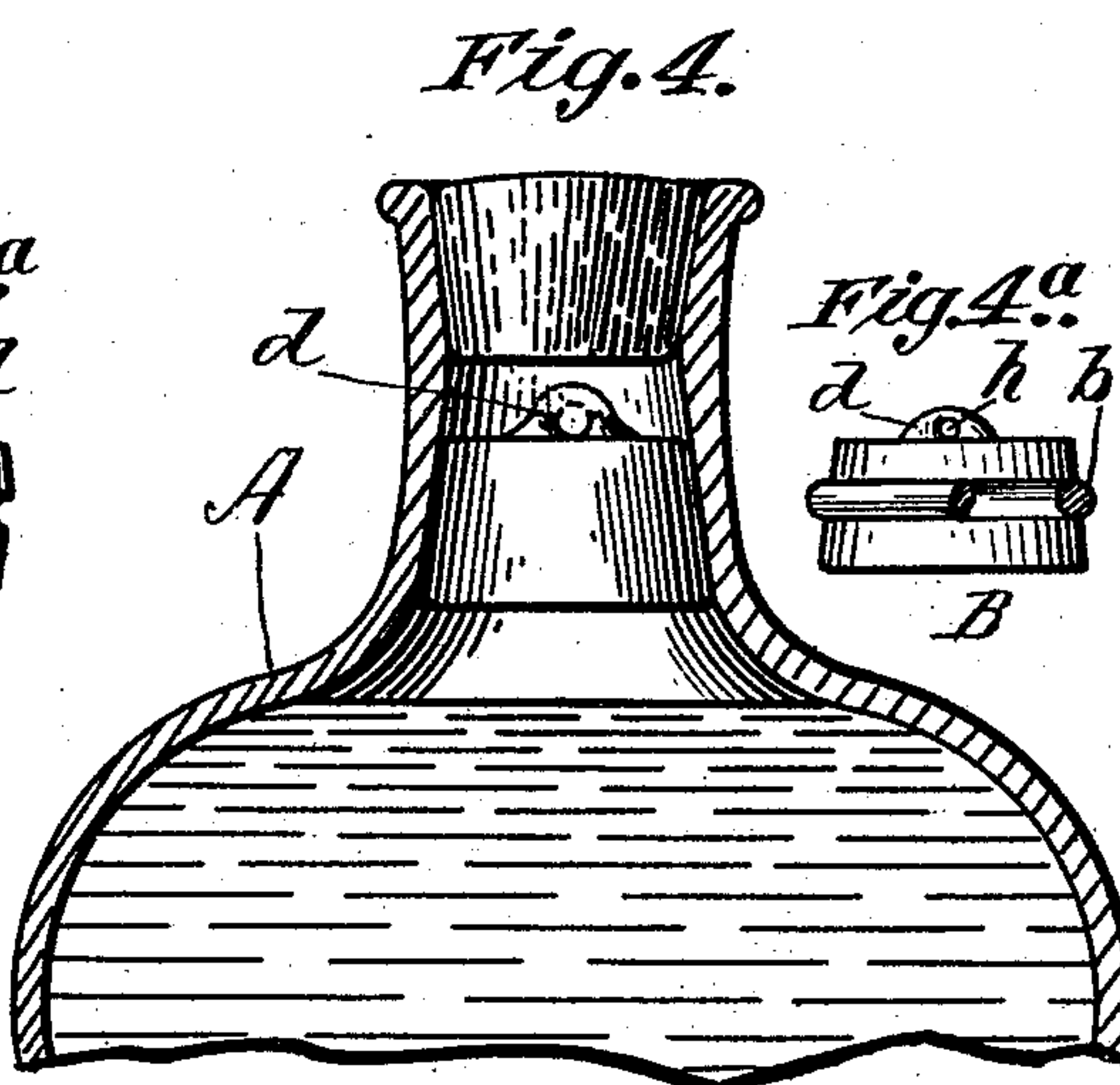
