of

the lamp particularly adapted for street lighting;

Figure 4 shows diagrammatically a modified form of the lamp especially adapted for use as a reading lamp.

Figure 5 shows diagrammatically a modified form of shade support.

In the drawing similar numerals refer to similar parts throughout the several views.

As shown in Figure 1, the form of lamp illustrated comprises a base 10, preferably hollow and made of any desired material, on the upper surface of which base there is provided an annular upstanding flange or equivalent positioning means 11. Resting on and supported by base 10 there is a tubular standard 12 which at its lower edge is positioned relative to the base by the positioning means 11. It is of course to be understood that the exact form of the standard is immaterial, that is, particularly its lower portion, since its function is primarily that of a support only.

The standard 12 is shown as flared at its upper end into a somewhat cup-shape portion indicated at 13 and adjacent the upper edge thereof there is provided an inwardly projecting support shown as a bead 14. Cup portion 13 of standard 12 is adapted to receive a reflector 15 which reflector is of generally parabolic shape and which is provided adjacent its upper edge with outwardly directed support members 16 illustrated as an outwardly directed flange. Reflector support 16 in cooperation with cup support member 14 serves to support reflector 15 in one direction as is clearly evident.

Reflector 15 is at its bottom provided with an opening preferably strengthened around its edges as by the provision of a bead 17. A lamp socket 18 provided adjacent its upper edge with a bead as 19 passes through the opening in the base of the reflector, and bead 19 of the socket is supported on bead 17 of the reflector. Appropriately secured to socket 18, and projecting downwardly, there is provided a tie rod 20 which may also serve as a conduit member and which is shown as threaded at its lower end and projecting through an opening in the top surface of base 10.

If the above description has been carefully followed it will be readily seen that with the structure assembled as has been described it is necessary only to screw up, on the threads at the lower end of tie rod 20, a nut 21 which as it is drawn up will bring the various parts of the lamp into rigid assembled structure through the cooperation of the various flanges, beads and like sup-

port members described. A spacer nut 22 may be used to limit the degree of tension applied to hold the parts of the lamp together.

A shade 23, illustrated as of general frustro-conical shape, is axially mounted relative to the lamp structure. Shade 23, as will be readily seen from the drawing, is not positioned to surround the light source as is the usual construction for lamps but instead it is positioned above the light source. Shade 23 may be made of any desired more or less translucent material—oiled parchment, for example—and may be appropriately reinforced structurally as by the provision of beads 24.

For supporting shade 23 a shade support is provided which comprises a ring-like member 25 supported adjacent the upper portion of cup portion 13 of lamp standard 12. Ring member 25 is preferably frictionally supported in the cup member interiorly as shown in the drawing but it may of course be mounted in any convenient manner supporting it in the general relationship illustrated. Appropriately secured to ring member 25 there are a number of outwardly and generally upwardly extending supporting arms 26, for supporting the shade illustrated in Figures 1 and 2 of the drawing, extending from ring 25 outwardly and slightly upwardly then inwardly and upwardly, part 27, and finally inwardly, part 28. Conveniently for firmly supporting the shade material, ring-like members 29 may be secured to supporting arms 26 to support the shade material through those portions between the supporting arms 26.

Terminal portions 28 of supporting arms 26 in the structure shown in Figure 1 are unnecessary and need not be provided, but by including these portions 28 the lamp can be immediately converted to the type of illumination provided by the structure shown in Figure 2, wherein by addition of a generally slightly convex reflector 30, mounted on terminal portion 28 of support arms 26, the lighting effect obtained is completely changed. Without reflector 30 the lighting effect is primarily one of upwardly diffusing directed indirect lighting, whereas with the diffusing reflector in position the lighting effect is primarily one of direct downwardly reflected concentrated but diffused lighting.

The type of lamp disclosed in Figure 3 is basically similar to that shown in Figures 1 and 2, but as it is intended that the lamp proper shall be elevated above the normal eye level its construction is somewhat modified. In this form of lighting, reflector 15 is modified slightly in shape as shown; that is, it is given less curvature and it is designed for a wider spread of the reflected light than the substantially parabolic reflector of Figures 1 and 2. Shade 23, while generally frustro-conical in shape, is inverted with respect to shades of Figures 1 and 2 and it is supported substantially directly on the cup portion 13 of the standard. The lower portion of shade 23 may be formed to directly frictionally engage in the upper open end of cup portion 13 or it may be secured to mounting ring 25 which frictionally engages the upper portion of cup portion 13.

Ring 25 carries several support members 26 which serve primarily for mounting of convex reflector 30. Support members 26 extend generally upwardly and outwardly and near their upper ends have portions extending inwardly at 31 which support reflector 30 adjacent the plane of the upper edge of shade 23. Support members 26 may extend further upwardly past portion 31

and thence again inwardly as shown to provide supports for a protecting cover 32 provided to protect the lamp from the elements.

The form of lamp shown in Figure 4 is generally similar to that disclosed particularly in Figure 2. The base portion may be the same as shown in Figure 1 and it is only the shade and its support which differ therefrom. The shade support has as its base a ring-like member 25 which is supported adjacent the upper part of cup member 13 of the lamp standard 12. Secured to base ring 25 there are a plurality of supporting arms, indicated as three in number, which arms extend generally upwardly and inwardly and are secured at their upper ends to a washer-like member 40. Washer member 40 may be interiorly screw-threaded and there may be screwed into it a short piece of threaded rod or pipe 41 which comprises the actual shade carrying member.

