

R. ARTHUR.
CLOSING THE MOUTHS OF BOTTLES, &c., AIR TIGHT.
No. 11,513.
Patented Aug. 15, 1854.

FIG. 1.

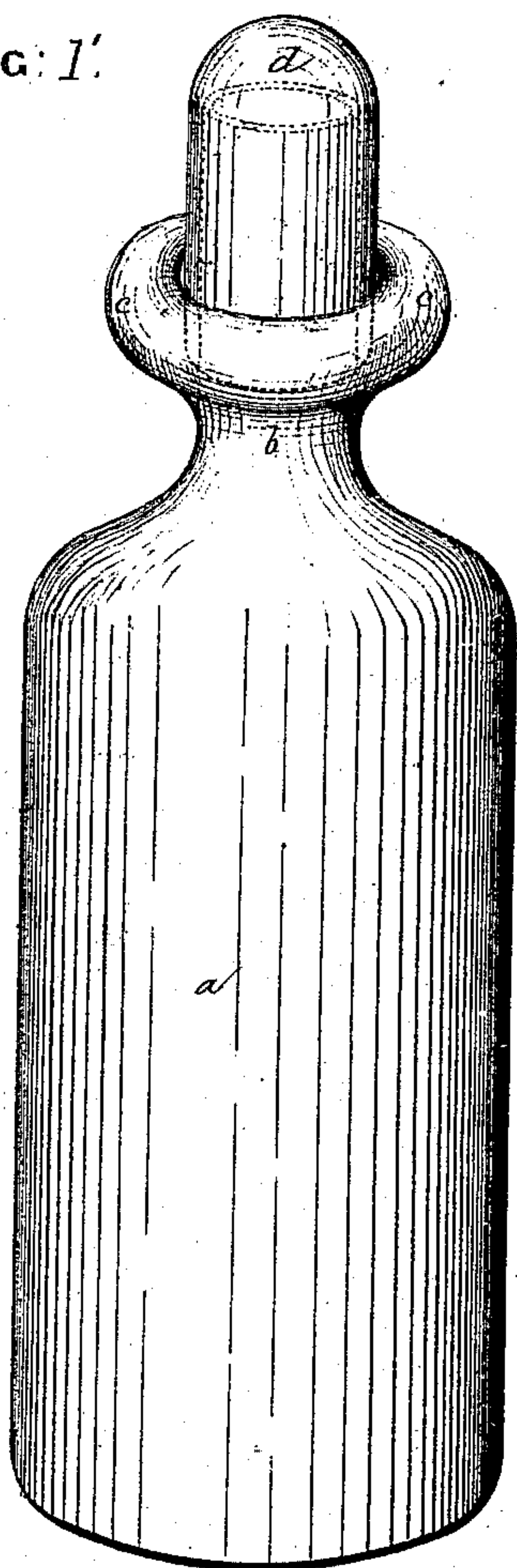
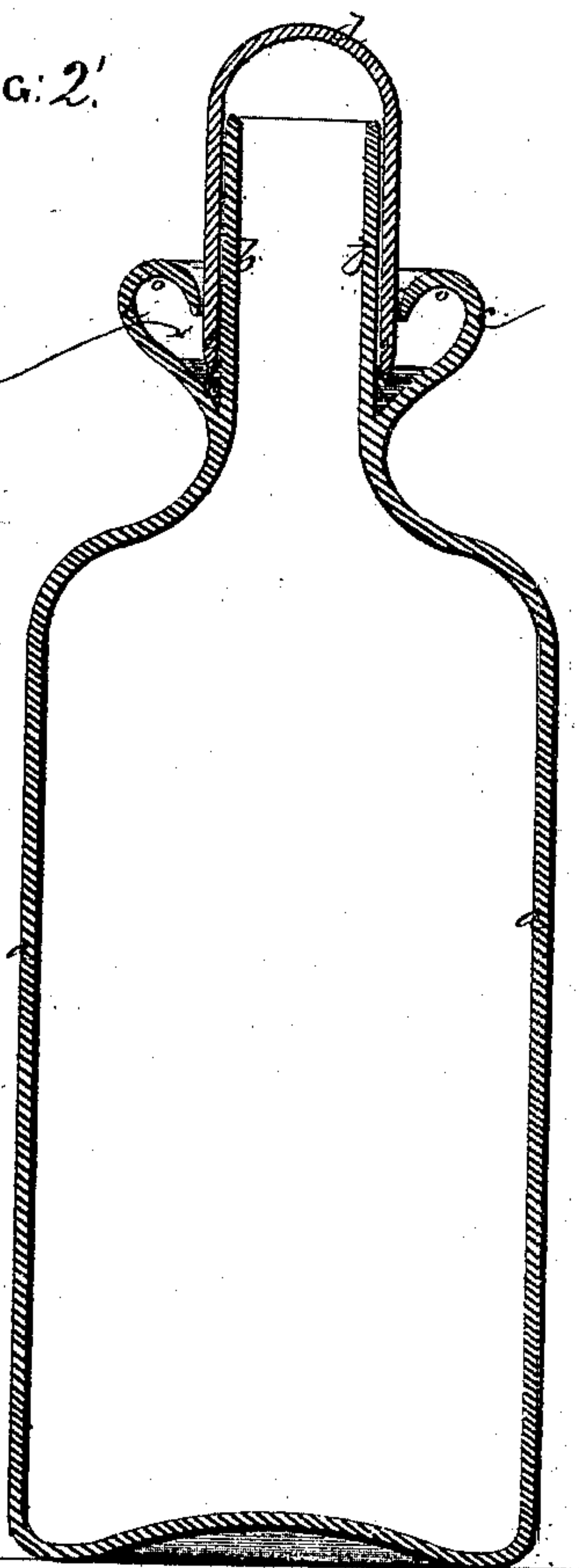


