United States Patent [19]

Johnson

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[54] **SIPHON**

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[52] **U.S. Cl.**..... **137/145,** 137/140, 210/460, 285/242

[51] **Int. Cl.**..... **F04f 10/02**

[58] **Field of Search**..... 137/140, 141, 150.5, 137/151, 123, 153, 142, 145; 210/460, 462, 497; 285/242, 255

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[57] **ABSTRACT**

A siphon particularly adapted for transferring gasoline with operator induced pressurizing means for initiating fluid flow without exposing the operator's mouth to the fluid path. The siphon is characterized by a primary siphon tube and a secondary blow tube each of which pass through a flanged collar, and includes a screen and weight on the intake end of the primary siphon tube.

2 Claims, 4 Drawing Figures

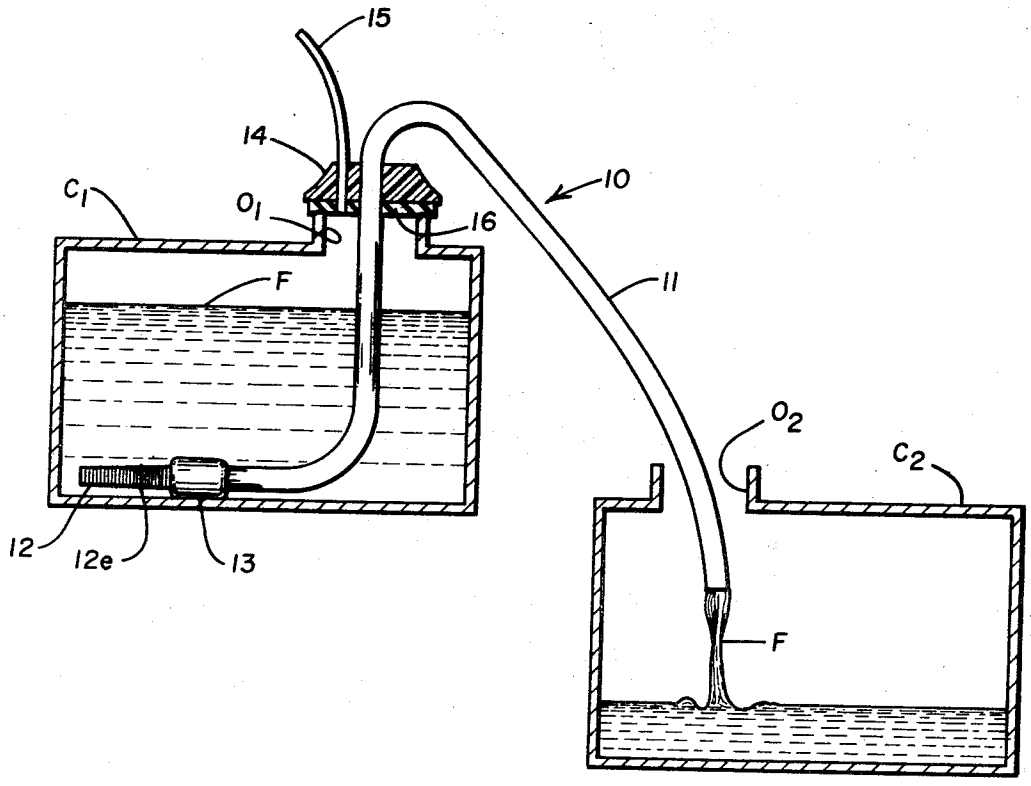


Fig. 1

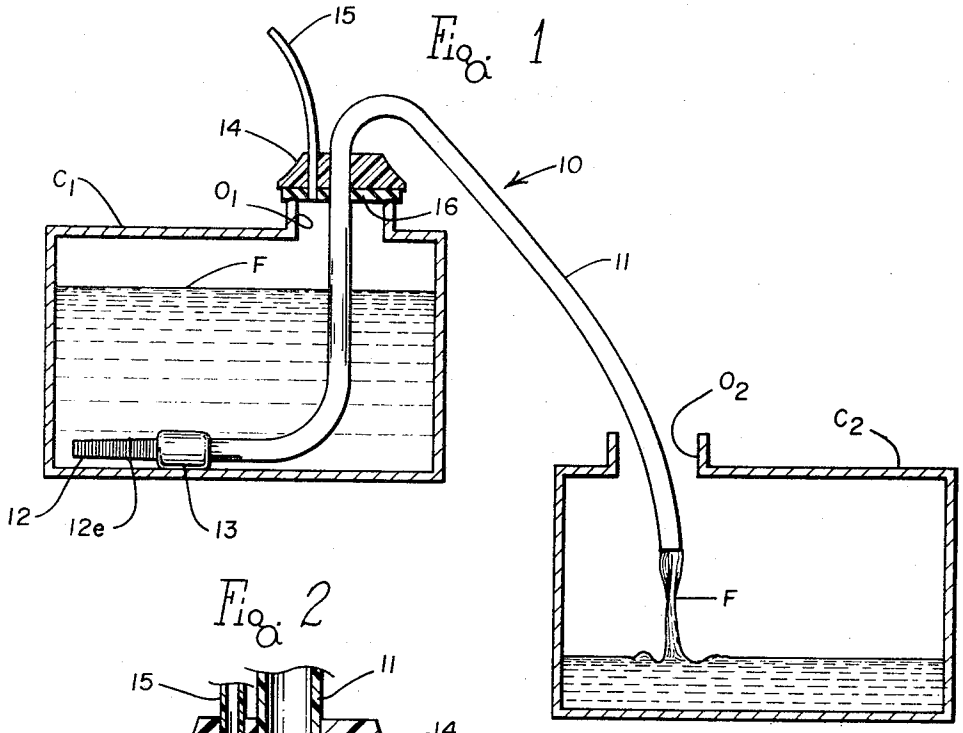


Fig. 2

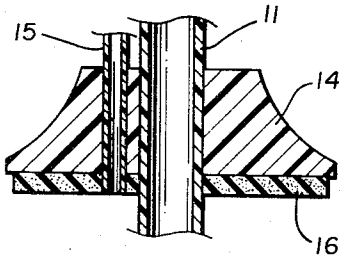


Fig. 3

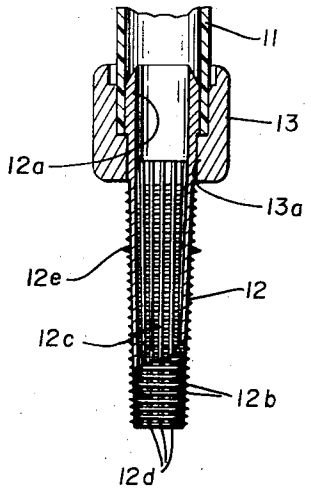
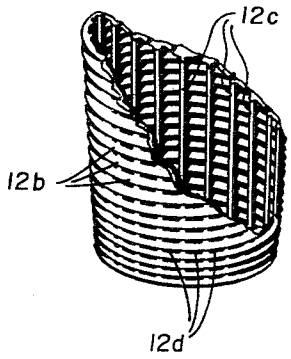


Fig. 4



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SIPHON

BACKGROUND OF THE INVENTION

The invention is in the field of fluid transfer by siphoning. More particularly, it relates to siphoning means including a blow tube for pressurizing the fluid in the container from which flow is desired, to thereby initiate flow without exposing the operator's mouth to the fluid path. It is particularly useful in transferring gasoline from the tank of one vehicle to the tank of another.

Prior art devices such as those disclosed in the Thompson U.S. Pat. No. 2,218,941, Keller U.S. Pat. No. 1,592,028 and Martinelli U.S. Pat. No. 982,734 patents lack the durable, simple and economical design of the present invention. They also lack the convenient storage features of the present invention. These features make the invention particularly desirable as an accessory for use by snowmobile or motor bike operators, by boaters, and by other users of vehicles where siphoning of gasoline from the tank of one vehicle to the tank of another may be desirable.

Prior art devices (such as Martinelli) also customarily expose the operator's mouth to the path of fluid flow in cases where flow is initiated by operator supplied pressure, and this feature is particularly undesirable where toxic fluids are being transferred.

