

No. 802,002.

PATENTED OCT. 17, 1905.

W. A. LORENZ.  
HERMETIC CLOSURE FOR RECEPTACLES.  
APPLICATION FILED FEB. 20, 1904.

Fig. 1

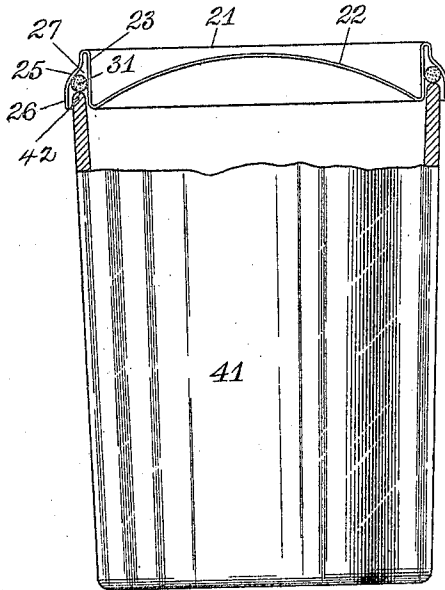


Fig. 2

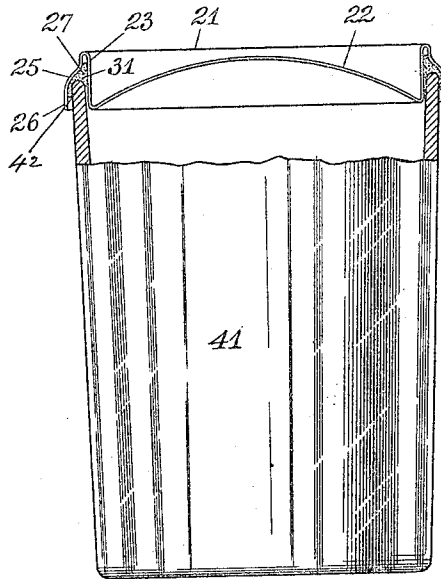


Fig. 3

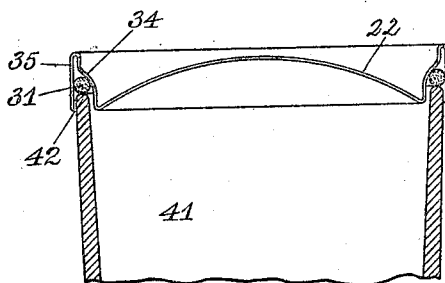
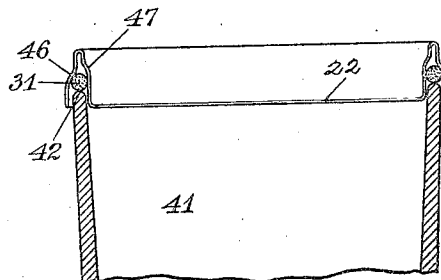


Fig. 4



Witnesses:

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Inventor

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By W. A. Honiss, Atty.

# UNITED STATES PATENT OFFICE.

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## HERMETIC CLOSURE FOR RECEPTACLES.

No. 802,002.

Specification of Letters Patent.

Patented Oct. 17, 1905.

Application filed February 20, 1904. Serial No. 194,536.

*To all whom it may concern:*

Be it known that I, WILLIAM A. LORENZ, a citizen of the United States, and a resident of Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Hermetic Closures for Receptacles, of which the following is a full, clear, and exact specification.

This invention relates to improvements in closures for the hermetic sealing of tumblers and other plain-rimmed receptacles.

The present closure-joint now commonly used for hermetically-sealed receptacles may be designated as a "wedging" closure, in which the cap is provided with a tapering or flaring flange which engages with and compresses the sealing-gasket at an angle against its sealing-seat upon the receptacle, either outwardly or inwardly, according as that seat is inside or outside of the receptacle, as compared with a closure in which the gasket is compressed directly downward either upon a horizontal shoulder or upon a comparatively thin edge of the receptacle. The superiority of this tapering or wedge form of closure is understood to consist not only in a more reliable initial sealing of the receptacle, but also in the fact that it permits the cap to settle down and continue its wedging action, thus closely following up the shrinkage or settling of the gasket, due to the long-continued pressure, without being impeded by any portion of the cap coming against the top of the gasket or the top of the receptacle, as the case may be, sufficient clearance space being provided over the gasket to permit of a considerable downward movement of the cap while thus following up the shrinkage or compression of the gasket. The receptacles employing this wedging form of closure are commonly provided with a grooved or shouldered gasket-seat below the level of the rim of the receptacle and upon the inner or outer surface thereof, according as an internal or external cap is to be used, the vertical portion of the grooved or shouldered seat being intended to centralize the gasket with the receptacle and to support the gasket against the sidewise or wedging action of the flaring flange of the cap. In either case, however, the shoulder or groove unfits the receptacle for many subsequent household uses which might be served by a tumbler or cup having a plain rim; but the difficulty of applying the wedging closure to these plain-rimmed receptacles has been that they afford no means for centralizing and po-

sitioning the gasket and the flaring cap in such a relation to the inner or outer edge of the receptacle that the downward movement of the cap in making the seal will inevitably catch and pinch the gasket against the rim at the desired wedging angle. On account of the slippery character of the rubber of which these gaskets are usually made, and particularly when they are round in cross-section, they have a strong tendency to escape from the wedging action either by slipping down on the outside or slipping over the top of the receptacle-rim. In the present invention this difficulty is met by an improved form of sealing-cap, which provides a support for the gasket and serves to centralize itself and the gasket with that edge or zone of the rim of the tumbler at which the wedging seal is to be made, so that the gasket when pressed down by the cap cannot escape being carried to and across a particular and predetermined zone of the tumbler-rim. This form of cap also establishes a level or parallel relation of the cap and gasket with that portion of the tumbler-rim on which the gasket is to be seated and compressed, which is an important feature in a closure of this character.

