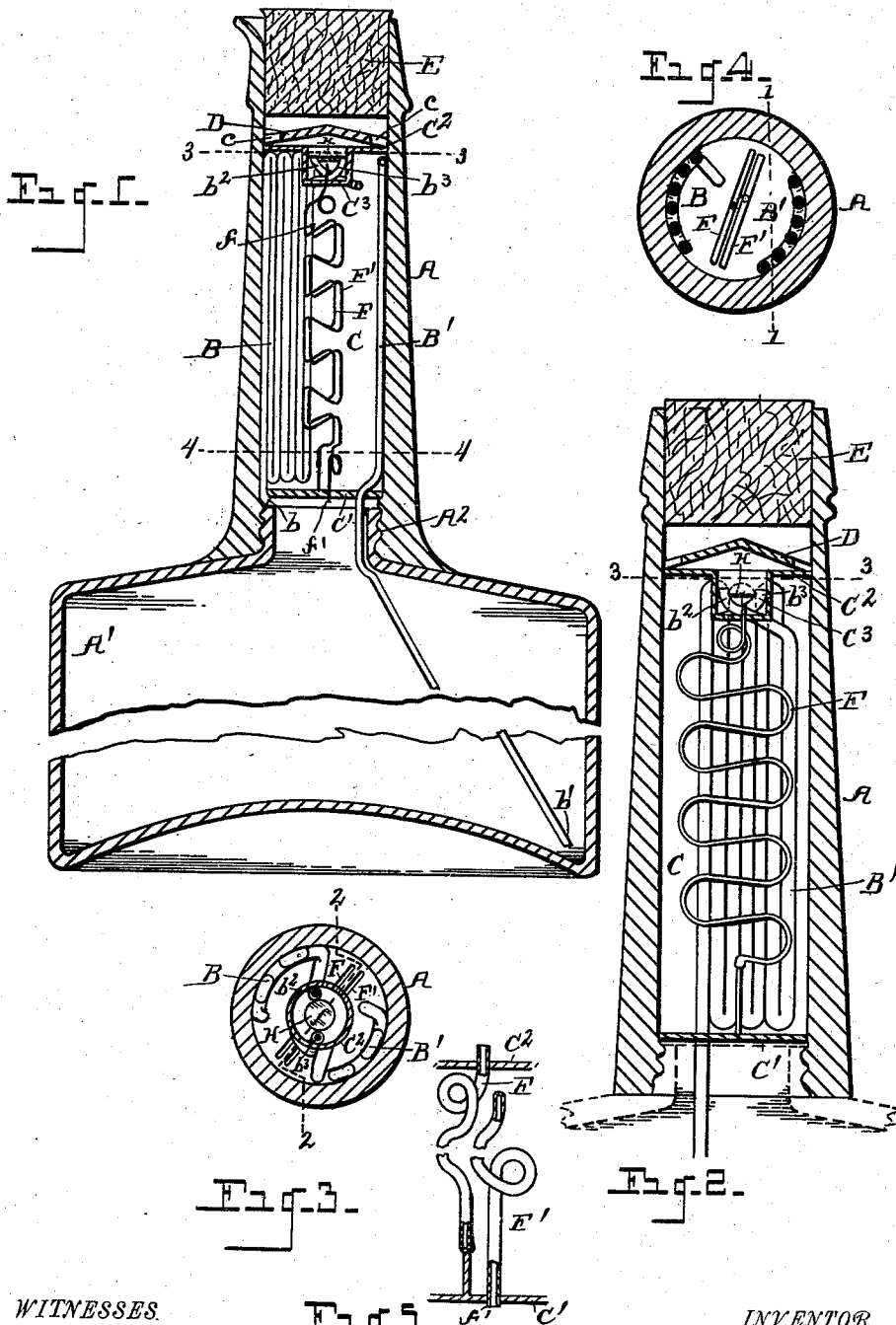


(No Model.)

E. SCHORR.
SELF SEALING BOTTLE.

No. 545,982.

Patented Sept. 10, 1895.



WITNESSES

O. J. Baerzger.

M. A. Martin.

INVENTOR

Ernest Schorr

By *his* Attorney

Newell S. Wright.

UNITED STATES PATENT OFFICE.

ERNEST SCHORR, OF DETROIT, MICHIGAN.

SELF-SEALING BOTTLE.

SPECIFICATION forming part of Letters Patent No. 545,982, dated September 10, 1895.

Application filed December 31, 1894. Serial No. 533,383. (No model.)

