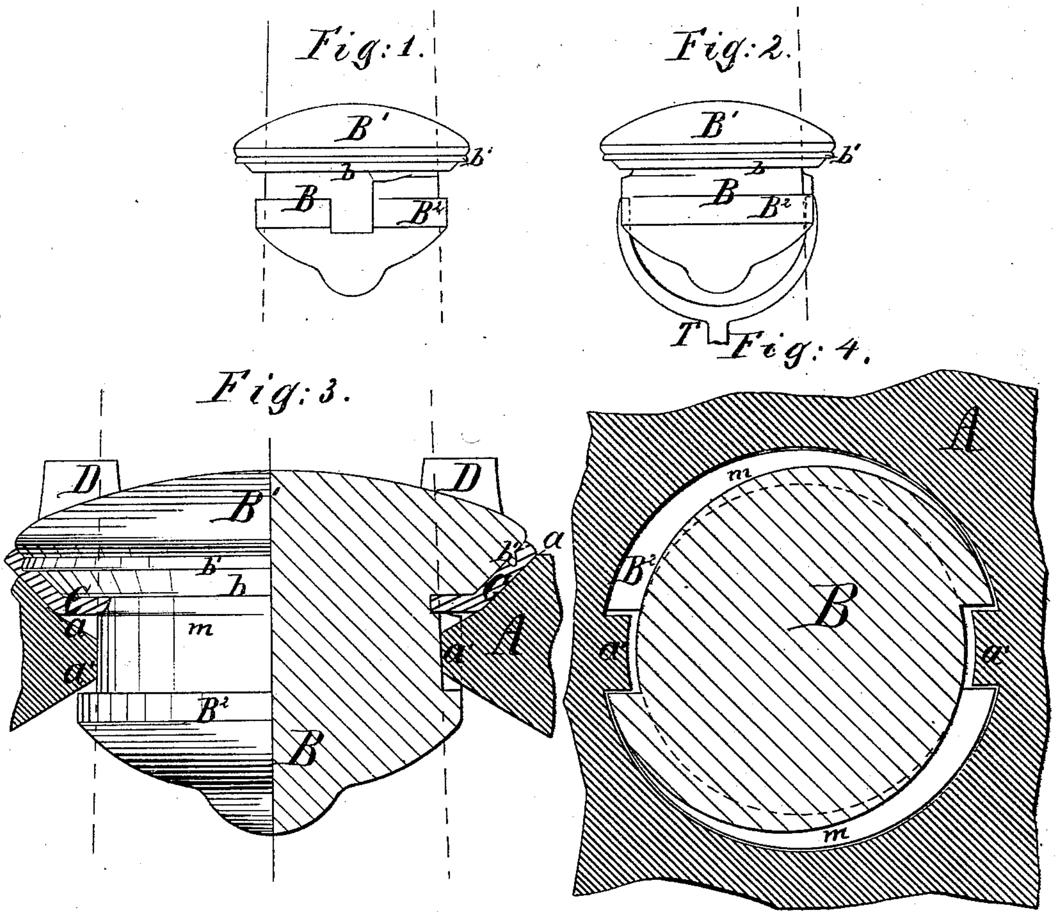
J. F. FOLEY.

Vault-Light.

No. 168,472. Patented Oct. 5, 1875.



Witnesses:

John K. Oulahan

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UNITED STATES PATENT OFFICE.

JOHN F. FOLEY, OF NEW YORK, N. Y.

IMPROVEMENT IN VAULT-LIGHTS.

Specification forming part of Letters Patent No. **168,472**, dated October 5, 1875; application filed August 18, 1875.

To all whom it may concern:

Be it known that I, JOHN F. FOLEY, of New York city, in the State of New York, have invented certain Improvements relating to Vault-Lights, of which the following is a specification:

Among the different modes of securing vault-lights is one whereby the vault-light, made with a head or overhanging flange at its upper end, is secured in the iron platform by an inclined upper face on a lower flange, which acts screw-wise against the under face of the iron. Such are open to objections, among which is the liability of the fragile material to break by a fracture starting along the re-entering angle, where the flange or projection at the lower edge of the light juts out from the main body.

