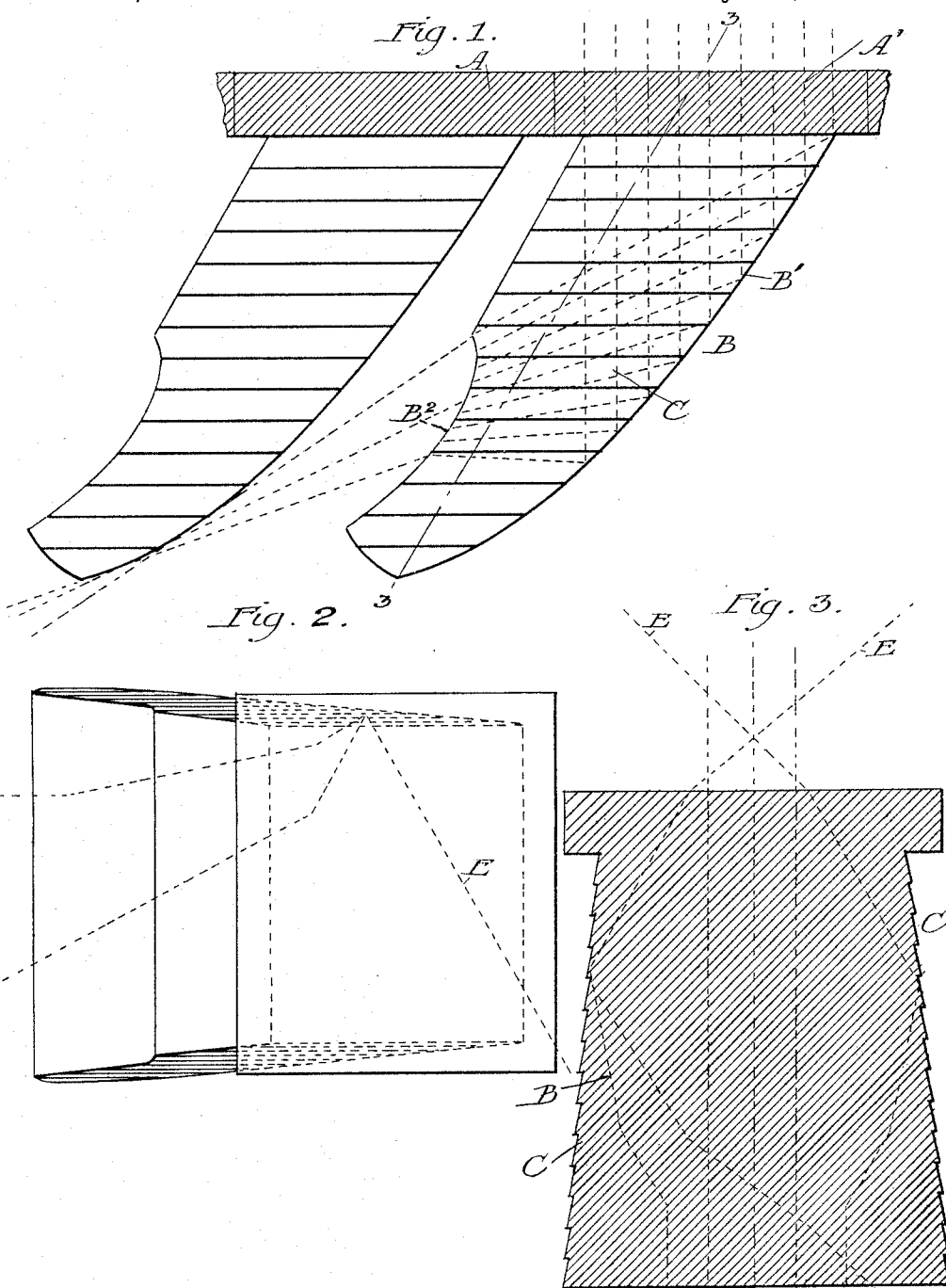


(No Model.)

F. C. SOPER.
VAULT LIGHT.

No. 586,248.

Patented July 13, 1897.



Witnesses:
Frank S. Blanchard
Donald M. Carter,

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UNITED STATES PATENT OFFICE.