FIG. 2.

*Mercury
Mucous
glycerine
Honey
or
Water*



No cork used.

UNITED STATES PATENT OFFICE.

ROBERT ARTHUR, OF WASHINGTON, DISTRICT OF COLUMBIA.

IMPROVEMENT IN CLOSING THE MOUTHS OF BOTTLES, &c., AIR-TIGHT.

Specification forming part of Letters Patent No. 11,513, dated August 15, 1854.

To all whom it may concern:

Be it known that I, ROBERT ARTHUR, of the city and county of Washington, in the District of Columbia, have invented a new and useful Improvement in Bottles, Jars, Pitchers, or other Similar Vessels, closed in a peculiar manner, for pharmaceutical and other purposes, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which form part of this specification.

My invention consists in making an annular groove or receptacle near the mouth of the vessel, as shown in Figs. 1' and 2', for the purpose of containing some yielding medium, into which the lower part or edge of a cap or stopper passes when the bottle is closed, thus completely cutting off its contents from contact with the external atmosphere. By this contrivance the evaporation of very volatile liquids—such as ethers, chloroform, &c.—and the deliquescence of certain salts may be prevented and other useful objects accomplished, while the bottle can be conveniently opened and closed. An important feature of the groove is its form, it being so curved that, while it contains a quantity of fluid sufficient for the purpose intended, the vessel may be entirely inverted and its contents poured out without spilling the fluid deposited in the groove, for the purpose of rendering the joint of the stopper air-tight. The groove or receptacle may be formed of the same material of which the bottle is made, or it may be made of any other material and attached to the bottle after it is otherwise completed. The neck of the vessel may also be enlarged and the groove made of a proportionate size, so that the vessel will assume the proportions of a jar; or the vessel may be made of any convenient form, as my invention relates to the mode of closing only, and not to the general configuration or proportions of a vessel.

In the accompanying drawings, *a* represents the body of a bottle; *b*, the neck, which is surrounded by a fillet, *c*, to form a groove around the neck of the bottle. This groove

is narrow at the bottom *n*, wide at the top, and the upper edge of the fillet is curved inward, as represented, to form an inverted channel, *o*, into which any liquid within the groove retreats when the bottle is inverted, and returns again to the bottom of the groove when the bottle is placed in an upright position with its bottom downward. An annular space is left between the upper edge of the fillet *c* and the side of the neck *b* sufficiently wide to admit the stopper or cap *d*. The lower edge, *e*, of the rim of the cap enters the narrowest part of the groove, so that a comparatively small quantity of liquid will fill the groove to half its height and immerse the lower edge of the rim to a considerable depth.

Among other liquids which I have used in the groove and found suitable for various purposes, I will mention mercury, which may be used when the vessel is to contain such liquids as would either absorb water, glycerine, &c., or be absorbed or injured by them. I will also mention water, glycerine, molasses, or honey, either of which may be used with advantage when the contents of the vessel will not be effected by them. I do not, however, confine myself to the use of these liquids, as there are many others that may be employed with equal advantage.

I do not claim the invention of any method of rendering vessels air-tight by the aid of caps or stoppers, screwed or cemented in place, but only the vessel so contrived as to be made tight by means of a groove or receptacle containing a yielding medium which is to be penetrated by the cap or cover, with the receptacle so contrived that the bottle may be inverted to pour out its contents without spilling the liquid or yielding medium from the groove or receptacle, as herein set forth.

In testimony whereof I have hereunto subscribed my name.

ROBERT ARTHUR.

Witnesses:

PETER HANNAY,
F. S. MYERS.