

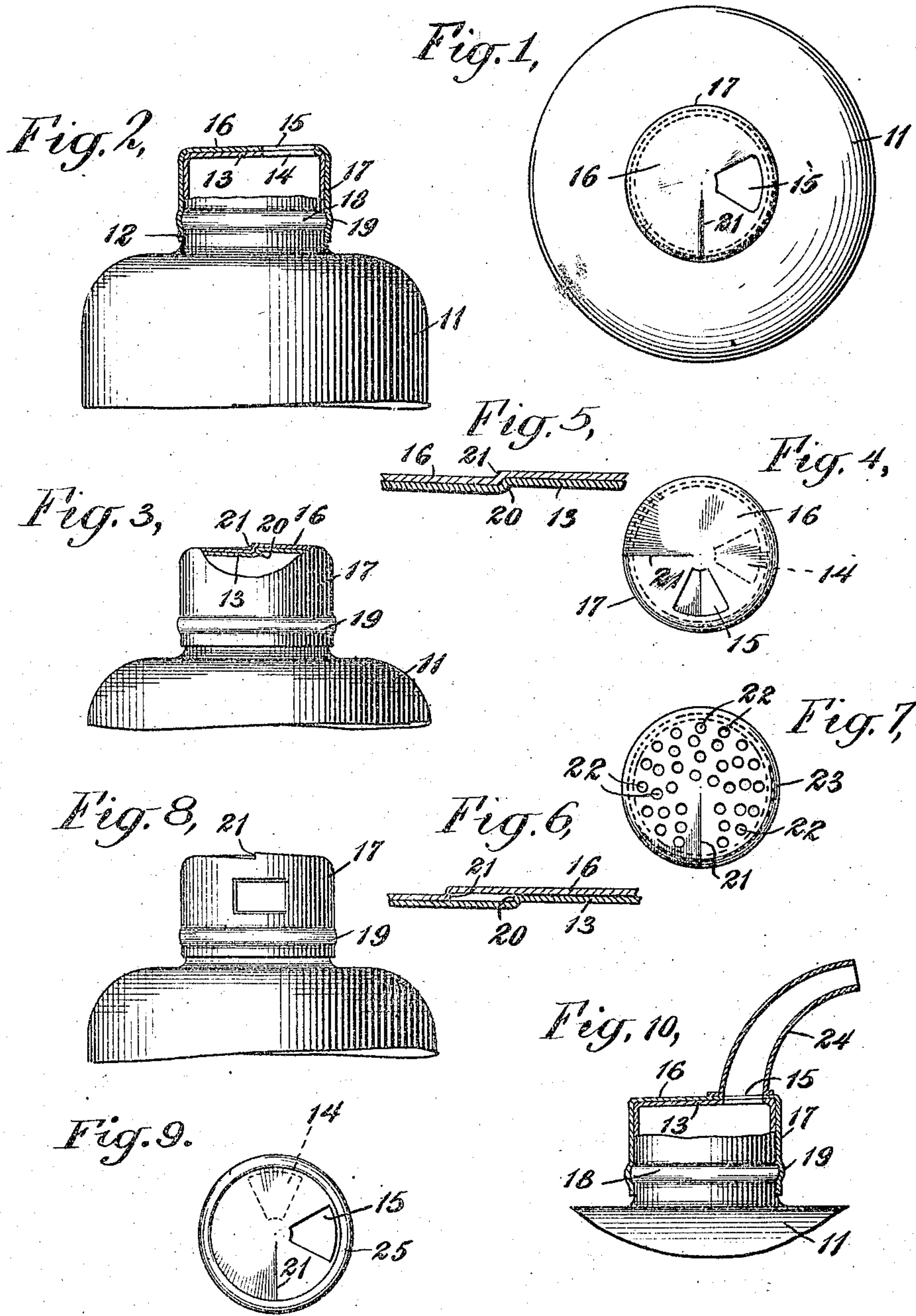
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T. C. BOOTH.

