

Sept. 27, 1932.

A. M. MONARCH

1,880,022

CLOSURE FOR CONTAINERS

Filed Sept. 30, 1930

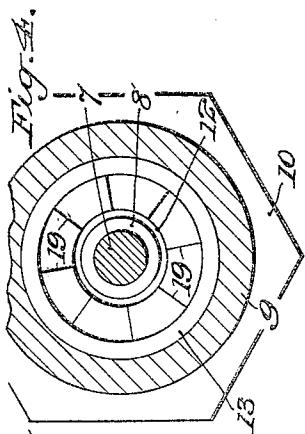
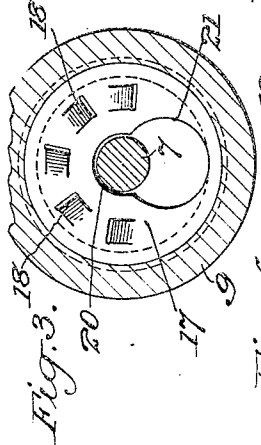
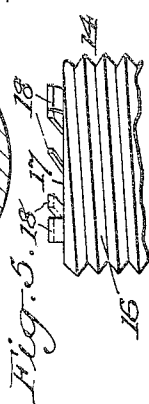


Fig. 6.

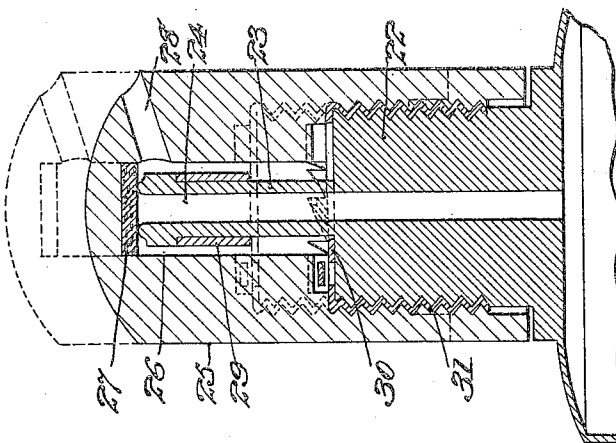


Fig. 1.

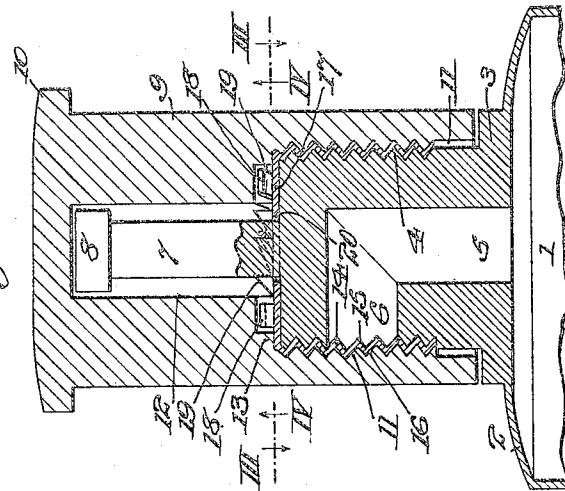
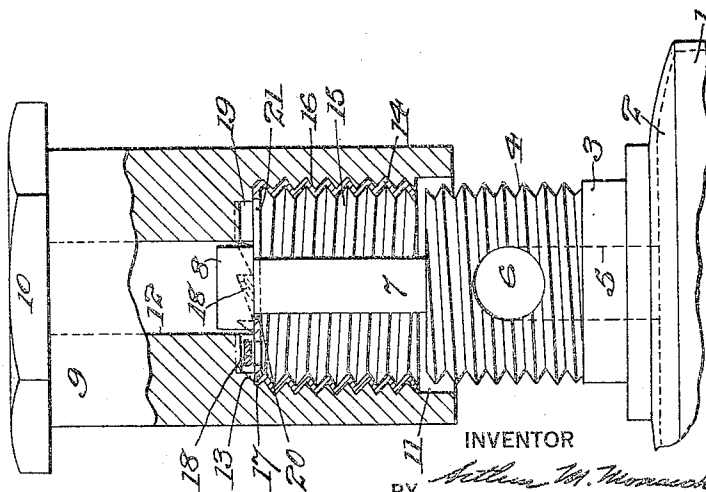


Fig. 2.



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CLOSURE FOR CONTAINERS

Application filed September 30, 1930. Serial No. 485,428.

