

C. PATTERSON.
Valvular Stoppers for Bottles.

No. 146,018.

Patented Dec. 30, 1873.

Fig. 1.

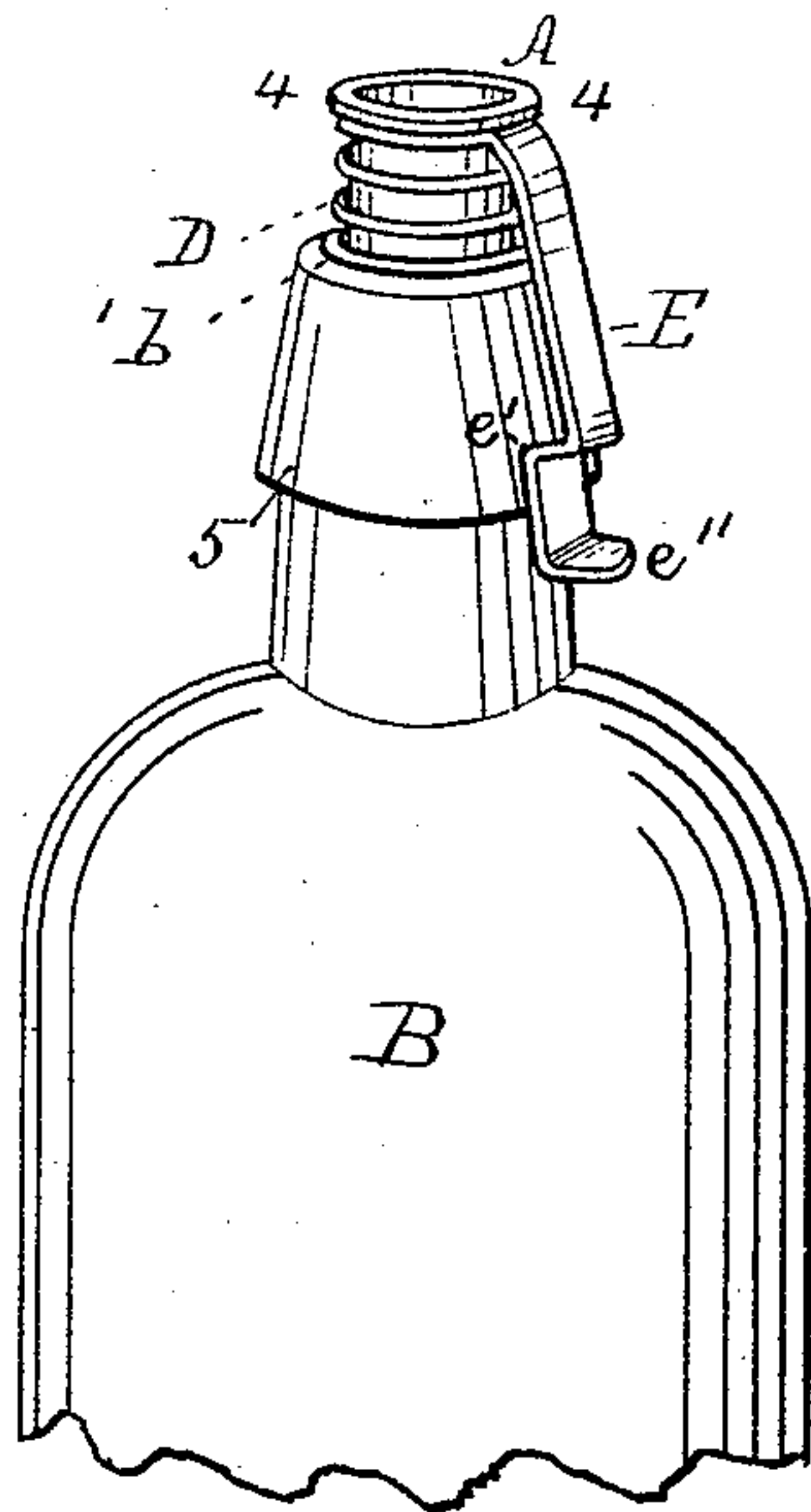


Fig. 2.

