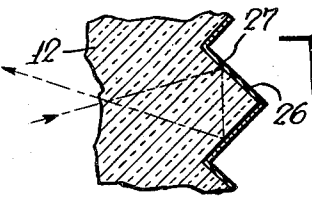
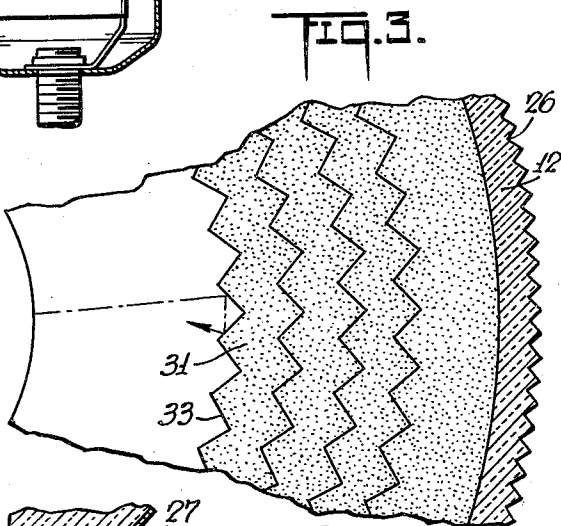
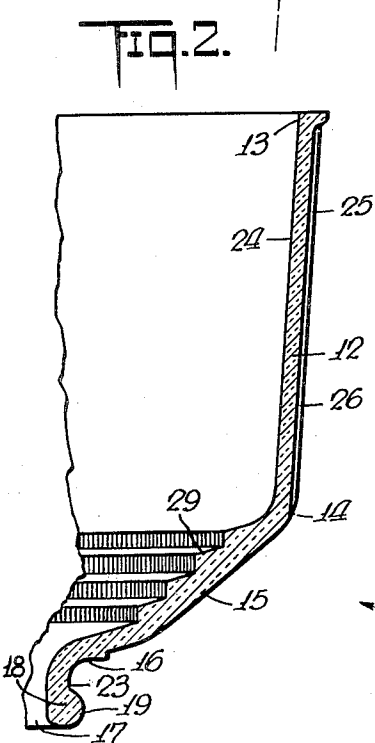
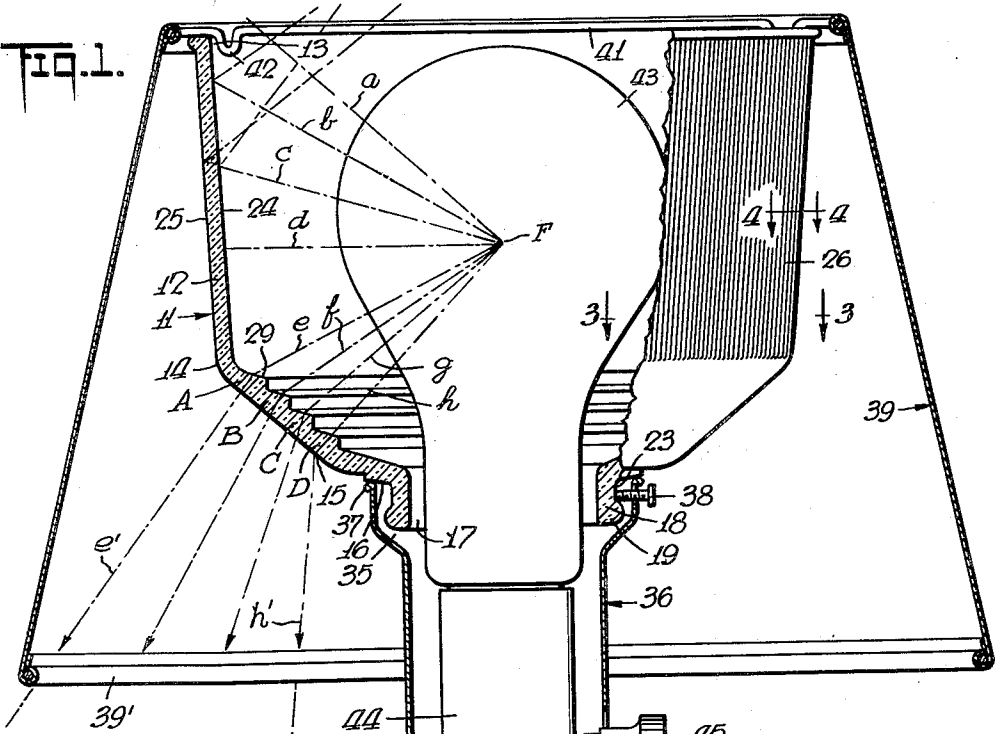


