

Aug. 31, 1943.

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2,328,068

CLOSURE SEAL

Filed Nov. 27, 1940

Fig. 1.

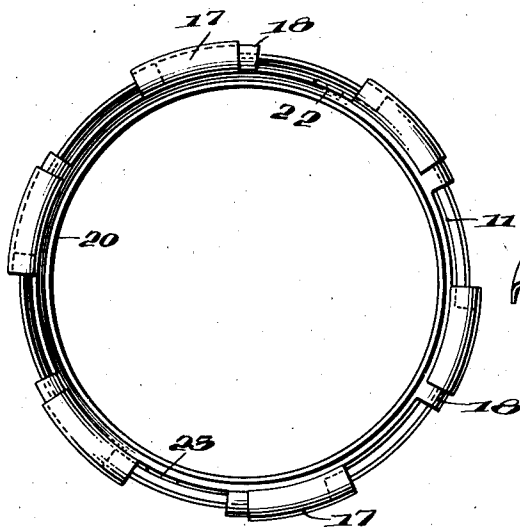


Fig. 5.

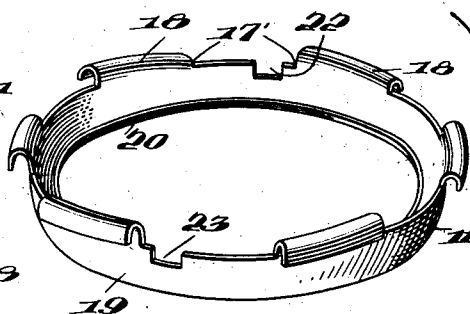
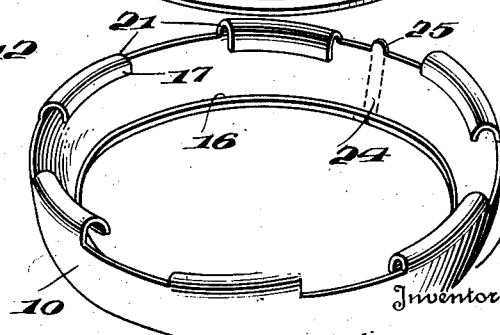
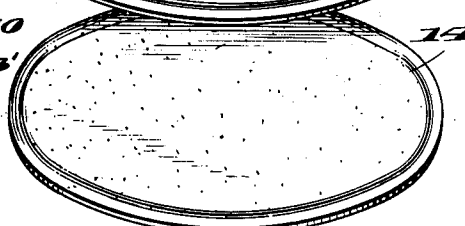
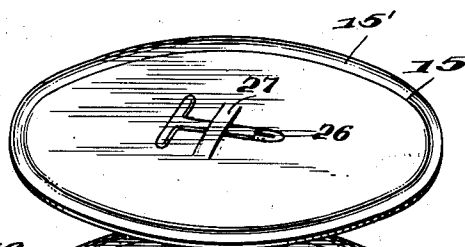
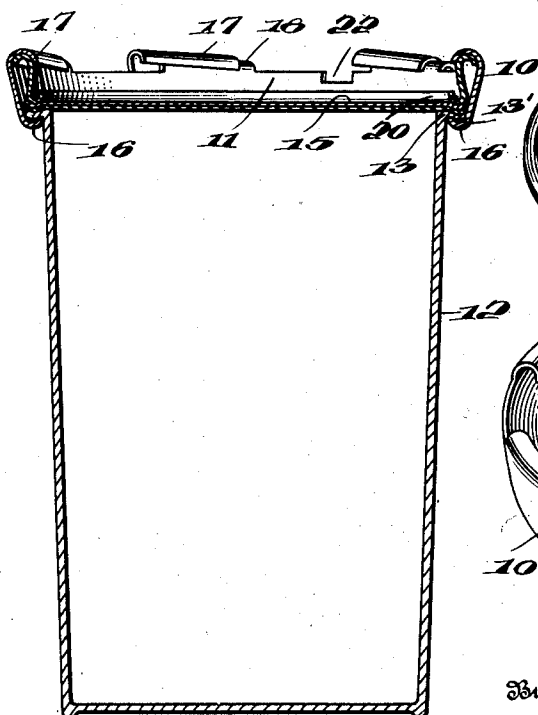


Fig. 2.



