Jan. 13, 1931. L. B. DE SPAIN 1,788,709

SIPHON DEVICE

Original Filed Oct. 11, 1927

Fig. 1.

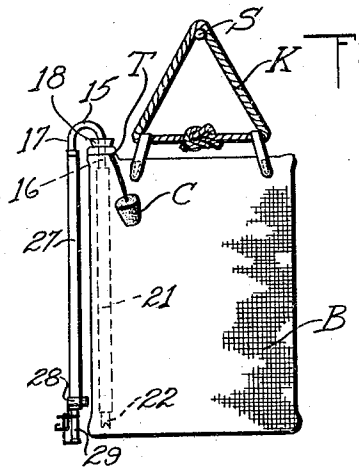


Fig. 3.

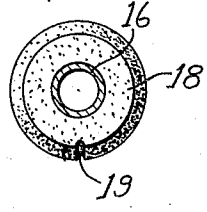


Fig. 4.

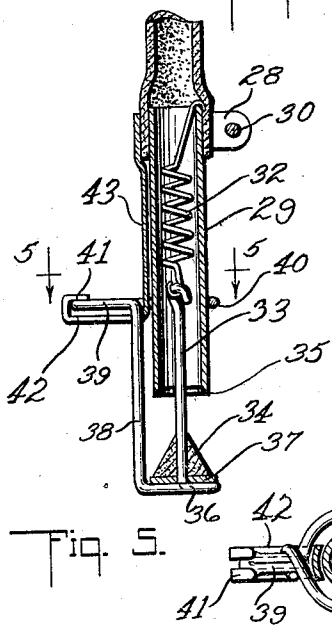
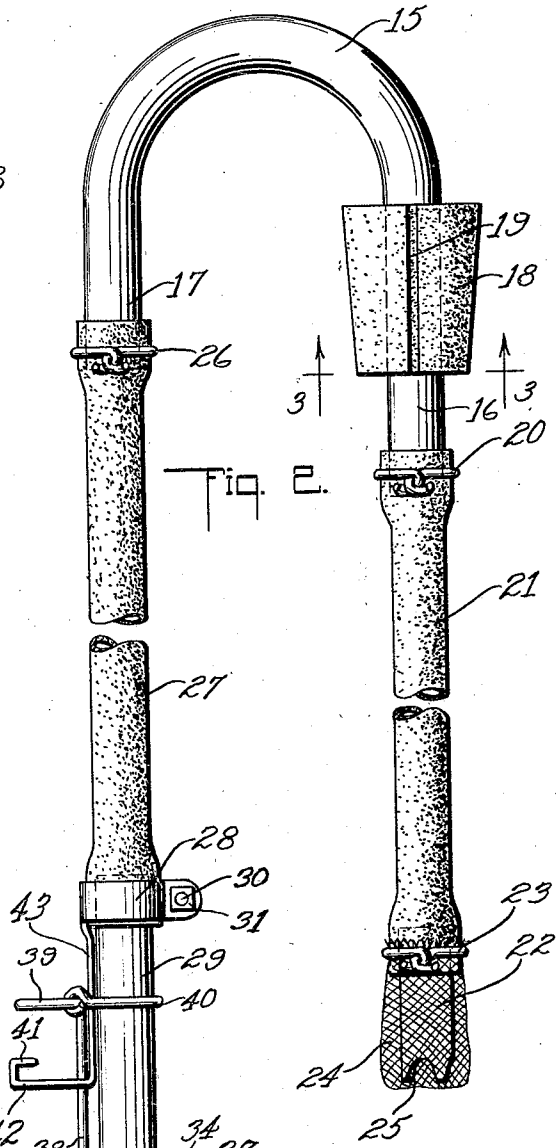


Fig. 5.

Fig. 2.



INVENTOR.
Louis B. DeSpain
BY Munn & Co.
ATTORNEYS

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UNITED STATES PATENT OFFICE

LOUIS B. DE SPAIN, OF SAN FRANCISCO, CALIFORNIA

SIPHON DEVICE

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My invention has reference to receptacles for liquids and particularly to means for siphoning the liquids therefrom.

