

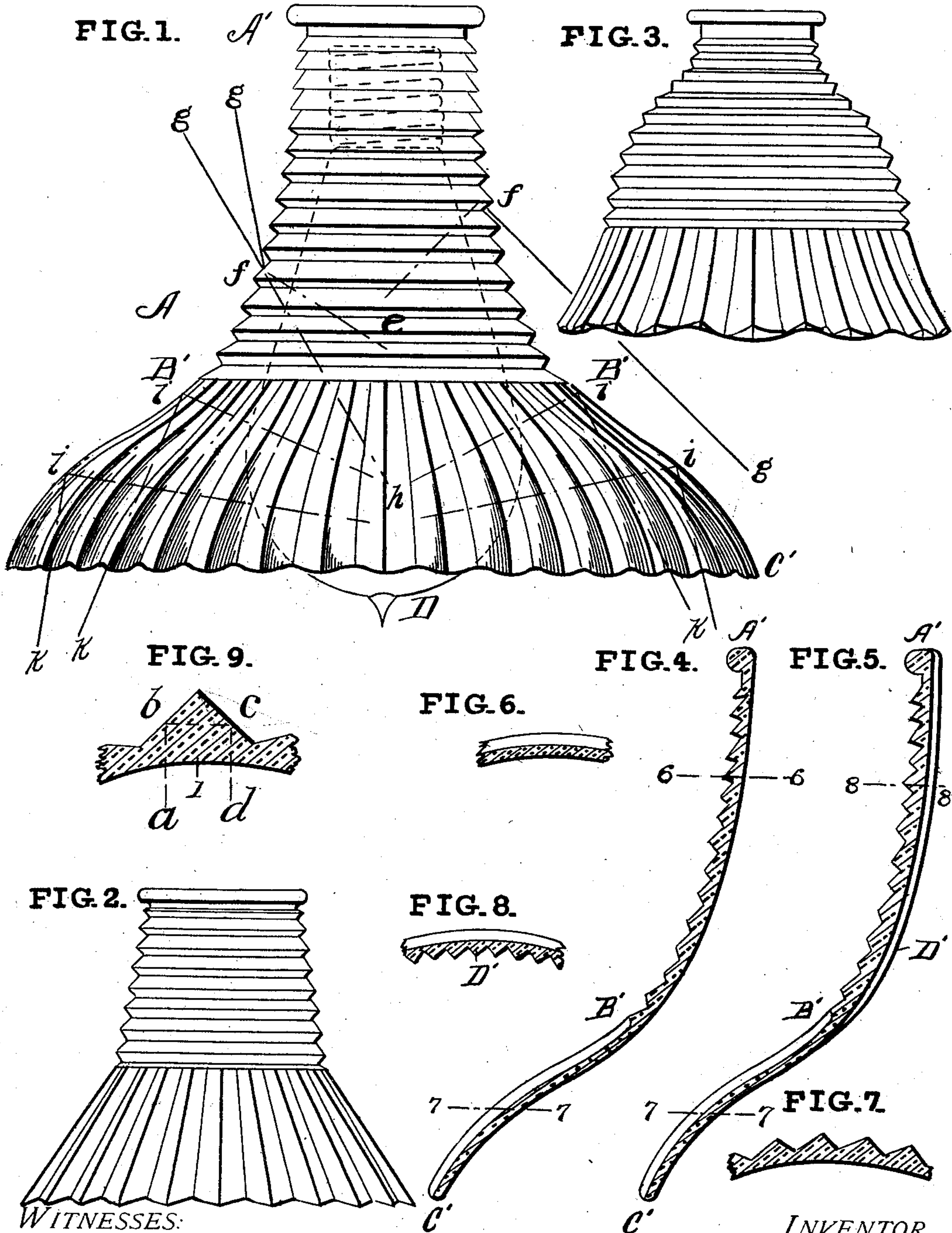
No. 763,688.

PATENTED JUNE 28, 1904.

O. A. MYGATT.
PRISM GLASS SHADE REFLECTOR.

APPLICATION FILED DEC. 8, 1902.

NO MODEL.



WITNESSES:
Chas. K. Davies.
M. E. Brown.

INVENTOR
O. A. Mygatt.
BY W. A. Bartlett
Attorney

UNITED STATES PATENT OFFICE.

REISSUED

OTIS A. MYGATT, OF NEW YORK, N. Y.

PRISM-GLASS SHADE-REFLECTOR.

SPECIFICATION forming part of Letters Patent No. 763,688, dated June 28, 1904.

Application filed December 8, 1902. Serial No. 134,332. (No model.)

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 Prism-Glass Shade-Reflectors, of which the following is a specification.

This invention relates to prism-glass shades and reflectors or shade-reflectors for artificial lights.

The object of the invention is to produce in a single piece a prism-glass structure one part of which shall act as a reflector and another part of which shall act to radiate or diffuse the light-rays, at the same time controlling their direction to a greater or lesser extent.

Figure 1 is a side elevation of a shade and reflector as applied to an electric lamp and illustrating the principles of the present invention. Figs. 2 and 3 are similar views of other forms of such shades and reflectors. Fig. 4 is a vertical section of the shade, Fig. 1; and Fig. 5 is a similar section of a modification. Fig. 6 is a broken section on line 6 6, Fig. 4. Fig. 7 is a broken section on line 7 7, Figs. 4 and 5. Fig. 8 is a broken section on line 8 8, Fig. 5. Fig. 9 is a sectional diagram illustrating direction of a reflected light-ray in connection with a glass prism.

In the patent of Blondel and Psaroudaki, No. 563,836, of July 14, 1896, much information may be found as to the effect of prisms on light-rays, as also in my patent of December 3, 1901, No. 687,848. I avail myself of known laws and inventions therein set forth and of my subsequent improvements in carrying out my present invention.