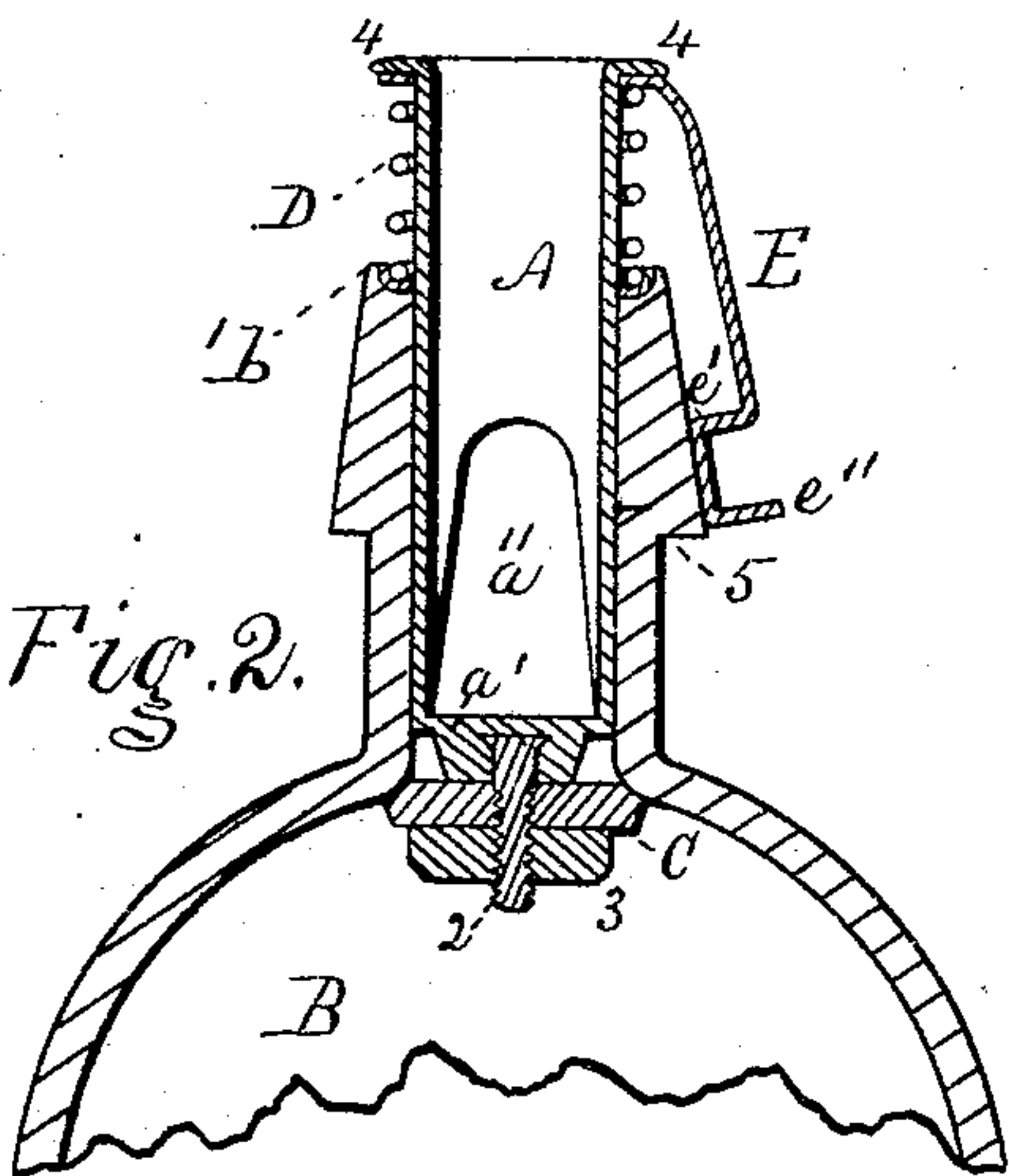
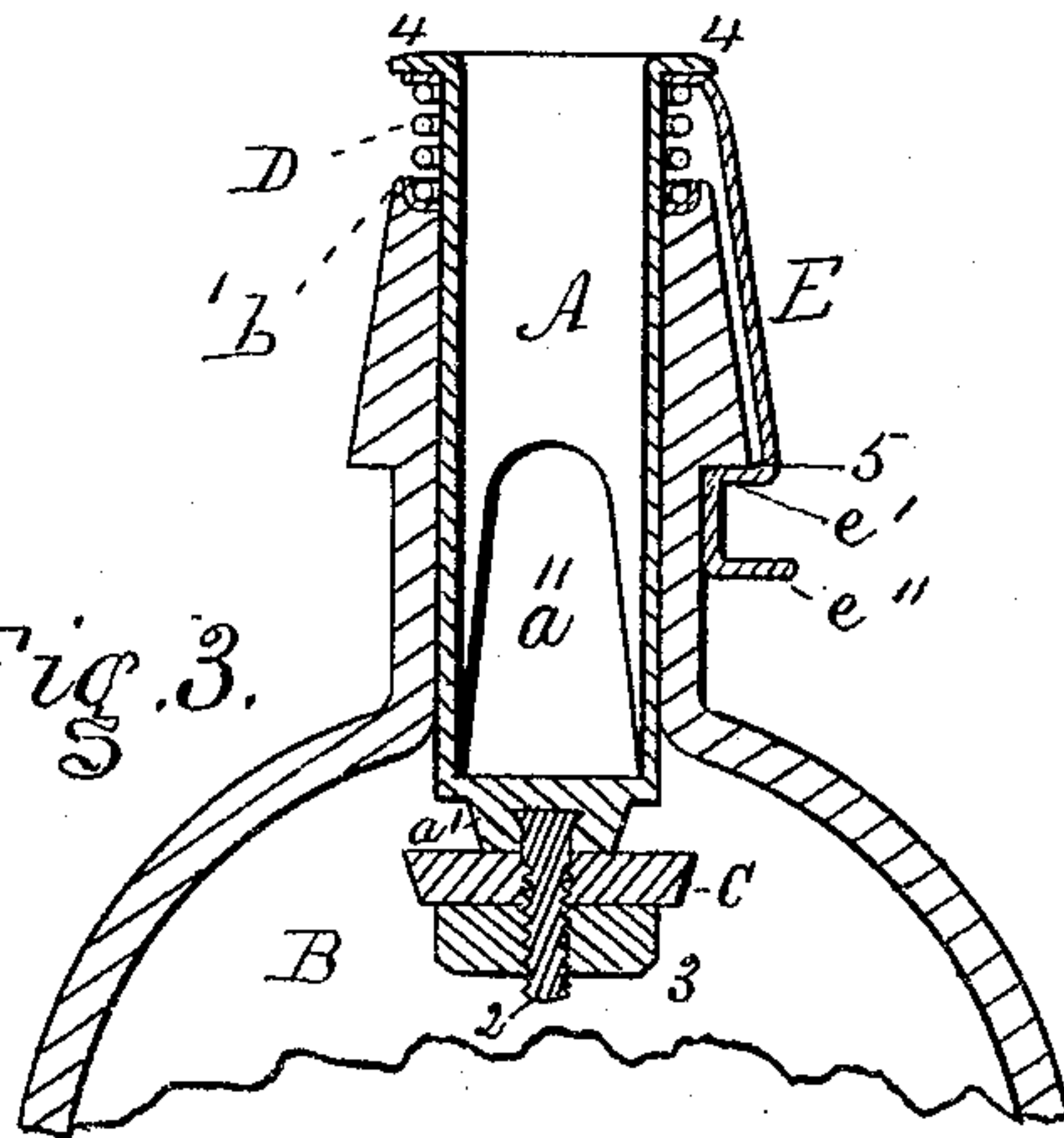


