No. 821,309. PATENTED MAY 22, 1906.

O. A. MYGATT.

DECORATED SHADE REFLECTOR.

APPLICATION FILED DEC. 30, 1904.

Fig. 2.

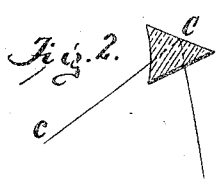


Fig. 3.

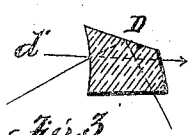


Fig. 4.

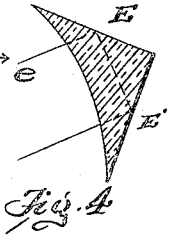


Fig. 6.

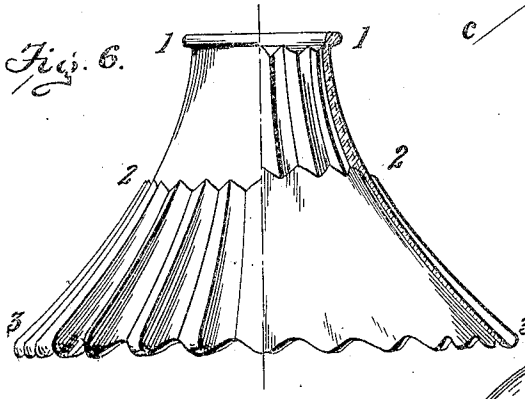


Fig. 5.

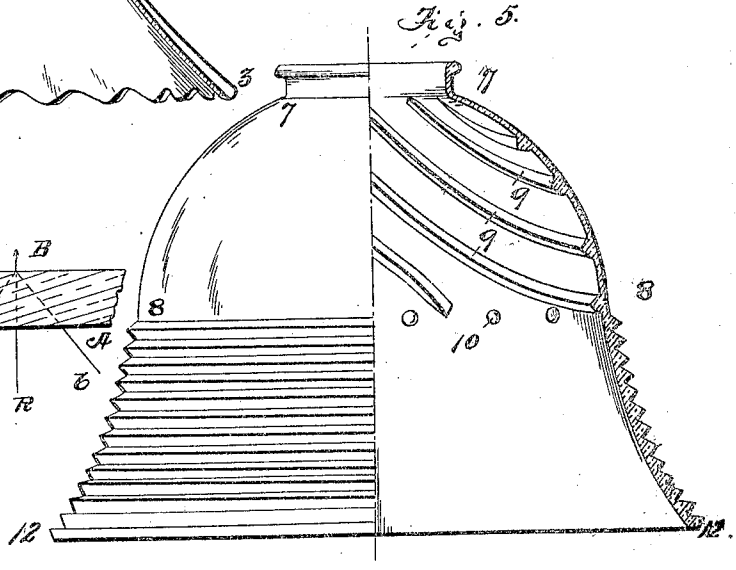


Fig. 1.

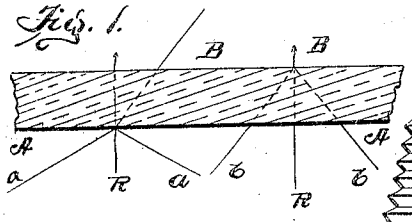
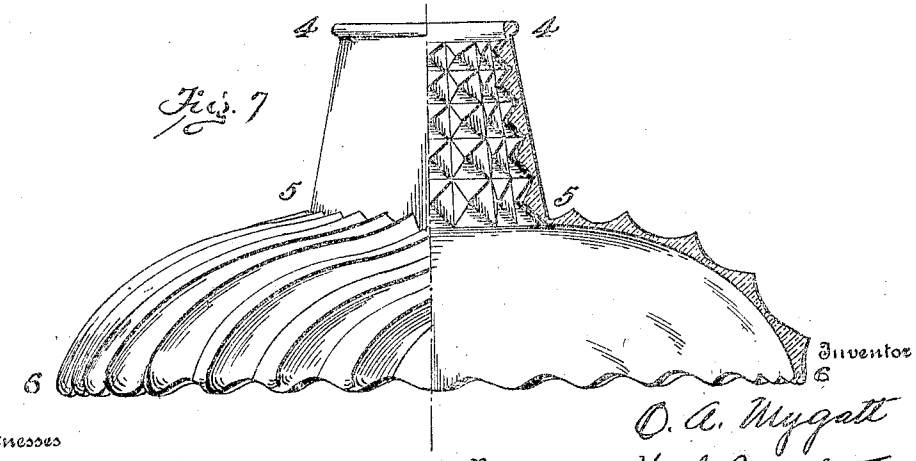


Fig. 7.



Witnesses

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UNITED STATES PATENT OFFICE.

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DECORATED SHADE-REFLECTOR.

No. 821,309. Specification of Letters Patent. Patented May 22, 1906.

Application filed December 30, 1904. Serial No. 238,966.

To all whom it may concern:

Be it known that I, OTIS A. MYGATT, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Decorated Shade-Reflectors, of which the following is a specification.

This invention relates to decorative shades and reflectors or shade-reflectors composed of glass.

The object of the invention is to produce a decorated shade or reflector or shade-reflector which shall have the power of reflecting, guiding, or directing a large proportion of the light-rays from an artificial light and at the same time shall be as little subject as may be to deterioration by the accumulation of dust strata thereon.