If a diffusing reflector 30 is to be used it is provided with a central opening whereby it may be mounted on shade carrying rod 41 to rest on washer-like member 40 and a stop such as nut 42 may be provided to secure it firmly in place. The upper end of rod 41 is screw threaded and is provided with a stop which may conveniently be a nut 43, and shade 23 provided with a central opening is mounted on the upper end of rod 41 to rest on stop 43. A threaded finial 44 is screwed on the top of the rod to secure shade 23 against stop 43.

Shade 23 comprises preferably an opaque portion made, for example, of sheet metal, which while it may be of substantially any shape is shown as substantially flat with a narrow down-turned rim. Appropriately attached to and depending from the down-turned rim there is a rather narrow light pervious portion 23-a.

The diffusing reflector 30 shown in Figure 4 is shown as having a special construction, the primary purpose of which is to increase the light intensity immediately adjacent the base of the lamp. It has been found that if approximately the central $\frac{1}{2}$ to $\frac{1}{4}$, linearly, of the diffusing reflector is fairly regularly—but not necessarily uniformly—corrugated, beaded, given a hammered finish or the like, for some reason the lighting intensity adjacent the lamp base is remarkably increased without apparent noticeable diminution of the general intensity of illumination provided. The effect just mentioned is contrary to what was expected, since it was thought that to secure the effect mentioned the outer portion of 30 should have been treated.

The corrugation or the like provided in diffusing reflector 30 may vary in size from something like one-thousandth inch by one-thousandth inch to about one-eighth inch by one-eighth inch without appreciable effect on the illumination intensity.

The lamp just described directs the illumination generally downwardly as diffused reflected light, but a portion of the light rays impinge the light pervious portion 23-a of the shade to provide what has been herein termed direct diffused illumination.

It is to be noted that it is desirable that the lower edge of the shade member should be preferably in about the plane of the upper edge of cup member 13 since thus light rays directly projected from the light source will not strike the eye. With the shade support arranged as shown in Figure 4, supporting arms 25 do not throw shadows on shade 23-a, and of course if

desired this general construction may obviously be incorporated into the structures shown in the other figures of the drawing, in which case a shade of standard commercial construction can be used on the lamps shown in Figures 1 and 2.

In the specification the embodiment of the preferred construction has been described but it will be readily apparent that many of the details of construction have numerous obvious mechanical alternatives and it is intended that the invention shall be limited to the various mechanical details shown and described only in so far as specifically so limited by the claims hereof.

No attempt has been made herein to describe the new principles of lighting involved in the type of lamp herein disclosed as this is specifically disclosed in a prior application Serial No. 592,214, filed February 11, 1932.

It will be seen that there is provided by the structures disclosed herein means for obtaining the various lighting effects stated in the general statement of the objects of the invention and that requisite structure for obtaining the desired results is disclosed.

What is claimed is:

1. In a lamp structure, the combination of a supporting base having a standard, with an enlargement at the top, said standard being hollow, a substantially parabolic reflector disposed in said enlargement and having its open end disposed upward, a source of illumination in said reflector, supporting means carried by said standard above said reflector, a diffusing reflector carried by said supporting means, spaced from the open end of said first-mentioned reflector and substantially axially located with respect to said first-mentioned reflector, said diffusing reflector comprising a substantially flat polished metallic plate supported at its center by said standard and having a plurality of concentric corrugations for diffusing the light reflected thereby, said source of illumination being wholly disposed below the upper edge of said first-mentioned reflector, and a diffusing shade carried by said supporting means, said diffusing shade having a depending diffusing portion substantially concealing said diffusing reflector from a lateral point of view and preventing direct reflection from the diffusing reflector into the eyes of the user.

2. In a lamp structure, the combination of a supporting base having a standard, with an enlargement at the top, said standard being hollow, a substantially parabolic reflector disposed in

said enlargement and having its open end disposed upward, a source of illumination in said reflector, supporting means carried by said standard above said reflector, a diffusing reflector carried by said supporting means, spaced from the open end of said first-mentioned reflector and substantially axially located with respect to said first-mentioned reflector, said diffusing reflector comprising a polished metallic plate supported substantially at its center by said standard and having a plurality of concentric corrugations for diffusing the light reflected thereby, said source of illumination being wholly disposed below the upper edge of said first-mentioned reflector, and a diffusing shade carried by said supporting means, said diffusing shade having a depending diffusing portion substantially concealing said diffusing reflector from a lateral point of view and preventing direct reflection from the diffusing reflector into the eyes of the user, said supporting means comprising an annular member disposed in said standard above said first-mentioned reflector and having upwardly extending arms, and a threaded member carried by said arms for supporting said diffusing reflector and said shade.

3. In a lamp structure, the combination of a supporting base having a standard, with an enlargement at the top, said standard being hollow, a substantially parabolic reflector disposed in said enlargement and having its open end disposed upward, a source of illumination in said reflector, supporting means carried by said standard above said reflector, a diffusing reflector carried by said supporting means, spaced from the open end of said first-mentioned reflector and substantially axially located with respect to said first-mentioned reflector, said source of illumination being wholly disposed below the upper edge of said first-mentioned reflector, and a diffusing shade carried by said supporting means, said diffusing shade having a depending diffusing portion substantially concealing said diffusing reflector from a lateral point of view and preventing direct reflection from the diffusing reflector into the eyes of the user, said diffusing reflector comprising a slightly convex illumination member centrally supported on said standard, and having a multiplicity of corrugations disposed about a central portion for diffusing the indirect illumination provided by said lamp structure.

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