

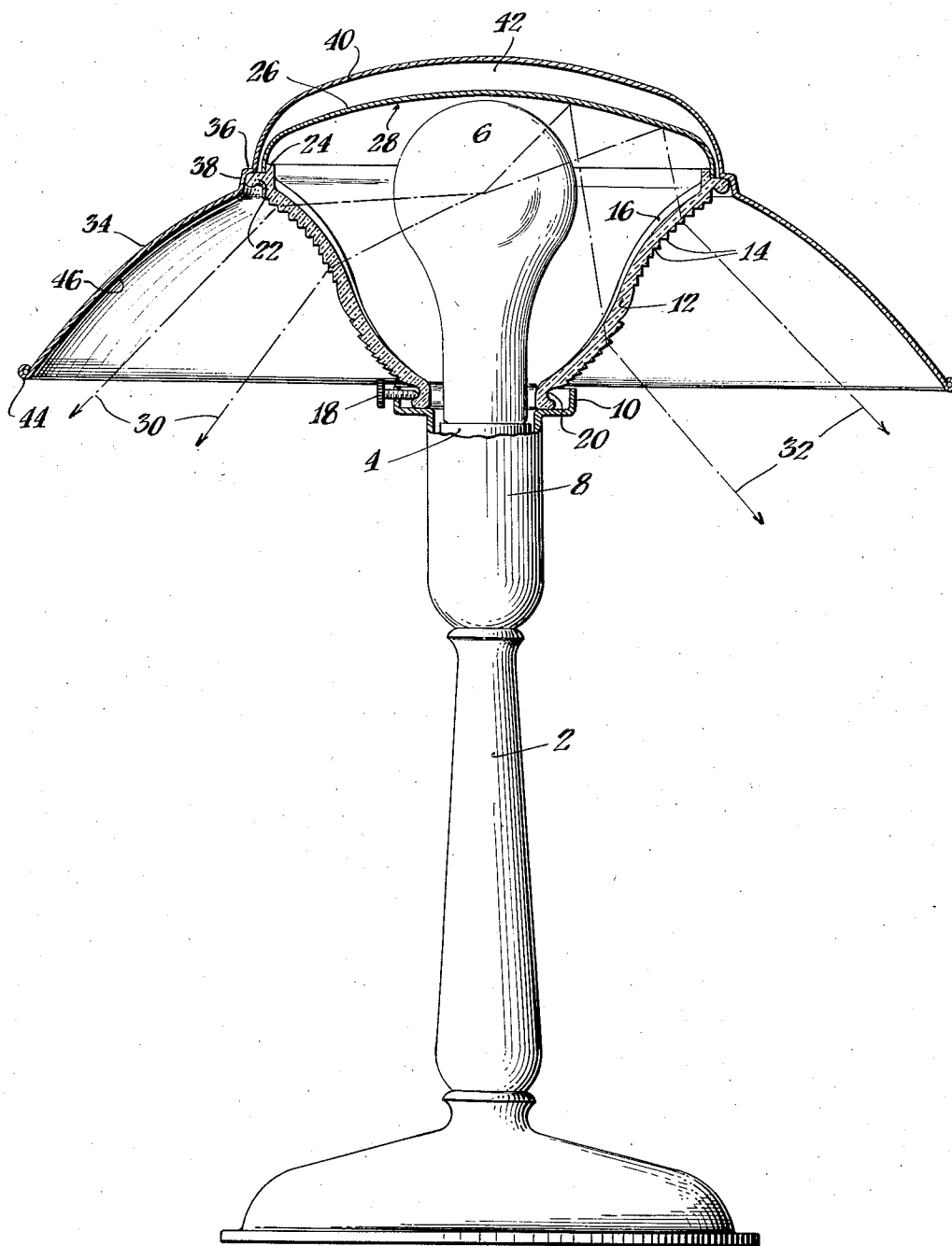
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H. C. NOE

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LIGHTING DEVICE

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INVENTOR
Harold C. Noe
BY
Wagner, Neary & Campbell
his ATTORNEYS

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LIGHTING DEVICE

Harold C. Noe, Nutley, N. J., assignor, by mesne assignments, to Holophane Company, Inc., New York, N. Y., a corporation of Delaware

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This invention relates to lighting devices and particularly to desk lamps and similar constructions serving to produce a diffused but intense illumination over an area beneath and adjacent the device.