March 7, 1950

J. S. HAMEL  
REFLECTOR BOWL

2,499,580

Filed July 9, 1948



INVENTOR  
Jacob Samuel Hamel  
BY  
Dean Fairbank & Hirsch  
ATTORNEYS

## UNITED STATES PATENT OFFICE

2,499,580

## REFLECTOR BOWL

Jacob Samuel Hamel, West Islip, N. Y., assignor  
to Lightolier, Incorporated, a corporation of  
New York

Application July 9, 1948, Serial No. 37,817

1 Claim. (Cl. 240—106)

1

This invention relates to the art of illumination and especially to reflector bowls for lamps.

Where conventional direct and indirect type lamps use one central bulb surrounded by a conventional reflector bowl for the indirect light and a plurality of individual bulbs surrounded by a conventional shade supported by the bowl for the direct light, the complete unit is bulky, relatively expensive utilizing as it does a plurality of sockets and bulbs and wasteful of light as the direct rays of the individual bulbs will spread in all directions and hence only a small proportion thereof will be directed downwardly by the shade.

It is among the objects of the invention to provide a reflector bowl that will afford both direct and indirect illumination from a conventional source of electric light, which bowl is attractive in appearance, relatively simple and inexpensive to manufacture, which will direct the rays of light from a bulb therein both upwardly towards the ceiling and downwardly to a useful area for reading and will also diffuse the illumination in a horizontal direction to prevent glare and eye strain, which bowl requires but a single bulb therein and is devoid of additional reflector elements or the like which would add to the cost of the unit.

According to the invention these objects are accomplished by the arrangement and combination of elements hereinafter described and particularly recited in the claim.

In the accompanying drawings in which is shown one of various possible embodiments of the several features of the invention,

Fig. 1 is a fragmentary cross sectional side elevational view of a reflector type lamp showing the bowl thereon with parts broken away and mounting a lamp shade,

Fig. 2 is a fragmentary cross sectional side elevational view of the bowl on a larger scale,

Fig. 3 is a fragmentary plan view of the bowl partly in cross section and on a larger scale taken along line 3—3 of Fig. 1 and

Fig. 4 is a fragmentary cross sectional view of the bowl on a larger scale taken along line 4—4 of Fig. 1.

Referring now to the drawing the bowl comprises a substantially cup-shaped member 11 which may be pressed from clear glass or molded from suitable transparent plastic, and the wall 12 of which tapers inwardly from the mouth 13 thereof to the edge 14 of the base 15 thereof. The base 15 as is clearly shown in Figs. 1 and 2, slopes downwardly and inwardly from edge 14 to an annular shoulder 16, about an axial circular opening 17 in the base 15. Opening 17 has a depend-

2

ing rim 18 desirably with a bead 19 integral therewith, about the outer periphery of said rim, shoulder 16 and bead 19 defining an annular groove 23 therebetween.

The wall 12 of the bowl which is smooth on its inner face 24 has, on its outer face 25, a plurality of parallel, substantially vertical triangular grooves or flutes 26 extending from edge 14 to mouth 13 of the bowl and the outer face 25 has a translucent enameled coating 27 which may be applied in any conventional manner.

The base 15 of the bowl which is transparent, is smooth on its sloping outer face and has a plurality of annular steps or terraces 29 on the inner face thereof, four of which are illustratively shown and which in conjunction with the smooth outer face of the base form four prisms A, B, C and D. The upper face 31 of each of the terraces slopes downwardly slightly towards opening 17 in the base and is preferably stippled or roughened for the purpose hereinafter set forth. The side wall of each of the terraces is substantially vertical and may have a plurality of vertical triangular notches 33 therein with the apex of each of the notches extending part way through the terraces.

The reflector bowl 11, may be mounted in conventional manner by being positioned over the mouth 35 of the conventional husk 36 of the standard reflector type lamp with the depending rim 18 of the bowl encompassed by the rim 37 of the husk and with annular shoulder 16 seated on said rim 37. One or more set screws 38 are provided extending transversely through the wall of the husk to engage the wall of groove 23 securely to retain the reflector bowl on the husk.

A lamp shade 39 of conventional construction may be used. Desirably such shade may have a support bracket 41 at the top thereof with a U-shaped bend 42 therein whereby the shade may be accurately centered on the reflector bowl 11 as shown in Fig. 1.

With a light bulb 43 screwed in socket 44 in housing 36, the lamp is ready for use.

The operation of the reflector bowl hereinabove described is as follows:

When the bulb 43 is lit by the turning of switch 45, rays of light emanate in all directions from filament F as shown by dot and dash lines.

