

J. J. O'NEILL.
SIPHON BOTTLE.

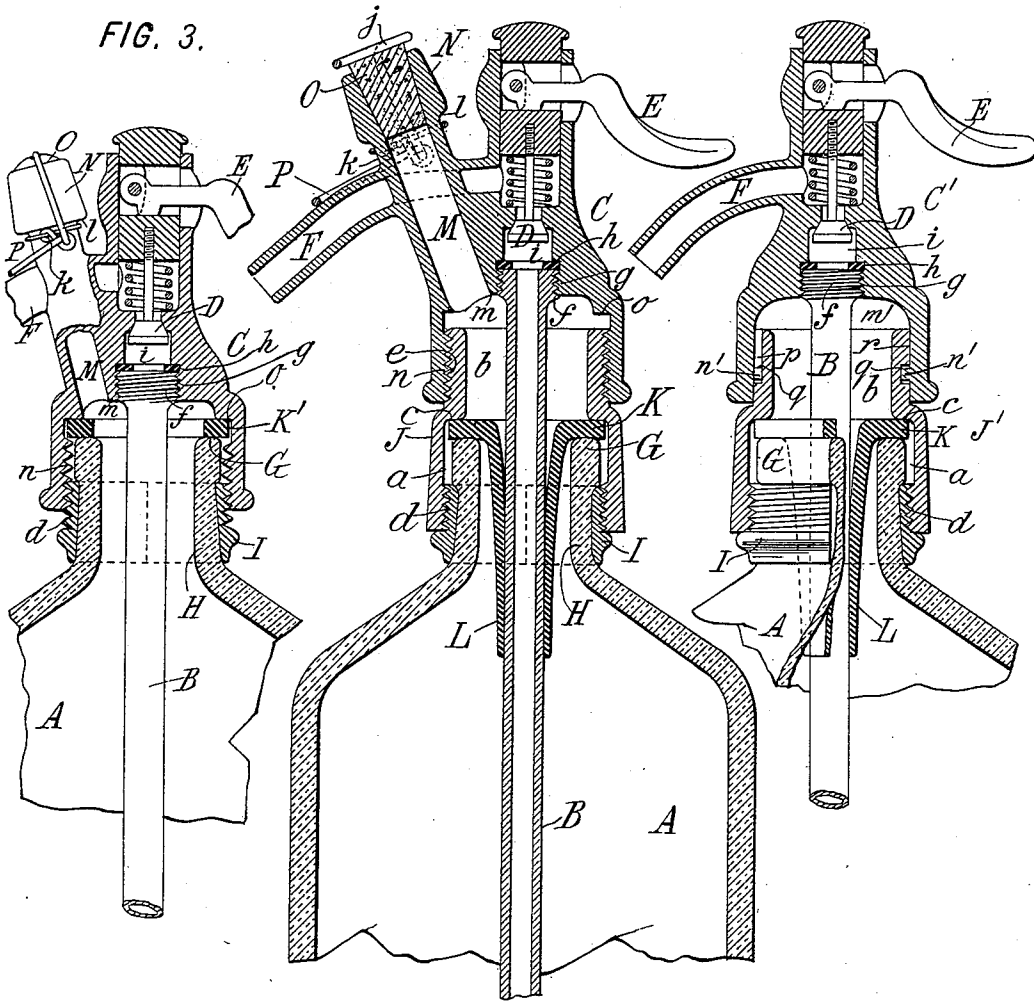
(Application filed July 15, 1899.)

(No Model.)

FIG. 1.

FIG. 2.

FIG. 3.



WITNESSES:

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JOHN J. O'NEILL, OF NEW YORK, N. Y., ASSIGNOR OF ONE-HALF TO
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SIPHON-BOTTLE.

SPECIFICATION forming part of Letters Patent No. 650,413, dated May 29, 1900.

Application filed July 15, 1899. Serial No. 723,886. (No model.)

To all whom it may concern:

Be it known that I, JOHN J. O'NEILL, a citizen of the United States, residing in the city of New York, borough of Manhattan, county of New York, and State of New York, have invented certain new and useful Improvements in Siphon-Bottles, of which the following is a specification.

This invention relates to siphon-bottles of the type commonly termed "siphons," in which aerated or carbonated waters are contained, and aims to provide certain improvements in such vessels and their caps or heads.

