No. 627,848. Patented June 27, 1899.

G. FUGMAN.

GLASS PRISM PLATE.

(Application filed July 15, 1898.)

(Model.)

Fig. 1,

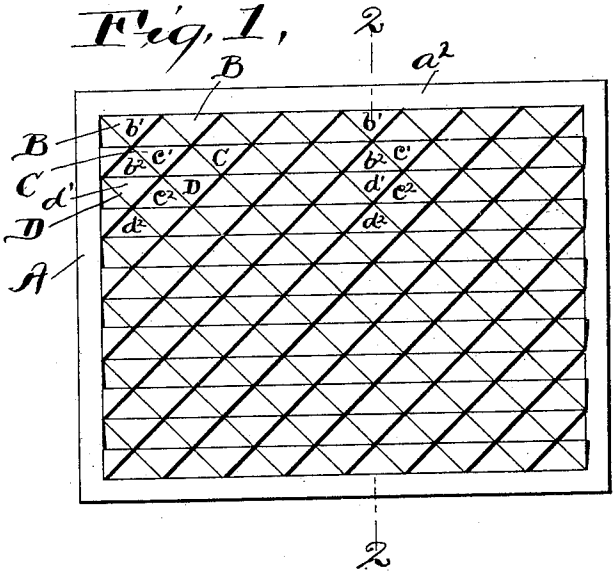


Fig. 2,

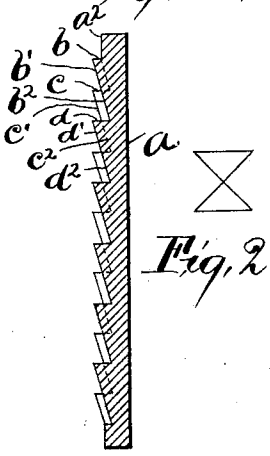


Fig. 2ª,

Fig. 3,

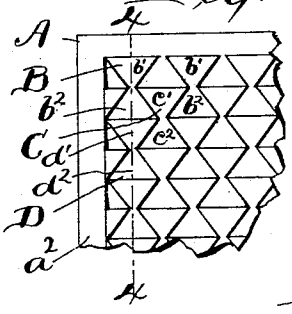


Fig. 4,

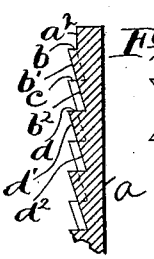


Fig. 4ª,

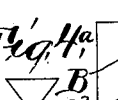


Fig. 5,

Fig. 6,

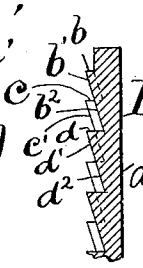


Fig. 6ª,



Fig. 7,

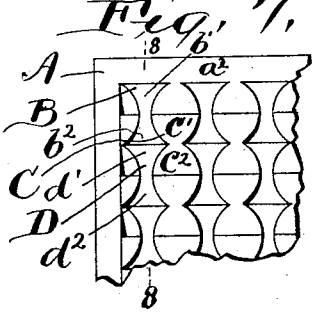


Fig. 8,

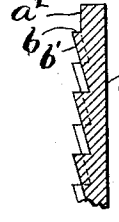


Fig. 8ª,



Fig. 8ᵇ,

Witnesses.
E. B. Gilchrist
Philip P. Knowlton

Inventor,
Godfrey Fugman,
By his Attorneys,
Thurston & Bates.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

GODFREY FUGMAN, OF CLEVELAND, OHIO.

GLASS PRISM-PLATE.

SPECIFICATION forming part of Letters Patent No. 627,848, dated June 27, 1899.

Application filed July 15, 1898. Serial No. 685,991. (Model.)

To all whom it may concern:

Be it known that I, GODFREY FUGMAN, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Glass Prism-Plates, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

The invention relates to a glass plate adapted for use as a window-glass or for some analogous purpose, the object being to refract large quantities of brilliant light into interiors in the most useful direction.

The invention consists of a glass plate having one side made up of a plurality of rows of angular-faced prismatic lugs which are shaped and arranged substantially as shown in the drawings and as hereinafter described.

