E. F. BONAVENTURE.

BUNGS FOR BARRELS.

No. 188,849. Patented March 27, 1877.

Fig. 1

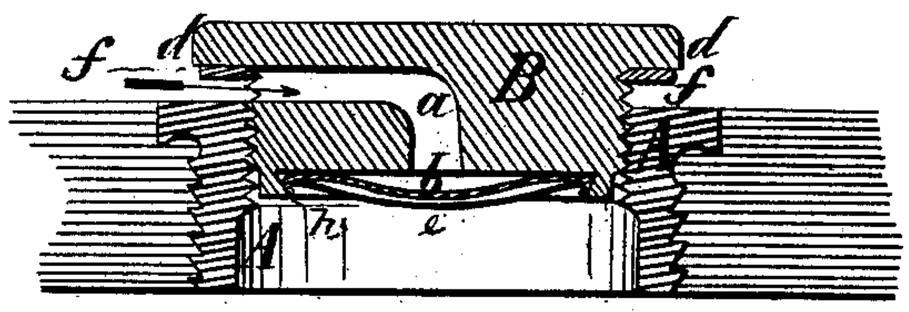


Fig. 2

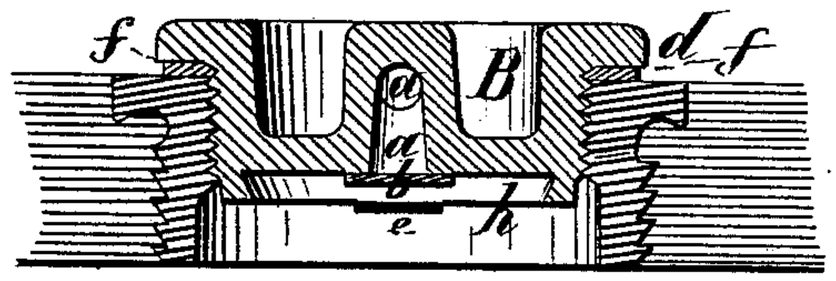


Fig. 5

Fig. 3

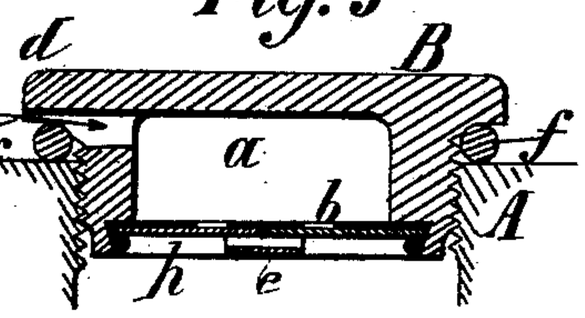


Fig. 4

Fig. 6

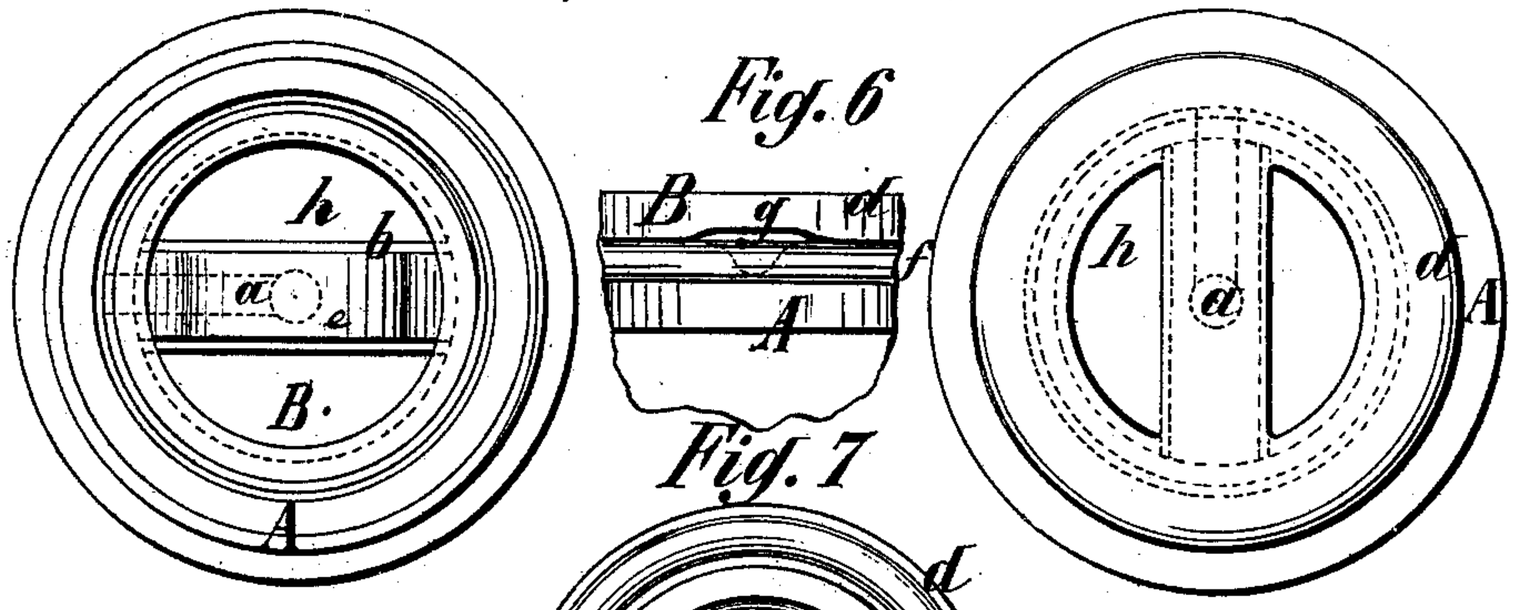
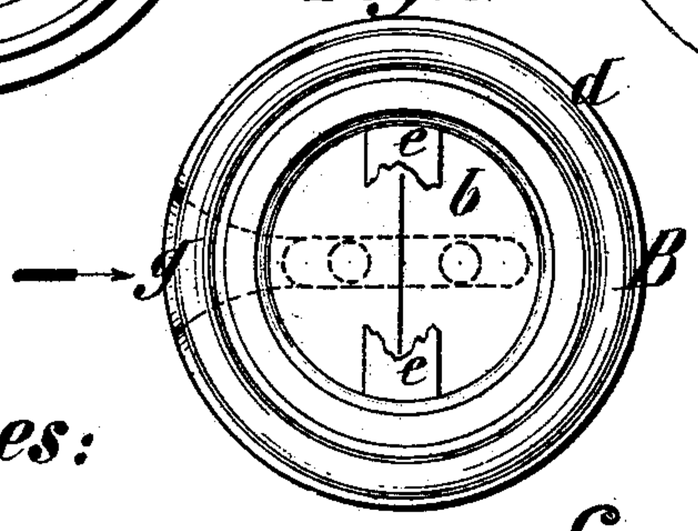


Fig. 7



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UNITED STATES PATENT OFFICE.

EDMUND F. BONAVENTURE, OF NEW YORK, N. Y., ASSIGNOR OF FORTY PERCENTUM OF HIS RIGHT TO FREDERICK OCHS, OF SAME PLACE.

IMPROVEMENT IN BUNGS FOR BARRELS.

Specification forming part of Letters Patent No. **188,849**, dated March 27, 1877; application filed August 28, 1876.

To all whom it may concern:

Be it known that I, EDMUND F. BONAVENTURE, of New York city, in the county and State of New York, have invented a new and Improved Bung for Barrels, of which the following is a specification:

Figures 1 and 2 are vertical central sections. Fig. 3 is a bottom view, and Fig. 4 a top view, of my improved bung for barrels. Fig. 5 is a vertical central section of a modification thereof; Fig. 6 a side view, and Fig. 7 a bottom view, of said modification.

