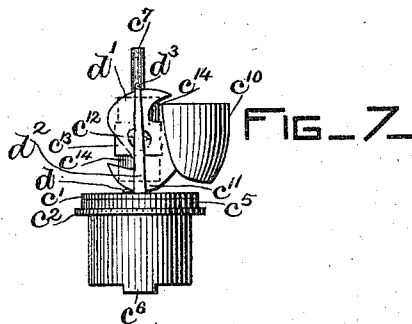
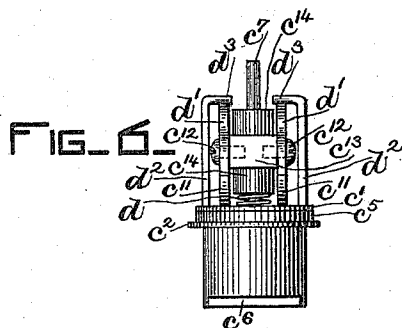
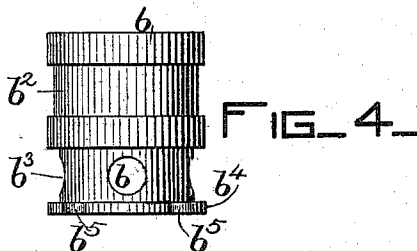
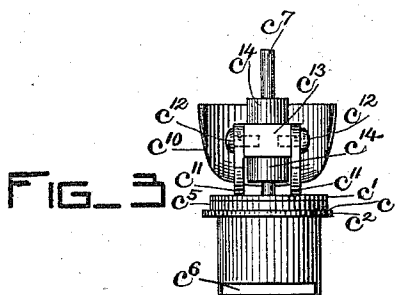
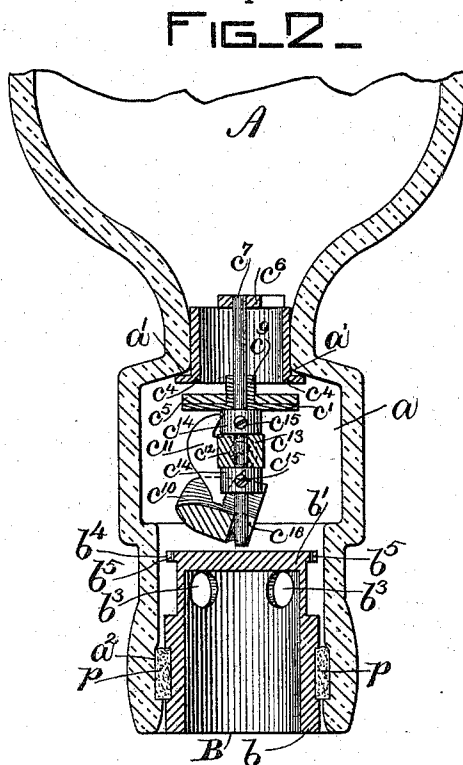
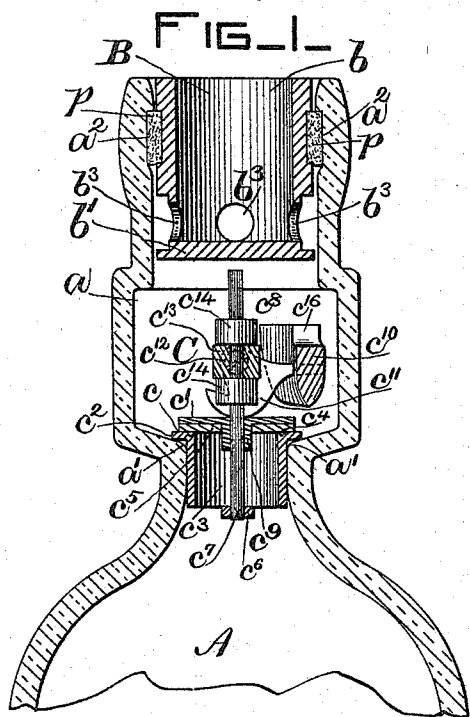


(No Model.)

W. E. FORSTER.
SELF SEALING BOTTLE.

No. 580,521.

Patented Apr. 13, 1897.



WITNESSES

A. Orin

E. W. Harmon

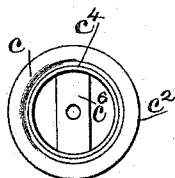


FIG. 5_

INVENTOR
William E. Forster,
By his attorney
Phillips & Anderson.

UNITED STATES PATENT OFFICE.

WILLIAM E. FORSTER, OF LYNN, MASSACHUSETTS.

