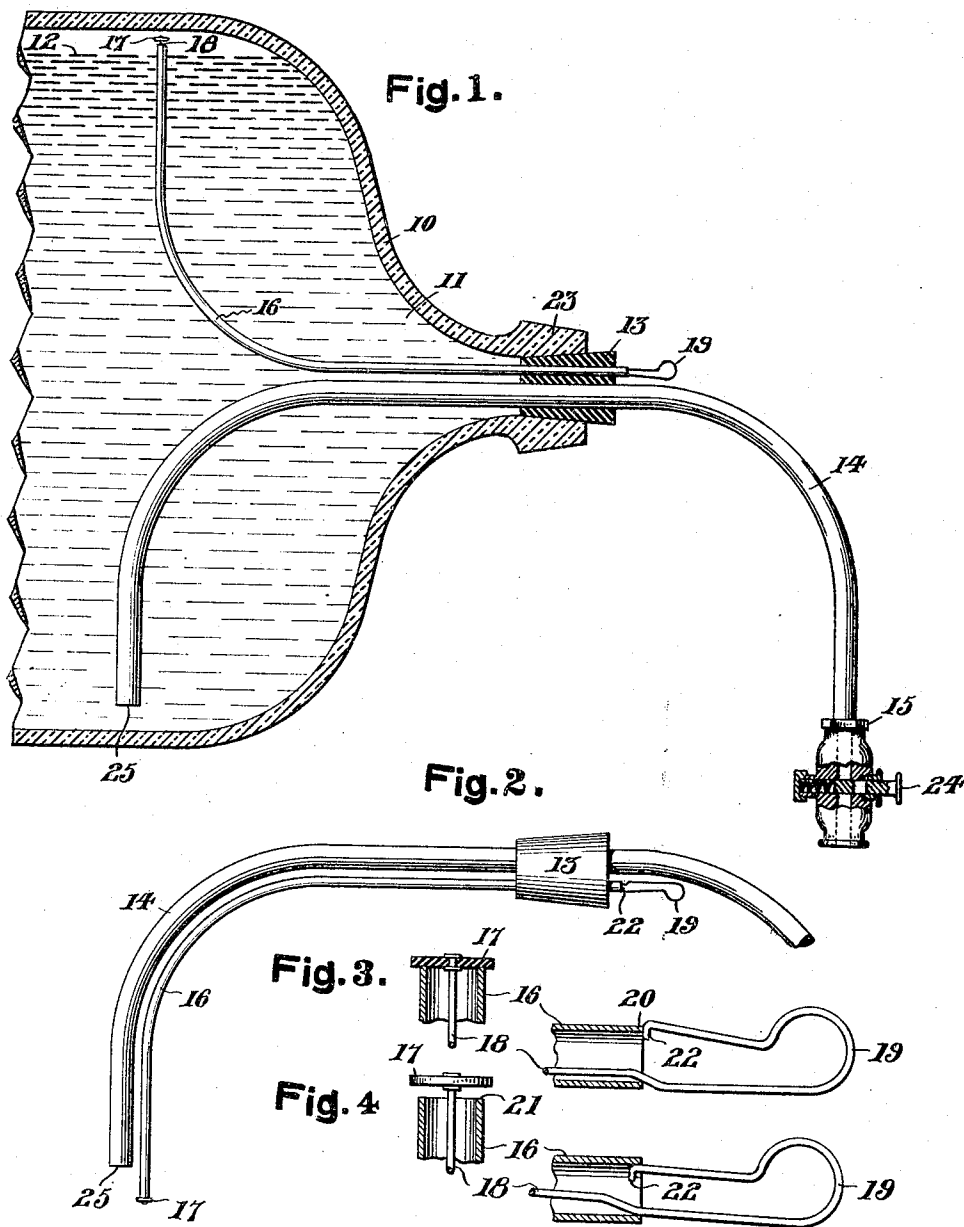


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 FLUID DRAWING SIPHON FOR BOTTLES.
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1,287,046.

