J. M. WILLBUR.

Vault-Light.

No. 166,573. Patented Aug. 10, 1875.

Fig. 1.

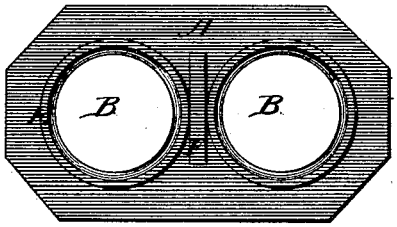
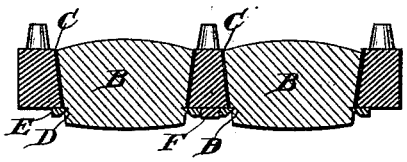


Fig. 2.



Witnesses.
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UNITED STATES PATENT OFFICE.

JAMES M. WILLBUR, OF NEW YORK, N. Y.

IMPROVEMENT IN VAULT-LIGHTS.

Specification forming part of Letters Patent No. **166,573**, dated August 10, 1875; application filed October 17, 1874.

CASE B.

To all whom it may concern:

Be it known that I, JAMES M. WILLBUR, of New York city, in the county and State of New York, have invented certain new and useful Improvements in Vault-Lights; and I do hereby declare the following to be a full and exact description of the same, reference being had to the accompanying drawings forming part of this specification, in which—

Figure 1 is a bottom view of my improved vault-light, and Fig. 2 a transverse section of the same.

Similar letters of reference in the accompanying drawings denote the same parts.

My invention has for its object to improve the construction of vault-lights with respect to the glass lenses, holding them in such a manner as to secure the lenses in place without obstructing the light by projecting flanges or shoulders. To these ends my invention consists of a cork-shaped or tapering lens for vault-lights, secured to its frame by a metallic ring shrunk around its smallest end below the frame, and bearing against the lower surface of the frame, thereby preventing the removal of the lens by pressure exerted from below.

In the drawings, A represents the iron frame of a vault-light, and B B the cork-shaped or tapering lenses, set in correspondingly-shaped sockets in the frame A, and surrounded by rubber gaskets or packings C, to which they are preferably cemented. The lenses B are inserted in these sockets with their smaller ends downward, their tapering sides bearing against the sockets, and being wedged firmly by any pressure or concussion exerted from above. By this form I obviate the obstruction of light by use of an inwardly-projecting flange to support the lens, and make the latter, to a certain extent, self-locking. The lower end of each lens projects below the frame A, and is preferably provided with a V-shaped groove, D, the upper edge of the groove being flush with the lower side of the frame. E represents a metallic ring, having its inner edge shaped to fit the groove D, and being of such size as to fit closely into the groove when cold. The ring is heated until it is expanded sufficiently to slip over the end of the lens, and is then allowed to shrink into the groove, as shown in Fig. 2, securely locking the lens to the frame, and preventing its removal by force exerted upwardly, except by breakage.

This device is exceedingly cheap, simple, and easily applied, and renders the connection of the lenses to the frame very secure, without materially increasing the expense or obstructing the light, as it is only necessary to cut a very shallow groove in the glass. If desired, a small shoulder may be formed on the lens in place of the groove, the remaining portion of the lower end being correspondingly reduced in diameter; or the groove may be entirely dispensed with, and the shrinkage of the ring against the glass be relied on to hold both in place. I prefer, however, to employ a slight groove as the most simple and efficient arrangement.

F represents a metallic rib, cast or otherwise formed on the under side of the frame A, between the lenses, as shown. This rib materially strengthens the frame at its weakest points, and enables it to be made comparatively thin, thereby effecting a saving in metal.

I claim as my invention—

A cork-shaped or tapering lens for vault-lights, secured to its frame by a metallic ring shrunk around its smaller end, substantially as described, for the purpose specified.

JAMES M. WILLBUR.

Witnesses:
C. F. BROWN,
M. CHURCH.