This invention relates to an improvement in closures for containers and has for its object to provide means whereby a cap, constituting a closure, is limited in its movement and is secured against accidental loss or displacement.

Another object is to provide novel means of assembling and holding the parts forming the closure against separation.

Another object is to provide certain improvements in the form, construction and arrangement of the parts, whereby the above named and other objects may effectively be attained.

A practical embodiment of my invention is represented in the accompanying drawing, in which

Fig. 1 represents a detail vertical section of a container having my improved closure applied thereto;

Fig. 2 represents a similar view with the parts in another position;

Fig. 3 represents a horizontal section taken in the plane of the line III—III of Fig. 1, looking in the direction of the arrows;

Fig. 4 represents a similar view taken in the plane of the line IV—IV of Fig. 1, looking in the direction of the arrows;

Fig. 5 represents a detail side elevation of the upper portion of one of the locking members; and

Fig. 6 represents a detail vertical central section of a modified form of closure.

The container is denoted by 1, the end closure by 2, and the neck by 3. The container may be a collapsible tube formed integral with the closure 2 and neck 3, or the end closure may be a separate member secured to the container 1, or the container may be a rigid bottle or other form of non-collapsible vessel to which the end closure 2 is secured in any well known or approved manner.

The neck 3 extends upwardly from the end closure 2, preferably axially thereof, and may be formed integral with the closure 2 and secured thereto in any desired manner.

The upper portion of the neck 3 is screw threaded at 4 and provided with a centrally arranged bore 5 extending outwardly from the interior of the container and arranged to

connect with a horizontal bore 6 to permit the material to pass therethrough from the container.

A stud 7 uprises from the top of the neck and is provided with an enlarged head 8, the purpose of which will be hereinafter explained. This stud 7 may be formed integral with the neck or it may be secured thereto in any well known or approved manner.

A cap 9 of rubber, bakelite, or other suitable material is provided with an enlarged head 10, a screw threaded recess 11 in its lower end, and a tubular bore 12 of small diameter, which extends upwardly from the top of the recess into the cap to a point near the top and forms between the recess and bore an annular shoulder 13.

A cup-shaped member 14, of relatively thin metal, is provided with interior screw threads 15, exterior screw threads 16, and a top 17, of which the interior threads 15 are arranged to coact with the screw threads 4 on the neck, and the exterior threads 16 arranged to enter the threaded recess 11 of the cap 9.

This cup-shaped member 14 is adapted to be interlocked with the cap 9 by means of one or more yielding pawls 18 which, in the present instance, are cut from the top 17 of the member and bent upwardly into position to be brought into engagement with an annular series of teeth 19 formed in the shoulder 13 of the cap 9.

The top 17 of the member 14 also has an elongated slot, one end 20 of which is concentrically disposed therein and is of slightly larger diameter than the diameter of the stud 7, so that, when the parts are assembled, the member will be free to slide on the stud, while the other end 21 of the slot is eccentrically arranged in the top 17 and has its diameter slightly larger than the head 8 of the stud 7. This enlarged eccentric end 21 of the slot serves to admit of the passage of the head 8 therethrough so that the member 14 may be disposed on the neck.

In assembling the device, the member 14 is first placed over the neck 3 on the container so that the head 8 on the stud 7 may pass through the eccentric end 21 of the slot and then moved downwardly and laterally to a

position where the concentric end 20 of the slot embraces the stud 7. In this position the member 14 is then rotated in one direction to bring the interior threads 15 into
 5 coaction with the threads 4 on the neck 3 and the member screwed downwardly until the top 17 of the member engages the neck 3. The cap 9 is now placed in position so that the stud 7 and head 8 will enter the recess 11
 10 and bore 12, and, upon rotating the cap in one direction, the interior threads of the recess 11 will engage the exterior threads 16 on the member 14 until the yielding pawls 18 on the top 17 of the member engage the teeth
 15 19 in the shoulder 13 of the cap 9. The member and cap will now be interlocked and the member disposed in position to close the outlet 6 in the neck 3, as shown in Fig. 1. In order to open the outlet 6, the cap is rotated
 20 in a reverse direction, thereby forcing the teeth 19 against the upper edges of the pawls 18 and so transferring the rotary movement to the member 14 which, in turn, cause the interior threads 15 to rotate on the threads
 25 4 of the neck 3 and raise the member and cap together until the outlet 6 in the neck is exposed, as shown in Fig. 2. The cap and member are limited in their upward movement by the top 17 of the member coming
 30 in contact with the head 8 of the stud 7, thereby securing the cap against loss or displacement. When it is desired to close the outlet 6, the cap with the member locked therein is rotated so that the interior threads
 35 15 of the member will engage the threads 4 on the neck 3 until the top 17 comes in contact with the neck 3, as shown in Fig. 1, in which position the outlet 6 will be closed.