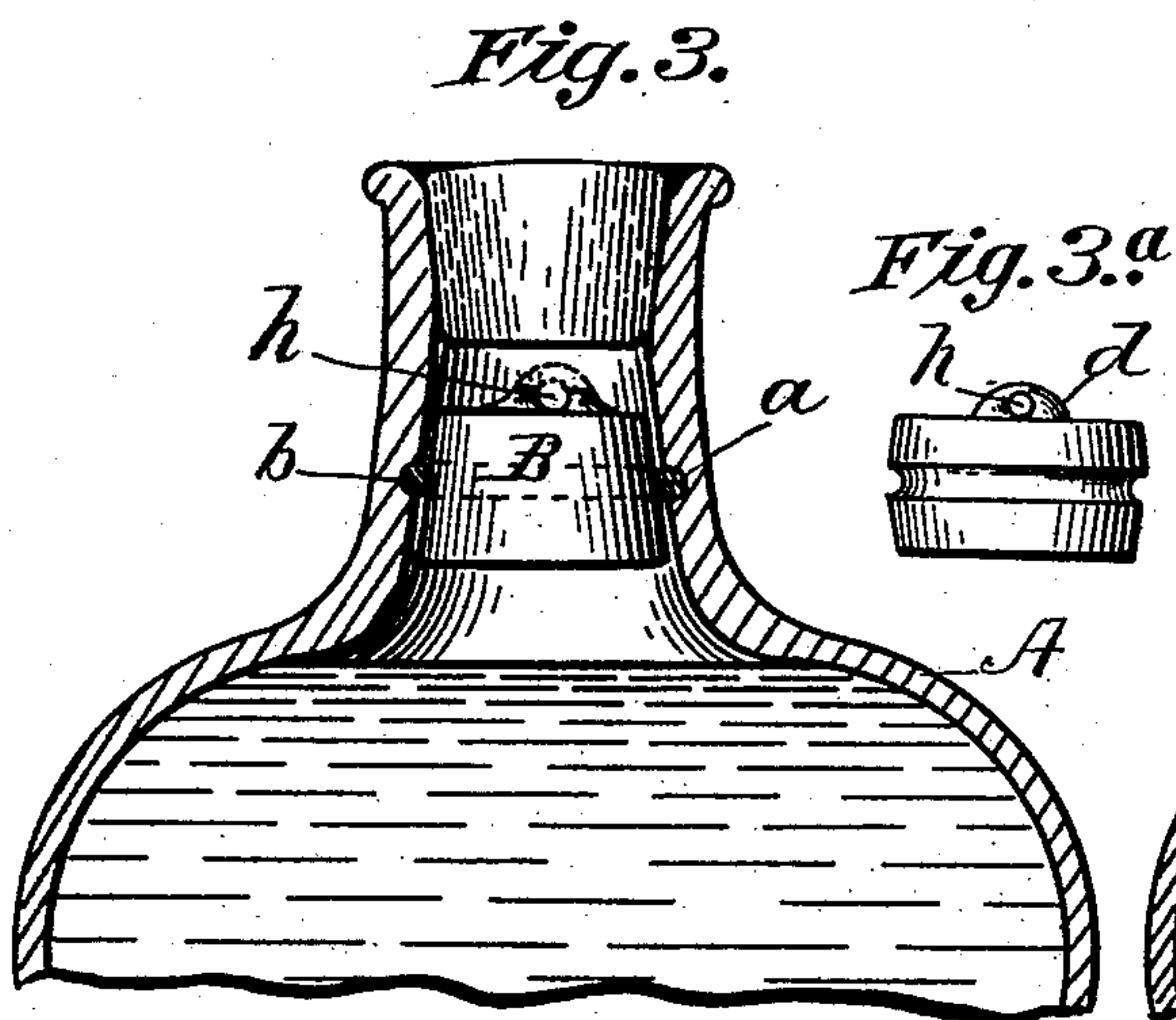