CLOSURE FOR BOTTLES AND THE LIKE.

APPLICATION FILED MAY 27, 1906.



WITNESSES:
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CLOSURE FOR BOTTLES AND THE LIKE.

No. 848,152.

Specification of Letters Patent.

Patented March 26, 1907.

Application filed May 27, 1905. Serial No. 262,558.

To all whom it may concern:

Be it known that I, THOMAS C. BOOTH, a citizen of the United States, residing at New York, in the county and State of New York, have invented certain new and useful Improvements in Closures for Bottles and the Like, of which the following is a specification.

This invention relates to closures for bottles and other packages or containers from which it is desired to remove from time to time comparatively small quantities of the contents. Tooth-powders and analogous preparations are usually put up and marketed in such packages, and while I have such preparations more particularly in mind it is also my purpose to provide a container for liquids, particularly somewhat viscous liquids, such as lubricating and other oils.

The general objects of the invention are simplicity of construction and consequent cheapness in cost of manufacture and ease and positiveness of manipulation.

Closures of the class to which this invention appertains are generally provided with a pair of caps, one fitting over the other, the inner one stationary and the outer rotatable thereon, both provided with corresponding apertures adapted to register with each other at a certain point of rotation to permit of the discharge of a portion of the contents of the container, the the movable cap being rotated through a slight arc to separate the apertures and close the opening. These caps are frequently screw-threaded to insure a tight fit and perfect sealing when closed, and generally one thereof is provided with a slot and the other with a lug or stop adapted to engage the ends of said slot to limit movement of one relative to the other and facilitate manipulation in use by determining, without the necessity for inspection, the extent to which the outer cap should be rotated to "open" or "close." Thus separate means have been employed to insure a tight fit and to limit movement, while my invention contemplates a construction in which both the necessary friction and the desired limit of movement are provided by a single simple element.

With the above and other ends in view my invention consists in the novel features, details of construction, and combinations of parts, as hereinafter described in detail, illustrated in the drawings, and particularly pointed out in the claims.

My invention will be more readily understood by reference to the accompanying drawings, forming a part of this specification, and in which—

Figure 1 is a top plan view of a container with my invention applied thereto. Fig. 2 is a partly-sectional elevation of the same. Fig. 3 is a similar view from another side. Fig. 4 is a top plan view of the outer cap when the container is closed or sealed. Figs. 5 and 6 are detail views hereinafter described. Fig. 7 is a plan view of a perforated instead of an apertured cap. Fig. 8 and Fig. 9 illustrate modifications hereinafter described, and Fig. 10 illustrates the application of my invention to a container for liquids.

Referring now to the drawings in detail, numeral 11 refers to the body portion of a container, which may be of thin metal, wood, glass, or other material and of any preferred form. This container is provided with the usual neck 12, which if the package is of metal may be a continuation of the material of the container and which terminates in a permanent closing-plate 13, or the neck may be provided with an interfitting cap or ferrule suitably secured thereon and forming substantially a continuation thereof. The closing-plate 13 is provided with an aperture 14, (in the preferred construction,) adapted to register with a corresponding aperture 15 in the top plate 16 of the outer cap 17, which fits snugly over the neck or cap 12. Corresponding annular ribs or beads 18 and 19 form a connection designed to somewhat yieldingly withhold the cap 17 in place and permit of relative rotary movement thereof.

The plates 13 and 16 are not flat or plane surfaces, but are stamped into the form of similar corresponding spirals or helicoids, the extremities of each being connected to form the shoulder 20 and 21, respectively. The plates being superimposed, these shoulders will serve to limit rotary movement of the movable plate in one direction, while rotation of the plate 16 in the other direction will cause said plate to ride up the inclined plane provided by the spiral or helicoidal form of the plate 13. If the movement of the plate 16 is through a comparatively small arc, the major portion of said plates will remain in continuous contact. The effect is obviously that of the screw, and as the plates are on account of the elasticity of the material of the

caps yieldingly held against relative longitudinal movement by the ribs or beads 18 and 19 they will bind after a slight turn and become locked through friction, which may obviously be regulated by varying the pitch of the incline. The connection should be yielding to the extent of permitting rotation through an arc sufficient to separate the apertures, and thus effect the sealing or closing of the container.