In the form shown in Fig. 6, the neck 22 is
 40 provided with a reduced portion 23 extending upwardly therefrom and has a centrally disposed outlet 24 therethrough for the passage of the contents of the container. The cap 25 has a tubular bore 26 in which is
 45 secured a flexible washer 27 of cork, rubber or other suitable material, which is adapted to be brought into and out of contact with the upper end of the reduced portion 23 to close and open the outlet 24. The cap 25 is
 50 also provided with an outlet 28 so that the contents may pass therethrough from the outlet 24 in the reduced neck portion 23 when the washer 27 in the neck is released therefrom. In order to limit the outward move-
 55 ment of the cap 25, I provide the reduced neck portion 23 with a collar 29 of cork or other yielding material, which is arranged to be engaged by the top 30 of the member 31
 60 as the cap 25 is unscrewed on the neck 22.

It is obvious that various changes may be made in the form, construction and arrangement of the several parts without departing from the spirit and scope of my invention;
 65 and hence, I do not intend to be limited to

the details herein shown and described except as they may be included in the claims.

What I claim is:

1. A closure for containers comprising, a neck on the container having an outlet therein, a cap movable on said neck, and a cup-shaped element disposed in the cap and arranged to engage the exterior of the neck for opening and closing said outlet and securing the cap against loss or displacement. 70 75

2. A closure for containers comprising, a neck on the container having an outlet therein, a cap movable on said neck, and a cup-shaped element interposed between the cap and the exterior of the neck for opening and closing said outlet and securing the cap against loss or displacement. 80

3. A closure for containers comprising, a neck on the container having an outlet therein, a cap movable on said neck, and a cup-shaped element disposed in the cap and movable therewith, said element being arranged to engage the exterior of the neck for opening and closing said outlet and securing the cap against loss or displacement. 90

4. A closure for containers comprising, a neck on the container having an outlet therein, a cap movable on said neck, and a cup-shaped element interposed between the cap and neck for securing the cap against loss or displacement, said element being movable with the cap and arranged to engage the exterior of the neck for opening and closing said outlet. 95

5. A closure for containers comprising, a neck on the container having an outlet therein, a stud uprising from said neck, a cap movable on the neck for opening and closing said outlet, a tubular bore in said cap for housing said stud, and a cup shaped element engaging the cap and stud for securing the cap against loss or displacement. 100 105

6. A closure for containers comprising, a neck on the container having an outlet therein, a stud uprising from said neck, a cap movable on said neck for opening and closing said outlet, a tubular bore in said cap for housing said stud, and a cup shaped element in the cap arranged to engage the neck and stud for securing the cap against loss or displacement. 110 115

7. A closure for containers comprising, a neck on the container having an outlet therein, a stud uprising from said neck and provided with an enlarged head, a cap movable on said neck for opening and closing said outlet, a tubular bore in said cap for housing said stud and head, and a cup shaped element in the cap arranged to engage the stud and head for securing the cap against loss or displacement. 120 125

8. A closure for containers comprising, a neck on the container having an outlet therein, a cap movable on said neck, a cup shaped element carried by the cap and arranged to 130

engage the neck for opening and closing said outlet, and a device coacting with said element and cap for locking the element to the cap and securing the cap against loss or displacement.

8 9. A closure for containers comprising, a neck on the container having an outlet therein, a cap movable on said neck, a cup shaped element having a threaded engagement with the cap and neck and arranged to open and close said outlet, and a device coacting with said element and cap for locking the element to the cap and securing the cap against loss or displacement.

10 10. A closure for containers comprising, a neck on the container having an outlet therein, a cap movable on said neck, a cup shaped element having a threaded engagement with the cap and neck and arranged to open and close said outlet, and a device coacting with said element and cap for locking the element to the cap and securing the cap against loss or displacement, said device including a member on the cap and a member carried by the element.

15 11. A closure for containers comprising, a neck on the container having an outlet therein, a cap movable on said neck, a cup shaped element having a threaded engagement with the cap and neck and arranged to open and close said outlet, and a device including a rigid member on the cap and a yielding member carried by said element, said members serving to lock the element to the cap and secure the cap against loss or displacement.

20 25 In testimony, that I claim the foregoing as my invention, I have signed my name this 25th day of September, 1930.

ARTHUR M. MONARCH.