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2,328,068

CLOSURE SEAL

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Application November 27, 1940, Serial No. 367,482

2 Claims. (Cl. 220—61)

This invention relates to sealed closures for containers and the like and more particularly to a novel form of apparatus for sealing containers such as fruit jars and the like or other forms of receptacles where it is desired to maintain the contents hermetically sealed from atmospheric or other contaminating influences.

A sealed container constructed and arranged in accordance with the present invention is particularly adapted for preserving jars and the like but may be used with equal facility for sealing any conventional type of cylindrical containers. It is obvious that the container may be made of metal, glass, paper or other compositions of plastic material suitable for packing, storing and preserving perishable food products.

One important object of the present invention is to provide a novel form of container closure seal which shall effectively hold the lid or top of the container in air-tight, clamping relation to the body of the container.

Another object of the invention is to provide a seal closure of the character designated including a pair of angularly disposed cooperating annular rim members arranged to engage the container and the closure member to clamp the parts in sealing relation.

Another object of the invention is to provide a closure seal of the character designated which shall facilitate stacking or packing the containers in end to end relation.

Another object of the invention is to provide a closure seal of the character designated in which the annular rim members shall cooperate with a cam or wedging action to facilitate the sealing operation of the container.

A further object of the invention is to provide an opening device for a closure seal of the character designated which may be conveniently located so as to reduce to a minimum any danger of the seal being accidentally broken when handling containers for transportation or storage.

A still further object of the invention is to provide a closure seal of the character designated having a plurality of annularly disposed coacting cam wedge surface members which shall engage one another in a positive and efficient manner to seal the contents of a container.

These and other objects of the invention will be more manifest from the following specification and drawing and more particularly set forth in the claims.

In the drawing—

Fig. 1 is a top plan view of a closure seal embodying the present invention;

Fig. 2 is a view in elevation showing the closure associated with a container; and

Fig. 3 is an exploded view showing the closure seal parts in perspective and in the assembly relation.

Referring to Figs. 1, 2 and 3 of the drawing there is shown a preferred embodiment of a closure seal constructed and arranged in accordance with the present invention. In this embodiment of the invention, the closure seal includes these essential parts: an outer peripherally disposed annularly tapered rim member 10 and an inner annular rim member 11 arranged to cooperate therewith in the manner shown in Fig. 2. It will be noted that these rims are tapered or flared outwardly so that the inner member 11 shall pass within the member 10 and lock therewith as hereinafter described.

In this embodiment of the invention the closure is illustrated as an ordinary cylindrical shaped container or receptacle indicated by the numeral 12. This container may be an ordinary fruit or preserving jar which may be made of any suitable material such as glass, paper or plastic material, for example. The container is of the usual tapered shape and includes an open top provided with an outwardly extending peripheral flange portion 13. This flange is grooved or dished in the plane of the top as indicated by the numeral 13' to provide a maximum surface sealing contact as well as reinforce the top at this part. The closure member for the container includes essentially a gasket member 14 in engagement with the annular rim portion 13 of the container and a lid member in the form of a disk 15. The outer periphery of the disk is provided with a circumferential groove 15', commensurate in size and shape with the container top groove 13' so as to engage the gasket and seal the contents in an efficient manner.

An important feature of the present invention is the novel cooperative arrangement of the pressure applying annular sealing members 10 and 11. These members are preferably made of sheet metal rolled, stamped or formed so as to provide an annular rim portion of suitable depth and tapered so as to receive one another and also slip over the container body and engage the flange 13 of the container. The arrangement is such that the members 10 and 11 are outwardly flared or tapered so as to provide a convenient assembly and cooperation of the several parts. Referring particularly to the annular member 10, this is provided with a lower inwardly turned peripheral flange portion 16 which is adapted to engage the container walls and be-

neath the flange 13. This member is tapered outwardly so that it may be conveniently applied to the container by inserting the container until the flange 13 is engaged by the rim 16. The upper portion of this member 10 is provided with a plurality of peripherally disposed, inwardly turned and spaced apart segmental cam or wedged shaped members 17. These members may be termed segmental inclined planes and are spaced so as to provide for the reception of similarly disposed and positioned segmental cam members 18 located on the upper rim portion of the cooperating annular closure member 11.

