July 11, 1933. W. SYMMES 1,917,612

LIGHTING FIXTURE

Filed Jan. 22, 1931

Fig. 1.

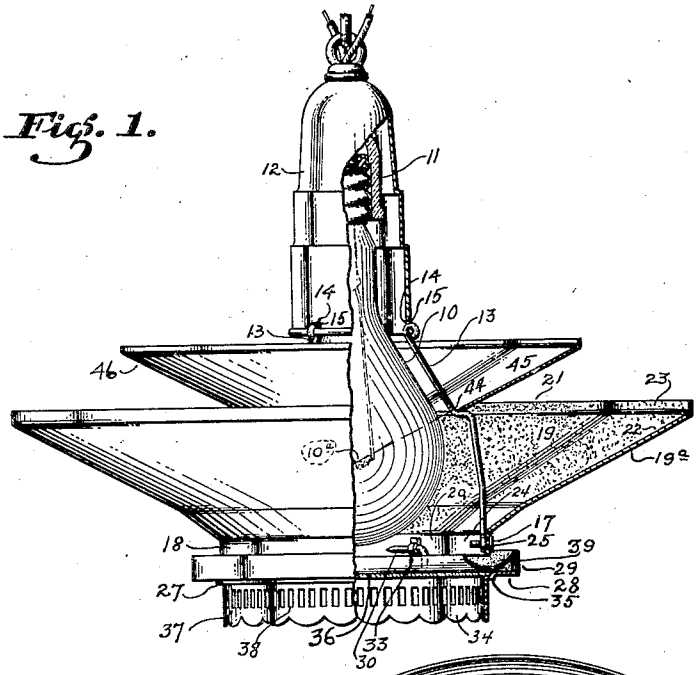


Fig. 2.

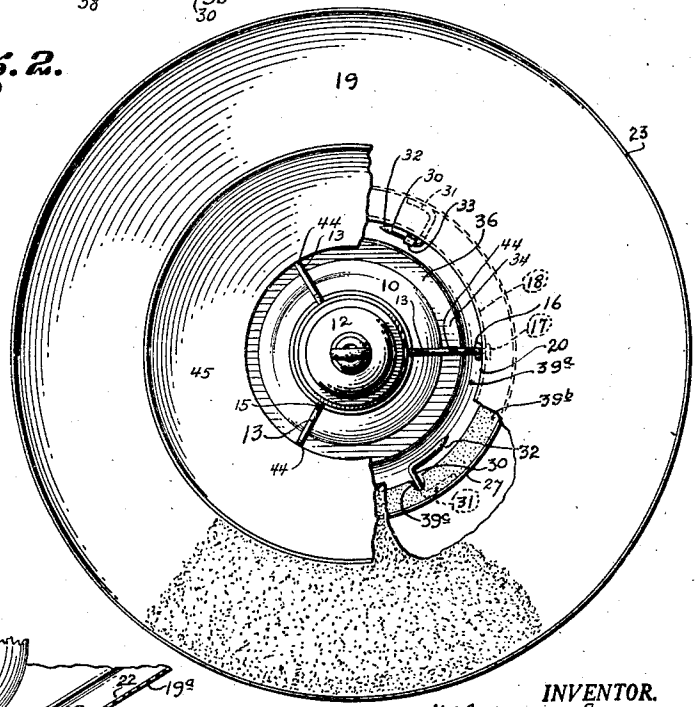
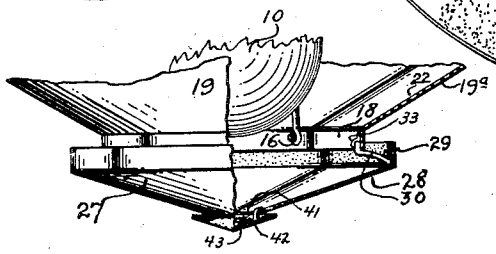


Fig. 3.



INVENTOR.
Whitman Symmes.
BY
ATTORNEY

Patented July 11, 1933 1,917,612

UNITED STATES PATENT OFFICE

WHITMAN SYMMES, OF SAN FRANCISCO, CALIFORNIA

LIGHTING FIXTURE

Application filed January 22, 1931. Serial No. 510,465.

This invention relates to devices of indirect and semi-indirect lighting fixtures in which a lamp having an incandescent filament, through which an electric current may be passed, is surrounded by a hollow member which forms the main body of the fixture, and which generally acts also to reflect light upwards to the ceiling, and it relates also to the type of lighting fixture in which rays of light are permitted to pass downward through an opening in the main body for illumination laterally of the undersurface of the fixture portions which, otherwise, would appear dark and less attractive.