Similar letters of reference indicate corresponding parts in all the figures.

This invention relates to an improvement of the bung for barrels which is described in the application for a patent which was filed by me April 8, 1876, and allowed July 7, 1876.

The present invention consists, chiefly, in combining with the perforated flanged bung a suction-valve, so that air may enter but not escape through the bung.

The invention also consists in a novel arrangement of said valve, and in the use of a notched flange, all as hereinafter more fully described.

A represents the metallic annular bush; B, the bung made to fit it. This bung is threaded to fit the screw-thread in the bush, and has a flange, *d*, to overlap the bush, substantially as described in my above-named application; but, instead of being grooved externally to form the air-channels, I provide the bung with an L-shaped aperture, *a*, of which the vertical part extends upward from the lower end of the bung, while the horizontal part terminates at the side of the bung, directly below the flange *d*. When the bung is screwed down, as in Fig. 2, the upper end of the aperture *a* will thus be closed; but by slightly unscrewing the bung, as in Fig. 1, the aperture will be opened. This bung I provide with a strip, *b*, of rubber or other fit material, which, being stretched across the inner end of the aperture *a*, serves as a valve to the same, allowing air to enter the barrel, as indicated in Fig. 1, but preventing absolutely all escape thereof from the barrel.

I prefer to perforate, instead of grooving, the bung, as described in my former application, as the perforation renders the application of the valve easier, preventing it from coming into too close proximity with the inner side of the bush.

The figures of the drawing show the vertical part of the aperture *a* applied to the center of the bung, but the same may be placed nearer to the edge of said bung. The aperture *a*, instead of being L-shaped, may be curved or somewhat inclined with like effect.

The lower face of the bung B has an undercut recess, *h*, formed in it for the reception of the flexible valve-strip *b* and its supporting-plate *e*. The latter I prefer to make of sheet metal and to spring its ends into the recess *h*, so it will be confined in place by the inclined sides of said recess, as clearly shown in Fig. 1.

The rubber strip *b* is put into the recess *h* between the plate *e* and the body of the bung, there being enough space formed above the plate *e* to permit the requisite play of the valve. By the undercut recess in the bung and the plate *e* I am enabled to confine the valve in place without any screws or other fastenings; yet screws may be used, if desired.

The rubber valve *b* may be made of two thin rubber diaphragms, as in Fig. 5, both slit or perforated, but so that one diaphragm closes the apertures of the other.

In order to guard against the possible escape of air through and along the screw-thread of the bung, a rubber washer, *f*, is interposed between the flange *d* and the upper face of the bush; and I prefer to cut a recess, *g*, into the lower face of the flange *d*, directly in line with the aperture *a* and above said rubber washer *f*, as clearly indicated in Figs. 5, 6, and 7. By this recess I am enabled to admit air to the barrel without allowing any to escape therefrom. When the bung is entirely screwed down the rubber washer is compressed to fill even the recess *g*, and to thus prevent all communication between the interior of the barrel and the outer atmosphere. When, however, the bung is slightly unscrewed to clear the recess *g* from the washer *f*, air can enter the barrel, and yet the washer will by the flange be pressed sufficiently tight upon the bush to close all avenues of escape which the air might

otherwise find along the screw-thread of the bung.

I claim as my invention—

1. The threaded adjustable bung B, made with the flange *d*, and with the aperture *a*, which extends from beneath the flange through the lower part of the bung, substantially as specified.

2. The perforated bung B, made with the undercut recess *h* in the lower face, and combined with the valve *b* and supporting-plate *e*, substantially as herein shown and described.

3. The threaded bung B, made with the flange *d*, and with the aperture *a*, leading under said flange and combined with the elastic washer *f*, which partly closes the aperture *a*, and with the bush A, substantially as herein shown and described.

EDMUND F. BONAVENTURE.

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