The inner rim member 11 includes an outwardly tapered body portion 19 and is provided with a lower inwardly turned peripheral flange portion 20 which is adapted to cooperate with the top surface of the closure member 15 and adjacent the container flange 13, and gasket 14 as shown in Fig. 2. It will be noted that in this construction the cam surface members 18 are turned outwardly from the body portion 19 of the rim and these members 18 are of a length slightly shorter than a space 21 between the cam surface 17 on the member 10. In a like manner the cam surfaces 18 are spaced apart so as to accommodate the cam surface members 17—17 formed integral with the outside member 10.

In assembling the closure parts to the container the outer member 10 is slipped over the container so that the flange rim 16 shall engage beneath the flange 13 of the container. Holding the parts in this position, the inner clamping member 11 is dropped into position so that its lower rim 20 shall engage the peripheral groove 15' in the closure lid 15 and the associated cam members 18 shall pass between the spaced cam members 17. With the parts in this position and holding the outer rim 10, the inner rim with its cam surfaces 18—18 is turned annularly and the parts 18—18 are wedged under the operating cam members 17—17 whereby the peripheral edge of rim 20 is forced against the lid 15 to clamp the same to the container and effectively seal the contents.

A special tool such as a wrench may be provided for holding the outer member 10 and also for turning the inner member with respect thereto. One particular manner of closing the receptacle is by holding the member 10 in fixed position and moving the other member 11 annularly with respect thereto by inserting a tool in diametrically opposed notches indicated by the numerals 22—22 so that the parts are moved angularly and wedged in suitable contact relation to effectively clamp and seal the closure to the container opening. When it is desired to open the container, the tool may be applied to the notches to rotate the member 11 in the reverse direction and thus unclamp the rotatable members.

To further provide for opening the seal clamping parts, the outer rim may include a destructible section or portion 24 in the outer rim 10. If such an opener is desired, this may be provided with an integral tab member 25 which may be pulled manually and permit loosening or removing of the outer clamping rim. A feature of the tab 25 is that it is of sheet material and folded against the body portion so that it is not susceptible to accidental breaking or destruction during the handling of the container and at the same time may be opened when desired. This tab 25 acts as a key to the outer rim to facilitate loosening the parts without destroying the inner rim or the gasket. A tab operating member 26 may be temporarily attached to the lid 15 as indicated by the strap 27.

Having thus described a closure seal constructed and arranged in accordance with the present invention, it is obvious that various changes may be made therein without departing from the scope of the invention as set forth in the claims.

What I claim is:

1. In combination, a container having a peripheral flange adjacent the open top portion thereof, a peripheral groove in the top surface of said flange, a lid having a peripheral groove commensurate in size with the groove in said flange, and a sealing device including a pair of cooperating annular clamping members, one member having a peripheral flange to engage the groove in said lid and the other having a peripheral flange to engage beneath the container flange and enclose the joint formed by said lid with said container flange, telescoping spaced apart cam members formed on the top portion of each annular clamping ring member, the cam surfaces on the outer ring being curved inwardly and the cam surfaces on the inner ring member being curved outwardly, whereby a relative rotational movement tightens the clamping members on the container flange.

2. A closure sealing device including a pair of cooperating annular rim members, said members having peripherally spaced interengaging cam surfaces curved laterally from their top body portions, the cam surfaces at the top of the outer member being turned inwardly from the body portion thereof, said outer member having an inwardly turned bottom flange rim to engage the container, the inner member having its cam surfaces turned outwardly from the body portion, said inner member having an inwardly turned bottom flange to engage a container lid, and means for imparting relative angular movement to the rim members whereby the cam action of the cam members forces the lid into clamped sealing relation with the container.

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