

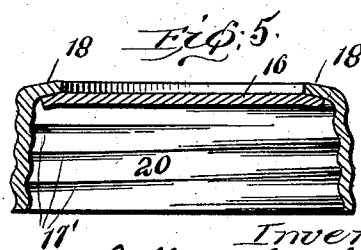
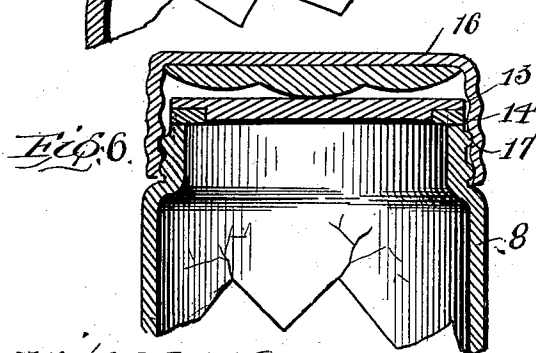
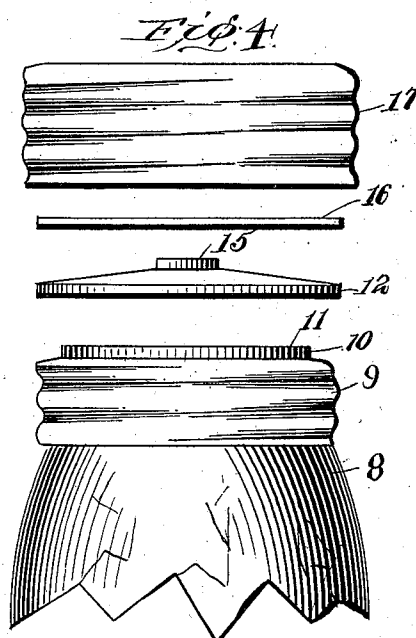
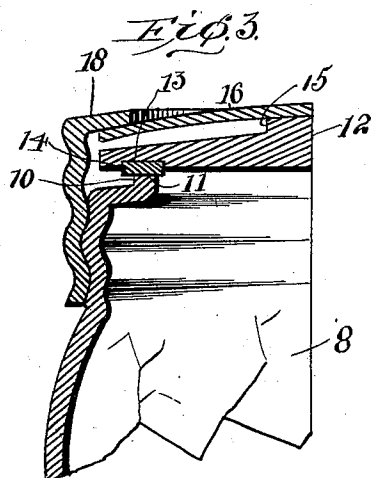
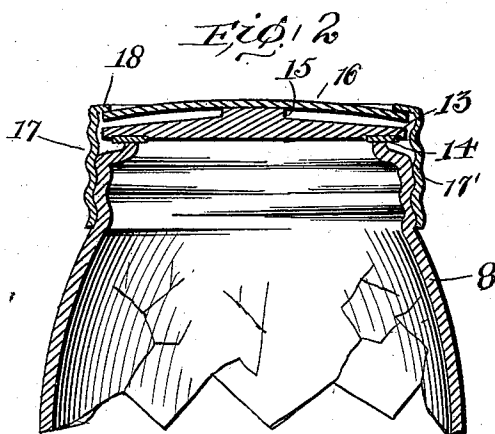
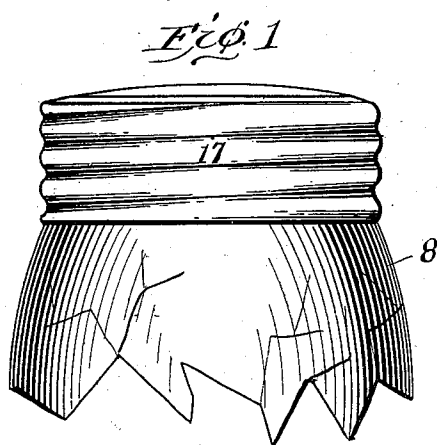
No. 727,808.

PATENTED MAY 12, 1903.

D. KNOWLTON.
JAR CLOSURE.

APPLICATION FILED AUG. 1, 1902.

NO MODEL.



witnesses:
J. M. Frasier
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Inventor
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UNITED STATES PATENT OFFICE.

DALLAS KNOWLTON, OF WASHINGTON, DISTRICT OF COLUMBIA.

JAR-CLOSURE.

SPECIFICATION forming part of Letters Patent No. 727,808, dated May 12, 1903.

Application filed August 1, 1902. Serial No. 117,965. (No model.)

To all whom it may concern:

Be it known that I, DALLAS KNOWLTON, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Jar-Closures, of which the following is a specification.

My invention relates to bottle and jar closures, and is particularly adapted for the type of jar known as the "Mason" jar.

Prior to my invention the Mason jar included as a closure means a metallic screw-cap that is adapted to screw down on the exterior screw-threads formed on the neck of the jar to a point where its lower edge became seated on a rubber washer or gasket supported on a shoulder formed at the point of junction of the neck with the body of the jar. The objection to such a means is that when the filled jar is subjected to heat and the metallic screw-cap is screwed down to its limit the unequal expansion, followed by the unequal contraction thereof as compared with the glass of the jar in the direction of its height, will produce a loose-fitting joint throughout the screw-threaded portion, and by reason of a lack of proper pressure leakage results. Another objection met with in such a type of jar is that the rubber washer cannot be confined in a manner to form a reliable seat and one that will compensate for any inequality of the bearing-surfaces, because the pressure exerted thereon by the lower edge of the cap tends to spread laterally at different points and uniformly either outwardly or inwardly, as the cap is rotated in being screwed down, and thereby resulting in an inequality of bearing and consequent leakage. The bearing formed by the lower edge of the cap in contact with the rubber gasket thus disposed presents a large frictional surface at a point—namely, at the circumference—where no leverage can be obtained by the hand in turning the cap off and on, and the leakage of the contents of the jar finds its way through the loose joint formed by the screw-threads and gums up and corrodes the cap to the jar in a fashion that makes it at times impossible to remove the cap from the jar by any means. These ob-

jections and defects are overcome by the employment of my invention.