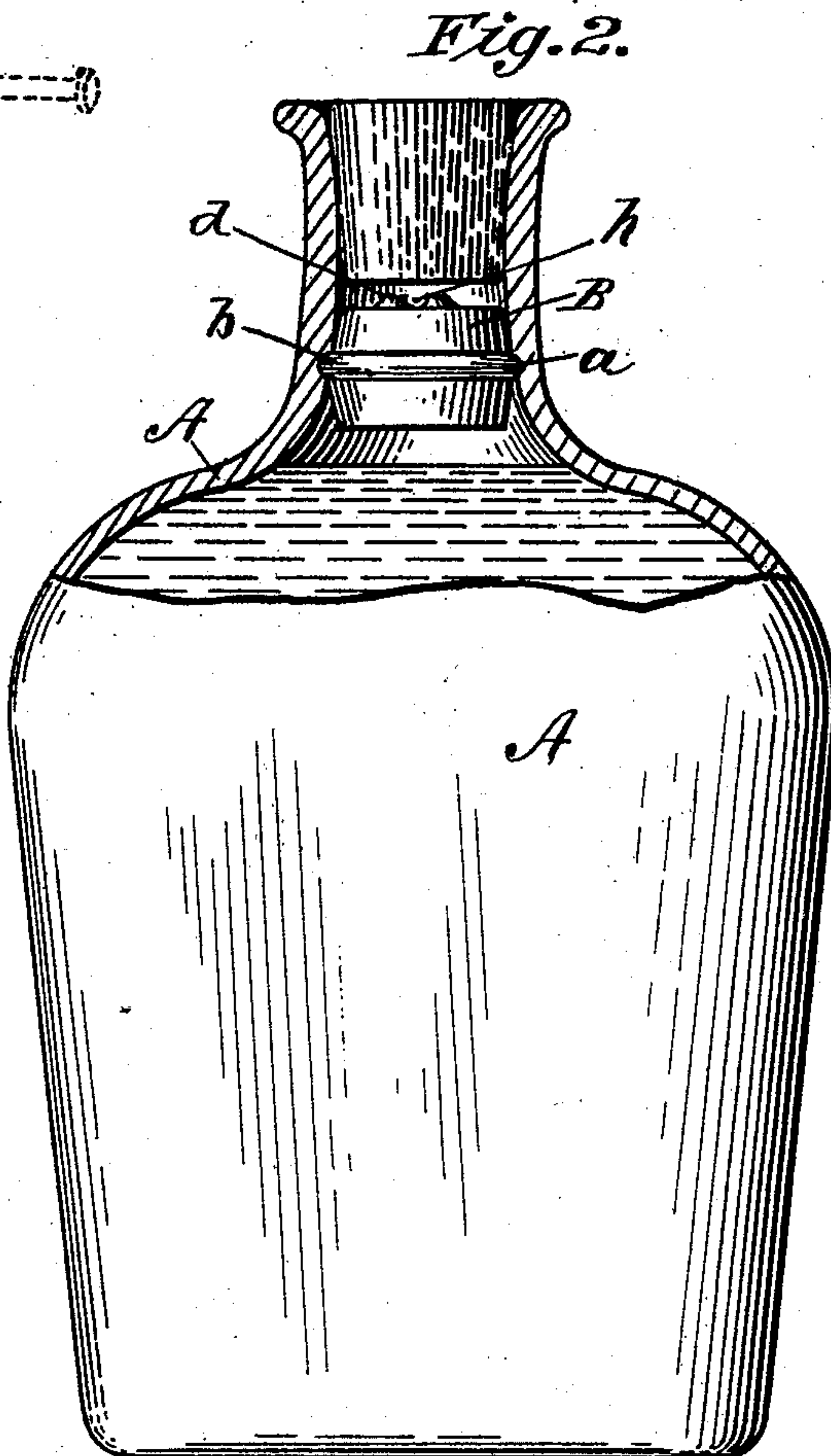
