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W. H. W. JONES.

JAR OR BOTTLE CLOSURE.

APPLICATION FILED MAR. 10, 1904.

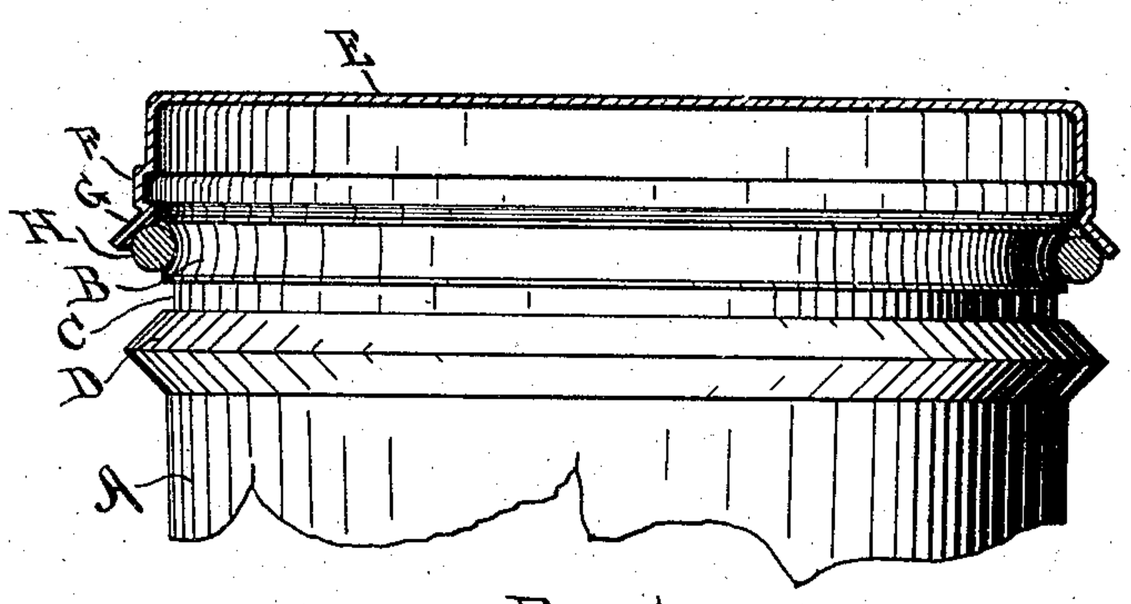

Fig. 1.