Figures 1 and 2 of the drawings are side views in section of a tumbler, its gasket, and cap, Fig. 1 showing the parts in the position occupied by them during the air expelling or exhausting operation, while Fig. 2 shows the cap pushed down to its sealed position. Figs. 3 and 4 are side views in section showing modified forms of the sealing-cap.

In this invention the sealing-cap is provided with two flanges having a space between them for receiving the tumbler-rim and the gasket, the flanges serving to centralize the cap and the gasket with the receptacle and to guide or deflect the gasket toward one edge of the receptacle-rim as it is pressed down in the sealing operation, one of the flanges being provided with a flaring portion beneath which the gasket is deflected and which serves to wedge and compress the gasket at the desired angle against the predetermined edge of the receptacle.

In the preferred embodiment of this invention (shown in Figs. 1 and 2) the cap 21 is provided with an outer flaring flange 25 and an inner reentrant flange or wall 23, the latter of which is substantially cylindrical and is small enough to pass down the inside of the tumbler, so as to guide and maintain the cap, the tumbler, and the gasket in suitable concentric

relation to each other. During the air-exhausting operation the gasket 31 rests upon the rim 42 of the tumbler and supports the cap, as shown in Fig. 1. The flaring portion 5  
25 of the outer flange rests upon the outer edge of the gasket 31 and serves when the cap is pressed down to carry the outer portion of the gasket around the edge of the rim of the tumbler, as shown in Fig. 2. The gasket is  
10 sustained from the inside by the inner flange 23, which prevents the escape of the gasket in an inward direction, so that the gasket cannot escape being projected between and  
15 pinched by the flange 25 and the adjacent edge of the tumbler-rim. The contour of the two flanges above the gasket-seat is preferably shaped so as to leave a recess 27 immediately above the body of the gasket, thereby  
20 avoiding such a degree or extent of direct downward pressure upon the top of the gasket as might interfere with the downward travel of the cap, and thus interfere with the wedging action of the cap by transferring the principal pressure from the desired point on  
25 the outside of the rim to the top of the gasket and rim.

In the modification shown in Fig. 3 the two flanges are transposed, the inner flange 34 being made flaring, so as to compress the gasket  
30 over the inner edge of the tumbler-rim 42, while the outer flange 35 is made straight and extends below the rim on the outside of the tumbler sufficiently to guide and centralize the parts.

35 In the further modification shown in Fig. 4 both the outer and inner flanges are provided with flaring portions 46 and 47, respectively, both of which may serve to compress and wedge the gasket against the tumbler-rim  
40 with different degrees of pressure. The flaring portion 47 being higher than 46 will when sealed bear with less pressure upon the gasket than the portion 46.

45 For the sealing of tumblers and other plain-edged receptacles made of glass and similar brittle material it is considered preferable to apply the wedging action upon the outer edge of the rim.

50 The central portion 22 of the cap may be convex, as in Figs. 1, 2, and 3, or flat, as in Fig. 4. Its position with relation to the two flanges may also be varied provided it is

joined to them in such position as to permit the proper sealing of the receptacle.

In my prior application, Serial No. 193,705, 55 filed February 15, 1904, I have shown, described, and claimed a closure broadly similar to that shown in this application in that it embodies the combination, with a plain-rimmed 60 receptacle, a gasket, and a flaring cap, of a support provided with means for supporting the gasket and cap in wedging relation to an edge of the rim of the receptacle. My present application, so far as it shows and 65 relates to the devices shown in my said prior application, does so for the purpose of claiming specific novel constructions and combinations and is a subordinate application to that above mentioned.

I claim as my invention— 70

1. The combination with a plain-rimmed receptacle and a gasket, of a flaring cap provided with means for supporting the gasket in wedging relation to an edge of the rim of the receptacle. 75

2. The combination with a plain-rimmed receptacle and a gasket, of a flaring cap provided with means for supporting the gasket in sealing relation to an edge of the receptacle-rim, and with means for guiding the cap in concentric relation to the gasket and receptacle during its sealing movement. 80

3. The combination with a plain-rimmed receptacle and a gasket, of a cap having a flaring portion and a gasket-supporting portion with 85 a recess over the gasket between the contours of the two portions.

4. The combination with a plain-rimmed receptacle and a gasket, of a cap having a pair of oppositely-disposed flaring portions, one 90 of which is higher than the other.

5. The combination with a plain-rimmed receptacle and a gasket, of a cap having a pair of oppositely-disposed flaring portions, for pressing the gasket in wedging relation to both 95 edges of the rim of the receptacle.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM A. LORENZ.

Witnesses:

H. MALLNER,  
JAS. W. GREEN.