

W. P. WHITE.
CLOSURE.

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1,134,069.

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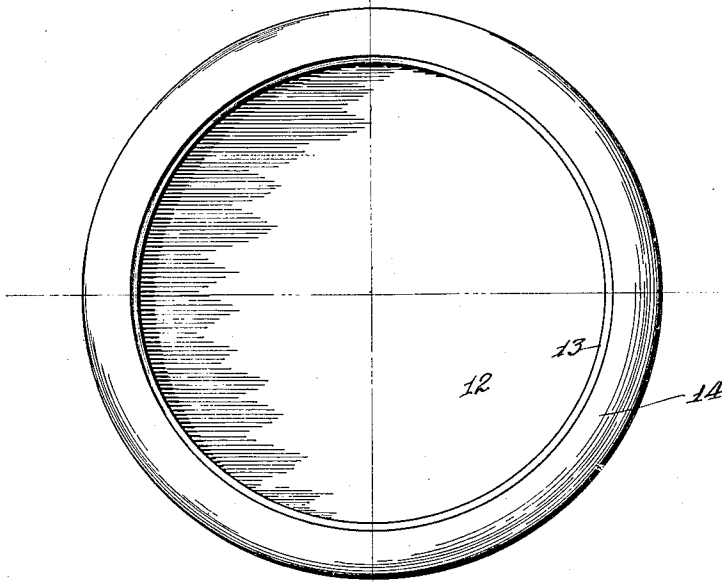


Fig. 1.

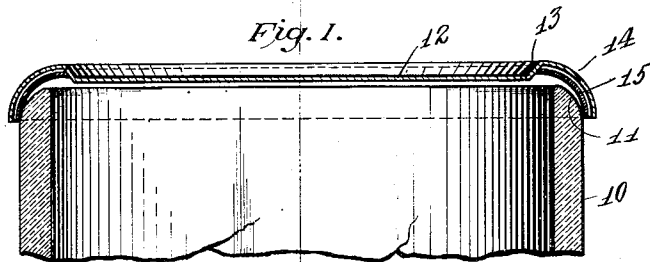


Fig. 2.

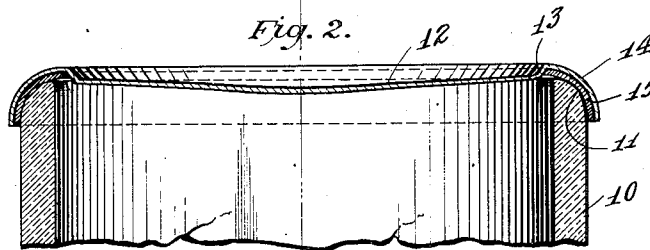
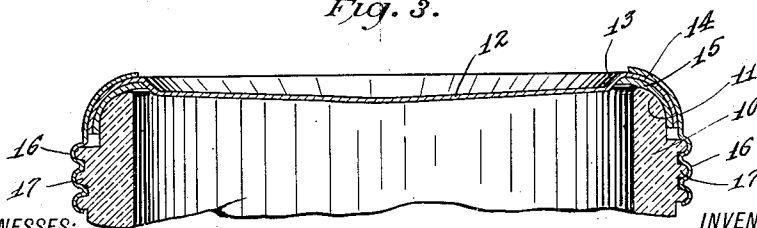


Fig. 3.



WITNESSES:

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Fig. 4.

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CLOSURE.

REISSUED

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To all whom it may concern:

Be it known that I, WILLIAM P. WHITE, a citizen of the United States, residing at Chicago, in the State of Illinois, have invented 5 new and useful Improvements in Closures, of which the following is a specification.

This invention relates to closures for the purpose of sealing containers in the form of bottles or jars in order to preserve the contents thereof.

One object of the invention is to provide a simple closure which may be easily applied to a bottle or jar and which will effect a hermetic seal; another object is to provide 15 a closure which will effect such a seal even though it may be carelessly applied to the container; another object is to provide a closure which may be held upon the container either by atmospheric pressure or by 20 a mechanical clamp; and still other objects will appear in the following specification and claims.

