(No Model.)

B. K. DORWART.

CONTROLLABLE DELIVERY MOUTH.

No. 372,899. Patented Nov. 8, 1887.

Fig. 2.

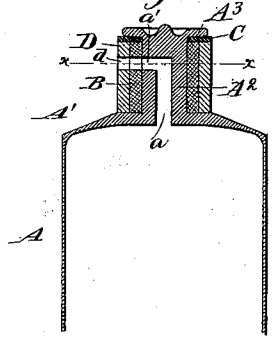


Fig. 1.

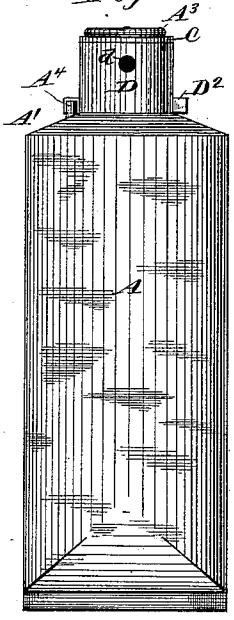


Fig. 3.

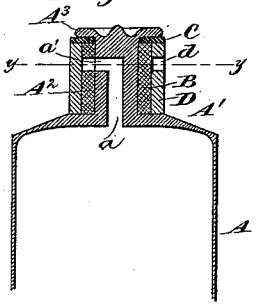


Fig. 2a.

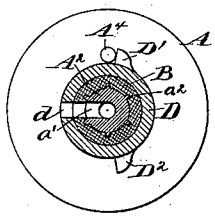


Fig. 3a.

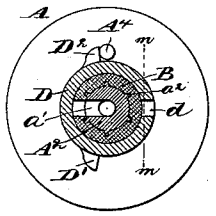


Fig. 6.

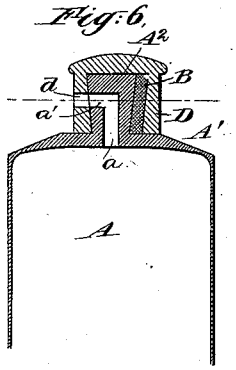


Fig. 4.

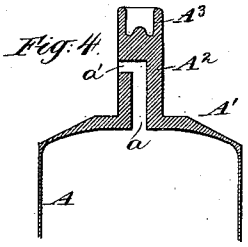


Fig. 7.

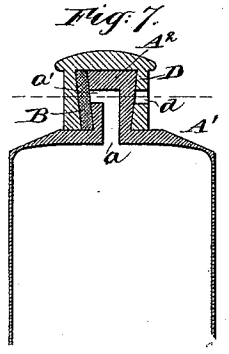


Fig. 5.

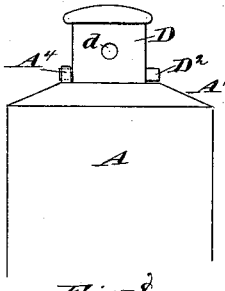


Fig. 6a.

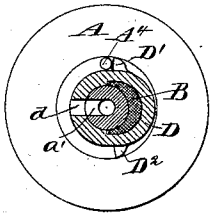


Fig. 7a.

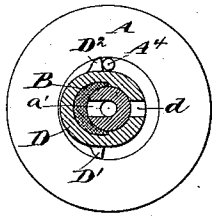
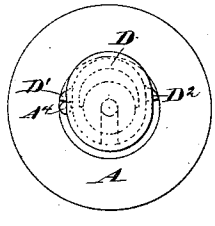


Fig. 8.



Witnesses:
Charles R. Searle.
H. A. Johnstone.

Inventor:
Benjamin K. Dorwart.
by his attorney
Thomas Drew Stetson

N. PETERS. Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

BENJAMIN K. DORWART, OF NEW YORK, N. Y.

CONTROLLABLE DELIVERY-MOUTH.

SPECIFICATION forming part of Letters Patent No. 372,899, dated November 8, 1887.

Application filed January 19, 1887. Serial No. 224,826. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN K. DORWART, of the city and county of New York, in the State of New York, have invented a certain new and useful Improvement in Stoppers, of which the following is a specification.

The invention is intended more particularly for closing the mouths or delivering ends of collapsible tubes used for semi-fluid material, such as vaseline or colors ground in water or oil. Such tubes have been long used and are much approved; but there are difficulties in the opening and closing of the mouth. One is the liability of the stopper to become misplaced or lost. There have been many efforts to attain the desired end by a permanently-attached movable top; but all known to me are costly.

My present invention provides for conveniently opening and closing at will without detaching any part. It is symmetrical and tasty in appearance, and may be cheaply made by the ordinary processes. It does not require nice workmanship. The neck or delivery-tube has an opening on one side, which is covered or uncovered at will by revolving or partially revolving a ring having a corresponding aperture. A shell of cork interposed between the inclosing-ring and the tube, having a corresponding perforation, insures a tight stopping of the hole whenever the ring is rotated to bring the holes out of line. I secure the revolving ring upon the neck by spinning over or otherwise spreading a lip provided on the end of the tube. I provide means for limiting the turning motion of the ring, so that on being turned hard in one direction it is certain to be stopped with the apertures in line for delivering the contents, and on being turned hard in the other direction it is sure to be arrested in the position to tightly close the aperture.

