March 15, 1932. C. HAMMER 1,849,523

GLASS CONTAINER

Filed Dec. 21, 1928

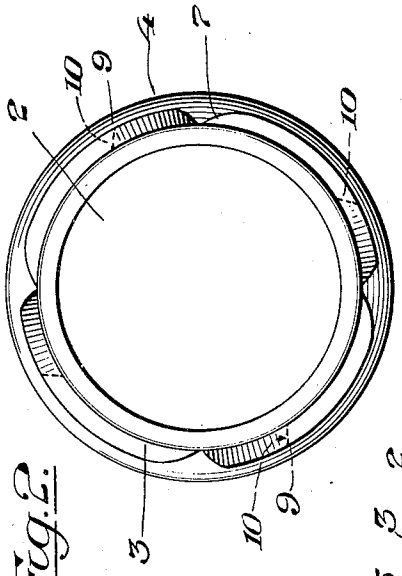


Fig. 2.

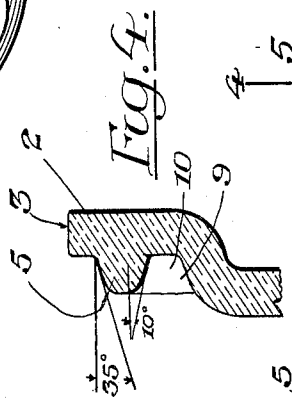


Fig. 4.

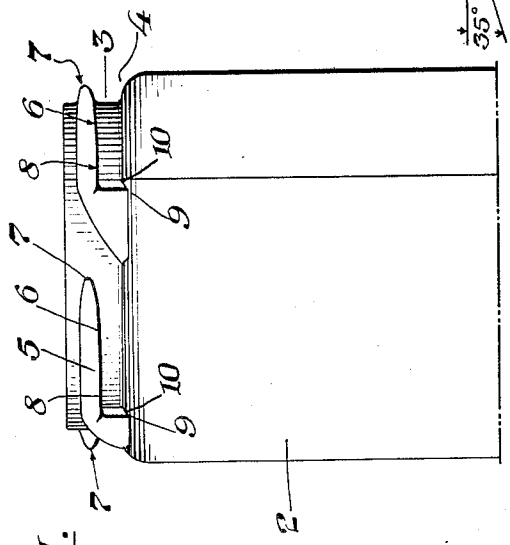


Fig. 1.

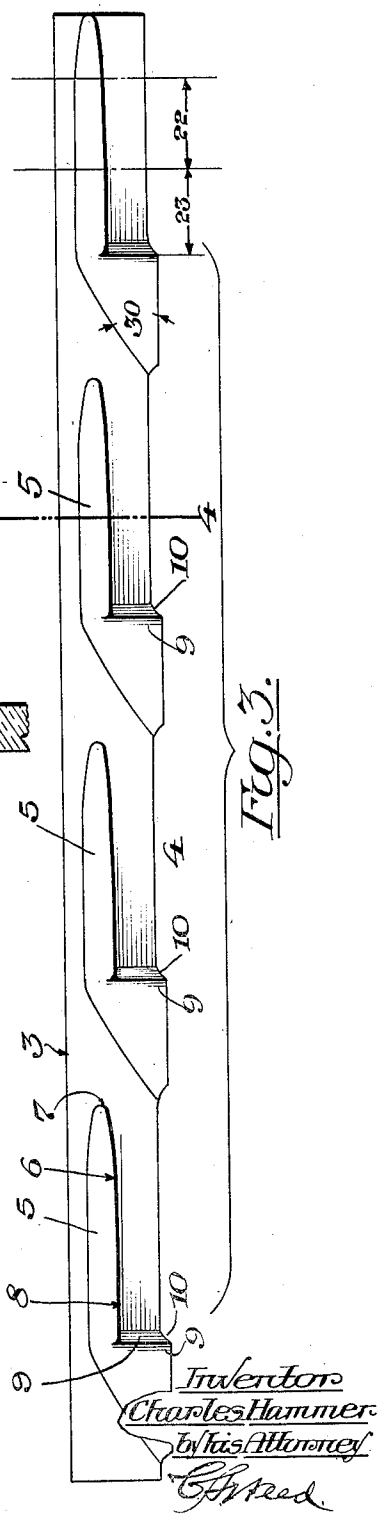


Fig. 3.

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1,849,523

UNITED STATES PATENT OFFICE

CHARLES HAMMER, OF HOLLIS COURT BOULEVARD, NEW YORK, ASSIGNOR, BY MESNE ASSIGNMENTS, TO ANCHOR CAP & CLOSURE CORPORATION, OF LONG ISLAND CITY, NEW YORK, A CORPORATION OF NEW YORK

GLASS CONTAINER

Application filed December 21, 1928. Serial No. 327,603.

This invention relates to containers and more particularly to vacuum-sealed glass containers adapted for use with rotary or screw type caps.

