

No. 812,724.

PATENTED FEB. 13, 1906.

C. E. CARROLL.
NON-REFILLABLE BOTTLE.
APPLICATION FILED JAN. 23, 1905.

Fig. 1.

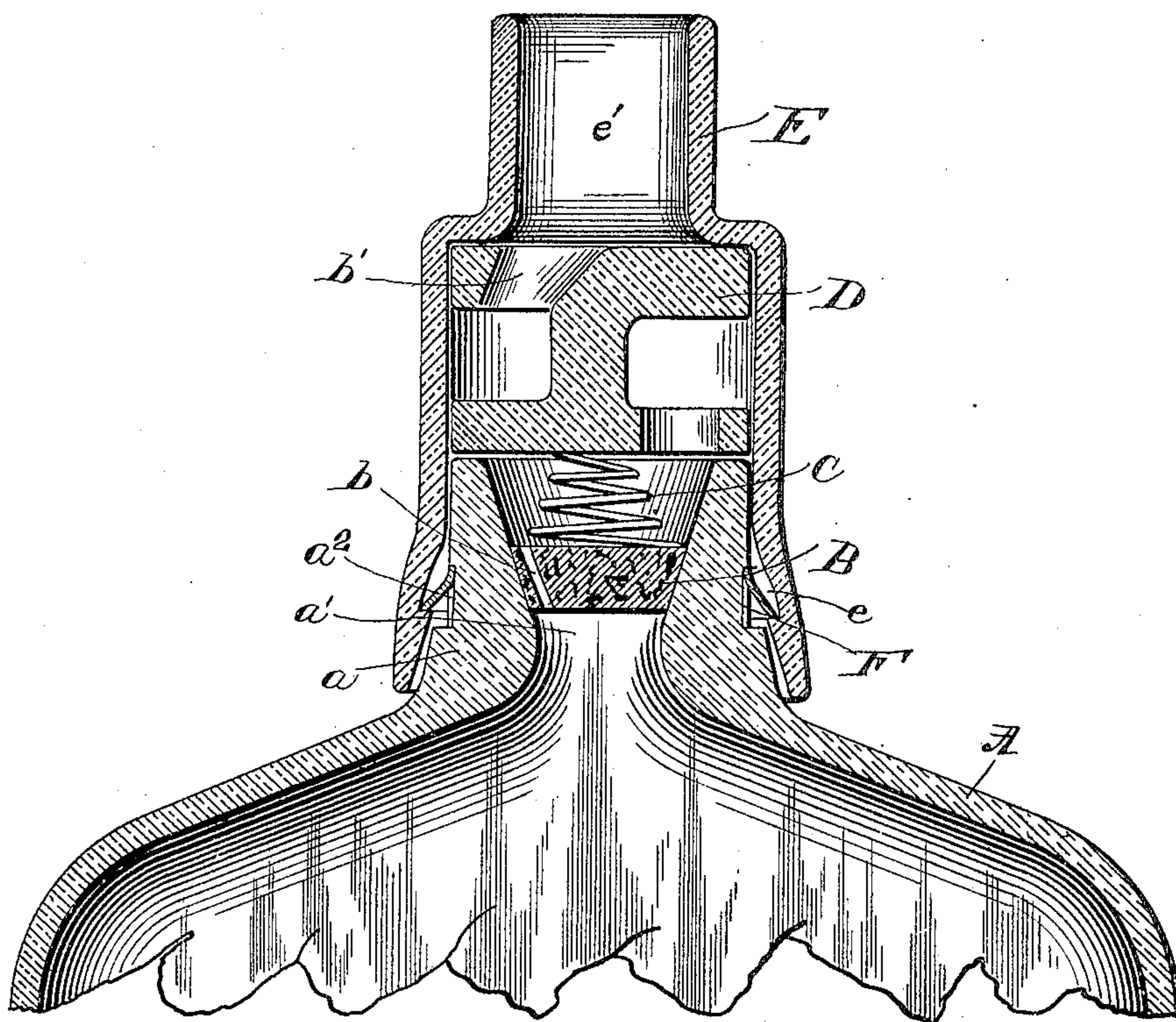
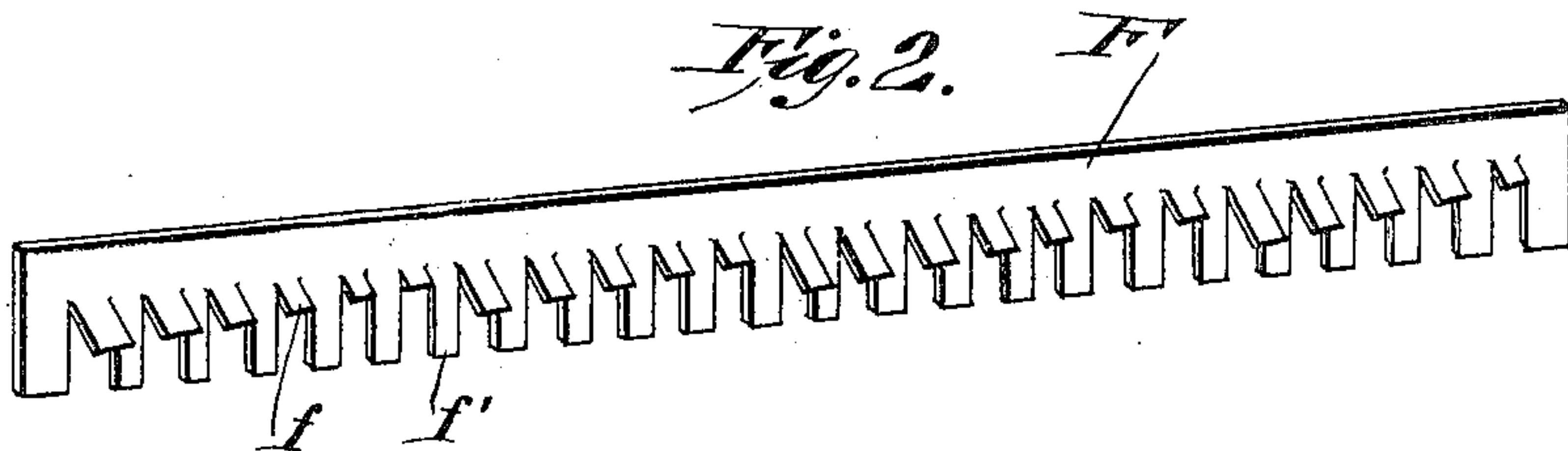