This application relates to and is an improvement on my co-pending applications eventuating in Patents Nos. 1,793,725 and 1,790,179.

Among the objects of this invention are to provide a lighting fixture having a body screen of pleasing form, which can be cheaply manufactured by cutting from sheet material and joining by suitable methods, such as soldering or spot welding instead of necessitating the expensive practice of spinning to form, which is prohibitive in cost for fixtures of large proportions; to provide a lighting fixture having a main body member which can be made in a variety of designs, by cutting from sheet metal, and so that when formed into a main fixture body, the exterior thereof will represent a plane or planes uncurved in more than one plane for ease and convenience in stenciling or otherwise decorating the exterior surface; to provide an auxiliary body means around the glaring portion of the illuminating lamp which projects above the main body and without materially interfering with the direct passage of light rays from the lamp to the ceiling and walls of the room; to provide a diffusing portion for downwardly directing the light rays and to partially shield from view said diffusing portion; to illuminate the underside of the fixture members which are out of contact with the direct light rays without exposing the source of light to normal view; to prevent reflection of light rays direct from the translucent diffusion member to the underside of said fixture; to provide for color toning the under or shaded side of the fixture bodies, and, generally, to improve upon lighting fixtures for electric lamps of the incandescent type.

With the above mentioned and other objects in view, the invention consists in the novel construction and combination of parts hereinafter described, illustrated in the accompanying drawing and pointed out in the claims hereto appended; it being understood that various changes in the form, proportion, size and minor details of construction within the scope of the claims may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

To more clearly comprehend the invention, reference is directed to the accompanying drawing, wherein—

Fig. 1 is a view in side elevation partly in vertical section.

Fig. 2 is a plan view of the structure of Fig. 1.

Fig. 3 is a broken view in side elevation, partly in vertical section, of the lower portion of modified form of fixture.

Referring more particularly to the drawing, wherein like characters of reference designate corresponding parts—10 is a lamp fitted in a socket 11 which has a hood 12 surrounding the same, and from which the lamp may be supported by suitable and well known means.

Preferably, the hood is of sufficient length vertically to enclose the neck portion of the lamp, so that horizontal vision of said neck portion is obscured.

Extending downwardly and flaring outwardly, following somewhat the contour of the bulb of lamp 10 are a plurality of arms 13, three being shown in the present instance. These arms are hingedly connected to the hood 12 by being bent upon themselves, as at 14, to pass through eyelets 15, and each is provided at its lower end with an eye 16 having screw threads for the reception of screws 17 which pass through an annular band 18 which depends from a main body 19, which may be characterized as a reflector

and shade, since it reflects upwardly and shades downwardly.

The main body member may be of circular, polygonal or other shape in horizontal section, which in accordance with my invention has side walls which flare upwardly and outwardly, along straight lines between a lower opening 20 and an upper opening 21, that is, it is not curved in vertical section. This body is provided with an inner or upper reflecting surface 22, while its outer or lower surface 19ª is preferably made non-reflecting, and enameled or otherwise ornamented, so as to give a pleasing effect. The object of this straight line flare of the body 19 is to cause the direct light rays from the lamp impinging on the reflecting surface 22 to be projected symmetrically and with a uniformity of effulgence against the ceiling and to permit lateral rays of light to be directed to the side walls of a room with the least possible obstruction consistent with the features of the fixture and without the streaks and shadows produced by body walls which have a curved form in vertical section. In this preferred embodiment, the flare or tapered portion of the side walls is shown as formed on straight lines in planes of different angles to the vertical axis of the fixture, since experiment has determined that a more even and uniform upward and radially outward reflection is obtained by this form.

A second advantage of forming the body side walls on straight lines is that it permits of ornamentation with stencil or plastic or metal appliques of the outer or lower visible surface 19ᵃ, without bending of the decorative material if the main body is polygonal, or with only one curve if the main body is arcuate in horizontal cross section. While the main body 19 may be of any suitable material it is preferred to use in the manufacture thereof, thin sheet metal, since it lends itself to the making of bodies of desired sizes without expensive dies or spinning and because of said material being opaque.

This form of main body is well adapted to accomplish a uniform distribution of the direct rays from the incandescent lamp filament against and throughout the area of the ceiling and down upon the side walls to a level corresponding to the horizontal plane of rim 23, and for this reason, as well as other reasons hereafter described, it is desired that the incandescent filament of the lamp should be positioned below the horizontal plane of rim 23.