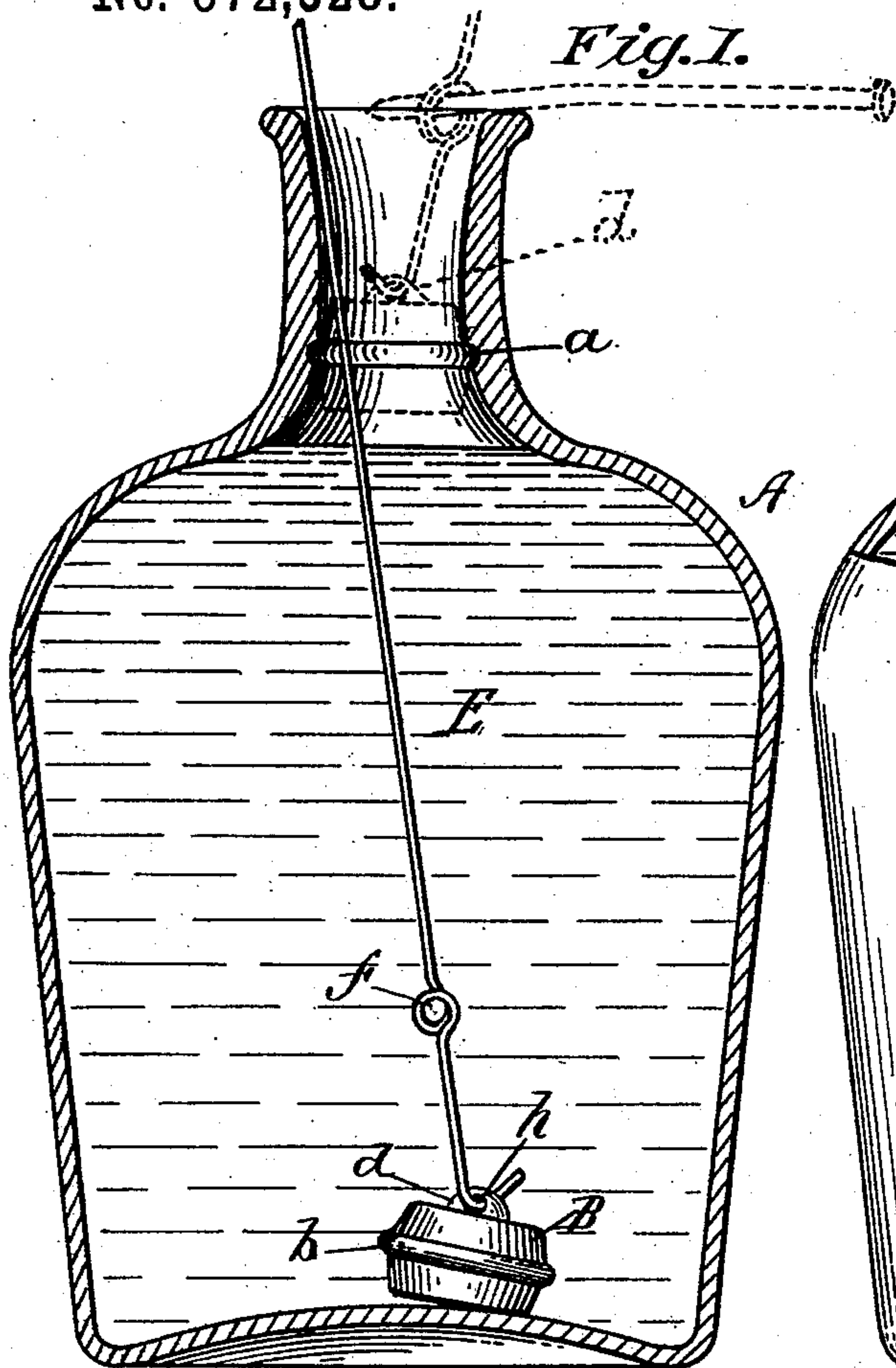


