

O. A. MYGATT.

PRISMATIC GLASS REFLECTOR FOR ARTIFICIAL LIGHTS.

APPLICATION FILED MAY 31, 1904.

FIG. 1.

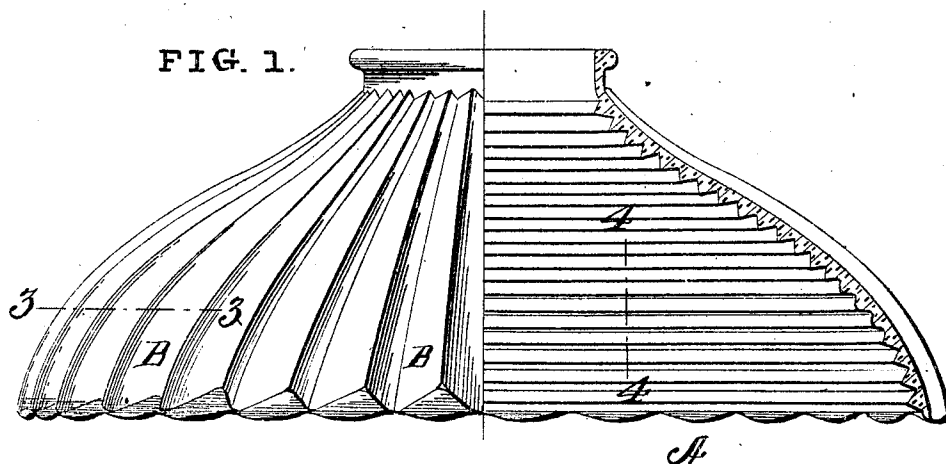


FIG. 2.

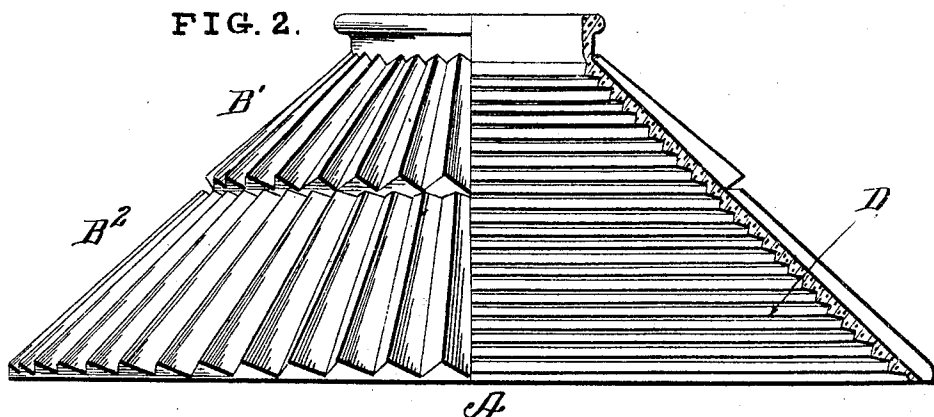


FIG. 3.

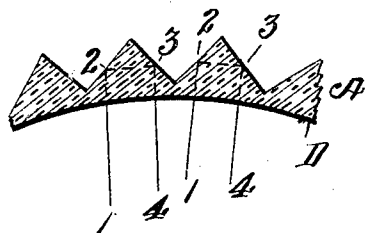
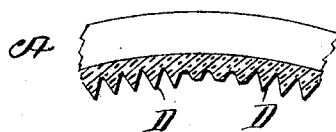


FIG. 4.



Witnesses  
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# UNITED STATES PATENT OFFICE.

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

## PRISMATIC-GLASS REFLECTOR FOR ARTIFICIAL LIGHTS.

No. 804,334.

Specification of Letters Patent.

Patented Nov. 14, 1905.

Application filed May 31, 1904. Serial No. 210,549.

*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 Prismatic-Glass Reflectors for Artificial Lights, of which the following is a specification.

This invention relates to reflectors of prismatic glass for artificial lights.

The object of the invention is to both soften and reflect the light from an inclosed burner and preferably an incandescent electric light, by a single structure of prismatic glass which is in form of a cone, sphere, or spheroid, the same being pressed to form in molds while plastic.

Figure 1 is a partial side elevation and partial section of a prismatic reflector involving my present invention. Fig. 2 is a similar view of a modification thereof. Fig. 3 is a section on line 3 3, Fig. 1. Fig. 4 is a section on line 4 4, Fig. 1.

