

(No Model.)

G. D. COREY.
BOTTLE STOPPER.

No. 310,990.

Patented Jan. 20, 1885.

Fig. 1

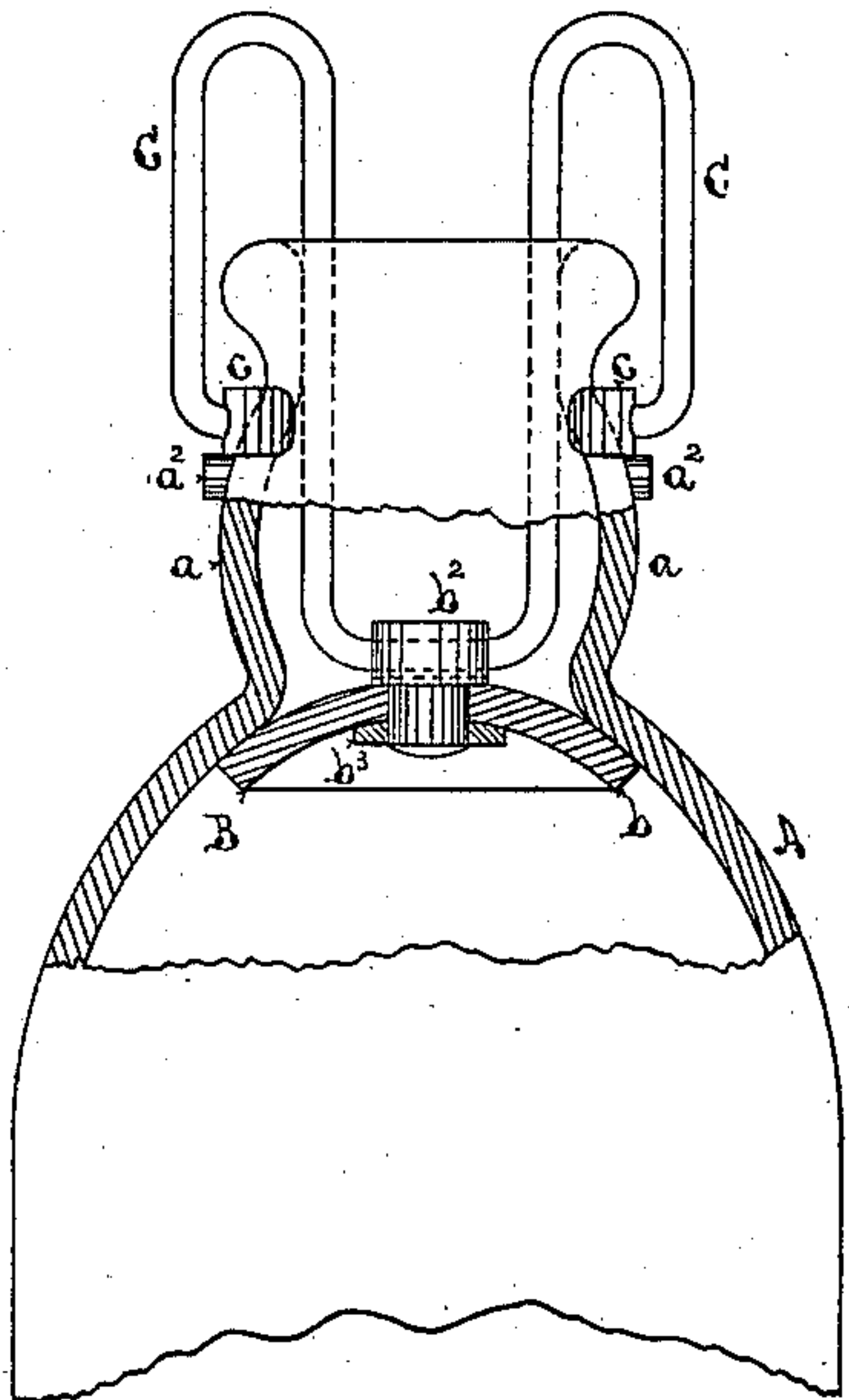


