Jan. 19, 1932. H. V. WILLIAMS 1,842,226

JAR AND CLOSURE THEREFOR

Filed May 11, 1931

Fig. 1.

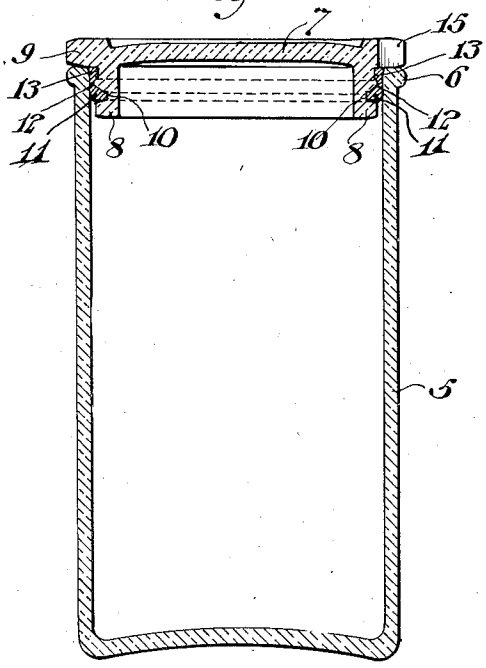


Fig. 2.

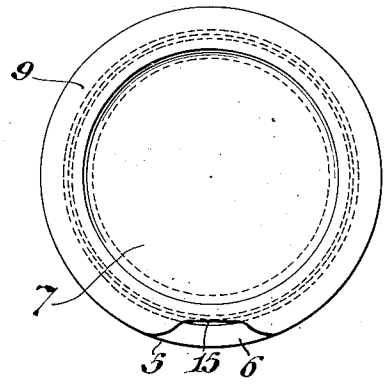


Fig. 3.

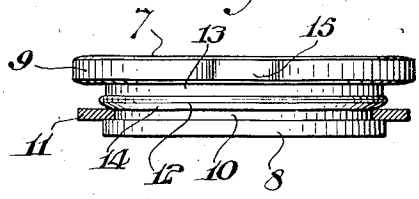
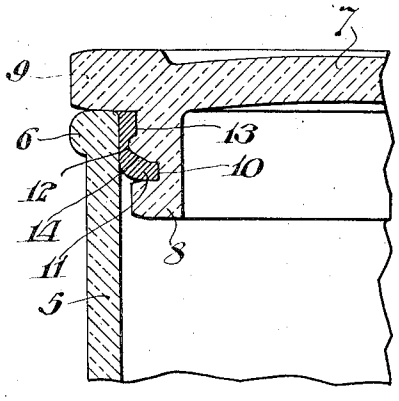


Fig. 4.



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Patented Jan. 19, 1932 1,842,226

UNITED STATES PATENT OFFICE

HORACE V. WILLIAMS, OF PHILADELPHIA, PENNSYLVANIA

JAR AND CLOSURE THEREFOR

Application filed May 11, 1931. Serial No. 536,422.

My invention relates to jars and closures therefor. It relates more particularly to improved means for hermetically sealing a jar of the type that is used, for example, for the preservation of fruits and the like.

More specifically considered, my invention consists of certain improvements in that type of jar and closure therefor, which is shown and described in Letters Patent No. 984,808, granted February 21, 1911, to Gustave Glocker.

It is well known that one of the best methods of preserving fruits and the like is to pack the same in a jar or container in a cold condition, and then to heat the same to a sterilizing temperature. While the contents of the jar are so heated, the closure is placed in the mouth of the jar so that when the contents become cooled, a vacuum will be created which will securely hold the closure member in position, and thus hermetically seal the jar.

In devices operating upon this plan as heretofore designed, it has been customary to employ a sealing gasket which is initially mounted in an annular groove in the closure member, which gasket coacts with the internal wall of the jar or container to effect the seal.

However, it has been found that in many of these devices, by reason of their construction, the gaskets are cut by the sharp edges of the groove, and that in other instances, the seal is not certain by reason of slight irregularities in the relative dimensions of the jar and its closure member.

