Feb. 25, 1941. R. M. FRITTS 2,233,123

SIPHON

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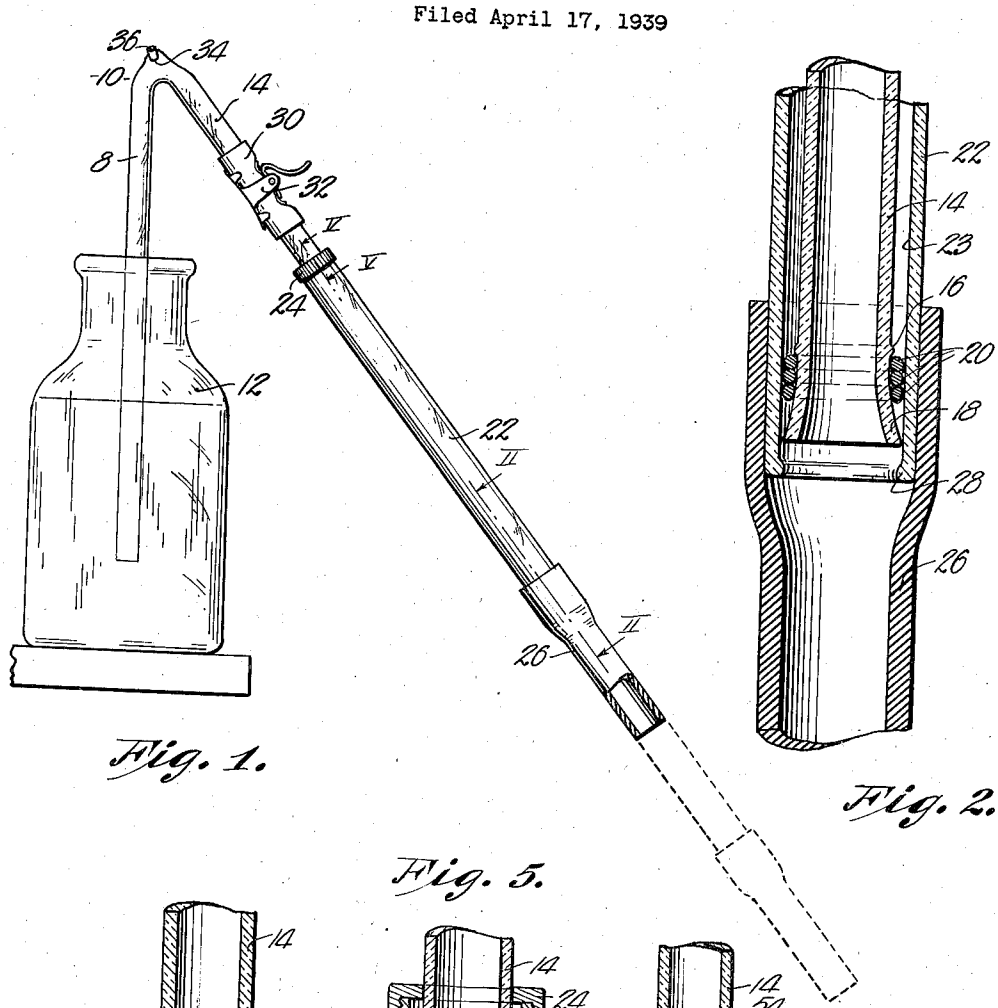


Fig. 1.

Fig. 2.

Fig. 5.

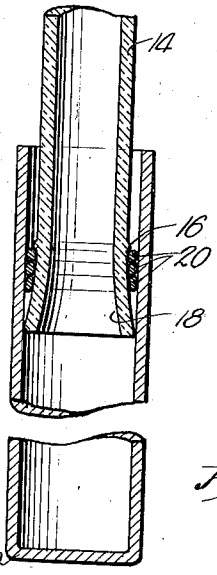
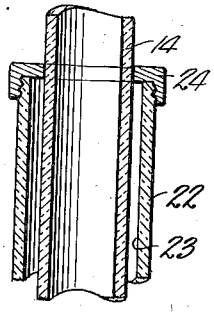


Fig. 3.



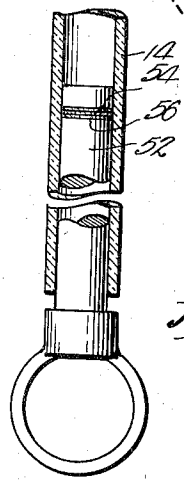


Fig. 4.

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SIPHON

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1 Claim. (Cl. 137—20)

This invention relates to siphons in the nature of those used in transferring liquids from one container to another, and the primary object is the provision of a small compact and effective siphon which is practical and efficient in the laboratory where small bottles are to receive liquids from relatively large containers.

One of the important aims of this invention is to provide a simple, inexpensive and effective siphon wherein is embodied novel means for priming the same through the employment of which means the flow of liquid through the siphon may be established without the use of complicated pumps or suction devices, the nature of which are objectionable because of the inability to maintain the same sanitary and free from foreign matter.

This invention has for another aim, the provision of a siphon that is specially constructed to have a priming section, telescopically mounted on one arm of the tubular body of the siphon through the medium of such parts as will establish a definite seal between the siphon body and said section, all to the end that very short strokes will be required to create the suction necessary to establish a flow of liquid through the siphon body.

Details of construction and the combination of specially formed parts, more fully hereinafter described and illustrated in the accompanying drawing, constitute minor objects of the invention.