Fig. 2

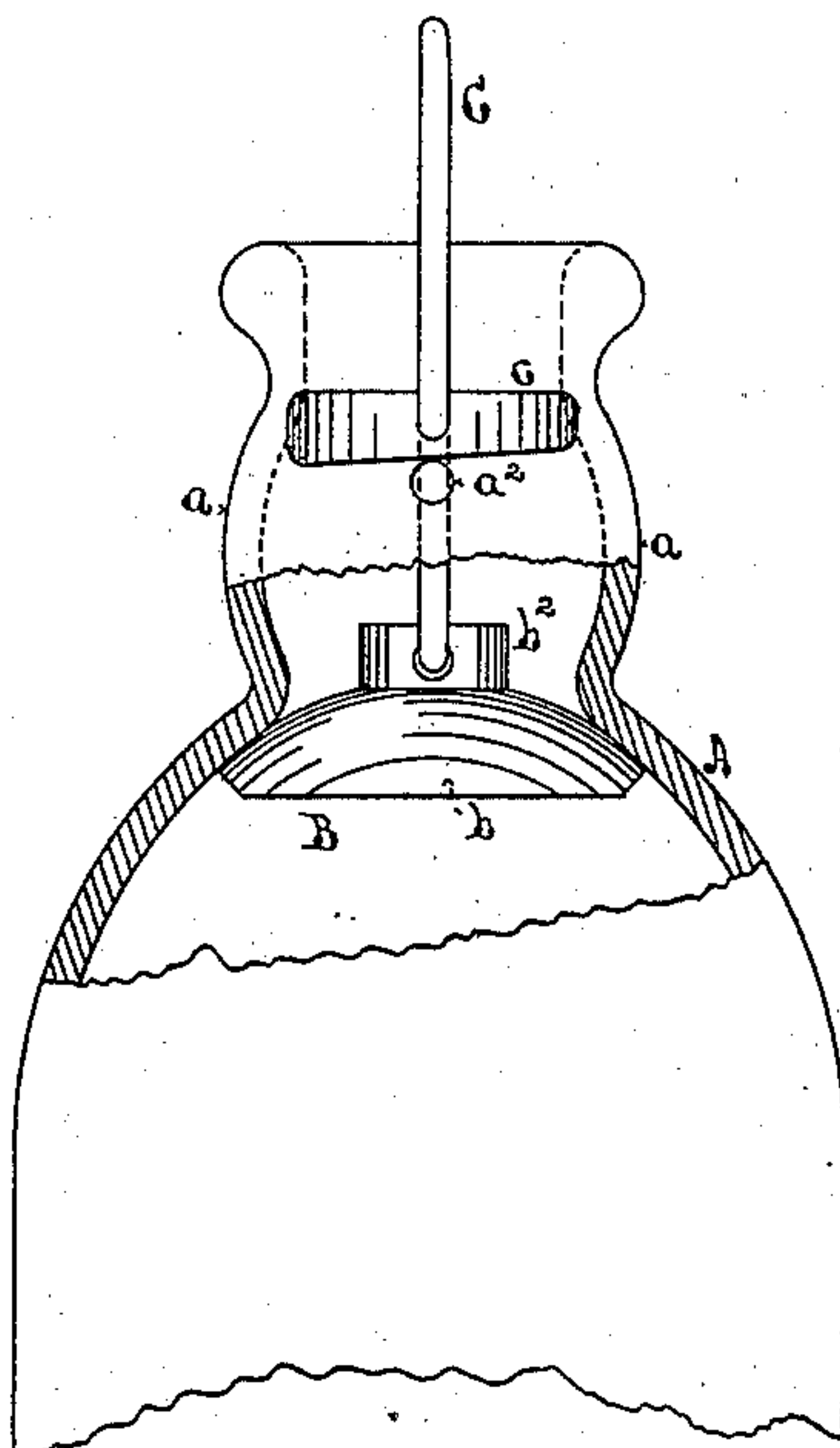
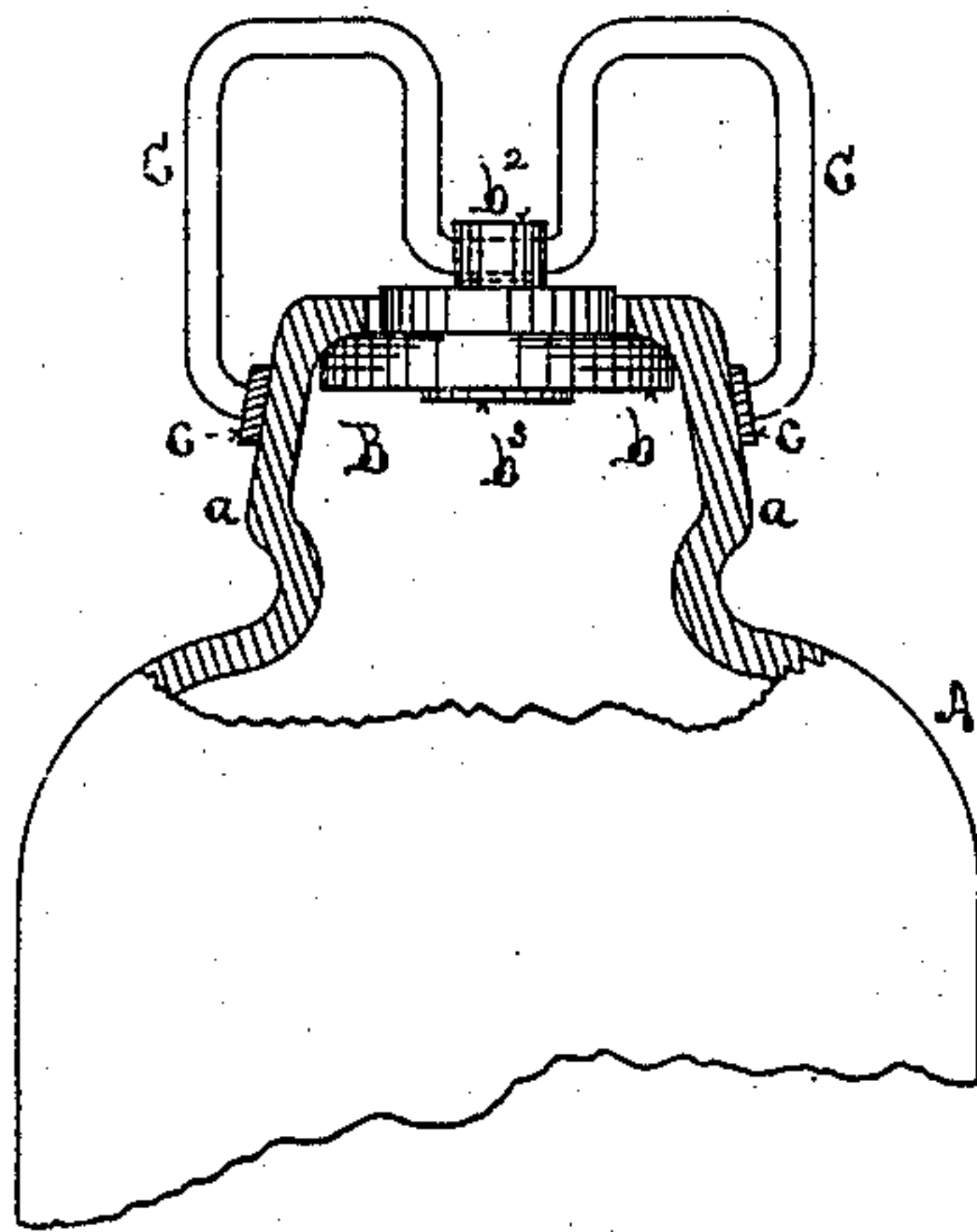