The following is a description of what I consider the best means of carrying out the invention.

Figure 1 is a side view of the entire vessel, having a mouth controlled by my invention. Fig. 2 is a central vertical section of the upper portion thereof, with the ring set in the position to open the mouth. Fig. 2^a is a cross-section on the line $x\ x$, Fig. 2. Fig. 3 shows the same with the ring turned in the opposite position to close the mouth. Fig. 3^a is a cross-section on the line $y\ y$, Fig. 3. Fig. 4 is a central vertical section through a portion at an early stage in the manufacture, before the ring with the cork is applied and the lips spun down. The remaining figures show a modification. Fig. 5 is a side view of the upper portion. Its position corresponds to that shown in Fig. 1. Fig. 6 is a section corresponding to Fig. 2. Fig. 6^a is a section corresponding to Fig. 2^a. Fig. 7 is a section corresponding to Fig. 3. Fig. 7^a is a horizontal section corresponding to Fig. 3^a. Fig. 8 is a plan view.

Similar letters of reference indicate corresponding parts in all the figures where they occur.

Referring to Figs. 1 to 4, inclusive, A is the body of the tube, A′ the shoulder, A^2 the neck, and A^3 a lip, which is an extension of the neck and properly formed to allow of being spun over to hold the other parts in position. A^4 is a projection on the exterior of the shoulder A′, for a purpose which will presently appear. An axial aperture, a, extends from the interior of the tube into the neck and connects with a lateral aperture, a'. Through the passage thus arranged the contents of the tube are discharged laterally from the neck, when required, by compressing the body A. The exterior of the neck is ridged or roughened longitudinally.

B is an envelope of cork serving as a packing. Its interior is engaged by longitudinal ridges a^2, so that it cannot turn. Its exterior is truly and smoothly finished. An aperture is made through the cork B, forming a continuation of the aperture a'.

C is a washer of brass.

D is a ring, of soft metal or other suitable material, inclosing the cork B and provided with an aperture, d, which, when the ring is turned in the proper position, comes in line with the passage a' and allows the paint to exude. When this ring is turned half around, it brings the unperforated portion of the ring across the aperture a' and tightly closes the latter.

D′ D^2 are projections formed on the exterior of D. These are so placed, relatively to the stop A^4, that when the projection D′ strikes this stop, the hole d is in line with the passage a'. When the projection D^2 strikes the stop A^4 the passage a' is tightly closed.

In applying the parts together the cork B, previously formed by cutting tools, or otherwise, in the form of smooth rings of proper width and thickness, is softened by steaming or boiling, and is easily thrust on the neck A^2, the lips A^3 being then in the position shown in Fig. 4. The ring D is then applied over the cork, tightly inclosing it. Then the lip A^3 is spread a little to keep the parts in place.

Immediately, or at some later period, a spinning tool is applied, and the lip A^3 is spread out into the position shown in Figs. 1, 2, and 3, pressing gently on the outer face of the ring, holding it reliably in position, but with freedom to be turned partially around on the neck.

Figs. 6 to 8, inclusive, show a modification. In this form of the device the cork B, instead of remaining stationary with the neck, turns with the ring. Instead of extending quite around in the inside of the ring, it extends only one-half or some other fraction of the distance. Shoulders, where it terminates, hold it reliably and compel it to turn. In this form of the device the inner face instead of the outer face of the cork is finished with special care and forms the rubbing-surface when the ring is partially revolved. In this form the ring D is mounted eccentrically on the neck A^2. The exterior of the ring may be elliptical or any other form that taste or convenience may prescribe; but I esteem it important to retain the projections $D' D^2$, as before described.

Other modifications may be made by a good mechanic without departing from the principle or sacrificing the advantages of the invention. I propose in some cases to enlarge the exterior of the aperture *d*. This may be done by shaving away the material, as indicated by the dotted line *m m* in Fig. 3^a. This may be important with some material in facilitating the wiping or otherwise removing the paint and preventing any from drying and hardening in the passage.

It may be practicable with some fluids or semi-fluids to use other soft material—as rubber—for the part B. I prefer cork for general use.

I claim as my invention—

1. In a controllable delivery-mouth for vessels, the ring D *d* and neck A^2, arranged to allow the apertures *a' d* to be brought into and out of line on the side of the neck by partially turning the ring, in combination with each other and with the turned-over lip A^3, substantially as herein specified.

2. In a controllable delivery-mouth for vessels, the ring D *d*, neck A^2, and stop A^4, arranged to bring the apertures *a' d* into and out of line on the side of the neck by partially turning the ring, in combination with each other and with the turned-over lip A^3, substantially as herein specified.

3. The soft-metal tube A, having the shoulder A', neck A^2, lip A^3, stop A^4, and passage *a a'*, in combination with the soft packing B and partially-turning ring D $D' D^2$, arranged for joint operation, as herein specified.

In testimony whereof I have hereunto set my hand, at New York city, New York, this 20th day of December, 1886, in the presence of two subscribing witnesses.

BENJ. K. DORWART.

Witnesses:
M. FREEMAN BOYLE,
H. A. JOHNSTONE.