No. 701,117. Patented May 27, 1902.

H. J. WINTHERLICH.

JAR CLOSURE.

(Application filed June 1, 1901.)

(No Model.)

Fig. 1.

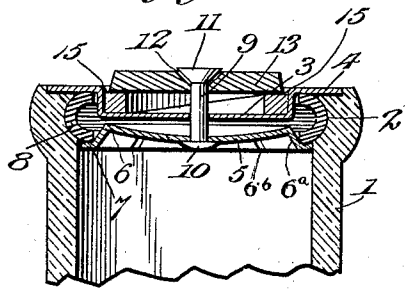


Fig. 2.

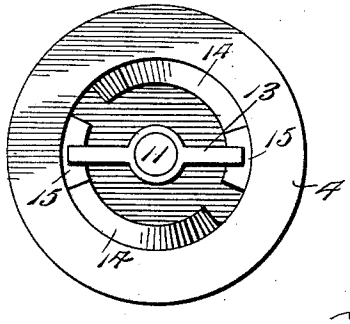


Fig. 3.

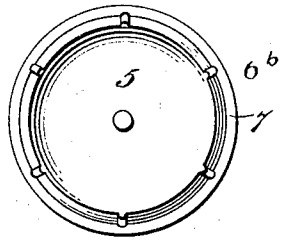
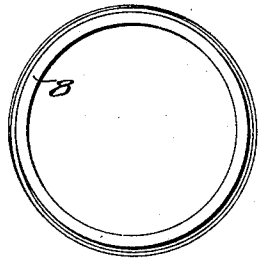


Fig. 4.



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UNITED STATES PATENT OFFICE.

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JAR-CLOSURE.

SPECIFICATION forming part of Letters Patent No. 701,117, dated May 27, 1902.

Application filed June 1, 1901. Serial No. 62,792. (No model.)

To all whom it may concern:

Be it known that I, HANS J. WINTHERLICH, a citizen of the United States, residing at Omaha, in the county of Douglas and State of Nebraska, have invented new and useful Improvements in Jar-Closures, of which the following is a specification.

This invention relates to improvements in jar-closures.

The object of the present invention is the provision of a closure of this character which is of extremely simple but durable construction, one which is readily operated for attachment to and detachment from a jar, and one which when applied to the jar provides a thoroughly air-tight joint between the closure and the jar.

The invention further contemplates the provision of a jar-closure in which the parts are so related as to be capable of easy manipulation and when applied to the jar are capable of an expansive movement for effecting the engagement of the closure with the jar.

With these general objects in view and others which will appear as the nature of the improvement is better understood the invention consists, substantially, in the novel construction, combination, and arrangement of parts, as will be hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the appended claim.

In the drawings, Figure 1 is a vertical transverse sectional view of a jar-closure constructed in accordance with the present invention and illustrated in applied position. Fig. 2 is a top plan view thereof. Fig. 3 is a similar view of the expanding-disk. Fig. 4 is a top plan view of the gasket employed for effecting the hermetic joint between the closure and the jar.

Referring to the drawings, the numeral 1 designates a jar, which jar is provided at its inner side with an annular groove 2, and fitting in the upper end of the jar is the herein-described closure.

The closure comprises a cover 3, the edges of which are struck up and bent out to form an overhanging annular flange 4, and said flange is adapted to overlap the edges of the jar 1. Arranged beneath the cover 3 is an expanding-disk 5, said disk being of concavo-convex cross-section, and arranged at the periphery of said disk is an annular shoulder 6, depending from which is an inclined rim 6^a, provided at its lower edge with an annular flange 7. The disk 5 is arranged in such relation to the cover 3 as to be capable of movement toward and away from the same, and interposed between the flange 4 of said cover and the flange 7 of the disk 5 is a gasket 8, which gasket is formed, preferably, of rubber. It will thus be seen that when the disk 5 moves toward the cover 3 the gasket 8 is expanded and sprung into the groove 2 of the jar 1, and when so engaged with said groove it is obvious that a hermetic joint is provided between the closure and the jar.

In order to accomplish the expanding of the gasket 8, a centrally-arranged pin 9, having at its lower end a head 10, is employed, said head bearing upon the under surface of the disk 5, and said pin is also provided with a beveled head 11 at its upper end, which head fits within a flared aperture 12, formed in a cross-head 13. It will be observed that a loose connection is provided between the cross-head 13 and the head 11, so that said cross-head is capable of freely rotating upon the pin 9; but it will also be observed that in order to effect vertical movement of the pin 9 in order to draw the disk 5 toward the cover 3 a pair of reversely-arranged cam-surfaces 14 is employed. The cam-surfaces 14 are located upon the cover 3 in a plane below the flange 4 thereof, and each of said cam-surfaces at its highest portion is flattened, as at 15, so that when the cross-head 13 arrives at said flattened portion said cross-head will be held thereon and prevented sliding backward upon the cam-surfaces 14, the extremities of the flattened surfaces 15 terminating in stops 15′ for limiting movement of the cross-head upon said surfaces.

The operation of the herein-deseribed cover is as follows: The normal position of the cross-head 13 is between the cam-surfaces 14, and when in this position it will be seen that the gasket 8 is not expanded. However, as soon as the closure is placed within a jar the cross-head 13 is moved in such direction as to ride upwardly upon the cam-surfaces, and during such movement of the cross-head it will be seen that the expanding-disk 5 is drawn toward the cover 3. This movement of the disk

5 expands the gasket 8 and the latter is thereby forced into engagement with the groove 2 in order to provide a hermetic joint between the closure and the jar, and when the gasket has been so expanded and the cross-head has arrived at the flattened surface 15 said cross-head is permitted to maintain the proper expanded condition of the gasket 8. If, however, it is desired to remove the closure from the jar, the cross-head 13 is moved rearwardly from the stops 15′, over the flattened surfaces 15, and down the cam-surfaces 14, and as said cross-head passes down the cam-surfaces the gasket 8 forces the disk 5 downwardly, thus releasing the closure from the jar, whereupon the closure may be readily removed.

The rim 6^a of the expanding-disk 5 is provided upon its upper surface with ribs 6^b, which serve to strengthen the rim and prevent buckling thereof. These ribs also prevent the gasket from slipping and wearing upon the disk. By providing an inclined rim 6^a the gasket 8 will be spread outward when pressed thereby. This expansion in addition to the expansion caused by compression of the gasket insures the perfect sealing of the jar or other device to which the closure is attached.

While the form of the invention herein shown and described is what is believed to be a preferable embodiment of the same, it is obvious that the same is susceptible of various changes in the form, proportion, and minor details of construction, and the right is therefore reserved to modify or vary the invention as falls within the spirit and scope thereof.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

A closure comprising a recessed cover, a flange at the edge thereof adapted to bear upon the neck of a bottle, cam-surfaces within the recess, a cross-head mounted thereon, a vertically-movable pin extending through the cross-head and cover, a concavo-convex expanding-disk secured to the pin, an inclined rim to said disk, strengthening-ribs thereon, an annular flange at the edge of said disk, and a gasket interposed between and adapted to be compressed by the flanges of the cover and disk, said inclined rim serving to expand the gasket.

In testimony whereof I affix my signature in presence of two witnesses.

HANS J. WINTHERLICH.

Witnesses:
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