In the drawings, Figure 1 is a rear view of the glass prism-plate embodying my invention. Fig. 2 is a vertical sectional view on line 2 2 of Fig. 1. Fig. 2^a is a view of the angular refracting-face of one of the lugs shown in Fig. 1. Fig. 3 is a rear view, and Fig. 4 is a sectional side view, of a modified form of the invention. Fig. 4^a is a view of the angular refracting-face of one of the lugs shown in Fig. 3. Figs. 5 and 6 are respectively a rear view and a sectional side view of another modified form of the invention, and Fig. 6^a is a view of an angular refracting-face of one of the lugs shown in Fig. 5. Figs. 7 and 8 are respectively a rear view and a sectional side view of another modified form of the invention, and Figs. 8^a and 8^b are respectively views of the angular refracting-faces of the two forms of lugs shown in Fig. 7.

The front side *a* of the glass plate is preferably plane. The rear side is made up of a plurality of angular-faced projecting prismatic lugs B C D, &c., which are arranged in horizontal rows. The lugs in each row are staggered with respect to the lugs in the rows above and below them. Each lug extends past the adjacent lugs in the rows above and below it for about half their length—that is to say, the top of any lug lies substantially midway between the top and bottom of the adjacent lugs in the row above it, and the bottom of said lug is about midway between the top and bottom of the adjacent lugs in the row below it. The sides of each lug are so shaped that they fit against the sides of the adjacent lugs in the rows above and below it.

The top faces *b*, *c*, and *d* of the lugs are preferably at right angles, or nearly so, to the general plane of the plate. All of said top faces in any row are in the same plane, and all of said planes are preferably parallel.

The refracting-faces b' b^2 c' c^2, &c., of the lugs in the several rows are respectively placed substantially as follows, to wit: All of said faces in any row are in the same plane, and the several planes containing the refracting-faces of the lugs in different rows are parallel to each other and lie at an angle of thirty-five degress, more or less, to the general plane of the glass plate. The different uses to which the plate is adapted may render it desirable to form these refracting-faces at other angles to the general plane of the plate, as will be understood by those familiar with the art. These oblique refracting-faces of the lugs are widest at their tops and bottoms and grow symmetrically narrower toward a line midway between said tops and bottoms. It is because of this form that the sides of each lug are adapted to match and contact with the sides of adjacent lugs in the rows above and below it.

The glass plate has preferably a plain marginal edge a^2 on all sides to facilitate securing it in a suitable frame.

It will be noticed that in the described plate the total area of the refracting-surfaces is very large, being, in fact, larger than the area of the flat surface of the plate on the front side thereof. It will further be noticed that there are no long grooves extending in any direction across the plate. Such grooves have heretofore been characteristic of all prism-plates wherein the total area of the refracting-surfaces is large and wherein said refracting-surfaces lie in parallel planes at an angle to the plane of the front face of the plate, and it is desirable that in all prism-plates which are intended for refracting light through a single opening into a dark interior these refracting-surfaces shall be in parallel planes. These long grooves are objectionable for several reasons. In the first place, they cause the refracted light to be divided by long dark streaks. The principal objection, however, is that they weaken the plate, and

such plates as heretofore constructed have been so liable to break along said grooves that it has been found practically impossible to use plates more than four or five inches square. These small plates or "tiles," as they are sometimes called, are necessarily secured in suitable framing in order to cover the opening through which the light passes. This framing intercepts a very considerable quantity of light which would otherwise pass through. In order that it shall intercept as little light as possible, it is made of metal, and this is very expensive.

The plate heretofore described and having the construction pointed out in the claims may be made of any size, and because there are no long grooves extending across it in any direction it is not liable to break and does not need to be used in small pieces.

Having described my invention, I claim—

1. A glass prism-plate having one side made up of a plurality of angular-faced prismatic lugs which are arranged in rows, each row containing a plurality of such lugs, which are staggered with respect to the lugs in the rows above and below them, the upper part of each lug being between and in contact with the lower part of the adjacent lugs in the row above it, and its lower part being between and in contact with the upper part of the adjacent lugs in the row below it, substantially as specified.

2. A glass prism-plate having one side made up of a plurality of angular-faced prismatic lugs which are arranged in rows, and each row containing a plurality of such lugs which are staggered with respect to the lugs in the rows above and below them, the upper part of each lug being between and in contact with the lower part of the adjacent lugs in the row above it, and its lower part being between and in contact with the upper part of the adjacent lugs in the row below it, the angular refracting-faces of all the lugs in any row being in the same plane which is parallel to the plane in which the refracting-faces of the other rows of lugs lie, substantially as specified.

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

GODFREY FUGMAN.

Witnesses:

E. B. GILCHRIST,

E. L. THURSTON.