The ray of light designated by the letter *a* will pass directly out of the mouth 13 of the bowl toward the ceiling, the rays of light designated by the letters *b* and *c* will hit the inner face 24 of the bowl 11 and be reflected upwardly therefrom and thereupon pass through the mouth of the bowl. Rays *b* and *c* in addition to being partially

3

reflected upon hitting face 24, will also pass through wall 12 and again be reflected upon hitting the outer face 25, the enameled coating 27 aiding in such reflection. It is to be noted that due to the refraction of the rays as they pass through wall 12 the reflected ray from outer face 25 will have a smaller angle of incidence than when reflected from inner face 24. It is thus seen that substantially all of the light from rays b and c is reflected through the mouth 13 of the bowl.

However, it is desired that the wall of the bowl be illuminated so that the latter will glow, thereby also illuminating the lamp shade, and that there be no glare from such illumination. To this end the outer face 25 is provided with the plurality of flutes 26 above described. When a ray of light which passes through the wall 12 hits against the enameled outer surface 27 thereof, a portion of such light will be reflected at an angle as shown in Fig. 4 due to the notches 26. Thus practically no direct beams of light will shine through the wall 12 hence there will be no glare and there will be a diffused soft glow on the outer face 25 of wall 12. Ray d which is a horizontal ray, will not be reflected upwardly but will pass through the wall 12 and hit the walls of notches 26 thereby being reflected as above described to provide a soft glow.

With respect to rays e, f, g and h these will hit the stippled surfaces 31 of the terraces 29. Referring specifically to ray e, when it hits the stippled surface 31 of prism A, the stippled surface will in part diffuse the ray e so that there will be no glare and the ray will be refracted downwardly. By reason of the prism A the ray of light e as it emerges from the smooth face of prism A as ray e' will be bent as shown toward the opening 17 of the bowl which is also true of rays f, g and h.

Thus we see that the usable area of relatively intense light through the base will be between the extensions of the refracted rays e' and h', and the lamp shade 34 is desirably of such size that no bright ray of light will abut thereagainst so the outermost ray e' will pass through the open mouth 39' of the shade.

As a result of the construction herein described, by the use of but a single bulb in conjunction with the reflector bowl 11, there are three distinct and separate areas of light, one through the open mouth 13 of the bowl which is directed towards the ceiling and which is very bright and glaring so that it will have adequate intensity to be reflected downward from the ceiling for indirect lighting; a second area through the wall 12 of the bowl which is diffused and soft, thereby illuminating the shade 39 therearound with a mellow

4

glow of equal intensity all over; and a third area of refracted light, through the transparent base 15, which is of proper intensity for reading but has been diffused slightly by the stippling and by the notches 33 in the terraces 29 so that there is no glare, and which is so directed by the terraces that none of this light impinges on the base of shade to cause it to be more brightly illuminated at its lower edge than near its center.

Thus a lamp incorporating the reflector bowl 11 herein, casts a bright light for indirect illumination, a diffused concentrated light of sufficient intensity for reading and a mellow glow through the shade which will not shine on the eyes of the reader with resultant discomfort thereto.

As many changes could be made in the above construction, and many apparently widely different embodiments of this invention could be made without departing from the scope of the claim, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

Having thus described my invention what I claim as new and desire to secure by Letters Patent of the United States is:

A reflector bowl for a source of light, said bowl comprising a substantially cup-shaped member having a substantially vertical wall to encompass such source of light and a substantially transparent base, said wall having a smooth inner surface and a plurality of substantially vertical parallel notches in the outer surface thereof, said outer surface having a translucent coating thereon, said base being inclined downwardly and inwardly from the lower edge of said wall and having a plurality of annular terraces on the inner surface thereof to direct the rays of light from such source of light downwardly in a predetermined area, said terraces each having a stippled upper surface and a substantially upright side wall having a plurality of vertical notches therein.

JACOB SAMUEL HAMEL.

#### REFERENCES CITED

The following references are of record in the file of this patent:

#### UNITED STATES PATENTS

| Number    | Name           | Date          |
|-----------|----------------|---------------|
| 755,197   | Wadsworth      | Mar. 22, 1904 |
| 1,480,599 | Cravath et al. | Jan. 15, 1924 |
| 1,543,605 | Harrison       | June 23, 1925 |
| 1,881,767 | Lundy          | Oct. 11, 1932 |
| 2,043,193 | Dunn et al.    | Jan. 2, 1936  |
| 2,068,246 | Rolph          | Jan. 19, 1937 |