No. 610,127. Patented Aug. 30, 1898.

V. DURAFORT.

APPARATUS FOR CONTAINING COMPRESSED CARBONIC ACID AND CHARGING WATER THEREWITH.

(Application filed Feb. 19, 1898.)

(No Model.)

FIG. 1.

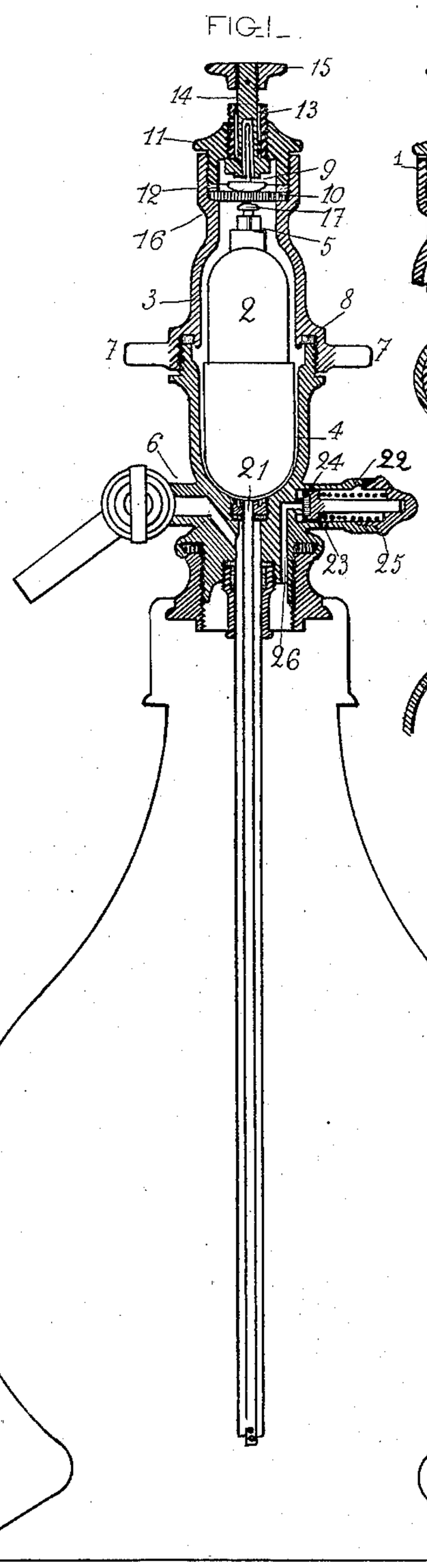


FIG. 2.

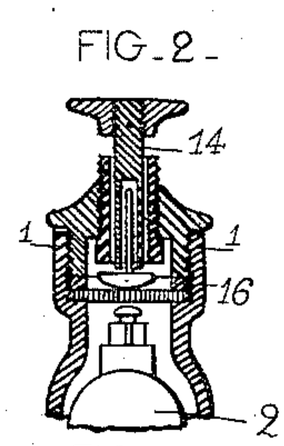


FIG. 3.

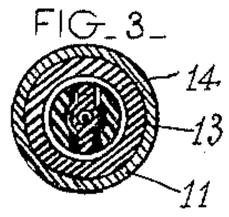
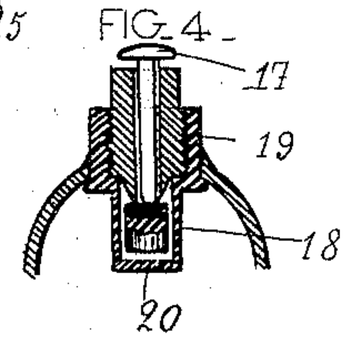


FIG. 4.



Witnesses
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VICTOR DURAFORT, OF PARIS, FRANCE.

APPARATUS FOR CONTAINING COMPRESSED CARBONIC ACID AND CHARGING WATER THEREWITH.

SPECIFICATION forming part of Letters Patent No. 610,127, dated August 30, 1898.

Application filed February 19, 1898. Serial No. 670,969. (No model.)

To all whom it may concern:

Be it known that I, VICTOR DURAFORT, a citizen of France, residing at Paris, France, have invented certain new and useful Improvements in Apparatus for Containing Compressed Carbonic Acid and Charging Water or other Liquids Therewith, of which the following is a specification.

