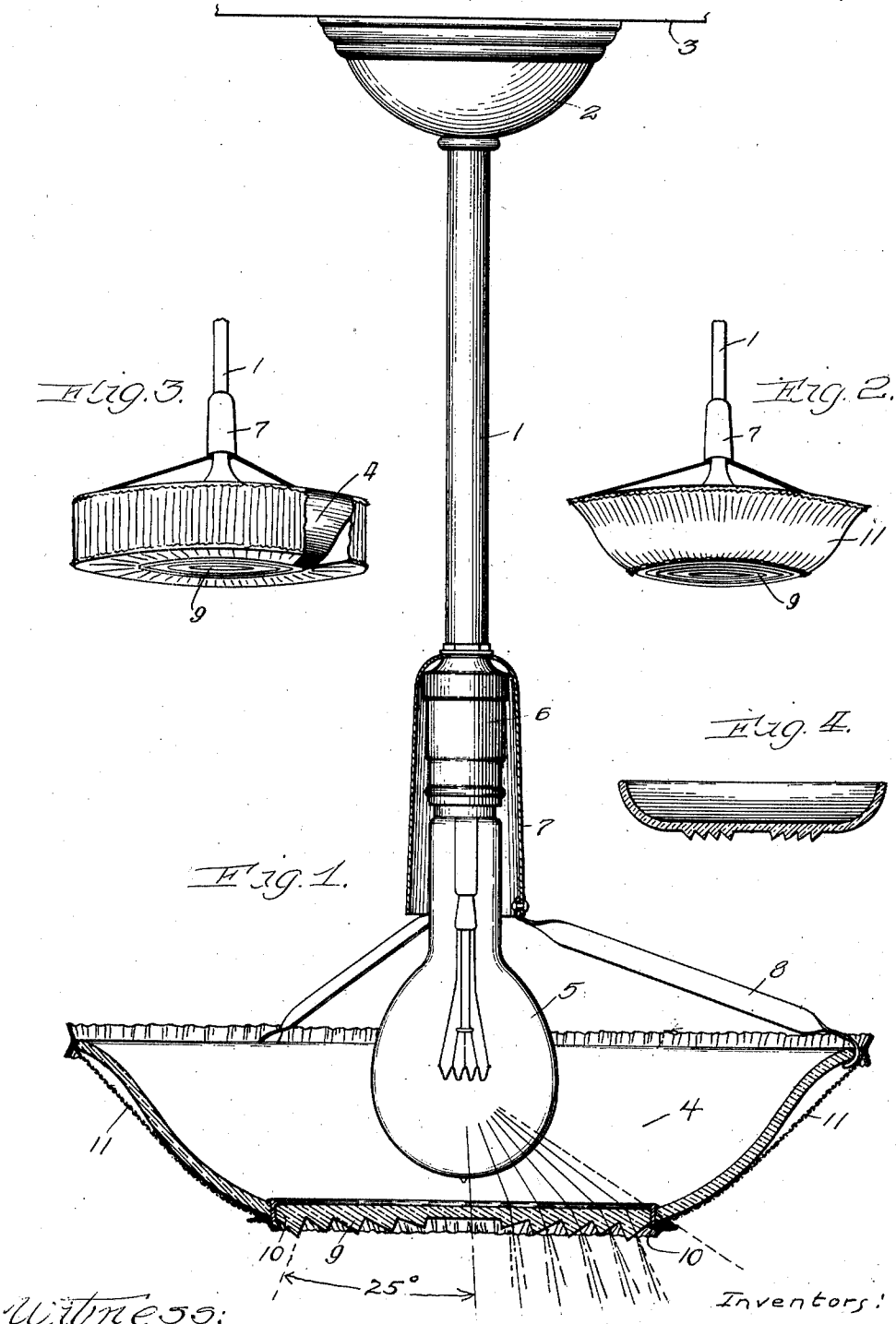
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LIGHTING FIXTURE.

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**1,334,739.** Patented Mar. 23, 1920.




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# UNITED STATES PATENT OFFICE.

