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Patented Nov. 27, 1900.

G. L. REENSTIERNA.  
APPARATUS FOR CHARGING LIQUIDS WITH GASES.

(Application filed Apr. 17, 1900.)

(No Model.)

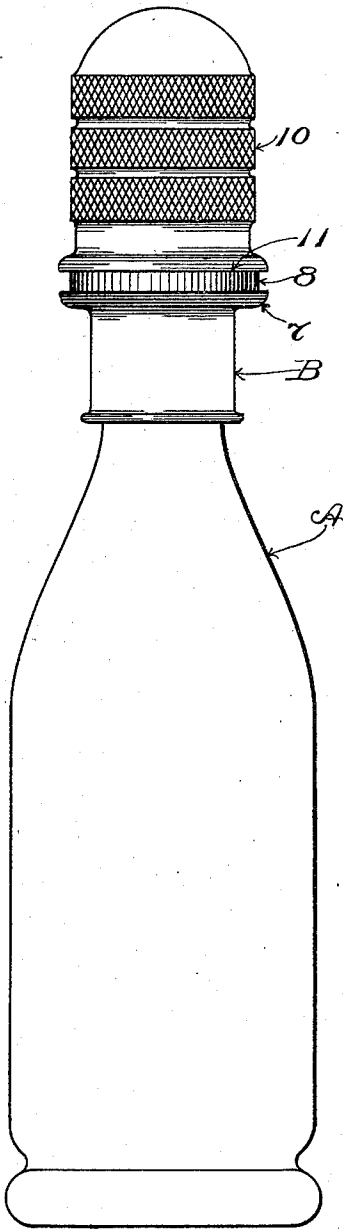


Fig. 1.

Witnesses:

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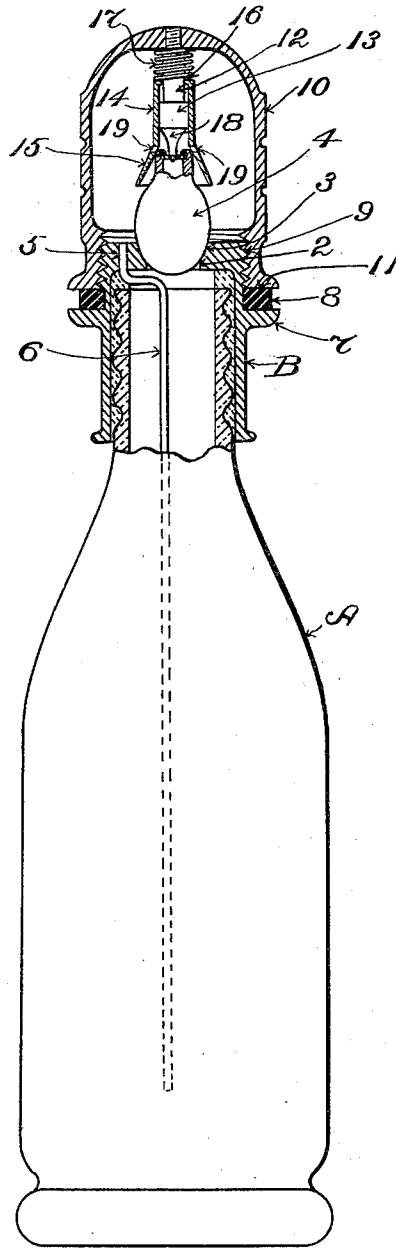


Fig. 2.

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# UNITED STATES PATENT OFFICE.

GUSTAF L. REENSTIERNA, OF WINCHESTER, MASSACHUSETTS.

## APPARATUS FOR CHARGING LIQUIDS WITH GASES.

SPECIFICATION forming part of Letters Patent No. 662,499, dated November 27, 1900.

Application filed April 17, 1900. Serial No. 13,185. (No model.)

*To all whom it may concern:*

Be it known that I, GUSTAF L. REENSTIERNA, a citizen of the United States, residing at Winchester, in the county of Middlesex, State of Massachusetts, have invented a certain new and useful Improvement in Apparatus for Charging Liquids with Gases, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention has for its object to provide a simple form of apparatus by which liquid may be charged with carbonic-acid gas or the like. The apparatus now in use for this purpose, so far as known to me, requires considerable skill in manipulation and is liable to get out of order. In the device hereinafter described embodying my invention these objections are reduced to a minimum.

My invention is fully set forth in the following description, reference being had to the accompanying drawings, and the novel features thereof are pointed out and clearly defined in the claims at the close of this specification.

In the drawings, Figure 1 is a side elevation of a device embodying my invention. Fig. 2 is a similar view, partly in section.

A is a vessel of glass or other suitable material of sufficient strength to withstand the pressure of the gas and which may be of any convenient shape. To the neck of the vessel or bottle A is fitted a top B, preferably of metal and secured to the neck of the bottle in any well-known manner. The top B is provided with an opening 2, preferably circular and provided with flaring walls, as shown at 3, which form a seat for the rounded end of a capsule 4, which contains the compressed or liquefied gas.

5 is an opening which passes vertically through the upper horizontal portion of the top B and with which opening the tube 6 is connected, the latter extending downwardly to a point preferably near the bottom of the vessel or bottle A, as shown in Fig. 2. As the top B is rigidly secured to the bottle or vessel the tube 6 is not removed from the vessel in using the apparatus, and thereby the use of the apparatus is not only simplified, but the danger of breaking or injuring the said tube 6 is reduced to a minimum.