SELF-SEALING BOTTLE.

SPECIFICATION forming part of Letters Patent No. 580,521, dated April 13, 1897.

Application filed August 6, 1896. Serial No. 601,900. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM E. FORSTER, a citizen of the United States, residing at Lynn, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Self-Sealing Bottles; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The present invention relates to bottles, and more particularly to a self-sealing bottle, and has for its object to provide a simple and inexpensive device to be secured within the neck of the bottle to prevent the refilling thereof, so constructed and arranged that upon the tipping of the bottle the liquid which may be contained therein can readily pour therefrom, but which when an attempt is made to refill the bottle will instantly close the opening in the neck and prevent the entrance of liquid therein.

To this end my invention consists of a self-sealing bottle having in the neck portion a valve and valve-seat and a cam for automatically closing said valve.

It further consists of a self-sealing bottle having in the neck portion a valve and valve-seat and a pivoted and swiveling cam for closing said valve, and, further, of the devices and combination of devices which will be hereinafter described in the following specification and pointed out in the claims.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 shows a central longitudinal section of a portion of a bottle in an upright position. Fig. 2 shows a similar view, the bottle being inverted. Fig. 3 shows a front elevation of the lock or seal removed from the bottle. Fig. 4 shows a side elevation of the guard. Fig. 5 shows a plan of the valve-seat, and Figs. 6 and 7 show a modified form of the lock or seal.

In the drawings, A represents the bottle, B the guard, and C the lock or seal.

The bottle A is made of glass or any other suitable material, and the neck thereof is preferably formed with the enlargement a , the shoulder a' , and the groove a^2 , all of

which may be formed or pressed into the bottle during its manufacture.

As shown in the drawings, the lock or seal C comprises the valve-seat c and the valve c' , and for the purpose of automatically closing the lock or seal I have devised the following mechanism: The valve-seat c is preferably formed upon the flange c^2 of a short tubular body portion c^3 , the flange resting upon the shoulder a' and being secured by cement or any suitable packing in order to keep it in proper position in the neck of the bottle. I have provided the valve-seat c with a groove or depression c^4 and the valve c' with a soft facing c^5 , of cork or any other suitable material, which will be compressed and forced into the groove of the valve-seat, thus forming a positive closing of the lock or seal.

For the purpose of forcing the valve against the valve-seat and closing the lock or seal I have provided the following mechanism: Attached to or formed integrally with the tubular body portion c^3 at its lower end is a narrow cross-bar c^6 , in which is fixedly supported the stem or rod c^7 , which supports the closing-cam c^8 and upon which the valve c' is adapted to have a limited sliding movement, as shown, the valve being preferably provided with the short tubular bearing c^9 , which closely fits the stem or rod c^7 . The closing-cam c^8 preferably comprises the weighted body portion c^{10} , from which extend the cam sections or arms c^{11} , which are pivoted by screws or studs c^{12} to a freely-swiveling collar or block c^{13} , mounted upon the stem or rod c^7 and held from longitudinal movement on said rod by the fixed collars or blocks c^{14} , held to said stem or rod by the set-screws c^{15} . The above-suggested arrangement is such that when the bottle is in an upright position the weighted cam c^8 will force the valve c' in close contact with the valve-seat c , thus sealing and locking the bottle, and when the bottle is tipped the weighted cam will swing upon its pivots and move away from the valve c and permit the liquid in the bottle to force it away from the valve-seat and thus to permit a free flow of the liquid from the bottle.

By mounting the cam c^8 upon a swiveling support I prevent the possibility of its getting in such a position that it may be held open

and the bottle filled by holding it upon its side and submerging the same, for it is obvious that the weight will swing by gravity to its lowest position, thus forcing the cam-sections c^{11} in contact with the valve c' , which will lock and seal the bottle.

It will be noted that the stem or rod c^7 is extended to form a bearing for the weighted body portion c^{10} of the cam c^8 , against which it rests when in its inverted position and which prevents its being swung completely over, and I find it desirable to form a notch or bearing c^{16} in the edge of the body portion c^{10} , in which the end of the stem or rod c^7 fits when the bottle is inverted, as shown in Fig. 2.

For the purpose of preventing the insertion of a wire or rod into the bottle to tamper with the lock or seal C, I have provided a guard B, fitted into the neck of the bottle above the lock or seal C.

The guard B is made of glass, metal, or other suitable material and comprises the tubular portion b , of a diameter to substantially fit the inner diameter of the neck of the bottle, and the bottom b' .