I have devised a form of light which involves a different principle, and confines itself by a force which is mainly or entirely radial. Instead of a flange at the bottom, the whole body of the light below the overhanging head is made slightly tapering, the smaller end upward. Its horizontal section, instead of being, as usual, a perfect circle, has the outline of a volute curve. The stronger iron in which it is fitted is provided, as heretofore, with two relatively small studs or pins projecting inward. These studs act by their inner ends only. They receive a direct pressure from the slightly-tapered and volutely-curved body of the glass. It is immaterial of what form the other surfaces of the spurs are, but their inner ends may be ground slightly, or otherwise finished by a suitable tool, to afford a fair and proper bearing.

I have also introduced another important improvement in the details by not only forming the under face of the overhanging flange at the top in the form of a frustum of a cone, but molding it with one or more V-section ridges on the conical surface, adapted to imprint themselves in a rubber or other suitable packing introduced under the head.

The accompanying drawings form a part of this specification, and represent what I consider the best means of carrying out the invention.

Figure 1 is an elevation of my glass plug. Fig. 2 is an elevation of the same turned a quarter around. Fig. 3 shows a vertical section of my plug when tightly secured to the vault-cover. Fig. 4 shows a horizontal section through my plug and the vault-cover, the plug in the action of being secured to the vault-cover.

Similar letters of reference indicate like parts in all the drawings.

A is the iron platform or vault-cover, formed with a series of circular holes having their upper edges beveled or flaring, as shown at *a*, and having studs *a'* projecting inward to about an equal extent, one on each side of each hole. There should also be the ordinary surface-studs D to aid in preserving the glass from being broken or affected by force applied above. The glass lights or plugs are indicated by B B^1. B is the body, formed of sufficient length, and of a horizontal section described by two volutes, as plainly indicated in Fig. 4. This body may in practice be nearly or quite cylindrical; but I prefer to make it a little tapered, the small end uppermost. The head B^1 is of greater diameter, and overhangs sufficiently to afford a firm bearing around the respective holes in the iron frame A. The under surface of the overhanging part or flange is both conical and ridged. The conical surface is marked *b*, and a ridge extending uniformly and centrically around thereon is marked *b'*.

I use the invention with a washer of soft vulcanized rubber, indicated by C, placing the rubber around the body, and pressing down the head B^1 thereon, so that the V-shaped ridge *b'* is indented or impressed its full depth into the material of the rubber. This forms a reliable water-tight joint with comparatively slight pressure.

To better accommodate the rubber washer or packing C, I groove the volute-surfaced body immediately adjacent to the head, so that the inner edge of the rubber washer C may lie in a groove, and be approximately or exactly concentric at all points to the axis of the plug.

In order to conveniently turn my lights, I can form each with two notches or slight recesses, one on each side of the flange or head B^1; but I prefer to operate the light from below. To allow for this latter, I form two deep indentations or notches, one on each side of the lower end of the plug.

To afford a better hold for the key or forked

iron by which the plug is operated, I make a stout rim around the lower end of the plug; but this rim does not perform any of the functions of a screw-flange, because it is not inclined, and it does not or should not touch the internal projection *a'* at any time. I have in the drawings marked this lower rim or flange B^2; and the recesses thereon, which receive the iron T, allow the passage of the rim past the internal projection *a'* in entering the plug into its hole.

The upper face of the plug is rounded or convex. The lower face may be similarly convex, or otherwise formed, as convenience and economy may dictate.

I claim as my invention—

1. A vault-light having an overhanging head, B^1, and a body, B, having its surface formed with two or more volute curves, *m m*, as and for the purposes herein specified.

2. The circular groove in the body B, adapted to receive the inner edge of the packing C and hold it centrically, in combination with the overhanging head B^1, and with the curves *m m* below, adapted to lock the glass in the iron frame, as herein specified.

3. The glass B B^1, having a ridge or projection, *b'*, on the under surface of the head, adapted to serve in combination with the soft packing C, and with the volute or equivalent locking-curves *m m* on the body B, as and for the purposes herein specified.

In testimony whereof I have hereunto set my hand this 13th day of August, 1875, in the presence of two subscribing witnesses.

JOHN F. FOLEY.

Witnesses:
E. G. THOMPSON,
J. K. OULAHAN.