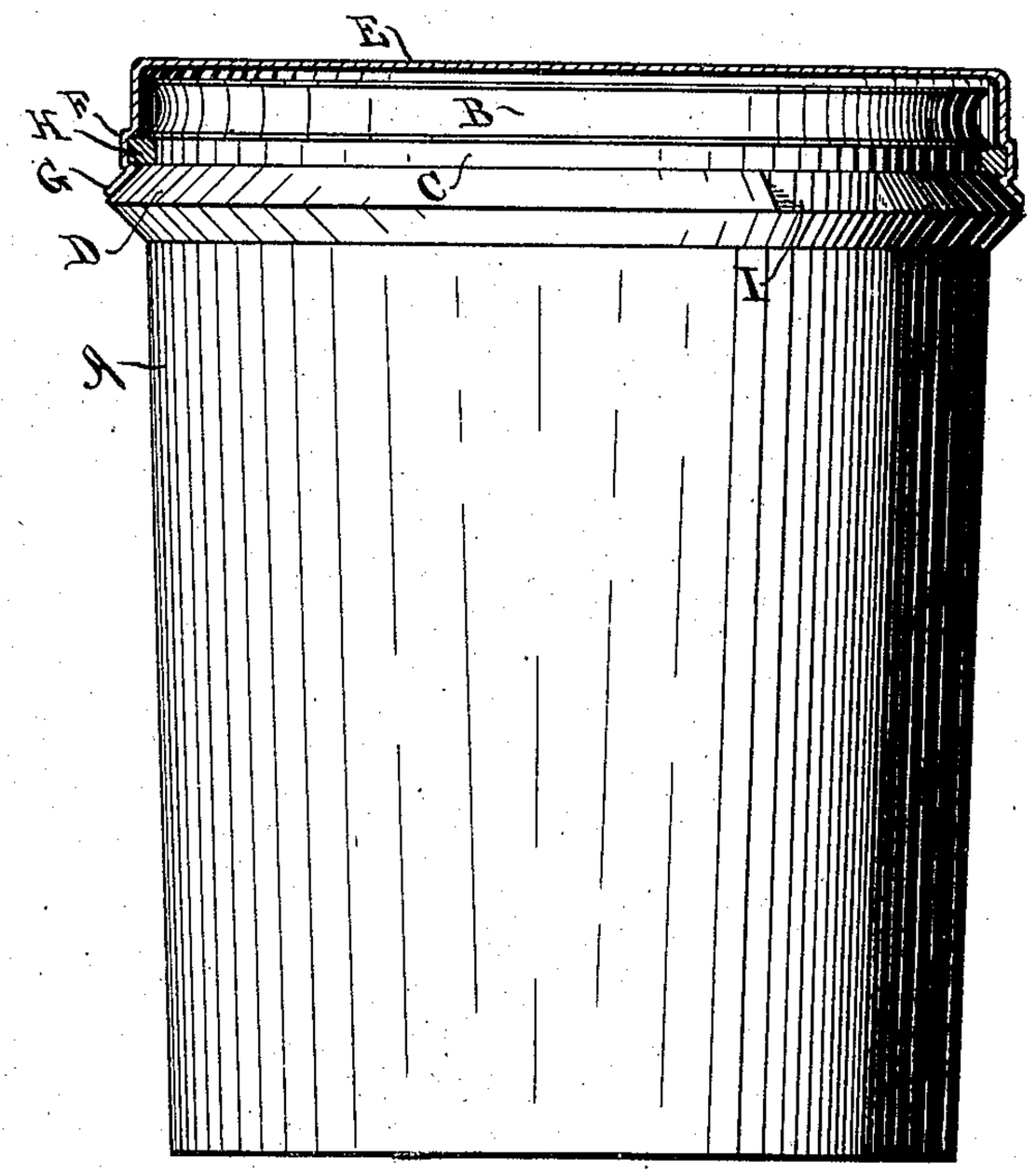

Fig. 2.

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No. 785,106. Patented March 21, 1905.

UNITED STATES PATENT OFFICE.

WILLIAM H. W. JONES, OF WAVERLY, NEW YORK.

JAR OR BOTTLE CLOSURE.

SPECIFICATION forming part of Letters Patent No. 785,106, dated March 21, 1905.

Application filed March 10, 1904. Serial No. 197,465.

To all whom it may concern:

Be it known that I, WILLIAM H. W. JONES, a citizen of the United States, residing at Waverly, in the county of Tioga and State of New York, have invented certain new and useful Improvements in Jar or Bottle Closures, of which the following is a specification.

My invention relates to improvements in that class of closure in which a cap, cover, or stopper is secured to the mouth of a jar, bottle, or other vessel by means of a rubber or other elastic packing-ring located in oppositely-disposed grooves on the two parts, one form of which is described in my copending application, Serial No. 183,857, filed December 5, 1903,

The object of my present improvement is to provide a closure of this nature for use more especially in connection with jars or other vessels the contents of which are to be packed for preservation in a vacuum. In order to fulfil the requirements when putting up meats, preserves, &c., in this manner, the closure must be of such nature that it can be easily made while the filled vessel is standing in a chamber from which the air is exhausted, and after the closure has once been made it must remain so perfectly tight as to prevent any ingress of air under atmospheric pressure. Heretofore packers have experienced much trouble in putting up goods in this manner, due to imperfection in the joint and also to the tendency of the closure to become imperfect by reason of the aging and shrinkage of the rubber packing-ring after the goods have been put upon the market, as high as twenty per centum in losses having been experienced in goods packed in this manner.

A further object is to provide a simple and effective closure for vessels in which fruits, preserves, and the like are not put up in a vacuum, but where it is required that the cap be positively locked in place and the vessel hermetically sealed. In order to meet these requirements, I have arranged a closure the several parts of which are illustrated in the accompanying drawings, in which--

Figure 1 represents the upper portion of a jar or other vessel with a cap and packing-ring in place ready to make the closure, the cap being shown in transverse section; and Fig. 2 represents the jar with the parts in position after the closure has been completed.

Like letters of reference designate like parts in the two views.

A represents a jar, preferably of glass and which is also preferably slightly larger at the mouth than at the bottom in order to facilitate the removal of the contents when they are of a solid form, such as dried meats, &c. At the mouth of the jar is an external circumferential groove B of a slightly-curved form, and immediately below said groove is a second groove C of an angular cross-section, preferably a three-sided groove. Immediately below this second groove is a rib or shoulder D, having a beveled upper surface for a purpose which will hereinafter appear.

