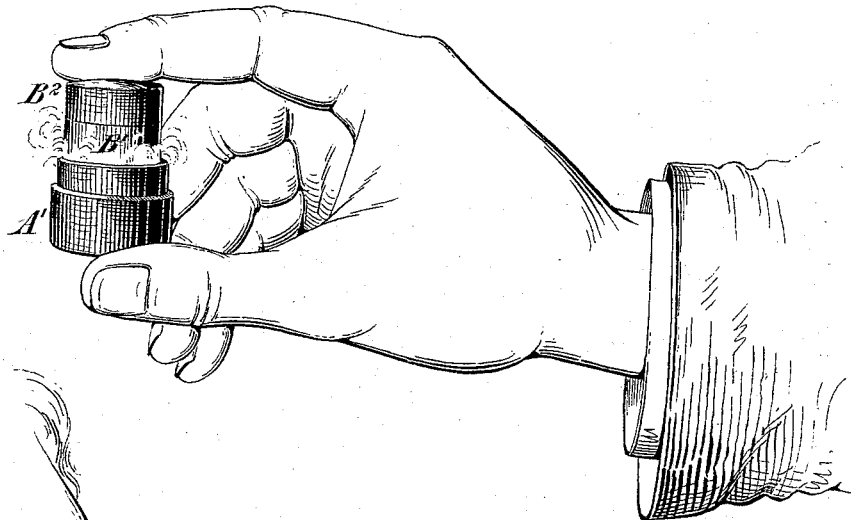


F. A. REICHARDT.  
 Device for the Preservation and use of Volatile  
 Substances.

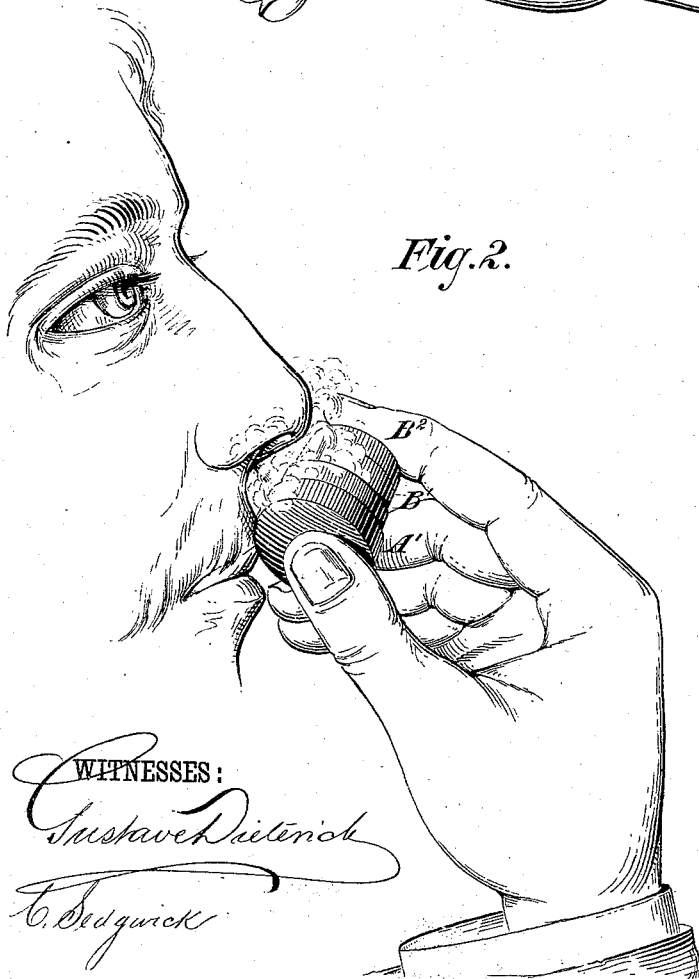
No. 217,240.

Patented July 8, 1879.

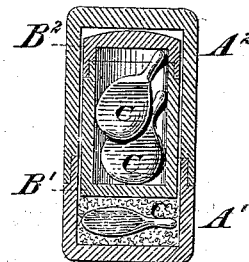
*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



WITNESSES:

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# UNITED STATES PATENT OFFICE

FERDINAND A. REICHARDT, OF NEW YORK, N. Y.