Siphons are generally constructed with a siphon-head connected to the mouth of the bottle by being screwed onto a split ring encircling the bottle-neck. The head may carry the siphon-tube or may hold its flange on the mouth of the bottle, so that the interior of the head constitutes a valve-chamber above the tube in which the valve is operated to permit discharge of the liquid past the valve and out through the spout under the influence of the gaseous pressure within the bottle. Generally in filling bottles of this character the filling-hose has been attached to the spout and the bottle filled while inverted. Much difficulty has been found in expelling all the air from a bottle while filling it, and it has been found impracticable to charge the bottle with syrup by feeding this in through the valve, the density of the syrup interfering very much with such an operation. In attempting to remove as much as possible of the air within a bottle it is customary to "sniff" the bottle several times near the completion of the filling operation, sniffing consisting in snapping off the hose from the nozzle occasionally to permit a brief discharge of gas from the interior. This is partially successful in expelling the small amount of air remaining in the bottle, but is rarely entirely successful, and this small remnant of air has a peculiar effect on the life of the carbonated water in the bottle, the air seeming to in some way impair the activity of the charge and diminish the internal ejecting-pressure.

My invention aims to provide improvements whereby a siphon may be easily charged with syrup as well as with aerated waters, whereby its charging can be conveniently and

rapidly effected and whereby a complete assurance against presence of air after charging may be had.

To this end in carrying out the preferred form of my invention I provide certain improvements, which will be hereinafter fully set forth.

In the accompanying drawings, which show certain adaptations of my improvements, Figure 1 is a fragmentary vertical axial section of a siphon embodying the preferred form of my invention. Fig. 2 is a similar view showing a modification, and Fig. 3 is a similar view showing another modification.

Referring to the drawings, let A indicate a siphon-bottle; B, the tube; C, the head; D, the valve; E, its handle; F, the spout; G, the mouth of the bottle; H, its neck, and I the split ring for connecting the head to the bottle. In their general features these parts may be of any usual or suitable construction.

Referring first to Fig. 1, I will now proceed to describe in detail the preferred form of my invention as shown therein. In this form of my invention I provide between the head and the bottle an intermediate thimble J, having a lower chamber *a* for passing over the mouth of the bottle and an upper chamber *b* for communicating with the interior of the head and an internal shoulder *c* between these chambers for engaging a packing K to make a leak-tight joint around the mouth of the bottle. The thimble has the usual internal screw-thread *d* for screwing on the rings I to connect it to the bottle on its lower end, and on its upper end it has external screw-threads *e*, corresponding in diameter and pitch to those of the split ring, for engaging it with either the usual head or with my improved head C.

According to one feature of improvement I make a leak-tight joint between the head C and the tube B, as by screwing the upper end of the tube at *f* into a socket *g* in the head and interposing a packing-washer *h* between the end of the tube and the head, above which packing-washer is a small valve-chamber *i*, in which the valve D works, and I isolate the interior of the head, below the chamber *i*, from the interior of the bottle and the tube preferably by means of a teat-valve L, which is a rubber or other flexible tube

of packing material, preferably formed integrally with the packing-flange K at top and extending downwardly around the tube, so that it can expand to permit ingress to the bottle, but will embrace the tube to prevent egress. The teat-valve permits free insertion and removal of the tube and prevents escape from the bottle when the tube is withdrawn. In this way the head can be removed at any time and the bottle charged through the teat-valve by applying the charging-tube to the thimble, and the tube can be inserted at any time by simply pushing its end through the teat-valve, while the teat-valve makes such a tight joint that the interior of the head need not be packed where it engages the thimble. I prefer, however, to form an auxiliary duct M, opening above the mouth of the bottle and isolated from the valve-chamber *i* in the head for charging the bottle, so that the head need not be unscrewed. This duct M has a mouth N, closed by a stopper O, which is held in position by the bail *j* of a stopper-fastener P, which straddles the spout F and is fulcrumed at *h* on each side of the neck *l* of the duct M. The duct M and nozzle F are formed by adjacent cores, the core of the duct opening in the chamber *m* of the head between its internal screw-thread *n* and the screw-thread *g*, where the pipe B is attached to the head. The duct is in free communication with the chamber *b* of the thimble, so that at any time by opening the stopper O access to the interior of the bottle can be had for charging it, and the duct is large enough to permit a gravity flow of syrup or other dense charge into the bottle prior to the introduction of the carbonated charge through it. By use of this duct the bottle can be charged while inverted and the valve can be opened to permit the escape of air during charging. Charging is also facilitated by the shape of the head N, to which the charging-tube may be easily applied, and after charging the charging-tube may be removed and the stopper O applied at will, as the teat-valve will act as a check-valve to prevent escape of the charge from the bottle.