In my application Serial No. 181,831, filed November 19, 1903, for a species of the generic invention involved in the present application the double-reflecting or longitudinal prisms are of like character with those of the present application; but in the present application the circumferential prisms surrounding the upper part of the shade-reflector are diffusing-prisms, which may be either reflecting or refracting, and are broadly claimed, while in the later application the claims are limited

to "single-reflecting" prisms, which are not in the ordinary sense diffusing-prisms.

In Fig. 9 I show the approximate direction of a light-ray in entering and leaving a reflecting-prism. The light is supposed to emanate from the direction *a*, to enter the glass 1 in the direction *a b*, and to encounter the surface *b* at an angle of forty-five degrees. The ray is deflected ninety degrees in the line *b c* and again deflected at the surface *c* by a like prismatic surface to take the direction *c d*. The direction *c d* being parallel to the direction *a b*, the light-ray may be said to be reflected or turned back in practically a straight line. By covering the entire outer surface of a transparent glass reflector with prisms of proper form as much as eighty-five per cent. of the light may be reflected or thrown back from the inner surface of the reflector.

A metallic or silvered-glass reflector of usual form transmits no light; but in many instances it is desirable to transmit some of the light while reflecting other light-rays, and a prismatic lamp-reflector in which the entire outer surface of the structure is covered with reflecting-prisms often fails to transmit as much light as is desirable. I have therefore devised a compound or combined shade and reflector composed of a single piece of transparent or slightly-tinted glass, and on the outer surface thereof I arrange both reflecting and refracting prisms, as I will now explain.

In Fig. 1, A represents a combined shade and reflector or shade-reflector of bell shape involving the principles of my invention. The outer surface of this article is covered with prisms. From A' to B' these prisms are circumferential and are constructed to radiate and diffuse the light—as explained, for instance, in the patent of Blondel and Psaroudaki, No. 563,836, of July 14, 1896. From B' to C' the outer surface of the structure is covered with reflecting-prisms of the general character hereinbefore described and arranged vertically or longitudinally with reference to the axis of the shade.

Light-rays emanating from an electric or other artificial light inclosed within the shade-reflector, as at D, Fig. 1, will in a general way

be directed as follows: The zone of diffusion A' B' will receive the rays in the direction ef and will diffuse or transmit such rays in the direction fg fg , according to the structure of the prisms, as explained in the above-cited patent. The rays of light will reach the reflector, say, in the direction hi and will be reflected in the directions ik . Thus the "bell-mouth," if such it may be called, is a reflector, while the upper part of the bell is a refractor or transmitter of light. Such a shade-reflector will when suspended "throw down" a large portion of the light received from an inclosed lamp and will at the same time diffuse light enough in its immediate vicinity to prevent dense shadows.

The inside of the shade-reflector is smooth as far as the zone B' C' is concerned. (See Fig. 4.) To soften the light, however, the inside of the shade may also be supplied with longitudinal or vertical ribs, as shown at D', Figs. 5 and 8, and as more fully explained in the patent cited.

These shade-reflectors are made by pressing in molds in manner well understood by workers in glass. The molds are constructed of exact shape to receive and form the glass, which is worked in a hot, plastic, or molten condition.

The area of the structure devoted to transmission and diffusion of light and the area devoted to the reflection of light will naturally depend on the requirements of the case. In Figs. 2 and 3 I illustrate different forms of structures and having different superficial surfaces devoted to the different qualities of prisms. Numerous other forms can readily be devised having the same object in view.

It will be observed that the reflecting-prisms on the flared portion B' C' of the shade-reflector are substantially longitudinal prisms. The prisms receive the light from the source of illumination within the shade-reflector and divert it out of the mouth of the reflector. After leaving the reflecting-prism the light-rays do not again pass through any portion of the shade or reflector. The diffused rays from the diffusion-surface of the shade pass once through the glass and are at once diffused and do not again encounter any portion of the shade-reflector.

In the patent to Blondel and Psaroudaki, No. 563,836, of July 14, 1896, and under which

patent I have manufactured many thousand lamp-globes, provision is made to a very limited extent for the reflection of light-rays from a part of the globe by means of external circumferential reflecting-prisms, which prisms reflect light in rings back into the globe, and the same reflected light-rays are afterward refracted or diffused from other parts of the globe by refracting-prisms or diffusing-ribs, or both. The aforesaid patentees did not provide for a reflection of light-rays by means of external longitudinal prisms, nor did they provide for the reflection of light directly from the shade, which shade was not and is not in any sense what would be termed by manufacturers a "reflector."

I do not herein claim a shade-reflector having its outer surface in part covered with double-reflecting prisms and in part with single-reflecting prisms, as the same is described and claimed in my application Serial No. 181,831, filed November 19, 1903.

What I claim is—

1. An integral shade-reflector of glass, having external circumferential diffusion-prisms and interior diffusion-prisms on a part of its body, and external reflecting-prisms and an interior smooth surface on another part of its body.

2. An integral shade-reflector of glass having an annular body and flaring mouth, the body being practically covered with external diffusion-prisms, and the flaring-mouth portion being practically covered with external reflecting-prisms arranged to reflect light-rays emanating within the reflector back through the open mouth.

3. A bell-mouthed shade-reflector composed of one piece of glass, and having a circular body portion substantially covered on its outer surface with diffusing-prisms arranged circumferentially, and its flaring bell-mouthed surface substantially covered by reflecting-prisms extending longitudinally and arranged to reflect light-rays emanating within the reflector back through the glass and out at the open mouth.

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

OTIS A. MYGATT.

Witnesses:

JNO. FERGUSON,
W. A. DORSY.