The reflector-body A is of any usual form for such purpose. The outer surface of the reflector is substantially covered by prisms B, which are arranged in a direction generally radial to the body A and constructed to reflect a large proportion of the light-rays which emanate within the reflector back into the body and out at the open mouth thereof, the lines of reflection of some rays being indicated by lines 1 2 3 4 in Fig. 3. Such prisms to be most effective have their outer inclined faces at an angle of forty-five degrees to radial lines running from the center to the exterior of the reflector. For the purpose of reducing the weight of such reflectors the prisms may be arranged in separate series B' B<sup>2</sup>, as explained in my application, Serial No. 199,721, filed March 24, 1904.

All the features of the reflector so far described are old as relates to the present invention.

Heretofore prismatic-glass reflectors of this general character have generally been smooth on their inner surfaces. I vary this construction by making the interior face of the reflector prismatic, the prisms B on the interior face being circumferential and not radial. Preferably these interior prisms D are much smaller in cross-section than the external prisms B.

The interior circumferential prisms are constructed to diffuse and break up the light-rays before such rays pass to the outer reflecting-

prisms B. This is effected to considerable extent with prisms, ribs, or flutings of almost any form; but the most effective dispersion or diffusion of the light-rays is effected when the interior prisms present their inclined faces at about the angle of forty-five degrees to the line of the light. The rays are thus broken up before they encounter the exterior reflecting-prisms B or B' B<sup>2</sup>, and when reflected back into the reflector and out at the open mouth thereof the light is much softened.

As heretofore constructed with a smooth interior the inner surface of the body of the reflector presented a brilliant and dazzling appearance, which in some positions is quite painful to the eye. This brilliance is much softened by the interior ribs or prisms D.

In the patent of Blondel *et al.*, No. 563,836, of July 14, 1896, lamp-globes are described having outer circumferential prisms and interior prisms in transverse direction. My present invention is practically the reverse of this and is for quite a different purpose, which it effects. In the Blondel device the interior of the shade is not exposed to observation. In my reflector the mouth is open, and the interior face of the reflector as a rule is more exposed to observation than the exterior. In the Blondel device nearly all the light-rays pass through the shade for the purpose of illumination outside thereof. In my reflector but a small proportion of the light passes through the glass; but the light is thrown back to the interior and out at the open mouth, and the brilliant interior under many circumstances requires that the light be softened.

The effect of interior prisms arranged circumferentially or transverse in general direction to the outside reflecting-prisms is to make the reflector more uniform in appearance than if the prisms were arranged in parallel lines. The circumferential interior prisms can be of the same transverse section at all parts of their length, which could not be the case with prisms arranged radially or vertically on the interior face of the reflector, assuming that the same facial angles are to be maintained.

The interior diffusion-ribs act on the light-rays as they enter the glass and refract, diffuse, or blend such rays before they pass to the outer reflecting-surfaces of the outer prisms. The outer prisms are of the character sometimes (but, as I think, erroneously) called "total-reflecting" prisms—that is, they reflect a very large proportion of the light-

rays back into the reflector and out at the open mouth thereof. In passing the interior ribs the second time the rays are still further broken, diffused, or blended; but their general line of direction is still largely determined by the external reflecting-prisms.

I do not herein broadly claim exterior reflecting-prisms arranged in series lengthwise, the series increasing in number and of diminished relative area as the periphery is approached, as such are broadly claimed in my application Serial No. 199,721, filed May 24, 1904.

What I claim is—

1. A prismatic-glass reflector in form of a frustum, externally provided with reflecting-prisms having their longer axis in a general radial direction, and internally provided with ribs arranged circumferentially and opposite to the reflecting-prisms.

2. A prismatic-glass reflector in form of a

frustum, having its outer surface substantially covered with reflecting-prisms arranged in series, a lower series of prisms having their upper ends of less width and height than the lower ends of an upper series, the inner surface of said reflector opposite said prisms having light-diffusing ribs.

3. In a reflector for artificial lights, composed of a single piece of glass, the combination of external reflecting-prisms arranged radially in series increasing in number with the increased diameter of the reflector, and interior diffusion-ribs arranged circumferentially and opposite said reflecting-prisms.

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

OTIS A. MYGATT.

Witnesses:

H. E. NASON,  
GEO. A. COTA.