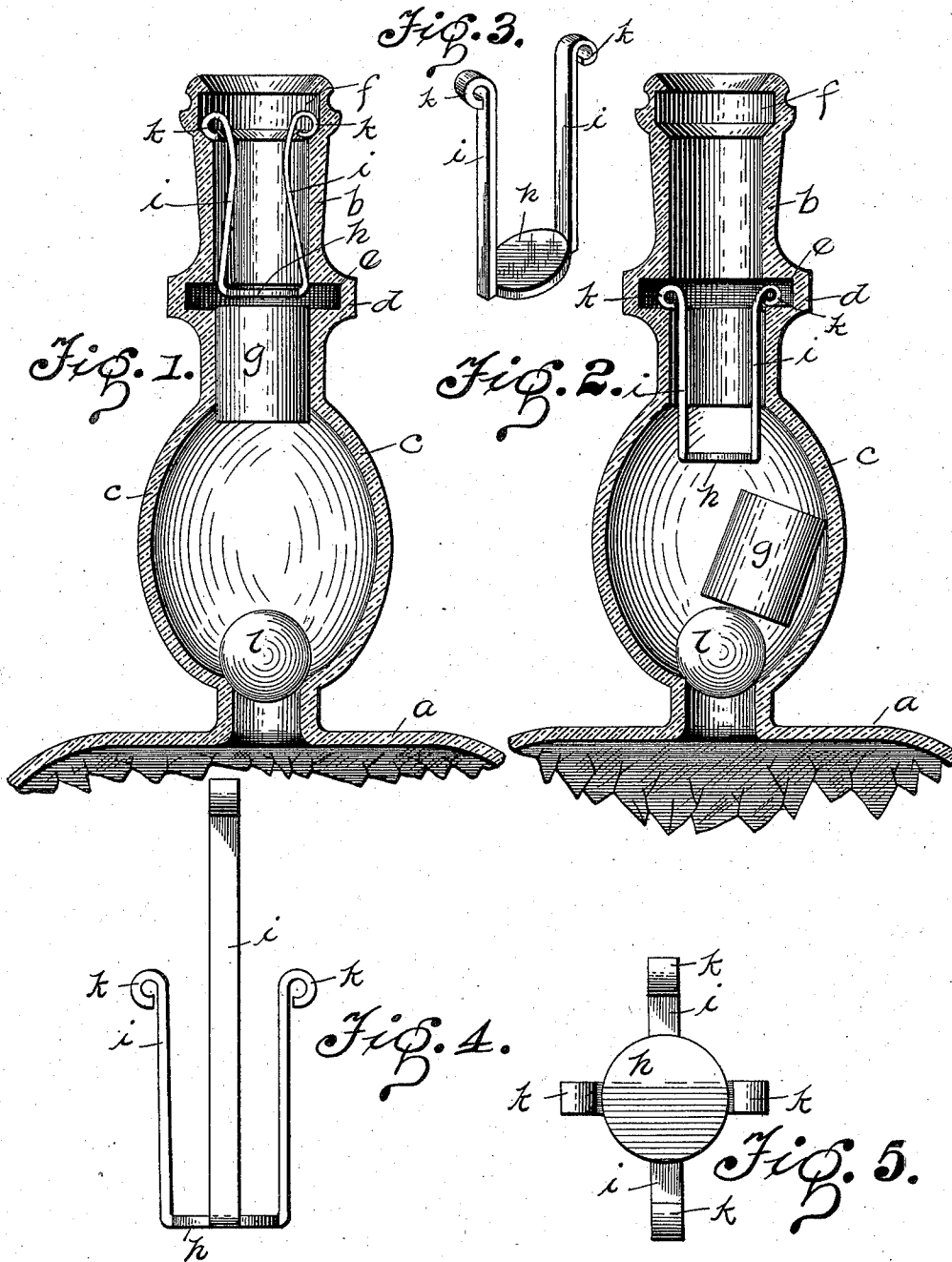


(No Model.)

A. METZLER.
NON-REFILLABLE BOTTLE.

No. 576,410.

Patented Feb. 2, 1897.



Witnesses
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UNITED STATES PATENT OFFICE.

ALBERT METZLER, OF ETNA, PENNSYLVANIA.

NON-REFILLABLE BOTTLE.

SPECIFICATION forming part of Letters Patent No. 576,410, dated February 2, 1897.

Application filed May 25, 1896. Serial No. 592,995. (No model.)

To all whom it may concern:

Be it known that I, ALBERT METZLER, a citizen of the United States of America, residing at Etna borough, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Non-Refillable Bottles, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to certain new and useful improvements in non-refillable bottles, and has for its object to provide a bottle that when filled can be emptied with ease, but which it will be impossible to refill without breaking the neck from the bottle, which would make the same valueless.