SUMMARY OF THE INVENTION

The present invention is characterized by a flexible primary siphon tube, a screened intake at one end of the primary tube, a weight disposed near the intake, a secondary blow tube, and a flanged collar hermetically surrounding the primary and secondary tubes and having a surface facing the screened intake end of the primary tube in a plane transverse to the axis of the primary tube. The surface is of sufficient size to cover the entire opening of the tank from which siphoned fluid is desired. The secondary or blow tube extends from the collar in a direction opposite the screened intake end of the primary tube. Thus, in use no portion of the blow tube is submerged in or exposed to the path of fluid flow. Means is provided for promoting a hermetic seal between the surface of the flanged collar and the lip or rim of the opening in the container from which fluid is to be siphoned. Other features described more particularly below are included in the invention.

The invention has the following advantages over the prior art:

1. Simplicity in design,
2. Economy in construction,
3. Durability,
4. Convenience in storage, and
5. Operator induced pressure to initiate fluid flow without exposing the operator's mouth to the fluid path.

DESCRIPTION OF THE DRAWINGS

FIG. 1 is a view of the siphon of the present invention showing the primary siphon tube, the intake or filter, the weighted sleeve, and the blow tube in perspective. The collar is shown in section and the containers between which fluid is to be siphoned are shown schematically.

FIG. 2 is an axial sectional view of the flanged collar including the primary siphon tube, the blow tube, and the means for promoting a hermetic seal between the plane surface of the collar and the rim or opening of the container.

FIG. 3 is an axial sectional view of the primary siphon tube intake nozzle or filter, and the weighted sleeve.

FIG. 4 is a perspective view of a portion of the intake nozzle or filter.

DESCRIPTION OF THE PREFERRED EMBODIMENT

The general nature of the invention is apparent with reference to FIG. 1. Siphon **10** includes a primary siphon tube **11** having a nozzle type screened intake or filter **12** with a weighted sleeve **13** at the intake end, and flanged collar **14** and secondary blow tube **15** intermediate its length. Primary tube **11**, as well as blow tube **15**, pass through flanged collar **14** with a hermetic seal in each case. A resilient layer **16** is provided on the plane surface of collar **14** to serve as an airtight seal for a purpose described more particularly below.

The specific relationship between primary tube **11**, blow tube **15**, flanged collar **14** and resilient member **16** may be readily understood with reference to FIG. 2. Flanged collar **14** hermetically surrounds both primary tube **11** and blow tube **15**. Collar **14** is provided with a plane surface transverse to the axis of primary tube **11** (as well as the axis of blow tube **15**) facing the screened intake end of primary tube **11**, and of sufficient size to cover the opening from which it is desired to siphon fluid. Resilient layer **16** is adhered to the plane surface of flanged collar **14** to serve as means for promoting a hermetic seal between it and the lip or opening of the container when engaging the lip as shown in FIG. 1.

The construction of nozzle type screen or filter **12**, weighted sleeve **13**, and the relationship between nozzle **12**, sleeve **13** and primary tube **11** is shown in FIGS. 3 and 4. With reference first to FIG. 3, weighted sleeve **13** is provided with an inwardly extending wall flange **13***a*. Nozzle **12** is provided with an outwardly extending wall flange **12***a* the shoulder of which sits on the shoulder of wall flange **13***a* of sleeve **13** in the assembled configuration of FIG. 3. Primary siphon tube **11** is inserted into the annulus between wall flange **12**a and the inner cylindrical surface of sleeve **13** with a press fit therebetween.

With reference to FIG. 4, screened intake nozzle **12** is formed by external threads **12***b* (roughly 40–50 per inch) and internal splines **12***c* (roughly 15–25 per inch) which are cut to a depth which together exceed the thickness of the wall of nozzle **12**. Thus the depth of threads **12***b* overlaps the depth of splines **12***c* resulting in a series of openings **12***d* through which the fluid may pass when the siphon is in operation. Sediment is consequently filtered from the fluid in the siphoning operation.

Nozzle **12** is also formed with an external rib **12***e* which has an outside diameter slightly in excess of the inside diameter of primary tubing **11**. Rib **12***e* serves to retain nozzle or filter **12** in position when inserted into the discharge end of primary tube **11** for storage purposes. The specific outside diameter of rib **12***e* may be chosen by those skilled in the art to achieve suitable retention and release characteristics.