It will be apparent that the apertures should be so located in the plates that they register, and the container is open when the shoulder-stops 20 and 21 are together. Rotation of the outer cap therefore will serve to simultaneously separate the apertures and bind the plates together to effect a tight closure. The helicoidal form of the plates obviates the necessity for the employment of other forms of stops to limit movement when the container is in an open condition, as well as doing away with a screw-threaded connection. It is not essential, however, that the registering apertures be located in the tops of the caps, as they may obviously be located in the sides thereof. Here of course there would be no gradually-increasing friction between the apertured walls; but if the outer cap be made to fit reasonably snugly there will be no leakage and the spiral tops will act as stops. It will be furthermore apparent that I may employ perforated plates, as indicated in Fig. 7, each provided with a plurality of smaller registering apertures 22 instead of a single one. Rotary movement of the outer cap 23 should obviously be more limited in the manner hereinbefore suggested in this construction. I may, furthermore, in the single-aperture construction provide the outer cap with a spout 24, as shown in Fig. 10, and thus adapt the device for use with liquids instead of powdered or granulated solids. My closure would thus become a valve of simple form adapted to check the flow of liquids from a spout particularly adapted for use in connection with oil-cans of various kinds for various purposes. I may also for the sake of appearance, if the broken outer edge of the cap is considered objectionable, provide the outer cap or both thereof with a bead 25, as shown in Fig. 9, the spiral configuration being limited to that portion of the plate or plates within the bead.

Many other modifications of the minor details of my improved closure will doubtless readily suggest themselves to those skilled in the art to which it appertains, and I therefore do not desire to limit my invention to the specific construction herein shown and described.

Having thus described my invention, I

claim as new and desire to secure by Letters Patent—

1. In a container, the combination of a stationary cap with an aperture therein, a cap having a corresponding aperture superimposed and rotatable on said stationary cap, the tops of said caps being in the form of interfitting spirals, and slightly-yielding means for preventing relative longitudinal movement of said caps.

2. In a container, the combination of a pair of superposed, interfitting caps having registering apertures, one rotatable upon the other and yieldingly held against relative longitudinal movement, corresponding portions of each cap being inclined to the direction of movement.

3. In a container, the combination of a pair of superposed, interfitting caps having registering apertures, one rotatable upon the other and yieldingly held against relative longitudinal movement, the tops of said caps being of corresponding helicoidal form.

4. In a container, the combination, with a neck having a reduced aperture therein, of a cap rotatable on said neck having a corresponding aperture and adapted to seal said container except when said apertures register, said cap and neck being provided with yielding means to check relative longitudinal movement and juxtaposed planes inclined to the direction of rotary movement.

5. In a container, the combination of a pair of superposed, interfitting caps having registering apertures therein, one rotatable upon the other and yieldingly held against relative longitudinal movement, the tops of said caps being in the form of juxtaposed spirals of one revolution with connected spiral ends.

6. A valve comprising a pair of contiguous, correspondingly-apertured plates having relative sliding movement one upon the other, said plates being inclined to the direction of movement and the apertured portions thereof being held in continuous contact.

7. A valve comprising a pair of contiguous, correspondingly-apertured plates having relative sliding movement one upon the other, said plates being helicoidal in form, means for retaining said plates continuously in slightly-yielding contact, and means for rotating one thereof upon the other.

In testimony of the foregoing I have hereto set my hand in the presence of two witnesses.

THOMAS C. BOOTH.

Witnesses:

J. FINFER,

FRED H. BOWERSOCK.