In the drawing:

Figure 1 is a side elevational view of a siphon made to embody the present invention.

Fig. 2 is a fragmentary longitudinal detailed sectional view through a portion of the siphon taken on line II—II of Fig. 1.

Fig. 3 is a fragmentary longitudinal sectional view through a portion of the siphon illustrating a modified form of the invention.

Fig. 4 is a similar view illustrating a still further modification of the invention; and,

Fig. 5 is an enlarged fragmentary detailed sectional view taken on line V—V of Fig. 1.

The siphon body is preferably V-shaped, tubular, and formed of glass or other transparent material which may be kept clean through the use of steam or boiling water.

One arm 8 of tubular body 10 may be projected into receptacle 12 in the usual manner when the siphon is to be used. The other arm 14 of body 10 is specially formed in that it has an annular outer rib 16 thereon between which and the end of arm 14, the tubular form is developed into a flared marginal portion 18.

Sealing rings 20 are mounted upon the outer surface of arm 14 between rib 16 and the flared end of arm 16. The outside diameter of sealing rings 20 is slightly greater than the diameter of arm 14 at the extreme end thereof so that as priming section 22 is moved along arm 14, rings 20 will bear against the inner surface 23 to establish a frictional contact that will preclude the escape of air.

Priming section 22 is likewise tubular and while it may be made of glass, it has been found preferable to employ a cellulose composition which may be molded and through which may be viewed the liquid as it passes through body 10 and said section 22. Section 22 is telescopically mounted on arm 14 for movement longitudinally therealong. The inner end of section 22 has a perforated cap 24 secured thereto, which circumscribes arm 14 and which engages the annular rib 16 to limit the path of travel of section 22 in one direction along arm 14.

The other end of section 22 is equipped with a flexible tubular tip 26. This tip extends longitudinally from section 22 and is compressed by the operator when the siphon is primed as will be hereinafter more fully set down.

The free end of arm 14 has an internal bead 28 integral therewith which engages the flared end of arm 14 to limit the relative movement between arm and section 14 and 22 respectively. Thus, section 22 has a limited movement in two directions along arm 14.

In some cases, arm 14 is provided with a compressible section 30 upon which is mounted a pinch-cock 32 that may be operated to stop the flow of fluid through body 10.

Another and more simple, as well as less expensive manner of stopping the flow of fluid through body 10, after it has been once established, is the vent 34 and plug 36 therefor, which is positioned at the bight of the V-shaped body 10. Either, or both of the means just described may be employed with the other parts of the siphon.

In the illustrated embodiment of the invention shown in Fig. 3 of the drawing, the priming section 22 is the same as shown in Figs. 1, 2 and 5, with the single exception that the free end of this section is closed by a wall 50. The upper or inner end of section 22 in this instance, does not have the ring 24 thereon because when a closed end section is used, the same is completely with-

drawn from leg 14 so that fluid may be directed into the container being filled.

In the embodiment of the invention seen in Fig. 4, the priming member is not a tubular section embracing the outer surface of leg 14, but is a plunger 52 which extends into leg 14, the free end of which is not flared nor provided with the sealing rings, as mentioned with respect to Figs. 2 and 4. Plunger 52 is provided with rings 54 in the nature of fabric threads, such as seen at 20 in Figs. 2, 3 and 5. These rings 54 are within an annular groove 56 on plunger 52 and are slightly greater in diameter than the outside diameter of plunger 52 so that a frictional engagement with the inner surface of arm 14 is established.

When operating the siphon made in accordance with the preferred embodiment of the invention, section 22 is moved outwardly as far as possible or necessary, whereupon tubular tip 26 is compressed and closed by the operator. Section 22 is next forced inwardly along arm 14 so as to expel the trapped air outwardly through arm 8 and through the liquid within receptacle 12. When section 22 has been moved inwardly a sufficient distance, a quick, outward movement will create a suction or a partial vacuum within body 10 and section 22 which will insure that liquid in receptacle 12 will be forced out through tubular body 10 and the said section. Obviously, the operator will release his hold upon tip 26 so as to permit the fluid to flow into the receiving bottle or container. To stop the flow of fluid through the siphon, it is but necessary to either close pinch-cock 32 or withdraw plug 36 from opening 34.

When the siphon, such as illustrated in Fig. 3 is to be brought into play, section 22 is completely withdrawn from arm 14 after it has been moved inwardly a sufficient distance to partly evacuate body 10 and the section. A quick withdrawal of section 22 from its position on arm 14 will establish a flow of fluid upwardly through arm 8 and thence downwardly through arm 14 and out the end thereof, from which section 22 has been withdrawn.

The same action is required when using the form of priming plunger 52 shown in Fig. 4. At the outset, plunger 52 is forced inwardly along arm 14 and thereafter quickly withdrawn to establish the necessary flow of fluid through arm 14.

The advantages of siphons embodying any of the concepts herein described are obvious to those skilled in the art and it is clear that siphons embodying other modified forms of the invention may be made without departing from the scope of the appended claim.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent is:

A siphon of the character described comprising an angular, tubular body; a tubular priming section telescopically mounted on the body at one end thereof for sliding movement therealong; and elements on the body and said section for limiting the movement of the latter along the former, said tubular body having sealing rings thereon in frictional engagement with the inner face of the priming section, the end of said body within said priming section being flared and provided with an annular outer rib, said sealing rings being in circumscribing engagement wth the body between the flared end thereof and said outer rib.

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