(No Model.)

J. H. BULLARD.
BOTTLE SEALING DEVICE.

No. 572,328.

Patented Dec. 1, 1896.



Witnesses:
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UNITED STATES PATENT OFFICE.

JAMES H. BULLARD, OF SPRINGFIELD, MASSACHUSETTS.

BOTTLE-SEALING DEVICE.

SPECIFICATION forming part of Letters Patent No. 572,328, dated December 1, 1896.

Application filed December 14, 1895. Serial No. 572,196. (No model.)

To all whom it may concern:

Be it known that I, JAMES H. BULLARD, a citizen of the United States of America, residing at Springfield, in the county of Hampden and State of Massachusetts, have invented new and useful Improvements in Bottle-Sealing Devices, of which the following is a specification.

This invention relates to bottle-seals, and more especially to "detective" seals, so-called—viz., which show whether or not the original contents of the bottle are contained therein; and the object of the invention is to provide a seal of this character which cannot by any means be used a second time and showing at a glance whether the passage through the neck has been opened subsequent to the first sealing thereof.

In the drawings forming part of this specification, Figure 1 is a view of a bottle in vertical section, showing a seal in the bottom thereof and means for lifting said seal, and showing in dotted lines the position of the seal in the neck of the bottle. Fig. 2 shows an elevation of a bottle, partly in section, showing the relative positions of the cork and seal in the bottle-neck. Fig. 3 shows the upper portion of a bottle in section and a seal of slightly-varying construction therein. Fig. 3^a illustrates a modified construction of the seal proper. Fig. 4 illustrates means of holding the seal in position differing from those shown in the preceding views. Fig. 4^a shows a sealing-plug with a packing-ring thereon.

In the drawings, A is a bottle of the usual type with the exception of a slight annular groove *a* in the neck thereof. (See Figs. 1, 2, and 3.)

B is a sealing plug or stopper, made of glass or porcelain, of substantially the form shown, having on one of its parallel faces the projection *d*, integral therewith, which projection has a hole *h* transversely through it, by which said seal may be picked up from the bottom of the bottle by a hooked instrument and drawn up into position in the neck of the bottle; and when said plug is in its proper place a slight twist is given to the hook by which it is picked up and the projection broken off, thereby rendering it impossible to pick up the plug for reinserting it again in the bottle-neck after it has once been

pushed into the bottle for the purpose of withdrawing its contents. The diameter of the said plug B is greater than the diameter of the inside diameter of the bottle-neck, and said plug is introduced into the body of the bottle during the process of manufacture of the latter before the neck is reduced to its predetermined dimensions.

An annular groove is made around the plug B, substantially midway between its two parallel faces, for the reception of an elastic packing-ring *b*. Said packing-ring is designed, primarily, to hold the sealing-plug B firmly in the neck of the bottle, as shown in Figs. 1, 2, and 3, and its function as an added security against leakage or evaporation through the cork is only incidental, it being only requisite that it should fit closely enough in the neck of the bottle to render it necessary for the user to force the plug B down into the body of the bottle before the contents can be poured out. As shown in Figs. 1 and 2, said packing-ring *d* is applied to the plug B, closely fitting a groove around the largest diameter of said plug. In Fig. 3 the packing-ring is pushed down the neck of the bottle in a somewhat contracted state, expanding into the groove *a* in said bottle-neck and being held firmly therein by reason of such expansion. In said Fig. 3 the plug B is shown having a slightly-tapering form and without a groove thereon.

In Fig. 4 is shown another modification of this construction wherein the plug and the interior of the bottle-neck are similarly tapered, said taper being so slight as to permit the forcible wedging of the plug in the neck, whereby said plug is retained in the position shown in said figure without the aid of the elastic packing interposed between said plug and the adjoining glass wall of the bottle.

If deemed desirable, the slight variations indicated by Figs. 3^a and 4^a may be employed—viz., in Fig. 3^a a groove may be made in the plug B, so that when said plug is drawn up into the bottle-neck it may be held more firmly by the engagement of the packing-ring *b* with the groove in the plug, or, as in Fig. 4^a, the plug may be grooved and a packing-ring be fitted therein for engagement by friction alone with the smooth-tapered interior portion of said neck. (Shown in Fig. 4.)

By the use of any of the constructions shown in the drawings one of the main purposes of the invention is accomplished, namely, so retaining the sealing-plug B in its position in the neck of the bottle under the cork that it must be pushed into the body of the bottle by some instrument introduced through the neck thereof before the contents of said bottle can be withdrawn.