The invention has for its further object to construct a bottle of the above-described class that will be extremely simple in its construction, strong, durable, effectual in its operation, and comparatively inexpensive to manufacture; furthermore, that will be invaluable for use in connection with patent medicines, liquors, and like liquids by effectually preventing the counterfeiting of the same by unscrupulous dealers.

With the above and other objects in view the invention finally consists in the novel construction, combination, and arrangement of parts to be hereinafter more specifically described, and particularly pointed out in the claims.

In describing the invention in detail reference is had to the accompanying drawings, forming a part of this specification, and wherein like letters of reference indicate similar parts throughout the several views, in which—

Figure 1 is a vertical sectional view of my improved neck, showing the stopper and spring-plunger in position. Fig. 2 is a similar view showing manner in which cork is removed to empty the bottle. Fig. 3 is a perspective view of the spring-plunger. Fig. 4 is a side elevation of a modified form of spring-plunger. Fig. 5 is a top plan view of the same.

In the drawings, *a* represents the body portion of the bottle, and *b* the neck of the same. This neck *b* is formed near its base with a bulb *c*, preferably oval in shape, and an exterior annular flange *d* is formed on the bottle-neck some distance above the oval portion *c*. In the bottle-neck and extending into

this flange is an interior annular groove *e*, said bottle-neck being also formed near its top with a similar interior annular flange *f*. The portion of the bottle-neck between the interior annular groove *e* and the bulb *c* is adapted to receive the cork *g* and a spring-plunger consisting of a plate *h*, having upwardly-extending arms *i i*, provided with curved or coiled ends *k k*, adapted to fit in the interior annular grooves *f* and *e*, according to the position occupied by the plunger in the neck. At the base of the bulb *c* the opening into the bottle proper is closed by means of a spherical body *l*, which rests on the short neck portion between the bulb *c* and the bottle proper.

In the modified form of spring-plunger I have shown four spring-arms *i*, two of which project beyond the top of the bottle-neck and the other two engage in the interior annular groove *f* in the same manner as the form shown in Fig. 3.

The operation of my improved non-refillable bottle will be readily apparent from the views of the same that I have shown in the drawings.

When the bottle has been filled, the spherical body *l* is inserted in the neck and rests at the base of the bulb *c*, closing the outlet part when the bottle is in an upright position. The stopper *g* is then inserted in the neck between the interior groove *e* and the bulb portion *c*, and then spring-plunger is inserted in the neck and pressed downward until the coil's ends *k k* engage in the interior groove *f* and hold the plunger in position, preventing the withdrawal of the stopper. When it is desired to open the bottle, the plunger is forced downward by pressing on the plate *h*, bringing the same in contact with the stopper *g* and forcing the same down into the bulb *c*. When the coiled ends of the arms *i* pass the point of contact with the inner face of the neck, they will expand into the interior groove *e* and lock the plunger in this position. When the bottle is tilted, the ball *l*, which may be composed of glass or any suitable material, will be removed from the opening in the bottle and allow of the free exit of the contents, and when the bottle is again placed in the upright position the ball *l* will resume its seat over the opening and closing the same.

It will be observed that after once forcing the cork down into the bulb *c* by means of the plunger it will be impossible to extract the plunger, which will prevent the withdrawal of the cork and show any attempt to reuse the bottle, as the cork in the bulb will show that the bottle has previously been filled and opened.

In the construction of the plunger, as shown in Figs. 4 and 5, when the plunger is inserted in the bottle-neck the short arms will engage in the groove *f*, as in the former construction, and when the plunger is forced downward the coiled ends of the long arms will engage in the groove *f* and the short arms in the groove *e*, forming a double lock.

It will be observed that this plunger can be constructed with as many arms as may be desired, either of the same or different lengths, and prongs may be arranged on the base of the plate to engage the cork and hold the same after being forced from its seat in the bottle-neck.

These and various other changes may be made in the details of construction without departing from the general spirit of my invention.

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

1. In a non-refillable bottle, the neck having an oval-shaped bulb near the base thereof,

an exterior annular flange above the bulb, an interior groove extending into said flange, a similar groove formed near the top of said neck, a valve-seat formed at the base of the bulb, a spherical valve to fit in said seat, a cork adapted to fit in the neck between the first groove and the bulb, a spring-plunger having spring-arms adapted to engage in said interior grooves and prevent the withdrawal of the stopper as and for the purpose described.

2. In a non-refillable bottle, the neck having an oval-shaped bulb formed near its base, an exterior annular flange above the bulb an interior annular groove extending into said flange, a similar groove formed near the top of said neck, a valve-seat formed at the base of the valve, a spherical valve adapted to fit said seat, a cork fitting in said neck between the first groove and the bulb, a spring-plunger consisting in a plate having upwardly-extending arms with coils thereon adapted to fit in the interior grooves and prevent the withdrawal of the stopper as and for the purpose described.

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

ALBERT METZLER.

Witnesses:

A. M. WILSON,
H. C. EVERT.