The cap E may be of metal or other material and is provided with a flaring edge or rim G, immediately above which is an angular groove corresponding with the groove C and so positioned that when the rim G rests upon the shoulder D the grooves F and C will lie directly opposite one another, thereby forming an annular space having a square cross-section, within which the packing-ring H, of rubber or other elastic material, is held in a compressed condition. In order to more perfectly carry out my invention, this packing-ring H has a somewhat larger cross-sectional area than that of the space formed by the grooves F and C, and the cap and jar are so formed that in the act of setting the cap in place the packing-ring will be forced in and compressed between said grooves, so as to fill up all the angles thereof.

When closing up these jars in a vacuum, the jars after being filled are placed in a specially-arranged chamber, with the cap and packing-ring arranged in the position shown in Fig. 1. The air from the chamber is then exhausted, thereby also exhausting the air from within the jar, after which a plunger under atmospheric pressure is allowed to press down upon the top of the cap E. As the cap descends the flaring rim G forces the ring H from the

preliminary supporting groove or surface B down into the groove C. As the groove F comes opposite the groove C the ring expands and fills both grooves completely, being held therebetween in a compressed condition. When the groove F is in register with the groove C, the rim G will rest upon the bearing-surface formed by the shoulder D, thereby preventing the further downward movement of the cap and preventing any downward pressure upon the ring H, which would tend to displace it from between the grooves. It will be noted that the cap stands clear of the rim of the mouth of the jar in order that the rim G may bear evenly and firmly upon the shoulder D. After the parts are so assembled the cap will be found to be positively locked in place, and the jar will remain hermetically sealed for an indefinite period of time. The flaring rim G being held down snugly upon the shoulder D keeps the air from coming in contact with the packing-ring H, thereby preventing the drying out and consequent shrinkage of said ring. Moreover, since the ring is in a compressed state any shrinkage therein will not be sufficient in effect to cause a loosening of the joint.

In order to open the jar, it is simply required to raise the cap at one side, thereby breaking the joint and permitting the air to get under the cap. This lifting of the cap may be readily accomplished by means of a knife-blade or other thin instrument. As, however, the rim G is held snugly against the shoulder D in order to facilitate the insertion of the opening instrument, I provide a notch in the upper surface of the shoulder, as indicated at I.

While I preferably so form the grooves C and F as to give a square form of cross-section to the packing-ring when compressed between them in order to make a most perfect and positive joint, I do not limit myself to this precise form of the grooves. Moreover, it will be understood that the preliminary supporting-surface and the bearing-surface may be located on the cap instead of on the vessel, in which case the cap will be inserted in the mouth of the vessel like a stopper. This will be made clear by simply reversing the drawings, increasing the depth of the cap to make it the vessel, and cutting down the depth of the vessel to constitute it the cap.

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

1. A jar or other vessel having a circumferential groove at its mouth and an outwardly-projecting flange below said groove, in combination with a cap having a flaring or outwardly-inclined rim and a contiguous circumferential groove, the latter registering with the groove on the vessel when the rim of the cap rests upon said flange, and an elastic packing-ring inserted and compressed within and between said grooves when the cap is pressed into position to complete the closure.

2. The combination with a jar or other vessel having a circumferential groove at its mouth, of a cap having a circumferential groove registering with the groove on the vessel, an elastic packing-ring, a preliminary supporting-surface to receive said ring on one of said parts contiguous to the groove thereon, an outwardly-projecting flange having a beveled surface at the opposite side of said groove, a flaring or outwardly-inclined surface on the other part contiguous to its groove adapted to contact with the beveled surface of said flange when the grooves register, said packing-ring being inserted and compressed within and between said grooves when the cap is pressed into position to complete the closure.

3. The combination with a jar or other vessel having a circumferential ⌐-shaped groove at its mouth, of a cap having a circumferential ¬-shaped groove registering with the groove on the vessel, an elastic packing-ring, a preliminary supporting-surface to receive said ring on one of said parts contiguous to the groove thereon, a flaring or outwardly-inclined surface on the other part contiguous to its groove, said packing-ring being inserted and compressed by means thereof within and between said grooves when the cap is pressed into position to complete the closure.

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

W. H. W. JONES.

Witnesses:

A. S. DIVEN,

M. E. VERBECK.