In use it will not be important that the cork O be tight, as the teat-valve will prevent leakage into the chamber *b*. The passage-way through the teat-valve and the chamber *b* constitutes, essentially, an annular inlet-passage surrounding and concentric with the passage-way through the tube B, which latter constitutes a central outlet-passage. With the improved inlet-passage and the teat-valve for closing it the bottle can be filled in any position with any desired charge, whether or not the head is applied at the time, and the head may be applied after filling when desired. The bottle thus equipped can readily be charged with effervescent powders or other substances by the users, so that any user can adapt the contents of a siphon to his particular taste or requirements. Effervescent substances or flavors may be molded into pencil

form and forced through the teat-valve before the head is applied, and one head may be used successively on a plurality of bottles, the bottles being stored and shipped with the thimble and teat-valve alone, so that each bottle is ready for application of the head at any time.

Fig. 2 shows a modification in which the teat-valve and thimble are employed with a head which has a special fastening construction and is not provided with my improved duct. This head (lettered C') has a cavity *m'*, having internal projections *n'*, which enter grooves *p* and take under shoulders *q* in a cylindrical projection *r* on the thimble J', locking the head to the thimble with a bayonet-joint connection. The head has my improved valve-chamber *i* and internal thread *g*, engaged by the thread *f* of the tube B. A packing-washer *h* makes a tight joint between the tube and head beneath the valve D. The thimble J' has the lower chamber *a*, top chamber *b*, intermediate shoulder *c*, and internal thread *d*, which screws on the split ring I. The flange K of the teat-valve L is here clamped against the mouth of the bottle by the shoulder *c* of the thimble. With this construction the teat-valve avoids the necessity of a leak-tight joint between the head and thimble and enables application or removal of the head at any time. The round outer end *r* of the thimble will be a convenient portion to which to apply the charging-pipe; but as this construction necessitates removing the head in order to charge the bottle I prefer to use the improved head before described, with which charging may be effected through the duct M.

If desired, one may use the improved charging-duct without the teat-valve and thimble by removing these parts and screwing the head C directly into the split ring, as shown in Fig. 3, an ordinary washer K' being inserted between the shoulder *o* of the head and the mouth of the bottle. In other respects this construction is identical with that before described and the parts bear the same reference-letters as in Fig. 1. In use it will be necessary to make a tight fit at the cork O, as the intermediate chamber between the mouth of the bottle and the cork is not isolated from the interior of the bottle. This construction will be very easy to charge either with carbonated water or with syrup or with a liquid containing solid matter, the charge being inserted through the duct M until the bottle is filled and the charging-pipe being removed once or twice to permit escape of any remnants of air which may accumulate during charging, this process being known as "sniffing." The stopper will have to be quickly applied after charging, as otherwise there would be nothing to prevent expulsion of some of the charge. Any air in the tube B may be freed during charging by opening the valve D.

In use with my improvements it will be possible for any user to quickly introduce such

ingredients into a bottle as may be necessary to produce the desired beverage, and the charging can be effected and the bottle restored to use with rapidity and convenience. The siphon can be operated for discharging its contents just as siphons are ordinarily operated at present, and the charging can be so perfectly and completely effected that the maximum of life for the charge can be obtained.

It will be seen that my invention provides improvements which can be readily and advantageously availed of and that the improved head or the improved thimble can be manufactured as attachments interchangeably applicable to standard siphon-bottles.

It will be understood that my invention is not limited to the particular details of construction, arrangement, and combination set forth as constituting its preferred form, since it can be employed in whole or in part, according to such modifications as circumstances or the judgment of those skilled in the art may dictate, without departing from the spirit of the invention.

What I claim is—

1. In siphons, the combination with a head having a bottom cavity adapted to be connected to the mouth of the bottle, a valve-chamber above said cavity, a valve-seat beyond said chamber, a discharge-spout, and an auxiliary duct leading from said cavity to the exterior, of a tube screwing into said head beneath said valve-chamber, and making a leak-tight joint around the latter, a valve proper in said valve-chamber for controlling exit through said tube, and a flexible tubular valve automatically preventing egress through said duct.