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FLUID-DRAWING SIPHON FOR BOTTLES.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, FRED E. KNAPP, a citizen of the United States, residing at San Diego, in the county of San Diego and State of California, have invented certain new and useful Improvements in Fluid-Drawing Siphons for Bottles, of which the following is a specification.

This invention relates to certain new and useful improvements in fluid drawing siphon for bottles.

The primary object of this invention is the provision of a device for draining fluid in desired quantities from bottles or other containers, the fluid having a non-pulsating outward flow eliminating the usual gurgling and bubbling ordinarily incident to the emptying of such receptacles.

A further object of the invention is the provision of a siphon exhausting means for fluid containers adapted to be readily applied to the container and operable without the necessity of causing a vacuum in the siphon member or the application of an increase over atmospheric pressure upon the contained fluid.

A still further object of the device is the provision of a form of self-starting siphon readily positioned within a water bottle or carboy and whereby the latter being positionable within any desired form of refrigerator or cooler stand allows the fluid to be readily drawn direct from the container as the same may be desired for use.

In the present arrangement, it is also possible to employ the usual form of water carboy and provide for a withdrawing of the water in the desired quantities for drinking purposes direct from the bottle and without the necessity of the passing of outside air through the water in the bottle or the positioning of the bottle neck within a supporting receptacle which is liable to become foul as in the case of some of the devices now in use.

With these general objects in view and others that will appear as the nature of the invention is better understood, the same consists in the novel combination and arrangement of parts hereinafter more fully described, illustrated in the accompanying drawings, and pointed out in the appended claims.

In the drawings forming a part of this

application and in which like-designating characters refer to corresponding parts throughout the several views:—

Figure 1 is a longitudinal sectional view through a water bottle provided with the present device, parts being broken away.

Fig. 2 is a side elevation of the device removed from the bottle as arranged for ready insertion therein, the siphon tube however being partially broken away.

Fig. 3 is a central longitudinal sectional view of the opposite end portions of the air vent tube in its closed position, and

Fig. 4 is a similar view in its open position.

It being understood that the device is especially adapted for the exhausting of fluid from bottles, the preferred form of the invention is herein illustrated in connection with a bottle 10 containing water 11, the bottle being positioned upon its side with the horizontal level of the water indicated at 12.

The present invention is such that when desired to arrange the water bottle with the contents thereof readily accessible for drinking purposes, the usual closure cork (not shown) is removed and the present device instantly applied.

The invention broadly consists in the provision of a bottle stopper 13 which may be formed of any desired material such as rubber or cork and the same is provided with a substantially U-shaped rigid siphon tube 14 having the said stopper positioned substantially centrally thereof, while a drawing valve 15 projects from one end of the tube 14 which end is employed as the outer end of the device.

A vent pipe 16 of relatively smaller diameter than the said siphon tube 14 has one end thereof secured through the stopper 13 and being curved in substantially the same shape as the adjacent portion of the said siphon tube and being preferably longer than the same as best illustrated in Fig. 2 of the drawings and capable of being turned within the said stopper.

A disk valve 17 is secured upon the end of an operating rod 18 which is positioned through the vent pipe 16 and has a turned-over resilient loop 19 at its opposite end readily compressible for insertion within the end 20 of the said pipe 16 which projects

from the outer end of the stopper 13. The said rod 18 is of sufficient length to position the valve 17 over the inner end 21 of the vent pipe 16 when the loop 19 is positioned outwardly of the pipe end 20 as best illustrated in Fig. 3 of the drawings and at which times the foot 22 of the loop 19 engages against the pipe end 20 for retaining the said disk in its closed position, whereby the resiliency of the loop 19 is employed for tensioning the disk 17 in its closed position.

When desired to open the disk valve 17, the loop 19 is compressed and forced slightly inwardly of the pipe end 20 thus forcing the rod 18 through the pipe 16 and unseating the valve disk 17, the arrangement of elements then being as illustrated in Fig. 4 of the drawings.