The guard B is fitted within the neck of the bottle and held therein with its top substantially on a level with the top of the neck by any suitable means, as by the packing p , which may consist of cork, rubber, or any suitable cement placed within the groove a^2 in the neck of the bottle, and a groove b^2 upon the outer side of the guard B. In the lower end of the tubular portion b of the guard B, just above the bottom b' , there is formed a series of apertures b^3 , through which the contents of the bottle may freely flow. Above the aperture b^3 the tubular portion b is adapted to receive the usual cork or stopper used in closing the bottle.

The guard B may be provided at its lower end with a rib or projection b^4 , which is approximately of the inner diameter of the neck of the bottle and which is provided with a series of notches b^5 , whereby the liquid within the bottle may be permitted to flow to and through the apertures b^3 .

By the above-suggested arrangement the liquid is permitted to have a free flow from the bottle, but no tool or wire can be inserted into the neck of the same to tamper with the lock or seal.

In Figs. 6 and 7 is shown a modification of the device wherein a small coiled spring d is placed around the rod or stem c^7 , which rests at one end against the fixed collar c^{14} and at the other end bears upon the valve c' , thereby holding the same in close contact with the valve-seat c .

For the purpose of withdrawing the valve from contact with the valve-seat the cam c^8 is provided with the cam-sections d' in addition to the cam-sections c^{11} , the cam-sections d' and c^{11} being oppositely disposed, as shown, cam-sections d' being opening-cams and cam-sections c^{11} closing-cams.

The valve c' is provided with the arms d^3 ,

which have inwardly-bent ends d^3 , which take over the opening-cam sections d' , whereby a movement of the cam c^8 in one direction will, by means of the cam-sections c^{11} , force the valve in close contact with the valve-seat, and a movement of the cam c^8 in the opposite direction will, by means of cam-sections d' and arms d^3 , cause the valve c' to be moved away from the valve-seat c and permit the escape of liquid from the bottle.

It will be noted that by means of the pivoted weighted cam the lock or seal is positively closed or locked, except when the bottle is inverted, and that by swiveling the support for the cam it will instantly fall into a closing position should the bottle be held on its side or in a horizontal position to attempt to fill it by submerging it.

Instead of forming the valve-seat c upon the tubular section c^3 , I may form the same on the shoulder a' , in which case the rod or stem c^7 would be suspended from the base of the guard B.

Having fully described my invention and its mode of operation, I claim as new and desire to protect by Letters Patent of the United States—

1. In a self-sealing bottle, a valve and valve-seat, and a cam arranged to bear upon and to have a moving contact with said valve to actuate the same, substantially as described.

2. In a self-sealing bottle, a valve and valve-seat, and a swinging cam in movable contact with said valve to actuate the same, substantially as described.

3. In a self-sealing bottle, a valve and valve-seat, and a weighted cam in movable contact with said valve to actuate the same, substantially as described.

4. In a self-sealing bottle, a valve and valve-seat, and a cam swiveling independently of the valve arranged to bear upon and actuate said valve, substantially as described.

5. In a self-sealing bottle, a valve and valve-seat, and a pivoted weighted cam arranged to bear upon and to actuate said valve, substantially as described.

6. In a self-sealing bottle, a valve and valve-seat, and a swiveling weighted cam arranged to bear upon and to actuate said valve, substantially as described.

7. In a self-sealing bottle, a stem or rod, a valve sliding thereon, and a cam for moving said valve along said rod, substantially as described.

8. In a self-sealing bottle, a tubular body portion having a valve-seat at its upper end, a rod or stem supported by said body portion, a valve movable upon said rod or stem, and a cam to move said valve along said rod, substantially as described.

9. In a self-sealing bottle, a sliding spring-pressed valve and a double cam for actuating the same, substantially as described.

10. In a self-sealing bottle, the combination with a locking or sealing device, of a tubular guard having a closed bottom, apertured side

walls and an external notched flange or rib, substantially as described.

11. In a self-sealing bottle, the rod or stem, a suitable support therefor, a valve movable upon said rod or stem, a loose collar or block upon said rod or stem, fixed collars or blocks upon opposite sides of said loose collar or block, and a pivoted cam upon said loose collar or block, for actuating said valve, substantially as described.

12. In a self-sealing bottle, a valve and valve-seat, a spring acting to force said valve in contact with said valve-seat, a movable

cam and connections between said valve and cam, substantially as described.

13. In a self-sealing bottle the combination of a stem or rod, a valve movable on said stem or rod, and a cam arranged to swivel around said stem or rod and to actuate said valve, substantially as described.

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

WILLIAM E. FORSTER.

Witnesses:

T. HART ANDERSON,
HENRY F. STROUT.