Fig. 3.



Witnesses:

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CALLENDER PATTERSON, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN VALVULAR STOPPERS FOR BOTTLES.

Specification forming part of Letters Patent No. **146,018**, dated December 30, 1873; application filed October 11, 1873.

To all whom it may concern:

Be it known that I, CALLENDER PATTERSON, of the city of Philadelphia, in the State of Pennsylvania, have invented a Valvular Stopper for Bottles, of which the following is a specification:

The object of my invention is to afford a valvular stopper connecting with the lip and throat of the bottle in such a manner that in pouring out the contents thereof the fluid will not come in contact with the operator's thumb or finger, nor the latter necessarily come over the receiving-vessel; that the tube or nozzle of a funnel can be freely inserted in the neck for the purpose of filling the bottle; and that the valve may be held automatically in the opened condition for any length of time that may be desired, and instantly closed with ready facility after the bottle has been filled. My invention relates to an open tube fitted to slide freely up and down within the neck and mouth of a bottle, while the said tube extends upward above the mouth of the former, and is supported by a surrounding spiral spring, which rests upon the edge of the mouth of the said bottle, and the lower end fitted with an elastic disk, which opens and closes the lower end of the throat alternately, as the said tube is moved downward and upward, the downward movement being effected by means of an elastic catch, which extends downward from the upper end of the tube to the lower projecting edge of the lip of the bottle, all which will be found illustrated by the accompanying drawings—

Figure 1 being a perspective view of the upper portion of a bottle having my invention applied thereto; Fig. 2, a vertical central section of Fig. 1; and Fig. 3, a vertical central section of the same, showing the positions of the different parts in relation to the bottle when the latter is open.