2. In siphons, a head having a chamber *m* opening at its bottom, having an internal screw-thread *n* in its lower end for connecting it to the mouth of a bottle, having a smaller screw-thread *g* above said chamber, a shoulder above said screw-thread *g*, a valve-chamber *i* above said shoulder, a valve-seat and a discharge-spout, in combination with a tube *B* having a screw-thread *f* screwing in said thread *g* of the head, a packing-washer *h* between said tube and said shoulder, a valve proper in said chamber, a duct *M* leading outwardly from said chamber, and a teat-valve closing egress through said duct.

3. In siphons, a head having a chamber *m* opening at its lower end and having provisions for fastening it over the mouth of a bottle, said head having a valve-chamber *i*, isolated from said chamber *m*, a tube *B* communicating with said chamber *i* and traversing said chamber *m*, a valve-seat and a discharge-spout, and said head having a duct leading from said chamber *m* outwardly, a stopper closing said duct, and a teat-valve below said stopper for automatically preventing outflow through said duct.

4. In siphons, a head having a chamber *m*, a valve-chamber *i* isolated from said chamber *m*, a valve-seat, a discharge-spout, and an

auxiliary duct *M*, in combination with a tube *B* communicating with said valve-chamber, a valve *D* closing on said seat, a stopper *O* closing said duct, and an automatic valve inwardly of said stopper for checking outflow through said duct.

5. In siphons, the combination with a bottle and a head connected to its mouth, and a tube carried by said head and projecting into the mouth of the bottle, of a valve between said head and the mouth of the bottle preventing egress from the bottle around the tube.

6. In siphons, the combination with a bottle, a head connected thereto, and a tube carried by the head and entering the bottle, of a tubular valve surrounding said tube between said head and the mouth of the bottle and preventing egress from the bottle around the tube.

7. In siphons, the combination with a bottle, a head connected to the mouth thereof and a tube carried by the head and entering the mouth, of a valve preventing egress from the bottle around such tube, consisting of a flexible tube projecting into the mouth of the bottle.

8. In siphons, the combination with a bottle and a siphon-tube entering it, of an elastic teat-valve *L* clamped to the mouth of the bottle and making a leak-tight joint around said tube.

9. In siphons, the combination with a head having a shoulder *o*, a siphon-tube carried thereby, and a bottle, of a thimble *J* having a socket *a* for passing over the mouth of the bottle, having an internal screw-thread for fastening it to the bottle, having an internal shoulder *c* for making a leak-tight joint with the mouth of the bottle, having an upper chamber *b* for entering said head, and having an external screw-thread *e* for screwing onto the head, and a valve *L* fitting either of said shoulders *o* and *c*, whereby said valve *L* may be used with the head alone, or with it and said thimble.

10. In siphons, the combination with a bottle and a head having a siphon-tube and a chamber *m* in its bottom, of a tubular thimble having a chamber for passing over the mouth of the bottle, having internal provisions for fastening it to the bottle and an internal shoulder above the mouth of the bottle, said thimble having a reduced upper end, having a chamber for communicating with the cavity in said head, and having external provisions for connecting it to such head, and a valve *L* having a flange fitting said thimble and adapted to be clamped on the mouth of a bottle thereby.

11. In siphons, the combination with a bottle, of a flexible tubular valve at the mouth of the bottle, a tubular thimble fastened to the bottle, surrounding said valve and holding the latter on the mouth of the bottle, and having an open upper end, and a head fastened to the upper end of said thimble, hav-

ing a chamber *m* communicating with the interior of the latter above said valve, having an isolated valve-chamber above said chamber *m*, and a discharge-spout above said
5 valve-chamber, and a tube carried by said head entering the bottle, and communicating between the interior of the latter and said valve-chamber, and a valve proper in said valve-chamber.

10 12. In siphons, the combination with a bottle A, of a teat-valve L, a thimble J holding said valve on the mouth of the bottle, a head

C connected to said thimble, having a valve-chamber *i* and a duct M, a valve proper in said valve-chamber, a stopper for said duct, 15 and a tube B carried by said head, traversing the said valve L and entering said bottle.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

JOHN J. O'NEILL.

Witnesses:

GEORGE H. FRASER,
EDWARD F. PURCELL.