It is common in containers of the type referred to to provide threads or grooves of lengthwise inclined form for holding the closure or cap on the container, but these inclined threads or grooves, while efficiently pulling down the cap onto the top of the container, nevertheless permit the cap to ride or turn back during transportation owing to jars and shocks, thus prematurely releasing the cap.

Furthermore, as the caps are usually applied by machinery, it is not infrequent that they are rotated too far onto the container, thus turning the cap off of the threads and stretching it so that it will not efficiently hold in the re-use thereof.

Furthermore, also, in vacuum-sealed containers great difficulty is frequently experienced in releasing the cap to permit the use of the contents, for the vacuum-sealing of the container so firmly holds the cap onto such container that it is often difficult for the user to break this vacuum without mutilating the cap and at times breaking the container, but once the vacuum is release the cap is easily removed.

The present improvement is adapted for use with various forms of containers, but is particularly adapted for use with glass containers, and aims to eliminate or minimize the above difficulties.

An object of the present invention is to provide an improved container adapted for use in forming a hermetically sealed package.

Another object of the invention is to provide an improved locking thread on a container that will lift a cap automatically upon a slight backward rotation thereof to break the vacuum seal.

Another object of the invention is to provide a simple, inexpensive container so constructed that it will limit the forward turn of the cap and, at the same time, prevent the cap from being displaced accidentally.

A further object of the invention is to provide a container that will permit the cap to be placed thereon readily and will permit the cap to be released upon the backward rotation thereof without mutilating it, thereby allowing the cap to be used again.

Other and further objects of the invention will be obvious upon an understanding of the illustrative embodiment about to be described or will be indicated in the appended claims, and various advantages not referred to herein will occur to one skilled in the art upon employment of the invention in practice.

In the drawings accompanying and forming part of this specification—

Fig. 1 illustrates a side view of a container showing the present improvement;

Fig. 2 is a top view thereof;

Fig. 3 is a view of the container neck laid out flat; and

Fig. 4 is a cross-sectional view of the thread taken on lines 4—4 of Fig. 3.

Similar characters of reference indicate corresponding parts in the several views.

Before explaining in detail the present improvement and mode of operation thereof, I desire to have it understood that the invention is not limited to the details of construction and arrangement of parts which are illustrated in the accompanying drawings, since the invention is capable of other embodiments, and that the phraseology which I employ is for the purpose of description and not of limitation.

The container 2 is provided with a neck portion 3 preferably having a shoulder 4. The locking projections or threads 5 are shown herein as of the divided variety and of which there may be any desired number, but in the present instance four thereof are shown, to accommodate a cap having a similar number of locking projections. Each thread has depthwise inclined top and bottom faces and is shown having greater angularity at its top than at its underside, the angularity of the top being preferably about 35° and that of the bottom about 10° and the under face is inclined downwardly, as at 6, or in the direction of its length, from its upper or entering end 7 for the major portion

of its length, this inclined face terminating in a straight face 8 which in turn terminates in a stop face 9 formed at the tail or inner end of the thread and preferably merging into the shoulder 4. The stop faces of two of the threads are located at the seams of the container. The threads at the tail or inner ends thereof are formed with cams or cam faces 10 at the upper sides of the threads in position to co-operate with the lugs or projections of the cap when the cap is turned backward, thereby to lift the cap and release the vacuum.

Any of the usual forms of caps may be used on this container, such as the well-known "Amerseal" cap shown and described in my Patent No. 1,647,517, dated November 1, 1927.

When the cap is rotated into place on the container, the lugs of the cap engage the inclined under faces 6 of the threads which thereby pull the cap down as it is gradually rotated onto the container. When the cap lugs reach the straight faces 8 of the threads, the premature backward rotation of the cap, due to jars or shocks, is prevented, while the further turning forward of the cap is prevented by the stop faces 9.

In vacuum-sealed containers in which the cap is sealed by vacuum by some suitable form of processing—as by cooking the contents therein, or by supplying it with the contents in a hot condition, or by withdrawing the air from the container by suitable means—the cap is so vacuum-sealed to the top of the container that it is practically impossible to lift the cap from the mouth thereof until this vacuum is released, although the cap may be rotated backward. On turning the cap backward when the container is properly vacuum-sealed, the locking lugs of the cap will not ride up the under inclined faces of the threads because, due to the vacuum-sealing thereof, the cap will not lift from the top of the container. Consequently the locking lugs turn backward in the same plane as they are when locked in position. In other words, these locking lugs, on turning the cap backward, instead of riding up the under inclined faces of the threads, move in a straight path and are thus spaced below the under inclined faces of the threads and, therefore, are brought into engagement with the cam-formed lifting portions of adjacent threads, whereupon they ride up these cam faces 10 so that the cap is thus lifted automatically to release the vacuum and break the seal. Hence, in use, when the cap is turned backward and freed from the straight under faces of the threads and carried sufficiently far to engage the top cam faces 10 of the next succeeding threads, the cap is automatically lifted and the vacuum seal broken, thus insuring a prompt and quick access to the contents without the use of a separate instrument or the knocking of the cap by the user to break the vacuum. Consequently the mutilation of the cap or liability of breaking the glass container to release the vacuum is avoided, and since the cap is thus released without mutilation, it can readily be re-used by the user indefinitely.