7 is an annular flange projecting outwardly

from the top B, preferably about midway of the length thereof. 8 is a washer of rubber or other suitable material resting upon the said flange 7. The upper portion of the top B is threaded exteriorly, as shown at 9. A hollow cap or cover 10 is interiorly threaded at the open end thereof, so that it may be screwed onto the threaded portion 9 of the cap B, as shown in Fig. 2. When the cap 10 is screwed onto the top B, the lower edge 11 of the said cap 10 bears against the washer 8 and a tight joint is formed. This is the only washer or packing employed in the apparatus, and it is so located that it can easily be replaced. Thereby the inconvenience resulting from the use of several washers or packings which are constantly liable to deteriorate is obviated. Inside the cap 10 I place a stud 12, which is screwed into the top of the cap 10 centrally thereof. On the head 13 of the stud 12 is placed a sleeve 14, having a flaring or trumpet-shaped mouth or lower end 15. The upper end of the sleeve 14 is provided with an inwardly-projecting flange 16, which prevents the sleeve 14 from dropping downwardly off the head 13 when the apparatus is not in use. A spiral spring 17 encircles the stud 12 between the cap 10 and the flange 16 of the sleeve 14. The said spring serves to hold the sleeve 14 pressed downwardly, with its flanges 16 in contact with the head 13 of the stud 12, while at the same time permitting the sleeve 14 to be moved upwardly under pressure. The spring also acts to free the capsule from the puncturing device when the cap 10 is removed from the vessel or bottle A. The free end of the head 13 of the stud 12 is tapered and pointed, as shown, the pointed end forming a perforating or puncturing device to pierce the top of the capsule 4. The sleeve 14 is provided with one or more openings 19 to permit the gas which comes from the capsule to more readily escape into the chamber within the cap 10 and thence to pass down through the opening 5 and tube 6 and be discharged from the lower end of the said tube 6 into the liquid contents of the vessel or bottle A.

Instead of the capsule 4, (shown in Fig. 2,) which is opened by perforating or puncturing it, a capsule may be employed which is

opened by forcing inwardly a closure employed for closing the opening to the capsule. When this latter form of capsule is used, the part 18 will not require to be pointed, as shown; but the downwardly-projecting end thereof will be flat or rounded, as will be clear. The space or chamber within the cap 10 requires to be no larger than is necessary to accommodate the capsule and the device for liberating the gas in the latter; with additional space sufficient to permit the gas liberated from the capsule to pass downwardly to the passage 5 in the top B.

In using my improved apparatus the cap 10 is unscrewed and removed. The vessel A may then be filled through the opening 2 with the liquid which is to be charged. A capsule containing the charging-gas is then seated in the opening 2, said opening serving to properly locate the capsule with reference to the perforating or pressing device. The cap 10 is then screwed on, and when it has come to a bearing on the washer 8 the capsule will have been opened and the gas therein allowed to escape into the chamber within the cap 10 and thence through the passage 5 and tube 6 into the liquid contents of the vessel. It will be noted that there is no packing around the capsule and no packing of any kind employed except the ring 8, which may be readily removed and replaced and which is entirely out of contact with the contents of the vessel, and therefore cannot affect the latter by impairing the flavor thereof or otherwise. After the liquid has been charged it is only necessary to remove the cap 10 and the capsule 4, and the contents of the vessel may be poured out through the opening 2. There is therefore but one part—namely, the cap 10—to be removed and replaced in the operation of filling the vessel and charging the contents.

What I claim is—

1. An apparatus for charging liquids, comprising a vessel having fixed to the upper end thereof a top having a liquid-discharging opening constituting a seat for the reception of a charged capsule, the said top having a second opening through which gas may flow from

the cap into the vessel, a removable cap for covering said top, and means within said cap for causing the escape of the gas from a capsule placed against said seat, substantially as described.

2. An apparatus for charging liquids, comprising a vessel having fixed to the upper end thereof a top having a liquid-discharging opening constituting a seat for the reception of a charged capsule, the said top having also a gas-discharge tube extending downwardly into the interior of the vessel, a removable cap for covering said top, and means within said cap for causing the escape of the gas from a capsule placed against said seat, substantially as described.

3. An apparatus for charging liquids, comprising a vessel having fixed to the upper end thereof a top constructed to permit passage of the contents of the vessel and inflow of gas from the cap, the liquid-discharging opening of said top constituting a seat for a capsule, a removable cap covering said fixed top, and means within said cap for causing the escape of the gas from a capsule placed against the said seat, substantially as described.

4. An apparatus for charging liquids comprising a vessel having fixed to the upper end thereof a top having a liquid-discharging opening constituting a seat to receive a gas-capsule, and also having a second opening to permit the passage of gas into the vessel, a flange on the exterior of said top, a packing on said flange, also at the exterior of said top, a removable hollow cap adapted to be secured on said top in contact with said packing to form a tight joint, and means within said cap for causing the escape into the cap of the gas in the capsule seated on the seat with which the opening in said top is provided, substantially as described.

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

GUSTAF L. REENSTIERNA.

Witnesses:

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ALICE H. MORRISON.