To all whom it may concern:

Be it known that I, ERNEST SCHORR, a citizen of the United States, residing at Detroit, county of Wayne, State of Michigan, have invented a certain new and useful Improvement in a Safety or Self-Sealing Bottle; and I 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, reference being had to the accompanying drawings, which form a part of this specification.

My invention is designed to provide a safety or self-sealing bottle and one which will infallibly disclose an attempt to refill the bottle after its original contents have been withdrawn therefrom.

To these ends my invention consists of the construction, combination, and arrangement of devices hereinafter specified and claimed, and illustrated in the accompanying drawings, in which—

Figure 1 is a vertical section on the line 1 1, Fig. 4. Fig. 2 is a vertical section through the neck of the bottle on the line 2 2, Fig. 3. Fig. 3 is a horizontal section on the line 3 3, Fig. 1. Fig. 4 is a horizontal section on the line 4 4, Fig. 1, looking upward toward the top of the bottle. Fig. 5 is a detail view of the indicator-tubes.

In carrying out my invention I provide the neck A of the bottle with or locate therein two sets of vertically-extended loops, B and B' indicating the two sets of loops, which I prefer to arrange on opposite sides of the neck therein, as indicated. I do not limit myself to any particular number of loops in each set, and their size will depend upon the kind of liquid to be contained in the bottle. The two sets of loops are preferably independent the one of the other. One set of loops—as, for instance, the set B—opens into the upper end of the bottle, as indicated at b, the lower end of the loop terminating toward the lower end of the neck of the bottle. The lower end of the opposite loop is carried downward toward the base of the bottle, as indicated at b', the upper extremities of both loops terminating toward the upper end of the neck of the bottle, as indicated at b² and b³. I have shown the neck of the bottle constructed independently of the body A' thereof and united thereto, as at A².

The neck may be joined to the body of the bottle in any suitable manner. Within the neck I form an air-tight chamber C. To form the said chamber, I locate a diaphragm C' toward the lower end of the neck and an additional diaphragm C² toward the upper end of the neck, the central portion of the upper diaphragm C² being preferably countersunk, as indicated at C³. The upper extremities b² and b³ of the loops B B' open through the diaphragm C², preferably within said countersunk portion C³ thereof.

The lower extremities of the two sets of loops B B' open into the body of the bottle below the diaphragm C', the one extremity opening into said body immediately beneath said diaphragm, as at b, the other extremity, as above explained, being carried downward to the base of the bottle. The main portions of the two sets of loops B B' are located at the sides of the air-chamber C. I prefer that the loops intermediate the extremities thereof should project above the upper extremities b² b³ of the loops. Above the diaphragms C², I locate a shield D to prevent any tampering with said upper extremities, said shield being provided with perforations or orifices (indicated at c) through which the contents of the bottle may discharge. E is an ordinary cork or stopper. Within the air chamber C, I also locate indicator tubes or channels F and F', one of said indicator-tubes, as the tube F, being more fully shown in Fig. 2. These tubes or channels I prefer to arrange in a zigzag or winding form across the neck of the bottle. The upper extremity of one of said indicator tubes or channels, as of the tube F, opens upward through the countersunk portion of the diaphragm C², adjacent to the open ends of the extremities b² b³ of the loops B B'. The lower end of the tube opening upward through the diaphragm C² is closed. The upper end of the opposite tube, as the tube F', is closed at the upper end, as at f, Fig. 1, the lower end thereof opening through the diaphragm C', as at f', Fig. 5.

The operation of the device so far described is as follows: The bottle is filled before the neck A is engaged with the body A' thereof. When the neck with its devices above described is engaged with the body of the bottle, it will be evident that by removing the stop-