Desk lamps and similar devices as heretofore constructed have served to direct light downward onto an area adjacent and beneath the lamp shade and to prevent light from radiating horizontally from the device. Such devices as presently used commercially are usually of one of the following types: (1) Indirect lighting type wherein there is provided a shade or the like having a reflecting surface or a separate reflector secured thereto for reflecting the light emanating from the light source and directing it upon the area or object that it is desired to illuminate; (2) the semi-indirect lighting type wherein part of the light rays are reflected and part are radiated directly from the light source upon the area or object to be illuminated; and (3) the diffusing bowl type wherein all or a part of the light is caused to pass, directly or after reflection from a reflecting surface, through a light diffusing material, usually glass, to the area or object to be illuminated.

In these prior constructions it is usual to employ a metal shade which serves also as a reflector or which is so connected to the reflector as to be heated thereby. The heat produced by the source of light is thus transmitted directly to the shade with the result that the shade becomes heated and in some instances sufficiently hot to cause a painful burn when touched. This is particularly true when the metal shade reflector is used with a lamp of the diffusing bowl type since in such lamps as heretofore constructed it is necessary to use a relatively powerful light source in order to obtain the desired uniform intense illumination.

In accordance with the present invention this objection to constructions of the prior art is overcome by providing a reflector and shade which are spaced apart so that heat from the light source and from the reflector is not transmitted directly to the shade. In its application to lamps of the diffusing bowl type, the present invention produces the further advantage that the efficiency of the lamp is markedly increased as compared with the earlier lamps employing the diffusing bowl principle and at the same time eliminates the objectionable heating of the shade.

These and other advantages and features of the invention will appear from the following description thereof, in which reference is made to

the figure of the drawing which is a vertical sectional view of a lighting device embodying the present invention with parts of the construction illustrated in elevation.

In that form of the invention illustrated the device embodies a vertically extending support 2 having a socket 4 for receiving a source of light such as the light bulb 6 which extends upwardly from the support. The support is provided with an outer shell 8, the upper portion of which is formed with a flange 10 for receiving and supporting a light diffusing bowl 12. The bowl may be made of any suitable light diffusing glass or similar material. Advantageously, it may be made, as shown, of transparent prismatic glass formed with annularly extending prisms 14 on the outer surface thereof, and radially extending prisms 16 on the inner surface thereof, such as those shown and described in the patent to Dorey No. 1,699,100. Light emanating from the light source 6 and impinging upon the walls of the bowl is diffused in passing therethrough with a minimum of loss. In this way, diffused but intense illumination is obtained without producing a glare on objects located adjacent the device.

The bowl is secured in place on the flange 10 by means of screws 18 or the like which enter a recess 20 about the lower portion of the bowl. The upper marginal rim of the bowl 12 is formed with an enlarged portion 22 having an upwardly extending annular ridge 24 for receiving and positioning a reflector 26. The reflector may be formed of aluminum or other suitable material, and is provided with a highly polished inner reflecting surface 28 for directing light downwardly through the light diffusing bowl 12 and onto the surface beneath and adjacent the lighting device. With this construction, light from the source 6 passes either directly through the light diffusing bowl 12 onto the surface to be illuminated as indicated by the arrows 30, or is reflected downward from the highly polished surface 28 through the light diffusing bowl as indicated by the arrows 32. Thus, a large part of the light from the source 6 falling on the surface to be illuminated is direct but diffused light. Moreover, all of the light, both direct and reflected, passes through the light diffusing bowl 12. Therefore, a highly polished reflecting surface may be used above the light bulb without producing a glare on the objects illuminated. The reflector, because it is highly polished, also serves to reduce reflection losses and to diminish the absorption of heat by the reflector.

A light shade 34 formed of metal or other

material is provided with a ridge 36 which engages the outer marginal portion 38 of the rim 22 on the light diffusing bowl. The construction of the rim 22 on the bowl and the ridge 36 on the shade 34 is such as to hold the shade in spaced relation with respect to the reflector 26 so that there is no contact between the reflector and the shade. Thus both of these elements are supported independently by the bowl and are held out of contact with each other. The top 40 of the shade extends over the reflector 26, leaving an air space 42 between the reflector and the top of the shade.