## IMPROVEMENT IN DEVICES FOR THE PRESERVATION AND USE OF VOLATILE SUBSTANCES.

Specification forming part of Letters Patent No. **217,240**, dated July 8, 1879; application filed June 17, 1878.

### *To all whom it may concern:*

Be it known that I, FERDINAND ALFRED REICHARDT, of the city, county, and State of New York, have invented a new and Improved Device for the Preservation and Use of Volatile Substances, of which the following is a specification.

My invention is particularly intended for use in connection with nitrite of amyl, iodide of ethyl, and other volatile substances. These volatile substances are usually inclosed in very thin fragile glass capsules or cases, technically called "pearls," which are hermetically sealed in order to prevent volatilization. The contents are used or administered by breaking the capsule by pressure between the fingers, so as to liberate the liquid and allow the vapors thereof to be inhaled.

Heretofore it has been necessary to make the capsules or pearls thin enough to admit of their being easily crushed, as described, by the fingers. It has been found, however, that if made sufficiently thin for such purposes they were not strong enough to withstand the expansive force of their liquid contents under warm temperatures, and that unless kept at a low temperature the capsules were exploded by the expansion of the contents, and the liquid lost in consequence. On the other hand, when made strong enough to prevent such explosion, their use was rendered inconvenient, as they could not be crushed by the fingers, as stated, without risk of wounding the fingers by the broken glass.

The object of my invention is to enable the capsules to be made sufficiently thick and strong to resist the explosive force of the contents, and to provide means for easily crushing them in order to administer said contents, and also to provide for their safe storage and transportation.

To this end the invention consists in a combined casing and plug or piston of novel construction, adapted to the holding and carrying of a number of pearls containing volatile substances, whereby provision is made for the perfect protection and preservation of said substances, and facility is afforded for their ready administration, when desired, by crushing the pearls and liberating the contents.

The accompanying drawings illustrate the manner of carrying out my invention.

Figure 1 represents the manner of breaking the pearl to liberate the contents. Fig. 2 shows the manner of administering the volatile substance by inhalation. Fig. 3 is a central longitudinal section of the combined casing and plug or piston.

Similar letters of reference indicate corresponding parts.

The holder or casing is made in two sections, one surrounding and carrying the other, and of such form and dimensions as to be conveniently carried on the person. Any suitable material may be employed; but I prefer wood. The exterior section is made in two parts, A<sup>1</sup> A<sup>2</sup>, the part A<sup>1</sup> resembling a shallow box, and the part A<sup>2</sup> resembling a tall lid or cover fitting thereon. When in place together the two parts form a neat case, which may be readily carried in the pocket.

The interior section is also made in two parts, B<sup>1</sup> B<sup>2</sup>, of similar shape to the exterior section, except that the part B<sup>1</sup> is higher or deeper than the part A<sup>1</sup>. The interior section is sufficiently smaller than the exterior section to allow it to be readily inserted therein and removed therefrom.

The pearls or capsules C, in any suitable number, are carried in the interior section, and if the relative lengths of the two sections will admit, an additional pearl, together with a wad or bunch of cotton-wool, *d*, may be carried between the inner and outer sections, as shown in Fig. 2, in which event the device is ready for instant use.

By removing the lid or upper part, A<sup>2</sup>, of the outer section or casing and pressing with the fingers on the end of the inner section, with the part A<sup>1</sup> resting against the palm of the hand, the pearl C, resting between the sections, as shown in Fig. 2, may be crushed, so as to liberate the liquid and allow it to saturate the fibrous material *d*.

The interior section thus serves as a plunger, working in the exterior section, and after crushing the pearl may be withdrawn, so as to allow the vapors to be freely inhaled, the said exterior section thus forming a holder or cup to retain the liquid that is set free by the crushing of the capsule or pearl.

The parts B<sup>1</sup> B<sup>2</sup> of the interior section fit each other so nicely as to render it as strong and effective as a solid plug when used as a

plunger, while ample space is provided on its inside for carrying one or more pearls with safety.

A solid plug may be used in lieu of the parts B<sup>1</sup> B<sup>2</sup>, if desired.

I do not limit or confine myself to the exact form or size of any of the parts here shown, as they may be varied without departing from my invention.

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

As an improved article of manufacture, a device for the preservation and use of capsules or pearls containing volatile substances, made substantially as herein shown and described, and consisting of an exterior holder carrying an interior plug or piston, the latter made either solid or hollow, as set forth.

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Witnesses:

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