It will be seen that the present invention eliminates difficulties heretofore experienced both by the packer and consumer. When this type of closure is employed, the percentage of spoilage due to premature or accidental displacement of the caps is greatly decreased; hence, the packer is sure that his goods reach the consumer in perfect condition; while on the other hand, the consumer appreciates these advantages because the cap can be easily removed and can be used to reclose the container, thus allowing the food to be dispensed from the original container.

As various changes may be made in the form, construction and arrangement of the parts herein without departing from the spirit of the invention, it is to be understood that all matter herein is to be interpreted as illustrative and not in a limiting sense.

Having thus explained the nature of my said invention and described a way of constructing and using the same, although without attempting to set forth all of the forms in which it may be made, or all of the modes of its use, I claim:

1. A container having a thread provided with an inclined face adapted to draw a lug cap down on the container, a substantially horizontal face adapted to hold the cap on the container and to prevent premature backward riding of the cap, and an inclined cam surface at the lower end of the thread merging with and extending upwardly from the shoulder of the container adapted to engage the lug of the cap to lift the cap upon backward rotation thereof thereby to break the vacuum.

2. A container having a thread provided with a substantially horizontal surface adapted to retain the lugs of the closure cap, an inclined portion adapted to draw the lugs downwardly, a substantially vertical stop face merging into said horizontal face and into the shoulder of the container thereby closing the gap therebetween, and an inclined cam surface on the side of the thread opposite to the stop face, forming the tail end of the thread and extending upwardly from the shoulder whereby the lug of the cap will be raised by said inclined surface upon backward rotation of the cap.

3. A container adapted to form a vacuum seal having a plurality of threads extending upwardly from the shoulder thereof, said threads comprising an inclined under face merging into a substantially horizontal under face and terminating in a substantially vertical stop face intermediate the shoulder on the

container and said under face and filling the entire space therebetween, and an inclined surface on the upper side of the thread extending from the shoulder to the upper side of the thread to form a continuous inclined cam surface therebetween and adapted to lift the cap upon backward rotation thereof, whereby the vacuum within the package will be broken upon backward rotation of the cap.

4. In a container adapted to receive a screw closure cap, the combination of a neck, a shoulder on the container, and a plurality of threads spaced on said neck, said threads being merged with said shoulder whereby said threads are substantially strengthened, each of said threads comprising an inclined surface adapted to engage the lug and pull the cap downward on the container, a substantially horizontal holding surface for holding the cap is position, a substantially vertical stop face abutting said shoulder to form an abutment for the lug of the cap substantially at right angles to the direction of movement of the lug and an inclined surface extending upwardly from the shoulder of the container to form a continuous inclined cam surface from the shoulder to the upper side of the thread adapted to engage the lower side of the lugs to raise the lugs of the closure cap upwardly upon backward rotation of the cap.

5. In a container adapted to form a hermetic seal with a lug screw closure cap, the combination of a neck portion, a shoulder portion, and a plurality of threads merging with and extending upwardly from the shoulder on the neck of the container, the under surface of said threads having an inclined portion for pulling the closure down on the container, a horizontal portion for holding the cap on the container, and a downwardly extending vertical portion joining the lower side of the thread with the shoulder of the container adapted to act as an abutment to prevent further rotation of the cap, the upper side of the thread having a sharply inclined surface merging with and extending upwardly from the shoulder adapted to engage the lug of the cap to raise the cap and break the vacuum upon backward rotation thereof.

6. A container having a thread provided with an inclined under face for engaging a lug of a closure to draw the closure down on the container, a horizontal under face merging into said inclined face to prevent premature backward riding of the closure, a stop face extending upwardly from the shoulder on the container substantially at right angles to said horizontal under face to provide an abutment for the lug of the cap and adapted to stop the rotation of the cap by exerting forces acting substantially in a direction opposite to the movement of the lug of the cap, the lower end of the thread having an inclined surface joining the shoulder with the container and extending upwardly therefrom to engage and raise the lug of the cap to break the vacuum in the container on backward rotation of the cap.

7. A container having a plurality of threads above the shoulder thereon adapted to cooperate with a lug screw cap to form a vacuum seal, each of said threads having an inclined portion and a horizontal portion on the under face thereof, a substantially vertical stop face joining the shoulder and the end of said horizontal portion of the thread, and an inclined portion extending from the lower end of the upper side of the thread to said shoulder.

Signed at Brooklyn, N. Y., this 19th day of December, 1928.

CHARLES HAMMER.