Since the reflector 26 is highly polished and reflects the light rays with very little absorption of heat and the air in the air space is a very poor conductor of heat, the shade remains relatively cool even when the device is used for long periods of time.

The lower portion of the shade 34 extends outward and downward about the bowl 12 with the lower edge 44 thereof in line with or below the lower exposed portion of the bowl, so that light cannot radiate outward horizontally from the bowl beyond the margin of the shade, but is directed downwardly onto the area below and adjacent the lighting device.

The inner surface 46 of the outwardly and downwardly extending portion of the shade is constructed or provided with a reflecting surface, preferably non-polished and adapted further to diffuse and reflect light falling thereon and to direct the light downward onto the area below and adjacent the device without producing objectionable glare. An aluminum painted or spray coated metal surface serves the purpose.

With this construction objectionable heating of the shade is avoided while providing intense but diffused lighting throughout the area adjacent and below the device. Moreover, the desired illumination is obtained without excessive reflection losses so that a relatively small light bulb or other light source and one which produces but little heat may be employed without correspondingly reducing the illumination provided.

It will be apparent that the form and construction of the light diffusing bowl 12 may be varied considerably, particularly when adapting the invention for use in lighting devices differing in design and arrangement from that illustrated. It will also be evident that other types of support and other forms of reflector and shade may be used to produce various lighting effects as desired. Moreover, the means provided for mounting the shade and reflector independently also may be varied as desired without departing from the spirit of the invention. It is also to be understood that the advantages of increased efficiency of lighting with elimination of overheating of the shade may be obtained by applying the spaced reflector and shade elements in lamps of the direct and semi-direct lighting types that do not also employ the diffusing bowl principle. It will be understood from the above that the form of lighting device shown in the drawing and herein described is intended to be representative of an embodiment of the invention and is not intended to limit the scope thereof.

I claim:

1. A lighting device comprising a support, a light source carried by the support, an annular light diffusing bowl also carried by said support and extending about the sides of the light source, an annular domed reflector extending over the light source and fitting the top of the bowl and having a highly polished inner reflecting surface formed to reflect light downwardly through said light diffusing bowl onto an area adjacent said device, and a shade covering the reflector and supported in spaced relation with respect to said reflector to form an air space, the shade having an annular skirt extending outwardly and downwardly about the bowl and formed to reflect the light radiating laterally from the bowl downwardly onto an area adjacent said device.

2. In a lighting device having a support, a light source carried by the support, a light diffusing bowl extending upward about the sides of said light source, said bowl having an upper marginal rim, a domed reflector supported on said rim and serving to reflect light radiated from said light source downwardly and outwardly through said diffusing bowl, and a domed covering means supported on said rim above and in spaced relation to said reflector and defining a heat insulating air space therebetween.

3. A desk lamp of a height to be normally below eye level and comprising a support, a light source carried by the support, a light diffusing bowl around the source and a combined cover and screen comprising a central opaque bulged reflector detachably secured above the bowl and the light source and resting on top of the bowl to reflect light back into the bowl, a light screen extending downwardly and outwardly from the top of the bowl to substantially the bottom of the bowl to screen the bowl at angles above the horizontal, and having a wide diameter at the bottom to permit said directed light to escape, and a central domed element above the reflector and vertically spaced from it to provide an air space therebetween.

4. A desk lamp of a height to be normally below eye level and comprising a support, a light source carried by the support, a light diffusing bowl around the source and a combined cover and screen comprising a central opaque bulged reflector detachably secured above the bowl and the light source and resting on top of the bowl to reflect light back into the bowl, a light screen extending downwardly and outwardly from the top of the bowl to substantially the bottom of the bowl to screen the bowl at angles above the horizontal, and having a wide diameter at the bottom to permit said directed light to escape, and a central domed element above the reflector and vertically spaced from it to provide an air space therebetween, the top of the bowl engaging the edge of the reflector and the domed element and screen to align them and keep the edge of the reflector out of contact with the domed element.

5. A desk lamp such as claimed in claim 3, wherein the central domed element and the screen are integral.

HAROLD C. NOE.