It is a purpose of my invention to provide a siphoning device capable of association with various forms of liquid receptacles by which the withdrawal of liquid from a receptacle can be readily accomplished.

It is also a purpose of my invention to provide a siphoning device which is particularly designed, although not necessarily, for application to a desert water bag to utilize the compressibility of the bag for initiating operation of the siphon device to the elimination of the necessity of tilting the bag to eject water therefrom; discouraging the present unsanitary practice of drinking directly from the bag as well as permitting water to be taken from the bag without distributing the sediment therein, if any, and from the bottom of the bag where the water is the coolest.

I will describe only one form of siphon device embodying my invention in its application to a desert water bag and will then point out the novel features thereof in claims.

In the accompanying drawings:

Fig. 1 is a view showing in side elevation a desert water bag having applied thereto one form of siphon device embodying my invention;

Fig. 2 is an enlarged view showing in side elevation the siphon device removed from the water bag;

Fig. 3 is a transverse sectional view taken on the line 3–3 of Fig. 2;

Fig. 4 is a fragmentary vertical sectional view of the siphon device showing the valve and its mounting; and

Fig. 5 is a horizontal sectional view taken on the line 5–5 of Fig. 4.

In carrying out my invention, I provide a siphon device including a pliable metal tubing bent substantially in the form of a U to provide a curved portion 15, a long arm 16 and a short arm 17. A stopper 18 formed of rubber or other suitable material is provided with an opening through which the long arm 16 extends, and the periphery of this stopper is provided with a longitudinally extending groove 19 which functions as an air vent when the stopper is in applied position within the filling spout of the receptacle as will be described hereinafter.

Secured to the lower end of the arm 16 by means of a twisted wire 20 is a length of flexible tubing 21, formed of rubber or other suitable material, and into the lower end of which is extended a short length of metal tubing 22. This tubing is secured within the pipe 21 by means of a twisted wire 23, such wire also being employed to secure a wire screen 24 in covering relation to the lower end of the tube for the purpose of filtering the water entering the tube. The lower end of the tube is formed with notches 25 which serve to maintain the tube end open even when resting on the bottom of a receptacle so as to insure the free passage of water into the tube.

Secured to the short arm 17 and by means of a twisted wire 26 is the upper end of a length of flexible tube 27 formed of rubber or other suitable material. Extending into the lower end of the tubing 27 and secured therein by a clamp 28 is a short length of metal tubing 29. The clamp is in the form of a split band with its ends flared outwardly and formed with openings through which a screw bolt 30 is extended and adjustable by means of a nut 31 to constrict the band into firm clamping relation with respect to the tubings 27 and 29 in order that the tubing 29 is securely retained within the tubing 27.

As illustrated to advantage in Fig 4, the upper end of a coiled contractile spring 32 is hooked over the upper end of the tubing 29, its lower end being likewise hooked to the upper end of a valve stem 33 carrying a conical shaped valve 34, formed of rubber or other suitable material, and adapted in its elevated position to close the lower end of the tube 29. To insure a tight seat for the valve, the edge of the lower end of the tubing is tapered or beveled as indicated at 35. The stem 33 constitutes part of a single length of wire which is bent at its point of connection with the lower end of

the stem to form a horizontal portion 36 which forms a support for a disk shaped washer 37. The washer 37 is designed to form a relatively large seat for the valve 34 so as to prevent cutting of the rubber of which the valve is formed. From the horizontal portion 36 the wire is extended upwardly to provide a vertical portion 38 which terminates in the lateral extension 39, the extension being doubled back upon itself and extended to form a closed loop 40 of sufficient diameter to be freely slidable upon the tubing 29.

The extension 39 constitutes an operating arm adapted to be gripped in moving the valve 34 to open position and to engage either of a pair of lips 41 to retain the valve in open position against the closing action of the spring 32. The lips 41 are formed by inturning ends of a bifurcated extension 42 formed at the lower end of a vertical extension 43 of the clamp 28. The extension 42 is bifurcated for the purpose of receiving the vertical portion 38 of the valve supporting frame and in a manner to secure the frame against rotative movement on the tubing, yet allowing sufficient lateral movement of the extension 39 to engage beneath the lips 41 in latching the valve in open position. It will, of course, be understood that movement of the valve 34 to open position is against the tension of the spring 32, and consequently when the extension 39 is unlatched, the spring functions to return the valve to tightly seated position on the lower end of the tubing 29. By simultaneously gripping the extensions 39 and 42 and compressing, the extension will slide down the tubing and thus open the valve.