According to my invention I form the neck of a jar or bottle with exterior screw-threads and provide its mouth with a closure-plate that is provided on its underface with a working face or seat that comprises resilient material and on its upper face with a centrally or axially arranged protuberance or bearing. Superimposed upon said plate and removably mounted to bear or fulcrum centrally thereon is a circular resilient plate or disk that spans to a point where its peripheral edges may be engaged by the internally-screw-threaded retaining ring or sleeve, which latter when screwed down over the neck of the jar exerts a downward pressure on the peripheral edge of the disk in a manner to confine said closure-plate. The pressure thus exerted is transferred with leverage from the edges of said plate to the center thereof, through the metal of which the blank or disk is formed. It will be seen from this construction that the plate closer or stopper when seated will be firmly held by a downwardly-acting pressure exerted centrally through spring-leverage that may be regulated by the distance which the retaining-ring is screwed down, and it will further be seen that when the filled jar is subjected to heating and cooling in the process of preserving the closing devices will be capable of withstanding the strains of unequal expansion and contraction without danger of leakage or breakage.

Referring to the drawings which form a part of this specification, Figure 1 shows a view in front elevation of my improved closure device as applied to the neck or mouth of a jar or bottle with the major portion of the jar shown as broken away. Fig. 2 is a like view in cross-section, showing the parts in their relative closed position. Fig. 3 represents an enlarged fragmentary portion of Fig. 2. Fig. 4 represents the parts of the closure device arranged in separation in the order of position and application to the mouth and neck of the jar to form the closure device required. Fig. 5 shows in cross-section the screw ring or sleeve and the spring-disk of the closure device in cross-section as joined

together integrally to be more convenient in handling. Fig. 6 shows a modified form of closure device.

Like numerals indicate like parts in the several figures.

With reference to the drawings, 8 indicates the jar or bottle, that is provided at its neck portion with exterior screw-threads 9 and at its mouth or bore with an annular ridge or seat 10, the working face 11 of which extends in a horizontal plane.

12 indicates a flat closure-plate, that is of a diameter substantially equal to that of the upper part of the neck of the jar and which is provided on its under face with an annular recess or groove 13 for the reception of a washer or gasket 14 and which seating thus formed corresponds, substantially, with the diameter and width of seating formed by the ridge 10. The plate 12 is formed, preferably, of glass or other vitrified substance, and the gasket I employ is preferably made of fabric or other sheet material that has been soaked in paraffin, though I may employ a rubber washer without departing from the idea of my invention. The closure-plate is provided centrally on its upper side with a protuberance or axially-arranged shoulder or bearing-point 15. The closure-plate thus constructed when arranged to close the mouth of the jar is held in position and secured by the following means: Mounted on the shoulder 15 to bear axially thereon is a circular plate or disk 16, that is formed of resilient sheet material, such as steel or phosphor-bronze, that is adapted for flexure and which is of a diameter to span the closure-plate.

17 indicates the retainer ring or sleeve, that is provided with screw-threads interiorly, 17', and that is of a height sufficient to screw down over the neck of the jar and that is provided at its top with an inwardly-extending annular flange or rim 18, which latter is adapted to engage the peripheral edge of the disk 16, to confine said disk, and exert there-through with spring-leverage a central downward pressure on the closure-plate 12. From this construction it will be observed that the spring-disk not only serves to hold the closure-plate to its seat with leverage, but it acts as a spring-tension device to hold said ring normally against accidental reverse rotation.

In Fig. 5 the disk 16 is shown as being

united to the retainer-piece or screw-ring to form a screw-cap 20 for convenience in handling. The disk can be made of a diameter to be sprung into the top of the ring and held therein by its own spring tension. This is the preferable and novel way to unite same and does not require soldering to make the cap integral.

Fig. 6 shows a modification in which the closure-plate constructed as described is held to its seat by a central bearing extending downwardly from the resilient top of the screw-cap 20.

Having described my invention, what I desire to claim as new and useful is—

1. In a bottle, jar or the like, the combination with the neck having an attachable ring, of a stopper or plate-closure, and a means arranged in operative relation to said stopper and ring to apply spring-leverage between the same.

2. In a bottle, jar or the like, the combination with the neck having an attachable ring, of a stopper or plate-closure, and a means arranged in operative relation to said stopper and ring, whereby a pressing downwardly on said stopper is effected with spring-leverage.

3. In a bottle, jar or the like, the combination with the neck having a screw-ring rotatable thereon, of a stopper or plate-closure, and a circular resilient plate, the faces of which lie in a given horizontal plane, said plate being superimposed on said stopper and bearing centrally thereon, and which is engaged at its peripheral edges by the screw-ring as set forth.

4. In a bottle, jar or the like, the combination with the neck having a screw-ring rotatable thereon, and a mouth having an annular seat or rim, of a plate-closure therefor having on its under or working face a groove or recess, a washer for said recess of flexible material, said closure-plate having on its upper face, centrally arranged a shoulder or protuberance, and a circular resilient plate superimposed on said stopper and bearing axially on said shoulder, and engaged at its peripheral edges by the screw-ring.

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

DALLAS KNOWLTON.

Witnesses:

JOSEPH W. BUELL,
GEORGE P. MONTAGUE.