Primary siphon tube **11** and blow tube **15** are preferably formed of clear plastic tubing. Flanged collar **14** may be formed of plastic and resilient member **16** may be made of closed-cell sponge material. Resilient mem-

ber 16 is preferably adhered to collar 14 with any suitable adhesive. Nozzle 12 is preferably formed of plastic material such as that identified by the trademark NYLON, and weighted sleeve 13 is preferably formed of lead.

The operation of the present invention may be best understood with reference to FIG. 1 wherein fluid, F, is being siphoned from container, C_1, to container, C_2. The intake end of siphon 10, that is, filter 12 with weighted sleeve 13, is inserted into the opening, O_1, of container, C_1, until filter 12 is near the bottom of the container and resilient member 16 engages the rim of opening, O_1. The other end of primary siphon tube 11 is inserted into opening, O_2, of container, C_2. Primary tube 11 may be slid axially with respect to collar 14 to thereby adjust the distance between collar 14 and nozzle 12 depending upon the depth of container, C_1. The operator then blows into blow tube 15 thereby causing greater than atmospheric pressure in container, C_1, above fluid, F, to thereby cause flow through filter 12 and primary tube 11 into container, C_2. Resilient member 16 serves to provide an airtight seal between the rim of opening, O_1, and collar 14 so that pressure created by blowing into tube 15 can be dissipated or equalized only by the flow of fluid, F, through primary siphon tube 11 into container, C_2. Fluid flow is thereby initiated without exposing the operator's mouth to the fluid path. After fluid flow begins there is, of course, no need for continued blow pressure and the seal between the rim of opening, O_1, and collar 14 at resilient member 16 is no longer necessary.

Weighted sleeve 13 serves to maintain the intake end of primary siphon tube 11 at the bottom of container, C_1, and filter 12 provides a degree of filtering as the fluid passes through openings 12*d*.

The present invention is designed so that storage is particularly convenient. The flexible nature of primary siphon tube 11 and secondary blow tube 15, and the provision of external rib 12*e* on filter 12 contribute to this convenience. When not in use siphon 10 may be coiled into a tight coil (roughly one foot in diameter) and filter 12 may be inserted into the opposite or discharge end of primary tube 11. Rib 12e serves to retain filter 12 in the inserted position. Thus siphon 10 is securely held in a coiled configuration and filter 12 is protected from exposure to dirt and other debris, yet filter 12 is releasable and siphon 10 may be easily extended or uncoiled for use.

Variations may be made in the present invention

without departing from its scope which is to be limited only by the appended claims.

I claim as by invention:

1. A siphon comprising:
a flexible primary tube;
a screened intake at one end of the primary tube in the form of a nozzle formed by circumferentially extending grooves on the exterior of the nozzle and longitudinally extending grooves on the interior of the nozzle, each of a depth sufficient to overlap the other, and having a circumferentially extending rib disposed on the screened intake having an outside diameter slightly in excess of the inside diameter of the primary tube;
a weight mounted on the primary tube and disposed near the intake;
a secondary tube;
a flanged collar hermetically surrounding the primary and secondary tubes and having a surface facing the screened intake end of the primary tube in a plane transverse to the axis of the primary tube of sufficient size to cover the opening from which it is desired to siphon fluid;
said secondary tube extending from the collar on the side thereof opposite the screened intake; and
means for promoting a hermetical seal between the surface and the lip of the opening in the container.

2. A siphon comprising:
a flexible primary tube;
a screened intake at one end of the primary tube in the form of a nozzle having circumferentially extending grooves on the exterior of the nozzle and longitudinally extending grooves on the interior of the nozzle, each of a depth sufficient to overlap the other, and having a circumferentially extending rib disposed on the screened intake having an outside diameter slightly in excess of the inside diameter of the primary tube;
a weight mounted on the primary tube and disposed near the intake;
a secondary tube; and
a flanged collar hermetically surrounding the primary and secondary tubes and having a surface facing the screened intake end of the primary tube in a plane transverse to the axis of the primary tube of sufficient size to cover the opening from which it is desired to siphon fluid.

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