D. HURST & H. K. BRIDGER.

BOTTLE, JAR, AND THE LIKE AND STOPPER THEREFOR.

APPLICATION FILED AUG. 24, 1910.

1,022,141. Patented Apr. 2, 1912.

Fig. 1.

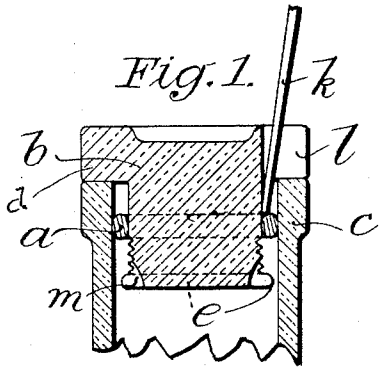


Fig. 3.

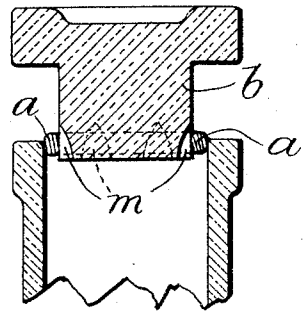


Fig. 2.

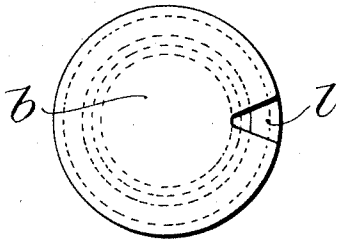
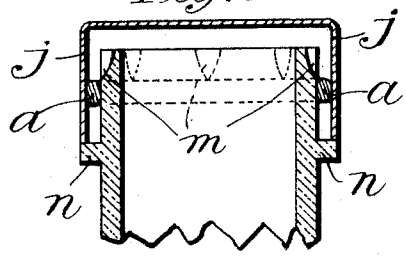


Fig. 4.



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UNITED STATES PATENT OFFICE.

DANIEL HURST AND HERBERT KYNASTON BRIDGER, OF LONDON, ENGLAND.

BOTTLE, JAR, AND THE LIKE AND STOPPER THEREFOR.

1,022,141. Specification of Letters Patent. Patented Apr. 2, 1912.

Application filed August 24, 1910. Serial No. 578,778.

To all whom it may concern:

Be it known that we, DANIEL HURST and HERBERT KYNASTON BRIDGER, subjects of the King of Great Britain and Ireland, residing at Cumbria, Marlborough Road, Chiswick, London, W., and 57 Moorgate street, London, E. C., England, respectively, have invented certain new and useful Improvements in Bottles, Jars, and the Like and in Stoppers Therefor, of which the following is a specification.

This invention for improvements in bottle, jar and like stoppers has for its object a simple and efficient elastic air-tight packing for bottle stoppers and the like requiring only a small amount of the elastic packing and that shall readily allow of the bottle being exhausted and relates to stoppers or plungers in which an elastic ring fits tight between the bottle and the stopper or plunger and is free to roll or slide up the plunger and down the bottle neck as the stopper or plunger is applied and according to this invention the stopper or plunger is provided with a recess or passage leading to the bottom of the stopper or plunger and opens out on the cylindrical surface of the stopper or plunger just above the elastic ring when in its lowermost position.

This invention also consists in providing means for releasing the vacuum.

Referring to the accompanying drawings, Figure 1 is a sectional view of a bottle neck and stopper therefor with means for facilitating the exhausting of the bottle, Fig. 2 is a plan of same, Fig. 3 is a sectional elevation of a bottle neck and stopper therefor showing a means for releasing the vacuum, Fig. 4 shows the stopper as a cap fitting over the bottle neck.

In the application of our invention to a bottle stopper, the rubber ring *a* of circular section is placed around the stopper *b* at its lower end. In order to facilitate the exhausting of the bottle, small inclined grooves *m* are cut in the lower edge of the stopper (Figs. 1 and 3) or in the upper edge of the bottle neck when a cap is used, as in Fig. 4 where the cap is shown bedding down on a flange *n*. The stopper is made of such a diameter that when inserted in the bottle neck *c* the ring *a* is compressed as shown, thus insuring a tight joint. When the stopper is inserted a little way there is free access of air through the slots *m* and over the top of the ring *a* and the bottle can be exhausted with the stopper in this position. When the stopper is completely pushed in or drawn in by the exhaust the rubber ring rolls or slides between the two surfaces, and at every revolution of the ring—that is when the ring returns to its normal position with the inside of the ring next the stopper, the stopper tends to hold, so that if the stopper is made of suitable length this position may be made to occur just when the flange *d* is against the edge of the bottle neck, thus holding the stopper in. The bottle is completely sealed when the ring rolls or slides up beyond the slots *m*.

The stopper may be corrugated as shown, and may have a flange *e* to prevent the ring from coming off. With a flangeless stopper or with the cap, the vacuum may be easily released by inserting a pointer *k* between the ring and one of the surfaces, and in the case of the flanged stopper, a slot *l* may be formed in the flange to allow of the insertion of the pointer *k* as shown in Fig. 1. A square section ring may be used. With this shape ring, there is a lock at every quarter turn of the ring, so that the stopper may be made much shorter. Where it is desired to use a flangeless stopper for bottles or jars under pressure in order to paste a paper seal over the mouth of the stopper, means must be provided for holding the stopper in position and preventing it from being forced out by the pressure.

What we claim and desire to secure by Letters Patent is:—

1. The combination with a bottle neck having a uniform engaging surface and a stopper therefor having channels or grooves extending along its base near the lower end thereof and the remainder of said stopper having a uniform engaging surface, and a ring of rubber adapted to be interposed between the grooved portion of the stopper and the neck of the bottle and moved between the uniform engaging surfaces of the neck and stopper and downwardly with respect to the neck and upwardly with respect to the stopper upon insertion thereof into the neck and to a final point above said groove.

2. The combination with a bottle neck having a uniform engaging surface and a stopper therefor having channels or grooves extending along its lower base from the lower end upwardly and also having portions projecting outwardly near the lower

end thereof, the remainder of said stopper having a uniform engaging surface, and a ring of rubber adapted to be interposed between the grooved portion of the stopper above its projecting portions, and the neck of the bottle, said ring moving downwardly between the uniform engaging surfaces of the neck and stopper and with respect to the neck and upwardly with respect to the stopper upon insertion thereof into the neck and to a point above such grooved or channeled portion.

3. The combination with a bottle neck having a uniform engaging surface and a stopper therefor having channels or grooves extending from its lower end upwardly a slight distance therefrom, the remainder of said stopper having a uniform engaging surface, said stopper having circumferentially disposed grooves near the lower end thereof and intersecting said first named grooves, and a ring of rubber adapted to be interposed between the grooved portion of the stopper and the neck and moved downwardly with respect to the neck and upwardly with respect to the stopper between the uniform engaging surfaces of said neck and stopper.

4. The combination with a bottle neck having a uniform engaging surface and a closure member therefor having a uniform engaging surface, one of the same having grooves or channels near its end and extending longitudinally thereof, and a ring of rubber or the like interposed between the uniform engaging surfaces of the neck and closure member adjacent such grooves in a manner to be shifted beyond said grooves when the closure is forced into a closing position.

In testimony whereof we have affixed our signatures, in presence of two witnesses.

DANIEL HURST.
HERBERT KYNASTON BRIDGER.

Witnesses:
RIPLEY WILSON,
R. WILLIAMS.