The principal object of my present invention is to provide an improved form of closure for preserving jars and the like, in which the seal is maintained by the vacuum created by the condensation and contraction of the previously heated gases, which will be simple, inexpensive and efficient, and by the use of which the seal will be rendered certain.

With the foregoing in view, my invention contemplates the provision on the closure member of a rounded annular bead which is adapted to extend into the gasket and thereby grip the same against the inner surface of the jar, to the end that a more effective and certain seal will be insured and "blowing" of the gasket will be effectively prevented. The bead being positioned immediately above the recess in which the gasket is initially positioned, and the under surface of said bead being inclined and receding toward the inner portion of said recess, there is provided a space for the reception of the material of the gasket which is displaced by the bead, and at the same time likelihood of cutting of the gasket by the edge of the recess is eliminated.

A further object of my invention is to so construct and arrange the closure member, that the vacuum may be more readily broken when it is desired to remove the closure member, and thus facilitate its removal.

The nature and characteristic features of my invention will be more readily understood from the following description, taken in connection with the accompanying drawings forming part hereof, in which:

Figure 1 is a vertical central sectional view of a jar and closure therefor embodying the main features of my present invention;

Fig. 2 is a top or plan view thereof;

Fig. 3 is a side elevation of the closure member, the gasket ring being shown in section and applied thereto;

Fig. 4 is an enlarged fragmentary section of a portion of the structure, illustrating more clearly the construction and arrangement at the place where the sealing is effected.

Referring to the drawings, in the particular embodiment of my invention therein shown, 5 designates a jar or container, preferably made of glass, although it will of course be understood that the same may be made of any other suitable material.

The preferred form of jar or container 5 is that of a cylinder of uniform diameter throughout its vertical extension. This form of jar permits the more convenient insertion of the contents, allowing the same to be readily and easily packed in attractive form and condition, and also facilitating the removal of the contents without mutilation. This form of jar may be more readily cleaned when it is to be reused.

The top edge of the jar is preferably provided with an external bead 6, which not only

serves to strengthen the jar at its mouth, but also provides a greater bearing surface for the flange of the closure member, which will be hereinafter described.

The closure member 7 is also preferably made of glass, although here again it will be understood that any other preferred material may be used. The closure member comprises a disk-like body, preferably having a hollow interior so as to provide a skirt portion 8, the external diameter of which is slightly less than that of the internal diameter of the jar or container. The closure member 7 is also provided with a peripheral flange 9, which, as hereinbefore indicated, is adapted to be seated upon the top edge of the jar or container 5 when the closure member 7 is in the closed position.

The skirt portion 8 of the closure member is provided with an annular groove or recess 10, in which a gasket 11 is initially mounted. The gasket 11 is preferably made of rubber, or other suitable resilient material, and made in the common ring form of such gaskets.

Immediately above the recess 10 there is provided a rounded bead 12, extending around the closure member. The bead 12 is of slightly greater diameter than the external surface of the portion 13 of the skirt 8, immediately above said bead. The lower surface of the bead 12 is inclined as at 14, receding toward the inner surface of the recess 10.

The dimensions of the gasket 11 are such that, when the closure member 7 is in position in the mouth of the jar, the gasket will fill the space above the recess 10, as well as said recess. The upper edge of the gasket in the closed position preferably coincides with the lower surface of the flange 9. It will be noted that, in this position, the bead 12 will squeeze into the gasket 11 and press the same against the internal surface of the mouth of the jar, and thus insure an effective seal.

A portion of the flange 9 of the closure member 7 is cut away so as to provide a recess 15. (See Fig. 2). The recess 15 provided by the cut away portion of the flange extends inwardly a sufficient distance to allow a suitable implement, such as a knife blade, to be pushed downwardly between the gasket and the side-wall of the jar, when it is desired to break the vacuum, so that the closure member may be more readily removed, and access to the contents of the jar permitted.