The tube A is made about an inch (more or less) longer than the neck and mouth-lip of the bottle B, and fits within the neck of the bottle so as to slide easily up and down. Its lower end is open at two opposite sides, and has attached to its extreme lower part an inverted conical frustum, a' , and a screw-stem, 2, around which latter a bevel-edged disk of elastic gum, C, is secured by a screw-nut, 3,

with the side having the larger diameter of the said disk against the under side of a' . The larger diameter of the disk a' is about a quarter of an inch (more or less) greater than the diameter of the inner side of the neck of the bottle, so that when the tube A is drawn upward, the disk C will close the said lower end of the neck, as represented in Fig. 2, and when the tube is pushed downward a short distance, open communication will be produced between the interior of the bottle and the upper open end of the said tube A through the two openings a'' at its lower end, as shown in Fig. 3. The upper end of A has a narrow flange, 4, projecting around its outer side, against which a spiral spring, D, which surrounds the tube, bears, while the lower end of the spiral D bears upon the upper edge of the lip b' of the neck of the bottle. Attached to the outer edge of the flange 4, the spring-catch E is securely fixed. This catch is bent at its lower end, as represented in the drawings, so as to form a catch, e' , which will slide against the outside surface of the lip of the bottle as the tube A is drawn downward by the finger of the operator in opening the valve, until it passes the under edge 5 of the lip, when it springs under the latter, and thus holds the tube down, and consequently leaves the communication open between the interior of the bottle and its mouth. The extreme lower end of E is bent outward at e'' , so as to afford a broad seat for the finger of the operator. (See Fig. 1.) The spring-catch should be made of springy sheet metal.

The tube, with its conical bottom a' and screw-stem 2, may be cast together in one piece; or the tube may be made of sheet metal or glass, and the conical bottom and screw attached thereto.

The diameter of the elastic disk C being necessarily much larger than the diameter of the tube A, the beveled edge of the said disk turns upward into the space left around between the beveled edge of a' and the inner side of the throat of the bottle, in forcing the tube and the attachments at its lower end down through the throat; and as soon as the disk C passes below the said throat its edges spring outward, as shown in Fig. 3, and the circular burr 3 being only a little less in diameter than the throat, it firmly supports the elastic disk

aforementioned closely up against the shoulders of the lower end of the neck, making an air and water tight fit in consequence of the reaction of the spiral spring D, as represented in Fig. 2.

It will be understood, without any further explanation, that if the operator press the spring-catch E downward by means of his finger on the foot *e'* thereof, in using a bottle having the said valvular stopper applied, as described, the catch *e'* will slide downward against the beveled face of the lip and eventually catch under the shoulder 5 thereof, and thus open and keep open the communication between the mouth and the interior of the bottle, as shown in Fig. 3; that the tube A will readily receive the nozzle of a common funnel to facilitate in filling the bottle; that a slight force outward given to the foot *e'* by his finger will release the catch from the shoulder 5, and allow the tube, with its disk C and nut 3, to rise by the reaction of the spiral spring D, and thus close the throat, as shown in Figs. 2 and 1; and that the operator's finger or thumb will not be washed by the running contents of the bottle in pouring from the latter, nor even be brought over the mouth of the receiving-tumbler or other receiving-vessel.

I am aware that a tube has been made to operate as a valvular stopper in the throat of a bottle by being arranged to slide longitudi-

nally through a mouth-stopper hinged to a frame secured around the outside of the neck of a bottle, in such a manner that the said tube can be turned into and out of the throat of the bottle, as occasion may require, and, when turned into the said throat, the valvular tube will be kept closed by the reaction of a spiral spring around that part of the tube which projects above the said hinged mouth-stopper in which it slides, as shown in Higley's patent, No. 45,005; therefore I do not desire to claim, broadly, the combination, with the throat and mouth of a bottle, of a sliding valvular tube operated by a surrounding spiral spring to close the valve; but

I claim as my invention—

1. The combination, with the throat and mouth of a bottle, of the tube A, with its attachments *a'*, C, 2, 3, and D, when the said tube and its attachments are constructed, arranged, and applied to operate as and for the purposes hereinbefore set forth and described.

2. The spring-catch E, in combination with the upper end of the tube A, the said spring-catch being constructed and arranged to operate substantially as and for the purposes hereinbefore set forth and described.

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Witnesses:

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