

C. L. HUSTED.
SIPHON BOTTLE.
APPLICATION FILED FEB. 12, 1910.

1,020,506.

Patented Mar. 19, 1912.

Fig. 1.

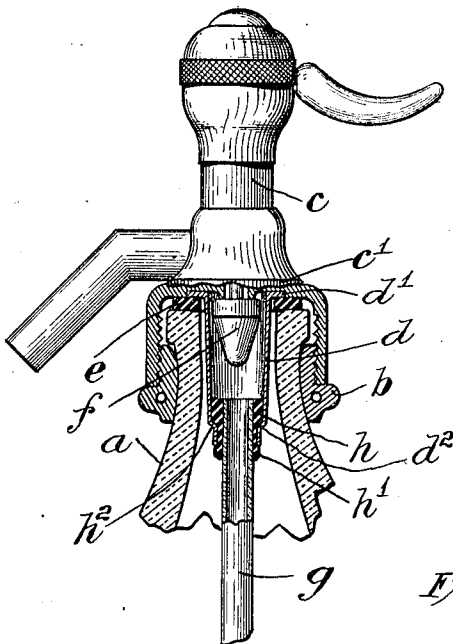


Fig. 2.

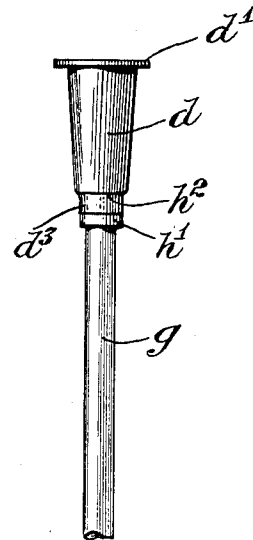
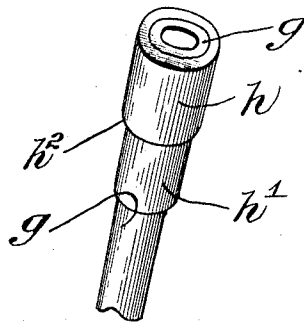


Fig. 3.



Attest:
Comstock
Ravensburg

Charles L. Husted Inventor:
by *Frank J. Wentworth*
his Atty.

UNITED STATES PATENT OFFICE.

CHARLES L. HUSTED, OF JERSEY CITY, NEW JERSEY, ASSIGNOR TO NEW YORK BOTTLERS' SUPPLIES MFG. CO., OF HOBOKEN, NEW JERSEY, A CORPORATION OF NEW JERSEY.

SIPHON-BOTTLE.

1,020,506.

Specification of Letters Patent.

Patented Mar. 19, 1912.

Application filed February 12, 1910. Serial No. 543,596.

To all whom it may concern:

Be it known that I, CHARLES L. HUSTED, a citizen of the United States, and a resident of Jersey City, in the county of Hudson and

6 State of New Jersey, have invented certain new and useful Improvements in Siphon-Bottles, of which the following is a specification, reference being had therein to the accompanying drawings, which form a part
10 thereof.

My invention relates to siphon bottles, and more particularly to the construction and manner of assembling the siphon tube.

Siphon tubes as now generally used in
15 siphon bottles, consist of a metallic head of block tin permanently attached to a glass tube by being cast thereabout. This construction, while very unsatisfactory, is so far as I know, used exclusively, in commercial siphon bottles. It is objectionable,
20 however, because of the difficulties attendant upon its manufacture, and the loss due to breakage resulting from the expansion of the glass and construction of the metal of the tube in pouring, and the breakage owing
25 to the weakened condition of the tube at the point of joinder, with the head, which result in numerous fractures while the tube is being made, and after the bottle has been assembled, breakage frequently occurring
30 as the result of even a very slight jar.

I am aware that various types of tube heads consisting of resilient material supporting the tube have heretofore been suggested to remedy this difficulty, but in practice these have proven unsatisfactory as most of them contemplating the employment of a stopper of rubber, or other elastic material, supported by engagement with the
40 neck of the bottle. Owing to the inaccuracy of the glass makers' art, the necks of siphon bottles vary to an extent to preclude the adoption of the type of tube support above referred to, as leakage about this stopper would be common or else the packing
45 about the tube itself would not be sufficiently tight to confine the gases within the bottle.