FRANK C. SOPER, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE LUXFER PRISM PATENTS COMPANY, OF WEST VIRGINIA.

Vault-Light.

SPECIFICATION forming part of Letters Patent No. 586,248, dated July 13, 1897.

Application filed February 12, 1897. Serial No. 623,539. (No model.)

To all whom it may concern:

Be it known that I, FRANK C. SOPER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Vault-Lights, of which the following is a specification.

My invention relates to devices for distributing light, and has for its object to provide a new and improved device for this purpose.

My invention is illustrated in the accompanying drawings, wherein—

Figure 1 is a side view of a vault-light embodying my invention. Fig. 2 is a plan view of the same. Fig. 3 is a section on line 3 3, Fig. 1.

Like letters refer to like parts throughout the several figures.

It has been the custom heretofore in constructing vault-lights and the like to consider simply the rays of light which fall substantially perpendicularly upon the receiving-surface.

The object of my invention is to provide a vault or other light or similar device so constructed as to utilize the rays of light which strike the receiving-surface at an angle, such rays being lost when the ordinary vault-light is used.

I have illustrated in the drawings a vault-light provided with a body portion A, having a receiving-surface A' and having the projecting parts or prisms B. I have constructed this vault-light so as to embody my invention, and although I have shown a peculiar kind of vault-light to illustrate my invention it is of course evident that I may use my invention in connection with any light-diffusing device to which it can be applied. Each of the projecting prisms B is provided with the reflecting-surface B' and the refracting-surface B² and is provided with the inclined edges C, the prisms shown being made so that they are wider at the bottom than at the top. I have shown these edges in the drawings as broken up into a series of ribs having substantially parallel surfaces; but I do not wish to be understood as limiting myself in any particular to this construction, as these faces or edges may simply consist of an inclined surface or they may be of any other

suitable shape or form, the only condition being that they will reflect the oblique rays of light; neither do I limit myself to the embodiment of my invention in a vault-light, as it may be used in connection with other light-diffusing devices.

I have indicated in Figs. 2 and 3 some of the rays of light which strike the receiving-surfaces at an angle and which are then reflected and refracted by the prisms, so as to be projected toward the point where the light is desired.

The use and operation of my invention are as follows:

When the rays of light that strike the receiving-surface of the vault-light are substantially perpendicular to such surface, they are reflected by the reflecting-surface and refracted in the ordinary manner. When the oblique rays of light E, for example, strike the receiving-surface of the vault-light, they are refracted and then strike the surface C and are then reflected, the line of direction being changed so that they will strike the reflecting-surface B' in a more nearly vertical direction. The rays of light are then reflected and pass out through the refracting-surface B² and are hence directed toward the point where the light is to be utilized. In the vault-light as ordinarily constructed these rays of light pass through the surface C or are reflected in a direction not desired and are thereby lost. When my construction is used, these rays instead of being lost are projected toward the point where the light is desired, and a much better illumination is obtained.

The inclination of the edges of the prism B is intended, first, to receive the light and reflect it downwardly, as indicated in the drawings, and, in the second place, when these edge surfaces are themselves prisms or ribbed to permit the light reflected from the upper-prism surface to pass downwardly without striking the next prism, which would occur if such prisms were arranged on a vertical surface, and, in the third place, the reason for these side edges is to give a larger area at the bottom to reflect the light, an area approximately equal to the exterior surface length. These ribs or prisms on the edges of

the principal prism I have called the "secondary" prisms.

I have spoken of my device as a "vault-light." By this term I mean a "prism-tile," and this latter is the term which I prefer to use.

I claim—

1. A prism-tile consisting of a body of transparent material having on one side a receiving-surface and on the other side a prism provided with front and rear principal refracting and reflecting surfaces, and with edges which converge toward the receiving-surface which are substantially flat and lie in planes substantially parallel with the direction in which the light treated by the principal sur-

faces is projected, and secondary prisms on such edges.

2. A prism-tile consisting of a body or transparent material having on one side a receiving-surface and on the other a prism provided with front and rear principal refracting and reflecting surfaces, and edges which are provided with secondary prisms and lie in planes substantially parallel with the direction in which the light treated by the principal surfaces is projected.

FRANK C. SOPER.

Witnesses:

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