per E and turning up the bottle in the customary manner to discharge its contents the liquid within the bottle will enter one set of loops at the point *b* and discharge at the opposite extremity of the corresponding set of loops. At the same time air will enter the upper extremity of the opposite set of loops and be discharged into the base of the bottle, as at the point *b'*. In this manner the contents of the bottle may readily be discharged. I prefer to locate the upper extremities *b²b³* of said sets of loops B B' below the upper face of the diaphragm C² and below the upper ends of the loops intermediate the extremities thereof, so that any attempt to refill the bottle while the bottle is in an upright position will cause the liquid to enter the extremities *b²b³* of both sets of loops B B', in consequence of which the air within the bottle, not being permitted to escape, will effectually prevent the entrance of any liquid into the body of the bottle, so that there can be no liability or possibility of refilling the bottle when in an upright position and exposed to atmospheric pressure. Should any attempt be made to exhaust the air within the bottle, the air would not only be exhausted from the bottle and the loops B B', but would also inevitably be exhausted from the tubes or channels F F', by reason of which any liquid attempted to be put into the body of the bottle would fill the indicator-tubes F F' and permanently remain therein, thereby effectually and infallibly disclosing the fraud, as the liquid would appear in said indicator-tubes and could not be discharged therefrom. These tubes I prefer to make frail, as of thin glass, so that they may be easily broken by undue pressure from without or from within. The air-chamber C may contain, if desired, a few drops of water, so that any attempt to heat the neck of the bottle would cause the air within said chamber, and especially the vapor contained therein, should a few drops of water be placed in said chamber, to expand, and thereby create pressure, which would break the indicator-tubes. I prefer, also, to locate a suitable diaphragm H above the upper end of the tube F to prevent any tampering with said tube. It will thus be apparent that the loops B B' afford the desired atmospheric pressure required to effect the free discharge of the liquid in the bottle, while at the same time they serve to suspend any fluid attempted to be passed therethrough into the bottle and prevent its entrance into the bottle. The indicator-tubes F F' also serve infallibly to detect the attempt to refill the bottle in consequence of the fluid entering therein. The fragile nature of the indicator-tubes, moreover, enables them to be readily ruptured should any attempt be made to force fluid into the bottle, while the air-tight chamber C would frustrate any attempt by the use of heat to drive out the liquid in the indicator-tubes, as such an attempt would be sure to break the indicator-tubes and might explode the neck itself.

The various diaphragms above described also prevent tampering with the orifices of the various tubes.

It will be understood that should an attempt be made to refill the bottle by exhausting the air therefrom one of the indicator-tubes, as the tube F, would be filled. Then should an attempt be made to empty the tube F by exhaustion the other tube, as the tube F', would be filled, and in this manner the fraud would be infallibly manifested. I prefer to coil the tube F at its upper end and to coil the tube F' at its lower end, as shown.

What I claim as my invention is—

1. A bottle provided with diaphragms in its neck forming an air tight chamber there-within, and an indicator tube or channel within said chamber, substantially as set forth.

2. A bottle provided with indicator tubes or channels in its neck, one of said channels open at the top and closed at the base, the other of said channels closed at the top and open at the base, substantially as set forth.

3. A bottle provided with diaphragms in its neck toward the top and bottom thereof forming an air tight chamber therebetween, indicator tubes or channels within said chamber, one of said channels opening through the upper diaphragm and closed at its base, the other of said channels opening through the lower diaphragm and closed at its upper end, substantially as set forth.

4. A bottle having an air tight chamber in its neck and provided with an indicator tube located in said chamber made of fragile material whereby expansion of the air within the air chamber will break said tube, substantially as set forth.

5. A bottle provided with two sets of loops B, B' in the neck thereof, each set opening at the upper end thereof within the upper end of the neck of the bottle, the lower extremity of one of said sets lead downward within the body of the bottle toward the base of the bottle and opening thereinto, the lower extremity of the other of said sets opening into the body of the bottle toward the top thereof at the base of the neck, substantially as set forth.

6. A bottle having diaphragms C' C² in the neck thereof, and two sets of loops B B' located within the neck between said diaphragms, the upper ends of each of said sets of loops opening through the upper diaphragm, and the opposite ends of said sets of loops opening through the lower diaphragm, the lower end of one of said sets carried downward adjacent to the base of the bottle, substantially as set forth.

7. A bottle having in combination with the neck thereof a counter-sunk diaphragm C² and two sets of loops B B', the upper ends of each of said sets of loops opening upward through the counter-sunk portion of the diaphragm and below the upper surface of the diaphragm, substantially as set forth.

8. A bottle provided with diaphragms in the neck thereof forming an air tight chamber C, two sets of loops B B' located within said chamber, the upper extremities of said loops opening through the upper diaphragm and the lower ends of said loops opening into the body of the bottle through the lower diaphragm, indicator tubes located within said chamber, one of said indicator tubes opening through the upper end of said chamber and closed at its opposite end and the lower end of the other indicator tube opening through the lower end of said chamber, and closed at its upper end, and diaphragms to protect the upper ends of said loops and of the corresponding indicator tube, substantially as set forth.

In testimony whereof I sign this specification in the presence of two witnesses.

ERNEST SCHORR.

Witnesses:

N. S. WRIGHT,

O. B. BAENZIGER.