Fig. 3



Witnesses

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UNITED STATES PATENT OFFICE.

GEORGE D. COREY, OF LOWELL, MASSACHUSETTS, ASSIGNOR OF ONE-HALF
TO JAMES F. PUFFER, JR., OF SAME PLACE.

BOTTLE-STOPPER.

SPECIFICATION forming part of Letters Patent No. 310,990, dated January 20, 1885.

Application filed January 26, 1884. (No model.)

To all whom it may concern:

Be it known that I, GEORGE D. COREY, of Lowell, in the county of Middlesex and State of Massachusetts, have invented a new and
5 useful Improvement in Bottle-Stoppers, of which the following is a specification.

My improvement relates to stoppers for bottles, and more particularly to that class of stoppers known as "self-closing" stoppers;
10 and it consists in combining the same with the bottle, so as to give it great simplicity and ease and certainty of adjustment and operation, substantially as hereinafter described and claimed.

15 In the drawings, Figure 1 is an elevation of a bottle, with my improvements attached, partly in section. Fig. 2 is a view of the same, with the bottle partly in section, in a direction at right angles to the section shown in Fig. 1.
20 Fig. 3 is an elevation of a modified form of bottle and stopper provided with my invention.

A is the bottle. B is the stopper, which is made to close from the inside of the bottle by
25 being pressed upward against the neck or outlet, and is held tightly in this position by the pressure of the gases contained in the liquid to be confined in the bottle. The stopper is composed of two members, an elastic flange,
30 b , and a metallic center part, b^2 , projecting upward some distance above the flange, and secured to the latter by a washer, b^3 , which clamps the elastic part b between itself and a
35 shoulder of the metallic part b^2 on the upper side of the elastic part, as shown in Fig. 1. The metallic part b^2 may be secured to the elastic part b in any other suitable manner, or it may be made of india-rubber in one piece
40 with the elastic part b , without departing from the spirit of my invention; but in the latter case I preferably vulcanize it harder than the elastic part b , which is to bear against the bottle-neck. Through the projecting part of b^2 , I
45 make a transverse hole, and pass through it the wire C, both ends of which are bent, so as to extend vertically upward to some distance above the bottle-neck, and are then curved
50 over and carried vertically downward outside of the bottle-neck, as shown, and joined to metallic pieces c , which bear against the bottle-neck on each side, and are curved in a