When desired to position the device for use within a bottle of water, either the vent pipe 16 of the siphon tube 14 is turned sufficiently within the stopper 13 to arrange the said pipe and tube adjacent each other as illustrated in Fig. 2 and whereupon the pipe and tube are inserted within the bottle 10 and the stopper 13 forced to its closing position within the outlet mouth 23 of the bottle, it being understood that the disk valve 17 is at such time in its closed position. The bottle being then placed upon its side, the inner ends of the siphon tube 14 and vent pipe 16 are separated, the said ends extending in a vertical plane and in opposite directions within the water 11, the inner end 21 of the pipe then projecting into the air space above the water level 12 and whereupon the loop 19 is moved inwardly and the disk valve 17 thereby unseated for operatively positioning the device as illustrated in Fig. 1.

By this arrangement, the atmospheric pressure of the air without the bottle is admitted above the water level therein which thereby starts the flow of water through the siphon tube 14 by reason of the law of gravity whenever the drawing valve 15 is open which is readily accomplished by inward pressure exerted upon the transversely positioned spring-pressed normally closed valve stem 24 of any desired form such as that illustrated in Fig. 1. When the water falls below the horizontal plane of the bottle mouth 23, the siphon action continues to operate and causes the water to flow whenever the valve 15 is open until the level of the liquid falls below the inner end 25 of the siphon tube. The air being allowed to pass into the air chamber above the water level 12 within the bottle through the vent pipe 16 prevents a washing of the air by passing through the liquid which occurs in some of the devices now in use and prevents the deposit of germs of any kind within the liquid so that no contamination will result from the foul air.

While the form of the invention herein shown and described is what is believed to be the preferred embodiment thereof, it is nevertheless to be understood that minor changes may be made without departing from the spirit and scope of the invention as claimed.

The advantages of using the device over the many forms of water dispensers for drinking bottles is apparent in the usual bottle in which the water is sold, the device being readily positioned for use and the water dispensed without the possibility of external contamination.

What I claim as new is:—

1. In a self-starting dispenser, the combination with a fluid container, a stopper insertible in the neck of said container, a siphon tube positioned through said stopper, and an outlet valve upon the outer end of the tube beneath the level of the container, of an upwardly curved vent pipe having its outer end portion journaled through said stopper and its inner end arranged within the container above the contents thereof, a flexible operating rod extending entirely through said pipe, a closure disk upon the inner end of said rod arranged to close the inner end of the pipe, said rod having a compressible stop loop at its outer end resiliently positioned inwardly of the outer end of the vent pipe when the disk is in its unseated position, said rod having a laterally extending foot at the inner end of the loop in engagement with the outer end of the pipe when the disk is in its closed relation with respect to the inner end of the pipe.

2. A self-starting dispenser comprising a receptacle, a stopper inserted in the neck of said receptacle, a siphon pipe having a length arranged horizontally in said receptacle and curved lengthwise therefrom to a point close to the bottom of the receptacle, said siphon pipe extending through the stopper and having a valve at its outer end, an elbow-shaped vent pipe extending through the stopper and curved upwardly within said receptacle, a valve for closing the inner end of the vent pipe, and flexible means to manually open and close said vent pipe valve operable at the outer end of said vent pipe.

3. A self-starting dispenser comprising a horizontal receptacle, a stopper in the mouth of the receptacle, a siphon pipe having an upwardly curved length disposed within the receptacle and extended through the stopper, a closing device on the outer end of the siphon pipe, a vent pipe extending through the stopper and into the receptacle and having a valve controlled inner end, flexible means extending through the vent pipe to manually close and open the valve controlling the inner end of said vent pipe, and

means carried by said flexible valve opening and closing means to retain the valve closed.

5 4. A self-starting dispenser comprising a receptacle, a stopper for said receptacle, a siphon pipe extended through the stopper into the receptacle, and a vent pipe having one end revolubly fitted in the stopper and

having a curved length extending upwardly within the receptacle and a valve controlled 10 inner end.

In testimony whereof I affix my signature.
FRED E. KNAPP.

Witnesses:

W. P. CARY,
LUELLA WARE.

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