The main object of my invention is to provide a tube for a siphon bottle wherein the tube itself will be attached to a tube
50 head by means which will preserve the proper relation of these parts and at the same time provide an elastic packing between them which will prevent the escape
55 of gases from within the bottle and at the

same time relieve the tube from the breaking strains due to the expansion or contraction of the tube, or of the head, in assembling these parts.

A further object is to provide a siphon
60 bottle of this character wherein the tube will be frictionally supported by a packing, and the packing will be so fixed relative to the tube head as to prevent the accidental displacement of these parts under the ordinary conditions of use of a siphon bottle.
65

A still further object is to provide a siphon tube embodying therein a non-elastic tube head wherein these parts may be assembled at normal atmospheric temperatures and will be so firmly united as to avoid possibility of leakage between said parts.
70

A still further object is to provide a siphon tube composed of a fragile tube and a non-elastic tube head so united as to minimize the dangers of breakage of the tube either before or after assembling the bottle. And a still further object is to provide a siphon tube of this character which may be so rapidly assembled as to compensate
80 for the slight increase in the cost of material entering into the tube.

The invention consists primarily in a siphon bottle embodying therein a siphon tube consisting of a tube, a non-elastic tube head,
85 and elastic means securing said tube to said head and packing said parts relative to each other; and in such other novel features of construction and combination of parts as are hereinafter set forth and described and more particularly pointed out in the claims
90 hereto appended.

Referring to the drawings:—Figure 1 is a sectional view of the upper part of a siphon bottle, the lower portion of the
95 siphon head being broken away to disclose in elevation, the upper portion of the siphon tube and tube head, and the portions of the siphon head cooperating therewith; Fig. 2 is a side elevation of the assembled tube,
100 and, Fig. 3 is a perspective view on a large scale of the tube proper and the elastic packing applied thereto prior to assembling the tube.

Like letters refer to like parts throughout
105 the several views.

In the accompanying drawings, *a* indicates an ordinary siphon bottle to which is attached by means of the split ring *b* any desired type of siphon head *c*. Interiorly of
110

the siphon head c is a shoulder c' adapted to engage the tube head d and force its flange d' against the gasket e positioned between the said flange and the lip of the bottle a , to pack the neck of the bottle. The head c carries an ordinary valve mechanism f shown in Fig. 1, the valve block of which is within the tube head d . This construction and arrangement is old and well known in this art and no claim of invention is laid thereto.

The siphon tube proper is indicated at g in the drawings.

In a siphon bottle when charged, the pressures within same will approximate 175 pounds to the square inch and to prevent the escape of gases upon the top of the water or other beverage, it is necessary to have a perfectly gas-tight joint between the tube g and the head d . It has been the practice heretofore, to secure this tight joint and unite the tube and its head, by pouring molten metal with the upper part of the glass tube as a permanent core, relying upon the different co-efficients of contraction of the glass of the tube and the metal of the head to secure the tight joint required.

While this practice has proven satisfactory as to the securing of the tight joint, (the number of heads having blow-holes not being great), nevertheless, the heat of the molten metal fractures many glass tubes d during the pouring, and at the same time makes the glass within the range of the heat from the molten metal extremely brittle and presents a metal to glass joint which results in frequent fractures of the tube at the point of joinder while handling the tube before assembling, and after the bottle has been shipped or is in use. The loss from this source is great and makes the siphon tube a comparatively expensive part of the bottle. To obviate these difficulties, and at the same time afford a perfectly tight permanent joint between the tube and its head, I secure these parts together by means of an elastic packing h , the head of which has a driving fit with the tube head d and the body of which has a close driving fit with the tube g itself. This packing is adapted to be retained within the head and thus prevent the accidental displacement of the tube. In Fig. 3 of the drawings I have shown the construction of this packing clearly. It consists of a truncated conic body h the lower portion h' of which is of lesser dimensions than its head, forming a shoulder h^2 about the packing adapted to engage and seat upon the flange d^2 within the tube head d . This packing is of resilient material, preferably pure rubber, (to avoid corrosion) and the upper portion thereof is adapted to have a driving fit with the lower walls of the head d adjacent to the flange seat d^2 . Below the seat d^2 , the head d is extended