horizontal direction to conform to its circular exterior shape. Where the wire C passes through the part b^2 it fits the hole loosely, so as to allow the stopper to swing freely in all
55 directions, and the wire C is so bent as to cause the curved pieces c to always bear against the exterior of the bottle-neck. This exterior part of the bottle-neck has a curved surface, a , in a vertical direction, with reference
60 to which the pieces c are so situated that when the stopper B and wire C are pulled upward the pressure of the curved pieces c upon the bottle-neck will tend to hold the stopper against
65 the shoulder at the lower end of the bottle-neck, and thus bring it into the position in which the internal pressure of the gases will close it more firmly. When, however, the
70 wire C and stopper B are pressed downward, the curved pieces c , passing over the swelled or curved part a of the bottle-neck to the part where the neck curves downward and inward,
75 serve to hold the stopper down in the bottle at some distance below the neck while the bottle is being filled or emptied of part of its contents.

In order to give greater security against the stopper being displaced by accidental blows upon the upper curved parts of the wire C
80 when the bottle is stopped, I provide two studs, a^2 , diametrically opposite to each other on the bottle-neck, in such a position that when the stopper B is closed a quarter-rotation of the wire C and stopper B will bring
85 the curved pieces c over these studs a^2 , as shown in Figs. 1 and 2, which will effectually lock the stopper in place, and prevent the bottle being opened until it and the wire C have
90 been turned backward so that the curved pieces shall be clear of the studs a^2 . To further facilitate the passage of the curved pieces c over the studs a^2 , as described, the lower edges of the pieces c are slightly beveled, as
95 shown in Fig. 2. These studs a^2 may be dispensed with, if desired; but I prefer to use them as described.

In Fig. 3 a modification of my improvement is shown, in which the stopper is brought against an interior shoulder at the upper end
100 of the bottle-neck instead of at its lower end, as in Figs. 1 and 2, thus leaving no space in the bottle-neck when the stopper is closed

above the latter for the accumulation of dust and dirt. In other respects, however, the bottle neck, stopper, and connecting parts are made substantially as in Figs. 1 and 2, as before described.

The operation of my invention is as follows: The wire C and stopper B, being in proper position, are pressed downward until the curved bearing-pieces *c* pass over and into the downwardly and upwardly curved part of the bottle-neck and the bottle is filled, when the stopper and wire C are drawn vertically upward, bringing the curved bearing-pieces *c* over the curve of the bottle-neck *a*, and upon its inward and upward inclined part, bringing the stopper B against its bearing-shoulder within the neck of the bottle, where it will be closed more tightly by the pressure of the gases. By rotating the wire C and stopper B one-quarter of the revolution the bearing-pieces *c* are then brought above the studs *a*² in the position shown in Fig. 2, which locks the stopper against accidental displacement. When it is desired to open the bottle, a reverse rotation of the stopper B and wire C and pressing them downward will allow of such portion of the contents of the bottle being poured out as may be desired, and if only part is poured out, the drawing upward of the stopper B and wire C again will effectually confine the remainder of the liquid, with its gases, in the bottle until it is desired to use it.

What I claim as new and of my invention is—

1. The combination of the exterior curved part, *a*, of the bottle-neck, the bearing-pieces *c c*, and the bottle-stopper B, the bearing-pieces pressing against opposite sides of said curved part, and being connected to said bottle-stopper by suitable intermediate spring-connections, whereby the said bottle-stopper shall be held closed against the bearing-shoulder in the neck of said bottle, substantially as described.

2. The combination of the bottle-neck, the bearing-pieces *c c*, pressing against opposite sides thereof, the wire C, and the bottle-stopper B, substantially as described.

3. The combination of the bottle-neck, the bearing-pieces *c c*, the wire C, and the bottle-stopper B, said wire C and stopper B being united by a pivotal connection, substantially as described.

4. The combination of the bottle-neck, the studs *a*² *a*², the bearing-pieces *c c*, the wire C, and the bottle-stopper B, substantially as described.

5. The combination of the bottle-neck, the bearing-pieces *c c*, the wire C, and the bottle-stopper B, the said bottle-neck having its internal bearing-shoulder for the stopper at the upper end thereof, substantially as described.

GEORGE D. COREY.

Witnesses:

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DAVID HALL RICE.