The main body of the reflector shade 19 is suitably mounted as a part of the fixture by screws 17 extending through openings 25 in the annular band 18 and therewithin engage the threaded eyes 16 of arms 13.

Mounted in spaced axially aligned underlying relation to the lower opening 20 of the main body is a second body member or pan, generally indicated 27, which may be made in various forms as an entirety and which has an opaque peripheral portion 28 in the horizontal plane, the opaque peripheral portion being of greater diameter than the diameter of the opening 20. The member 27 has a vertically disposed perimetral rim 29, preferably opaque, which extends upwardly from the horizontal plane when member 27 is mounted underlying the opening 20. The member 27 is mounted in said spaced relation in any suitable and convenient manner, and, as shown, is provided with hooks 30 having shanks spot-welded or otherwise secured as at 31 to the inner surface of the peripheral portion 28 of member 27.

The shank is formed upwardly and then horizontally upon itself so as to provide a needle 32 in spaced relation to the peripheral portion 28 and adapted to engage the eyelet 33 suitably affixed to the band 18. Thus the member 27 may be easily and conveniently secured to or removed from the main body by axial rotation.

The hooks 30 are of such length and position that when the member 27 is mounted to the fixture, the upper portion of the peripheral rim 29 intersects the horizontal plane of the lower edge of band 18 and is radially spaced therefrom, thus providing an opening 26 in a horizontal plane, and overlying said opening in a vertical plane, so as to obscure view through said opening from removed openings below the horizontal plane but permitting rays of light from the lamp to pass by reflection from the inner surface of the peripheral portion of member 27 to the under outer surface of the main body 19 for purposes of illuminating same and thus make an artistic and desirable fixture, especially when said outer surface is decorated.

As shown in Figs. 1 and 2, the member 27 is provided with an axially radial opening 34 adapted as by shoulder 35 to receive therein a translucent light diffusing member 36, made of suitable form to fit said opening, and preferably being a flat glass disc. This translucent member 36 will allow diffusion of light rays from the lamp toward the floor for the purpose of illuminating the lower portion of a room without causing glare of the light, and at the same time the translucent member 36 reflects the light upward through the openings of the fixture body to reduce absorption losses and secure a higher degree of direct ray illumination in the upper part of the room.

Depending from the periphery of the opening 34 of member 27, and preferably disposed vertically when the fixture is suspended from a ceiling is provided a skirt 37 which serves to reduce vision of the translucent member from points removed from directly beneath

the fixture and this skirt may be optionally provided with openings 38 between which and the translucent member may be positioned tinted celluloid or other translucent material for the purpose of illuminating the under or shaded surface of the peripheral portion 28, and also to produce artistic color effect.

Within the rim 29 of member 27 is mounted an opaque band 39, which in plane conforms to the general plane of the peripheral portion of member 28, and is preferred to be concave in vertical cross section. (See Fig. 1). The radially inner portion of band 39 is in spaced relation to the translucent member 36 so as to permit light rays to pass thereunder and to the peripheral portion of the translucent member and by which the dual objects are accomplished of permitting the use of a larger translucent member while also eliminating the very undesirable whitish reflection which occurs from a translucent member, such as glass, to the underside of the main body surface 19^a. The concave band 39 may be an integral structure, but, for convenience of manufacture and ease of fitting same over the shank of hooks 30, said band has been disclosed as formed of two pieces, the piece 39^a having its periphery beneath the shank of hook 30, and the piece 39^b lying thereover with slots 39^c adapted to permit the upraised portion of the hook to pass therethrough.

In Fig. 3 a modification of the member 27 is shown, wherein band 29 is made integral with an opaque body portion 28, which preferably is of straight lines in vertical cross section and tapers downward from its upper edge towards its radial axis, and which is provided with an opening 41 centrally of its body. Beneath the opening 41 and in vertically spaced underlying relation thereto is a cover plate 42, preferably of opaque material, which is of greater diameter than the opening 41. Light rays are permitted to pass through the opening 41 and a portion thereof is reflected, laterally, from the inner surface of the cover 42 to the under or outer surface of body portion 28.

The cover 42 is adapted to completely or at least substantially close the opening in a vertical plane but to leave it open in horizontal plane, so that direct rays of light are not visible through the opening from points in or below the horizontal plane.