My invention has for its object to provide siphons and cartridges containing compressed carbonic acid whereby aerated water or other liquid may be produced charged with any desired proportion of gas, the arrangement being such that any proportion of the carbonic acid or the whole of it can be admitted to the water or other liquid to be impregnated therewith.

I will describe my invention with reference to the accompanying drawings.

Figure 1 represents in section an apparatus according to my invention. Fig. 2 is a section of the upper part of the head at right angles to Fig. 1. Fig. 3 is a transverse section taken along the line 1 1 of Fig. 2. Fig. 4 is an enlarged section of the upper part of the carbonic-acid cartridge or container.

2 represents the said cartridge or container, which is inclosed in a chamber 5 at the top of the siphon-head. The part 4 of this chamber may be of cast-iron or other suitable material, with the usual or any suitable cocks and valves for drawing off the aerated liquid, and when the cartridge is in place the top part 3 is screwed onto the lower part 4 by ears 7. A ring 8 of india-rubber or any other elastic material is placed between the parts 3 and 4 in order to insure an air-tight joint. The top part 3 includes a chamber 9, separated from the chamber 5 by an elastic diaphragm 10, normally kept in a horizontal position by a screw-cap 11, which exerts its pressure on a ring 12, which in turn bears on the edge of the diaphragm.

In a sleeve 13, screwed into the top of the cap 11, slides a piece 14, which can be forced in by pressure on the upper button 15, whereby the piece 14 is caused to descend and to carry with it the button 16, which presses on the diaphragm 10, which in turn depresses the button 17, which is on a stem passing through the opening in the valve-casing at the top of the cartridge 2. By this means the valve 18, which is normally kept against its seat 19 by the pressure inside the cartridge, is caused to leave its seat, and the carbonic acid then passes through the small opening 20 and enters the chamber 5 and escapes therefrom through the tube 21 into the water or liquid in the siphon.

By successive operations of the button 15 small quantities of carbonic acid are successively caused to thus escape into the water or liquid, the valve 18 returning to its seat 19 when no pressure is exerted on the button 15. Carbonic acid can thus be allowed to escape from the cartridge 2 very gradually into the water or liquid.

When it is wished to discharge the whole of the carbonic acid from the cartridge into water or liquid, the valve 18 can be lowered so that the cartridge can be completely emptied without the necessity for the operator to keep the pressure on the button 15. In this case instead of the button 15 being pressed it must be turned, for which purpose (see more particularly Fig. 3) the piece 14 is provided with a cross-piece which engages in a cross-slot in the part 13, so that when rotated it carries with it the said part 13, which therefore screws down into the head 11, and the button 16 presses on the diaphragm 10, which in turn presses on the button 17 to open the valve 18, which can thus be allowed to remain open until the carbonic acid has escaped from the cartridge 2, when the button 15 can be screwed back and the parts resume their normal position.

To prevent danger from too sudden a discharge of the contents of the cartridge 2, I provide a chamber 22 with a small hole 23, such chamber containing a safety-valve 24, normally pressed to its seat by a spring 25. This valve controls a channel 26, communicating with the interior of the siphon.

When the internal pressure exceeds the limit to which the spring is set, the valve 24 is pressed from its seat and the excess of gas escapes through the hole 23 until the normal pressure is reëstablished, when the spring 25 closes the valve 24. I do not limit myself to the precise details illustrated.

Having now particularly described and as-

certained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is—

1. An apparatus for charging liquids with gas, consisting of a cartridge or gas-container an outlet-valve for the gas closed by interior pressure, a stem entering said container, its outer end lying in a chamber containing the cartridge and a movable slide entering a screw-cap for said chamber and supported directly over said stem by an elastic diaphragm which separates the interior of the screw-cap from said chamber, substantially as described.

2. An apparatus for charging liquids with carbonic-acid gas consisting of a cartridge or compressed-gas container inclosed in a chamber, an outlet-valve for said container closed by interior pressure of said gas, a stem entering the cartridge and having one end on said valve, the other end being on the outside, a threaded sleeve tapped into a screw-cap, which closes the cartridge-containing chamber a slide arranged to move in said sleeve an elastic diaphragm between the slide and the stem of the outlet-valve, and a cross-head on the outer end of the slide adapted to engage the end of the sleeve and turn it, to adjust it inwardly and outwardly, substantially as described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

VICTOR DURAFORT.

Witnesses:
EDWARD P. MACLEAN,
ALFRED FREY.