In Fig. 1, I have shown the siphon device in applied position to a desert water bag B of conventional form, such bag being provided with a cord K by which it can be suspended from a support S such as a nail. The bag B is provided with the usual spout T adapted to be closed by a stopper C. In the applied position of the siphon device, the stopper C is removed to permit extension of the tubing 21 into the bag and to allow the stopper 18 to seat within the spout and thus close the latter.

The long arm 16, the tubing 21, and the pipe 22 all coact to form the short leg of the siphon device, while the short arm 17, the tubing 27, and the pipe 29 coact to form the long leg of the siphon. With the short leg within the bag B and the long leg disposed exteriorly of the bag, the siphon device is operable in the following manner:

Assuming that the bag is filled with water, water can be ejected from the bag through the device by first opening the valve 34 and then compressing the bag to exclude air from the siphon device when the siphon action will be initiated. Water entering the pipe 22 is filtered by the screen 24, and the water discharging from the pipe 29 can be received in a cup or other suitable receptacle as will be understood, the flexibility of the tubing 27 permitting the pipe 29 to be moved to any desired position.

In operating the siphon device the groove 19 admits air to the bag to utilize its pressure in continuing the siphoning operation after it is once started, and as long as the valve 34 is open such siphon discharge will continue. Upon closing the valve the water discharge is discontinued as will be understood, and by virtue of the fact that the valve is urged to closed position, the possibility of accidental ejection of water from the bag is prevented.

It will be appreciated that by means of my siphon device water can be ejected from the bag while the latter is in vertical position thus eliminating the necessity of tilting the bag. The water discharged from the bag is withdrawn from the bottom where the water is the coolest, the tube 22, by reason of its weight retaining the suction end of the tubing at the bottom of the bag.

Although I have herein shown and described only one form of siphon device embodying my invention, it is to be understood that various changes and modifications may be made herein without departing from the spirit of the invention and the spirit and scope of the appended claims.

I claim:

1. A siphon device comprising a curved and pliable tubing, flexible tubings secured to the ends of the pliable tubing, a vented stopper on the pliable tubing, rigid pipe sections on the ends of the flexible tubings, a tapered seat on the free end of one of the pipes, a frame movable on the pipe, a conical valve of compressible material mounted on the frame and adapted to engage said seat to close the end of said pipe, a spring within the pipe engaging the frame to yieldably urge the valve to closed position, an extension on the frame, and means on the pipe engaging the extension for latching the valve in open position.

2. A siphon device as embodied in claim 1 wherein a washer is carried by the frame to form a relatively large supporting surface for the valve.

3. A siphon device as embodied in claim 1 wherein said means comprises a bifurcated member in which a portion of the frame is slidable, and lips on the member to engage said extension.

4. A siphon device comprising a siphon tube, the long leg of which is constructed at its outlet to provide a valve seat, a frame movably mounted on the long leg, a valve on the frame adapted to engage said seat to close the outlet, means for urging the valve to closed position, an extension on the

frame, and means on the long leg adapted to be engaged by the extension for latching the valve in open position.

5. A siphon device as embodied in claim 4 wherein said means comprises a member in which a portion of the frame is slidable, and a lip on the member with which said extension is adapted to engage.

6. A siphon device comprising a siphon tube, the long leg of which is provided at its open end with a valve seat, a valve adapted to engage said seat for closing the end of said leg, means connected to the valve and disposed within said leg for yieldingly urging the valve to closed position on said seat, means disposed exteriorly of said leg and at one side of the valve and operable manually to move the valve to open position, and means secured on said leg and positioned to engage the second mentioned means for latching the valve in open position against the closing action of the first means.

LOUIS B. DE SPAIN.