substantially vertically forming a cylindrical portion d^3 adapted to present sufficient bearing surface to the portion of the packing h below the flange h' to prevent material lateral movement of the tube. The lower end of the packing h is rounded or chamfered off to facilitate the insertion of the packing in the head. It will thus be observed that the tube g and its packing h having been inserted in the head d , (which while preferably of metal, may be of any rigid material not affected by the action of the gases passing therethrough) and forced to place by a proper tool, said packing will, owing to its elasticity, expand into engagement with the walls of the head d above the seat d^2 and the walls of the cylindrical portion d^3 , and be compressed by said parts firmly against the tube g itself, thus forming a perfectly tight joint about the tube g and about the interior of the head d . Furthermore, the portion of the packing h projecting below the portion d^3 will, owing to the elasticity inherent thereto, project across the joint at the bottom of said portion d^3 and thus provide a further exterior packing for this joint.

By constructing the tube as heretofore described, the head d may be made separate from the tube g and the parts united so as to form a permanent joint without subjecting the latter to excess temperatures. Furthermore, after these parts are assembled in the manner described, the packing h not only acts to seal the tube and the head d , but forms a cushion between these two members which will absorb any jars to which the tube is subjected in handling prior to the assembling with the bottle or while the bottle is being transported or handled in use, and that this elastic cushion obviates that breakage due to the weakened spot in the type of siphon tube heretofore referred to as now being in general and extensive use.

It is not my intention to limit myself to the use of a siphon tube head d of any particular construction or made of any particular material, it being merely requisite that it should possess that degree of rigidity necessary to support the tube fixedly within the bottle. While I prefer to use a tube head of block tin, I do not intend to limit my invention to the use of such material.

In my practice of this invention, I have found that a pure rubber packing h or that character of packing commonly used for washers in siphon bottles, produces very satisfactory results, but I do not intend to limit myself to the use of such material, it being merely necessary that the packing h should possess that degree of elasticity necessary to permit it to expand into intimate engagement with the tube head d and be forced or compacted about the tube g in a manner to form a gas tight joint even

against high pressures incident to siphon bottles in use, and at the same time have the cushioning effect necessary to prevent the breakage of the tube from the head.

5 I believe that a siphon tube consisting of a rigid head and a tube supported from said head by means of an elastic packing closely encircling the tube and having a close driving fit with the head is broadly new, and
10 I intend to claim such broadly.

Having described the invention, what I claim as new, and desire to have protected by Letters Patent, is:—

15 1. In a siphon bottle, a siphon tube consisting of a rigid head, having a seat adjacent to the bottom and interiorly thereof and an opening surrounded by said seat, a tube, an elastic packing having a shoulder thereon adapted to engage said seat and said
20 head and a reduced portion adapted to project through, and seal the lower edge of, said opening, said packing closely encircling said tube and having a close driving fit within said head, whereby said tube is per-
25 manently supported from said head and a

gas-tight joint is formed about said tube and within said head.

2. In a siphon bottle, a siphon tube consisting of a rigid head, having a seat formed interiorly and adjacent to the bottom there- 30 of, and a cylindrical portion extending downwardly below said seat, a tube projecting downwardly from said head and elastic packing having an opening extending axi- 35 ally therethrough, whereby it is adapted to closely encircle said tube, the lower portion of said packing being of a smaller diameter than the upper portion, whereby a flange is formed, adapted to engage the seat in
40 said head, and the upper and lower portions thereof are adapted respectively to have a close driving fit with the interior of said head and said cylindrical portion.

In witness whereof, I have hereunto af-
fixed my signature, this 11th day of Febru- 45
ary, 1910, in the presence of two witnesses.

CHARLES L. HUSTED.

Witnesses:

P. V. WENING,

P. FRANK SONNEK.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."