Fig. 2.



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NON-REFILLABLE BOTTLE.

No. 812,724.

Specification of Letters Patent.

Patented Feb. 13, 1906.

Application filed January 23, 1905. Serial No. 242,413.

To all whom it may concern:

Be it known that I, CHARLES EDWARD CARROLL, a citizen of the United States, residing at Newport, in the county of Jackson, State of Arkansas, have invented a new and useful Non-Refillable Bottle, of which the following is a specification.

My invention is an improvement in non-refillable bottles; and it consists in certain novel constructions and combinations of parts hereinafter described and claimed.

In the drawings, Figure 1 is a vertical section through the neck of a bottle provided with my invention. Fig. 2 is a perspective view of the spring-keeper.

In the practical application of my invention I provide a bottle A, having a conical neck *a*, provided with an inverted-cone-shaped longitudinal opening *a'* therethrough and a circumferential rectangular groove *a''* on the outer surface of the neck. A cone-shaped valve B rests within the cone-shaped opening of the neck and is provided with a perforation *b* near the outer face thereof, of approximately one-sixteenth of an inch in diameter—that is, an opening large enough to admit air into the bottle, but too small to allow the passage of liquid. The valve is retained in place by a coil-spring C, resting on the upper face thereof and of sufficient strength to retain the valve on its seat, but weak enough to offer no obstruction to the outward passage of liquid. A cylinder D rests upon the free edge of the bottle-neck and upon the upper end of the spiral spring and is provided with a spirally-arranged perforation *b'* therethrough for the passage of liquid. A cylindrical casing E, shaped to conform to the outer surface of the cylinder and the outer surface of the bottle-neck, encircles these parts and is provided with a triangular groove *e* in its internal face registering with the rectangular groove in the outer face of the bottle-neck. The outer face of the bottle-neck and the inner face of the casing are ground to provide a tight joint. A spring-keeper F, of the construction shown in Fig. 2, rests within the registering grooves to retain the casing in place upon the neck. The spring-keeper comprises a ring provided with depending teeth, the alternate teeth *f'* engaging the rectangular groove and the intermediate teeth *f* bent outwardly and engaging the triangular groove in the casing.