Any suitable instrument may be employed to pick up the seal from the bottom of the bottle, but one made like that shown in Fig. 1 is preferable, it being provided with the loop or eye *f*, formed therein, through which the end of a lever may be passed, and the edge of the bottle-neck serving as a fulcrum for said lever the seal can be more tightly and easily drawn up to its position in the bottle-neck than without the use of such means. Furthermore, after said seal has reached its proper position in the bottle-neck by giving a twist to the lever passed through the eye in the hook E the projection on the plug B is easily broken off. The position of said eye in the hook and said lever are shown in dotted lines in Fig. 1.

The operation of this invention is as follows: After the bottle has been filled with whatever contents it is desired to seal therein the hooked instrument E is introduced therein through the neck and the seal picked up by passing the hook on the extremity of the said instrument through the transverse hole *h* in the projection *d* on the top of sealing-plug B and drawing said plug up into the neck of the bottle, as shown in the drawings, with sufficient force to tightly wedge the said plug therein, either by the compression of the packing-ring *b* between the plug and the adjoining wall of the bottle-neck or by wedging the slightly-tapered plug (shown in Fig. 4) into the tapered neck of the bottle without the interposition of the packing-ring. When said seal is firmly seated in the bottle-neck, the projection in the top of the seal is broken off in any convenient manner and the cork driven in the mouth of the bottle.

When it is desired to withdraw the contents of the bottle so sealed, the cork is withdrawn in the usual manner and the sealing-plug B is pushed away from its seat in the neck of the bottle down into the body thereof, the diameter of said seal being larger than the interior diameter of the neck of the bottle, preventing its withdrawal by any means out through the said neck. Therefore the presence of a sealing-plug in the body of the bottle is incontrovertible evidence that the passage through the neck by which its contents is withdrawn has been opened, since the same was originally sealed up by the maker of its original contents, as there is no means by which the seal, when once pushed into the bottle, can ever be replaced in the neck thereof as it was when originally seated therein by means of the hook and projection on the top of the plug B. Hence absolute protec-

tion is afforded against the withdrawal of the original contents of a bottle and the substitution therefor of a counterfeit article and giving to the package the appearance it had when containing its genuine contents.

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

1. In combination, a bottle having a neck of constricted internal diameter between its extremities, combined with a plug having a friable projection thereon, normally contained inside of said bottle for closing the inner extremity of the neck thereof, and means for fixing said plug in the inner extremity of said neck, and for breaking said friable projection, substantially as set forth.

2. In combination, a bottle having a neck of constricted internal diameter between its extremities, combined with a plug having a friable projection thereon normally contained inside of said bottle for closing the inner extremity of the neck thereof, and an elastic packing-ring between said plug and the adjoining portion of the bottle-neck, and means for fixing said plug in the inner extremity of the neck and for breaking said friable projection, substantially as set forth.

3. In combination, a bottle having a neck of constricted internal diameter between its extremities, combined with a plug having a friable projection thereon, normally contained inside of said bottle for closing the inner extremity of the neck thereof, and a plug-lifter extending through the neck of the bottle for temporary connection with said friable projection, substantially as set forth.

4. A plug which has a readily-breakable projection upon its top, and by means of which the plug is raised into position in the neck of the bottle, and which projection is adapted to be detached after the plug is seated, combined with a bottle having an internally-tapered neck to receive the plug, substantially as shown.

5. A bottle having the lower end of its neck internally tapered and provided with a groove in the tapered portion, combined with a tapered plug having a groove in its side, and a readily-breakable projection extending from its top, and an elastic packing-ring that is applied to the plug, substantially as described.

6. The bottle, and a plug placed therein, and provided with a projection upon its top that is readily removable, combined with a rod for raising the plug into position, the rod being provided with a hook at its lower end, and a loop a suitable distance above its lower end and into which a rod can be inserted for the purpose of detaching the handle or projection from the plug, substantially as set forth.

JAMES H. BULLARD.

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