Within the periphery of member 27, either directly upon the surface thereof, as in Fig. 3, or upon the concave upper surface of the band 39, as in Fig. 2, may be applied a pigment coating, indicated by stippling 43, and similar coatings may likewise be applied to the inner surfaces of member 42 and body 19. The purpose of this coating is to receive rays from the lamp and reflect them to the outer surface of the body next above to modify the glare of the reflection thereagainst or to give color tones to said outer surfaces exposed to view.

Mounted in a suitable manner, as by shoulders or steps 44 of arms 13 is an auxiliary shade or screen 45 which may be made of varying diameters. In practice, however, it is preferred that the screen 45 be of lesser diameter at its top than the body 19, but, in any event, it is to be smaller in diameter at its bottom than the diameter of the body 19 at its top opening.

The shoulders or steps 44 are so positioned so that the base or bottom of screen 45 will be located approximately flush or in alignment with the horizontal plane of main body 19. The screen 45 is open at its top and bottom and has side walls 46 on a straight line in vertical cross section, said side walls being tapered at an angle which, from opposing sides of the screen would intersect substantially in the incandescent filament 10^a of the lamp, so that the side walls are substantially on radial lines to the filament.

Practically such filaments are not theoretical points but occupy space and are not mathematically precise in different lamps. However, what is intended is that the screen is placed edge-on to the lamp, so that the least possible obstruction is offered to the passage of direct light rays laterally, consistent with screening the lamp from view in or below the horizontal plane and the narrowest possible surface being presented to the direct line of light rays and thereby eliminating the possibility of shadows from the screen 45 on ceiling or side walls of a room.

The screen 45 in the preferred illustrated embodiment has a conical frustum but the shape thereof is susceptible of variations to other shapes in horizontal cross section, such as stars or polygons, so long as the vertical cross section of the side walls are on substantially straight lines and disposed edge-on to the lamp filament on substantially radial lines of direct light rays from the lamp filament.

It is to be assumed that the inner or upper faces of the members 19, 45, 27 and 42 are for the purpose of reflecting light rays and that the lower or undersurfaces thereof are preferably for ornamentation and pleasing appearance of the fixture, and are preferably non-reflecting. The respective faces would obviously be surfaced with the aforesaid purposes in mind.

As the screen 45 and major portion of the main body 19 flare on straight lines between bottom and top edges, there is no intermingling of the direct rays, such as occurs in curved reflectors to cause streaks or shadows, and a maximum of direct light rays are permitted to pass laterally from the lamp filament on both sides of the reflector 45, with a minimum of obstruction.

I claim:

1. In a lighting fixture, the combination with a lamp having a bulb portion, of a main-reflecting shade surrounding the bulb portion of the lamp, said shade being open at its top and bottom, a reflecting pan member mounted in vertical spaced underlying relation to the bottom opening and of greater diameter than said bottom opening, an axially radial opening in said pan member, a light diffusing member disposed in said radial opening, the peripheral portion of said pan member being formed upwardly and spaced radially outwardly from the periphery of the shade at said bottom opening and said upformed portion intersecting the projected horizontal plane of the bottom of said shade, a band of concave vertical cross section disposed within said upformed portion, and means for releasably connecting said pan with said shade.

2. In a lighting fixture, the combination with a lamp having a bulb portion, of a main reflecting shade surrounding the bulb portion of the lamp, said shade being open at its top and bottom, a reflecting pan member mounted in vertical spaced underlying relation to the bottom opening and of greater diameter than said bottom opening, an axially radial opening in said pan member, a light diffusing member disposed in said radial opening, the peripheral portion of said pan member being formed upwardly and spaced radially outwardly from the periphery of the shade at said bottom opening and said upformed portion intersecting the projected horizontal plane of the bottom of said shade, a band of concave vertical cross section disposed within said upformed portion, and an annular skirt fixed to said pan member adjacent said radial opening in the pan and extending vertically downwardly therefrom.

3. A lighting fixture comprising a support for an electric lamp, a hollow main body member open at its top and bottom and surrounding said lamp, a pan member mounted in vertically spaced underlying relation to the bottom opening and of greater diameter than said bottom opening, an axially radial opening in said pan member, a light diffusing member disposed in said radial opening, the peripheral portion of said pan member being formed upwardly and spaced radially outwardly from the periphery of the main body at the said bottom opening, said upformed portion intersecting the projected horizontal plane of the bottom of said main body, a band of concave vertical cross section disposed within said upformed portion, and means whereby said pan and said main body may be releasably connected by relative rotation on the radial axis thereof.

In testimony whereof I have affixed my signature.

WHITMAN SYMMES.