As shown in Fig. 2, the bent teeth *f* are divided into three similar series of teeth, gradu-

ally decreasing in length. This arrangement provides an adjustable keeper, which will always engage with the grooves, whether exactly in registration or not, since there are three teeth of similar length for engaging at points in the groove corresponding to the angles of an equilateral triangle.

In operation my improved bottle is filled, the valve B, of cork or other suitable material, is placed on its seat with the spiral spring in place, and the cylinder D is placed on the free edge of the neck. The spring-keeper is then placed in the rectangular groove and the cylindrical casing is pushed down over the neck as far as possible. Three teeth of corresponding length will engage the triangular groove and retain same firmly in place. An ordinary cork may be then inserted in the upper opening *e'* of the casing. When it is desired to empty the bottle, the ordinary cork is withdrawn, the bottle is tilted, the liquid displaces the valve and flows out through the spiral groove in the cylinder. When the bottle is empty, it is impossible to refill it, since it is impossible to remove the casing and impossible to pour liquid into the bottle without so removing it. The valve B prevents any ingress of liquid into the bottle. The small opening through the valve allows the inward passage of air to relieve the vacuum created by the outrush of the liquid.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In combination, a bottle having a conical neck provided with an inverted cone-shaped longitudinal opening therethrough and a circumferential rectangular groove, a cone-shaped valve resting in the opening and provided with a longitudinal perforation, a coil-spring resting on the valve, a cylinder resting upon the spring and the free edges of the neck, and provided with a spirally-arranged opening connecting its upper and lower surfaces, a cylindrical casing encircling the cylinder and neck, and having an internal circumferential groove registering with the groove of the neck, and a spring-keeper within the registering grooves, and provided with teeth, the alternate teeth bent inwardly and comprising three similar series each composed of teeth gradually decreasing in length.

2. In combination, a bottle having a conical neck provided with a circumferential groove, means within the neck for permitting the outward passage and preventing the

inward passage of liquid, a cylinder resting upon the free edge of the neck and provided with a spiral groove connecting its upper and lower surfaces, a casing encircling the cylinder and neck and provided with a circumferential groove registering with the groove in the neck, and a spring-keeper engaging the registering grooves, the said keeper provided with teeth for engaging the registering grooves, the alternate teeth bent inward and comprising three similar series of teeth gradually decreasing in length.

3. In combination a bottle having a neck provided with a circumferential groove, means within the neck for permitting the outward passage and for preventing the inward passage of liquid, a casing inclosing said means and encircling the neck and provided with a groove registering with the groove of the neck, a spring-keeper within the registering grooves, and comprising a ring with depending teeth, the alternate teeth bent inward, and comprising a plurality of similar series of teeth of gradually decreasing length.

4. In combination, a bottle having a neck provided with a circumferential groove, means within the neck for permitting the outward passage and for preventing the inward passage of liquid, a casing inclosing said means and encircling the neck and provided with a groove registering with the groove of

the neck, and means within the registering grooves for securing the casing to the neck, comprising a ring, and means connected with the ring for engaging the groove in the casing at different elevations with respect to the groove of the neck.

5. In combination, a bottle having a neck, means within the neck for permitting the outward passage and for preventing the inward passage of liquid, a casing inclosing the said means and encircling the neck, and means between the neck and the casing, for securing the latter to the former, comprising a ring engaging the neck, and means whereby said ring may engage the casing at different elevations with respect to the neck.

6. In combination a bottle having a neck, means within the neck for permitting the outward passage and for preventing the inward passage of liquid, means for retaining said means within the neck, comprising a casing inclosing the neck, means between the casing and the neck for retaining the former upon the latter, comprising a means engaging the neck and means connected therewith for engaging the casing at different elevations with respect to the neck.

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Witnesses:

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