Referring to the drawings: Figure 1 represents a plain view of the closure. Fig. 2 25 represents an elevation of the closure and part of the container in section showing how the cap is applied; Fig. 3 is a similar view to Fig. 2 showing the cap sealed in position by atmospheric pressure; and Fig. 4 30 is a sectional elevation showing the cap held in place by the mechanical clamp.

The container 10 as shown in Figs. 2, 3, and 4 is preferably of glass or vitreous material and has its upper edge 11, where the 35 seal is made, formed into a spherical surface, this surface being a spherical zone. The closure is shown at 12 having a shoulder 13 and a curved outer part 14. Within the part 14 and bearing against the shoulder 13 40 is a packing gasket 15 of any suitable sealing material. The curvature of the part 14 is such that when the cap is sprung over the spherical zone of the container as shown in Fig. 2, it assumes a position concentric with 45 the zone; the outer extremity of the curved part 14 as indicated in Fig. 1 is normally somewhat contracted so that the curve does not represent a spherical zone before pressure is applied to the cap. The resilience of 50 the cap is sufficient, however, to stretch outward the outer edge of part 14 so that when the cap and gasket 15 are seated upon the part 11 of the container, all three parts, 11, 14 and 15, are concentric with one another.

When the cap is applied and the package 55 is sealed under a vacuum as indicated in Fig. 2 the atmospheric pressure forces down the central part of the cap and causes a direct downward pressure upon the container at the upper part of the sealing zone. 60 Pressure is also brought to bear by the cap upon the container at the lower part of the zone due to the springing of the cap over this part of the container. These two forces combined cause a pressure to be distributed 65 over the entire breadth of the gasket 15, thereby making a very effective seal.

The shoulder 13 operates not only to hold the gasket 15 in place, but it also serves to center the cap upon the container to which it 70 is applied. It will be noticed that as the contacting surfaces of the seal are all in the form of concentric spherical zones it does not matter whether the cap be applied squarely to the sealing surface of the container or not. Even if the cap be placed 75 upon the container in a crooked position the surfaces will be concentric with each other and will still effect a seal. As a result of this construction the capping operation may 80 be performed in much less time and with much less care and attention than is required with the usual forms of closures.

In Fig. 4 the cap is shown in connection with a mechanical clamp which takes the 85 form in this example of a threaded ring 16 which engages a thread 17 formed upon the container in a manner common to fruit jars in the prior art; in this case the cap 12 90 is applied to the container and the threaded ring 16 is screwed upon the container and thereby clamps the cap and gasket 15 in place to effect a seal. In this case, as in the other illustrations shown, it is immaterial 95 whether or not the cap 12 be placed exactly central and square upon the container as the concentric parts will effect the seal whether the cap happens to be straight or askew.

What is claimed:

1. In combination, a container having a spherical zone sealing surface, a closure having a spherical zone sealing surface, the inner edge of the closure zone being formed into a centering shoulder and a gasket 105 adapted to be interposed between the container and the closure.

2. In combination, a container having a

spherical zone sealing surface, a closure having a spherical zone sealing surface, the inner edge of the closure zone being formed into a shoulder, a gasket adapted to be interposed between the container and the closure, and a screw clamp adapted to engage the closure and force it downward upon the container.

3. In combination, a container having a spherical zone sealing surface, a closure having a spherical zone sealing surface, the inner edge of the closure zone being formed into a shoulder, a gasket adapted to be interposed between the container and the closure, and a screw ring engaging threads upon the container and adapted when screwed down

to engage the closure and force it downward upon the sealing lip of the container.

4. In combination, a container having a spherical zone sealing surface, a closure having a spherical zone sealing surface, the inner edge of the closure zone being formed into a shoulder, a gasket adapted to be interposed between the container and the closure, and a screw clamp having an annular portion concentric with the closure zone and adapted to engage the same.

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Witnesses:

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