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## LIGHTING-FIXTURE.

1,334,739. Specification of Letters Patent. Patented Mar. 23, 1920.

Application filed April 4, 1919. Serial No. 287,485.

*To all whom it may concern:*

Be it known that we, JAMES R. CRAVATH and AUSTIN M. CRAVATH, both citizens of the United States, residing at Chicago, Illinois, have invented certain new and useful Improvements in Lighting-Fixtures; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

Our invention relates to lighting fixtures, its general objects being to produce a simple, handsome and easily cleaned fixture which will afford an efficient and glareless combination of direct and indirect lighting from a given source of light. More particularly, our invention aims to provide simple means for using a predetermined proportion of the rays of light from a given lamp for direct lighting, without subjecting the occupants of the room to glare from the same, and while utilizing other portions of the light for indirect lighting. With this in mind, our invention aims to provide a semi-indirect lighting fixture in which one part of a unitary light-distributing member directs light upward against a ceiling or the like, and in which another part affords a direct downward lighting restricted to non-glare-producing directions, to provide simple means for assembling the constituent elements, and to provide simple means for breaking up filament images or other objectionable streaks. Still further objects will appear from the following specifications and from the accompanying drawings in which—

Figure 1 is an elevation of a lighting fixture embodying our invention, with certain portions broken away to show the construction and assembly of the light distributing elements.

Fig. 2 is a perspective view of the same embodiment.

Fig. 3 is a similar perspective showing a fixture embodying our invention and having an ornamental decorated covering spaced from the reflector.

Fig. 4 is a section of another light-diffusing member suitable for use with our invention, namely one in which the lens is integral with the annular reflector.

In the embodiments of the drawings, we show the purposes of our invention as accomplished by employing a substantially annular reflector, such as a bowl, supporting this reflector in such relation to the lamp as to reflect a certain portion of the light upwardly and having a lens disposed in the neck of the reflector for concentrating the rays of light which pass downwardly through the said neck or bore of the reflector. Thus, Fig. 1 shows a pendant lighting fixture comprising a stem 1 extending at its upper end into a canopy 2 abutting against the ceiling 3, which ceiling cooperates with the inner surface of the reflector 4 for producing an indirect distribution of light from a lamp 5. This lamp is carried by the socket 6 mounted on the stem 1, and the stem carries means for supporting the reflector, while the socket and the upper end of the neck of the lamp bulb are here shown as concealed by an ornamental casing 7 carrying arms 8 adapted to hook over the rim of the reflector 4.

Mounted in the smaller or neck end of the reflector is a light-concentrating member 9, which is here shown as an annularly corrugated lens, this lens being secured to the reflector by a leaded joint 10. The lens 9 has its prismatic portions so formed as to redirect the rays of light passing through the aperture of the reflector for confining these rays to a spread of not more than about 25 degrees from the vertical axis of the fixture. Consequently, when a person gets near enough to the fixture so that the direct light coming through the lens strikes his face, he will be near enough so that his eyes will be shaded by his eyebrows. For example, while Fig. 1 shows the lamp so mounted with respect to the reflector that the rays of light might pass through the aperture of the reflector at an angle of spread of about 55 degrees from the vertical axis of the fixture, the lens 9 redirects this downward light and concentrates it within an angle of about 25 degrees from the vertical. We therefore avoid the glare effect which would be highly objectionable if the aperture of the reflector were open or covered with plain glass, and also practically quadruple the lighting immediately below the fixture, so as to make this lighting adequate for reading purposes.

It will be obvious from Fig. 1 of the drawings that, with a given lamp, the spread of the light tending to pass in frusto-conical formation through the neck or aperture of the reflector will depend on the

distance of the lamp from this neck and on the bore of the latter. Hence, the holder arms as well as the diameter of the lens can readily be proportioned to the desired spread. Likewise, the prismatic cutting of the lens grooves can readily be shaped to decrease this spread to the desired extent, the grooves being desirably formed with their inner edges in substantial alinement with the redirection of the rays of light from the center of the light source. To prevent the objectionable streaks or filament images met with a clear glass lens, we desirably provide the effective prism portions of the lower face of the lens with a slight roughening (as by minute hammer blows on the interior of the mold in which the lens is pressed), thereby refracting the light sufficiently to break up these filament images, but without materially altering the redirection of the light by the lens.

