

Fig. 1

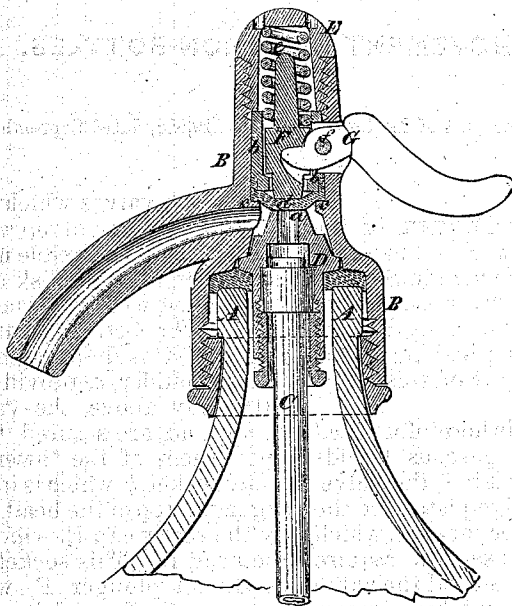
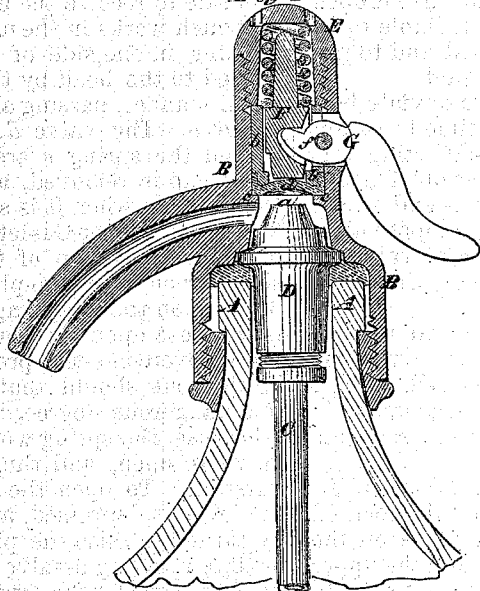


Fig. 2



Witnesses.

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IMPROVEMENT IN SIPHON-BOTTLES.

Specification forming part of Letters Patent No. 119,028, dated September 19, 1871.

To all whom it may concern:

Be it known that I, CLAUDE GLOVER, of the city, county, and State of New York, have invented anew and useful Improvement in Siphon-Bottle Valves; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing forming part of this specification.

The two kinds of siphon-bottle heretofore used for mineral waters and other gaseous liquids have the following defects, viz.: First, the valve-stem in one kind and the valve-piston in the other are fitted with India-rubberpacking, which is subject to friction and wears so as to require frequent renewal. Second, in one kind the valve has a brass stem, and in the other a brass screw is used to attach the India-rubber facing to the valve; and the said screw being at all times, and the valve-stem being, when the valve is open, exposed to the liquid, the brass is liable to become corroded by the carbonic acid and to produce a deleterious effect on the liquid.

The object of this invention is to obviate both of these defects, and at the same time to so construct the stopper as to form a self-acting vent in case of too great an accumulation of gas or pressure in the bottle; and to this end it consists in the substitution, for the puppet-valves heretofore employed, of a diaphragm-valve applied and operated in a manner to obtain the desired result.

Figure 1 in the drawing is a central vertical section of the neck and head of a bottle with my improvement, showing the valve closed. Fig. 2 is a similar section, showing the valve open.

Similar letters of reference indicate corresponding parts in both figures.

A is the neck of the bottle, and B the head attached in the usual way. C is the tube secured in a socket, D, which is held in place on the neck of the bottle by the head B, and the upper end of which constitutes the valve-seat *a*, upon which the valve closes in a downward direction. All of the above-mentioned parts are or may be of the same construction as in bottles heretofore

made with valves which close downward. *d* is the diaphragm-valve, which is made of India rubber or other flexible material, and which may consist of a simple disk cut from a sheet, or may be molded with a turned-up flange around its margin for better securing it in place. The edges of this diaphragm rest upon a small annular shoulder, *c*, provided within the head B, a little way above the valve-seat and draught-spout, and are secured thereon by the pressure upon them of the lower edges of a cylindrical metal socket, *b*, which is inserted through an opening in the top of the head, and which is held down by the screw-cap E, which screws into the top of the head B. This socket fits snugly within the head, and plunger F, which closes the valve, passes easily through it. This plunger is pressed down by a spiral spring, *e*, which is received within the screw-cap E, and it has a mortise in one side to receive the end of the opening-lever G, which works in the usual manner through an opening in one side of the head, where it is attached to the head by the fulcrum-pin *f* in the usual manner, passing also through a slot in the socket *b*. The valve *d*, the socket *b*, the valve F, and the spring *e* are all inserted while the screw-cap is removed, and are kept in place by the said cap when it is screwed into the head.

When the lever G is left free the spring *e*, pressing against the top of the cap and against the shoulder on the valve-plunger, presses the latter down upon the diaphragm-valve and keeps the latter close upon its seat with sufficient pressure to overcome the pressure of the gas in the bottle; but should that pressure be increased to a dangerous degree, by surrounding heat or otherwise, the spring would yield and allow the valve to open, and thus save the bottle from bursting. To open the valve, the outer end of the lever is depressed, and the inner end thereby caused to raise the piston and so permit the flexible diaphragm-valve to be raised by the pressure of the gas for the egress of the liquid through the spout. In the operation of opening and closing the valve, as well as while the valve remains closed, none of the metal appurtenances of the

valve are exposed to the liquid, but they are all protected by the edges of the diaphragm-valve being firmly secured, and there is no friction of packing, for there is no packing to the working parts.

What I claim as my invention, and desire to secure by Letters Patent, is—

The combination of the flexible diaphragm-valve *d*, the socket *b*, the plunger *F*, the spring

e, and the screw-cap *E*, substantially as herein described, the whole arranged, applied, and operating with respect to the valve-seat *a* and flanged head of the bottle, substantially as herein set forth.

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Witnesses:

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