The device of my present invention is used in the same manner as others of this general type in that the fruits, or other materials to be preserved, are initially placed in the jar, usually in a cold condition, the shape of the jar, as hereinbefore pointed out, serving to facilitate the packing operation. The closure member 7, with the gasket ring 11 mounted in the recess 10 thereof, is then placed loosely upon the top of the jar, after which the contents of the jar are brought to a sterilizing temperature by means of applied heat.

After the sterilization has continued a sufficient length of time, the closure member is pushed inwardly, and immediately thereafter the jar with its contents is removed from the source of heat, so that the steam, air, or other gases contained within the jar will condense and contract, thereby creating a vacuum within the jar, which will act to hold the closure member 7 securely in the closed position, with the flange 9 thereof seated upon the top edge of the jar.

It will be understood that, as the closure member is forced inwardly, the gasket 11 will be deformed, as shown in Figs. 1 and 4 of the drawings, and will make an effective seal between the skirt portion 8 of the closure member 7 and the mouth of the jar. It will also be noted that the bead 12 will effectively bind the gasket 11 against the inner surface of the side wall of the jar 5, and that, by reason of the inclined receding under surface 14 of the bead 12, there will be no tendency to cut through the gasket 11 at that place. Furthermore, by reason of the peculiar configuration of the skirt portion of the closure member, the tendency of the gasket to be blown or forced out of position by the vacuum will be greatly minimized.

When it is desired to remove the contents of the jar, a knife blade or other suitable implement is forced downwardly between the gasket and the inner surface of the side wall of the jar, which will thus break the vacuum. The knife blade may now be inserted between the flange 9 of the closure member and the upper edge of the jar, and the closure member thus pried loose, in the event that the gasket should stick by reason of the sugar or other gluey constituents of the material within the jar.

I claim:

1. The combination with a jar having a smooth interior cylindrical surface at the mouth thereof, of a closure member having a portion adapted to extend into the mouth of said jar, said inwardly extending portion of said closure member having an annular recess and a rounded bead above said recess, and a resilient gasket initially mounted in said recess and adapted to be deformed to have the outer portion thereof disposed between the closure member and the inner surface of the mouth of the jar, the bead of the closure member serving to grip said gasket.

2. The combination with a jar having a smooth interior cylindrical surface at the mouth thereof, of a closure member having a portion adapted to extend into the mouth of said jar, said inwardly extending portion of said closure member having an annular recess and a bead immediately above said recess, the under surface of said bead being inclined and receding toward the inner portion

of said recess, and a resilient gasket initially mounted in said recess and adapted to be deformed to have the outer portion thereof disposed between the closure member and the inner surface of the mouth of the jar, the bead of the closure member serving to grip said gasket.

3. The combination with a jar having a smooth interior cylindrical surface at the mouth thereof, of a closure member having a portion adapted to extend into the mouth of said jar, said inwardly extending portion of said closure member having an annular recess and a bead immediately above said recess, the under surface of said bead being inclined and receding toward the inner portion of said recess, and a resilient gasket initially mounted in said recess and adapted to be deformed to have the outer portion thereof disposed between the closure member and the inner surface of the mouth of the jar, the bead of the closure member serving to grip said gasket, and the closure member also having an outwardly extending flange adapted to be seated upon the upper edge of the jar when said closure member is in the closed position.

4. The combination with a jar having a smooth interior cylindrical surface at the mouth thereof, of a closure member having a portion adapted to extend into the mouth of said jar, said inwardly extending portion of said closure member having an annular recess and a bead immediately above said recess, the under surface of said bead being inclined and receding toward the inner portion of said recess, and a resilient gasket initially mounted in said recess and adapted to be deformed to have the outer portion thereof disposed between the closure member and the inner surface of the mouth of the jar, the bead of the closure member serving to grip said gasket, and the closure member also having an outwardly extending flange adapted to be seated upon the upper edge of the jar when said closure member is in the closed position, said flange having a recess in a portion of its periphery whereby an implement may be inserted between the gasket and the inner surface of the wall of the jar.

In testimony whereof, I have hereunto signed my name.

HORACE V. WILLIAMS.