To add to the artistic effect, the exterior of the reflector may be covered with a textile curtaining 11, which may either follow the general lines of the reflector, (as in Figs. 1 and 2) or depend at a distance from it as in Fig. 3, and which is particularly effective when the bowl of the reflector is translucent.

However, while we have pictured and described our invention as used in connection with a ceiling as a diffusing medium, and as including a certain type of lens leaded into the neck or aperture of an upwardly concaved reflector housing the source of light, we do not wish to be limited to these or other details of the construction and arrangement thus disclosed, it being obvious that the same might be modified in many ways without departing from the spirit of the appended claims. For example, Fig. 4 shows a light-distributing member in which the reflector portion is made in the same piece of glass with the concentrating lens.

So also, while we have illustrated a corrugated lens as a relatively light and compact form of a convex or positive lens, we do not wish to be limited to this particular type of a concentrating lens as an element of our invention.

We claim as our invention:

1. For use with a light reflecting ceiling, a lighting fixture including as its single light-distributing member an upwardly open bowl comprising a translucent side portion and a bottom consisting of a transparent glass concentrating lens.

2. A pendant fixture including in vertically axial alinement a source of light, an upwardly concaved translucent reflector having an axial aperture at its bottom, and a concentrating lens closing the said aperture, the lens being so proportioned and so spaced from the source of light that the direct rays of light passing from the said source through the lens are concentrated by the lens to a spread of about 25 degrees from the axis of the fixture.

3. In a pendant lighting fixture, a lamp, an annular reflector, a lens mounted in the bore of the reflector, and a common support for the reflector and the lamp; the reflector being formed and positioned for affording a relatively wide distribution of light from the lamp in one general direction, and the lens for concentrating light from the lamp to a cone in the opposite direction.

4. For use with a light reflecting ceiling and a source of light, a light distributing member comprising a reflecting bowl open toward the ceiling and disposed below the source of light, the bowl having a translucent side portion and having a transparent bottom equipped with formations for concentrating the light passing therethrough from the said source and for breaking up the images of the source of light.

5. For use with a light reflecting ceiling, a light distributing member comprising an annular and concave reflector having its mouth open toward the ceiling, and a transparent glass concentrating lens mounted in the neck of the reflector, the lens having on its bottom prismatic corrugations and having relatively small refracting formations on the effective faces of the prisms.

6. For use with a light reflecting ceiling and a source of light, an annular and concave reflector housing the source of light and having its mouth open and directed toward the ceiling, and means disposed across the neck of the reflector for concentrating the spread of the light passing from the said source through the said neck.

7. In a pendant fixture, a lamp, a substantially tapering translucent annular reflector having its neck downward, and a clear glass lens disposed across the neck of the reflector; the said elements being formed and positioned so that the lens will receive a portion of the downward light transmitted by the translucent reflector, and the lens being formed for concentrating the downward light thus received by it to a conical spread of about 25 degrees from the vertical.

8. An annular, concave and translucent reflector; a concentrating lens in the neck of the reflector; and means outside the reflector for modifying the light transmitted through the reflector.

9. For use with a light reflecting ceiling, a lighting fixture including as its light-distributing member an upwardly open bowl housing a source of light and comprising a translucent side portion and a bottom consisting of an annularly prismatic concentrating lens, the said lens having downwardly converging frusto-conical prism faces equipped with formations for breaking up images of the source of light.

10. For use with a light reflecting ceiling

and a source of light, an annular and concave reflector housing the source of light and having its mouth open and directed toward the ceiling, and a concentrating lens disposed across the neck of the reflector and having annularly disposed prismatic portions including downwardly converging faces, the said prismatic portions being equipped on their said downwardly converging faces with relatively small formations for breaking up images of the source of light.

Signed at Chicago, Illinois, April 1, 1919.

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