In the drawings, Figure 1 is an illustrative diagram showing the course of a light-ray under certain conditions. Figs. 2, 3, and 4 are illustrative diagrams showing influence of certain prisms on a light-ray. Fig. 5 is a side elevation and partial section of a shade-reflector according to the present invention, the section being indicated by a vertical line. Fig. 6 is a similar view of a modified shade-reflector embodying like principles, and Fig. 7 is a similar view of still another modification.

It is a law of optics that a light-ray from the air striking the polished surface of a sheet of plane glass is not largely reflected from the first surface; but if the plane sheet of glass be at such an inclination that the light-ray does not pass through the glass the ray is refracted by the glass from its direction of entry and is reflected at the second surface. The most perfect angle of reflection is forty-five degrees at the second surface.

In Fig. 1 I illustrate a law of optics in which light-rays encounter the plane surface of a plate of glass. The rays R R perpendicular to the face of the glass will in either case pass through. The face A of the glass will not reflect light-rays to any considerable extent, except for about fifteen degrees between the lines *a a* and the face A. The face B, however, will reflect light-rays almost completely which reach such surface by the lines *b* B—that is, at forty-five degrees to the plane of face B.

In Fig. 2 I show the course of a light-ray *c*, which is reflected by a prism, the face C being the active reflecting-face, while the other faces are substantially inert as to the ray *c*.

In Fig. 3 the light-ray *d* is shown as reflected downward, while the ray *d'* passes directly through the prism.

In Fig. 4 the light-ray *e* is shown as twice reflected by the surfaces E E'—that is, once by each surface.

I have found in practice that a coating of dust on the outside of a plate or prism does not interfere with its reflecting qualities to light-rays from within. Thus the plate A B will answer as well for a reflector in the indicated direction if the face B be covered with dust; but if the face A is obscured light will be absorbed and lost. Being the lower face, the surface A is not apt to become dusty, even if considerably neglected.

In the prism illustrated in Figs. 2 and 3 the faces C and D are the only faces likely to accumulate dust to a considerable extent, and these are still efficient as reflectors, which is also true of the reflecting-faces E E' of the prism of Fig. 4.

Availing myself of these laws of optics, I produce a shade-reflector which can be decorated to a large extent, yet which is still highly efficient as a reflector and which will remain efficient if considerably neglected as to cleaning, as is apt to be the case with suspended reflectors, especially such as are applied to electric lights.

In Fig. 6 I illustrate a shade-reflector of transparent glass. The upper portion from 1 to 2 is smooth externally, and therefore not much liable to accumulate dust. The interior surface of the same portion is decorated with internal prisms or flutings, and as these are nearly vertical they do not accumulate dust to a great extent. The majority of the light-rays pass through this part of the shade-reflector, but are softened and diffused by the flutings. That part of the device from 2 to 3 is externally covered with reflecting-prisms arranged vertically or radially. This surface will gather dust, but will still be efficient as a reflector, the light-rays being reflected by the prisms, as in Fig. 4. The inside of the reflector from 2 to 3 is smooth, and hence not liable to dust collection.

In Fig. 7 that part of the shade-reflector from 4 to 5 is externally smooth and internally covered with pyramids which direct

or diffuse the light, while the outside from 5 to 6 is covered with reflecting-prisms arranged spirally, the inside being smooth. The reflecting-prisms are not quite as efficient; but the general principles involved are the same in both cases. That part of the device used as a shade is the part which receives the least intense rays from an incandescent lamp and would therefore be least efficient as a reflector. The shade part serves to illuminate the outside of the reflector and the space surrounding; but the rays which pass through the shade portion of the device are not guided by external prisms, while the rays do not pass to any considerable extent through the reflector portion, but are reflected by the external prisms.

Fig. 5 illustrates the same principle somewhat modified. That part of the shade-reflector from 7 to 8 is externally smooth and passes light-rays from within. The interior of this shade part of the device is decorated with spiral flutings 9 and beads 10; but these are merely exemplary, as any other variety of decorative forms may be employed and colors may be used judiciously

The decorative forms employed of course divert or change the direction of some of the light-rays, so that certain fields of illumination receive more and others less light-rays than if these decorative forms were omitted.

The part of the device from 8 to 12 is internally smooth and externally covered with circumferential reflecting-prisms 18, which while less efficient than radial prisms can be made tolerably efficient as reflectors.

The shade-reflectors of the present invention are formed from glass by pressure in molds. The work of decoration may be in part supplementary to the molding.

What I claim is—

1. A shade-reflector composed of a single piece of glass having a contracted neck which is internally provided with light-diverting bodies and is outwardly smooth, and a flared mouth portion having external reflecting-prisms arranged with their axes extending in a generally radial direction, the interior of this reflecting portion of the device being smooth, whereby the deterioration of the different parts of the device by the accumulation of dust is largely prevented.

2. A bell-mouthed reflector divided into two zones, the upper zone, through which the light passes out, having light-dispersing bodies on the inside and a smooth outer surface from which dust can be readily removed; the lower zone from which the light is reflected back and out of the mouth having light-reflecting bodies on the outside and being smooth inside.

In testimony whereof I affix my signature in presence of two witnesses.

OTIS A. MYGATT.

Witnesses:
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C. A. MCCANN.