(No Model.)

C. N. TYLER.

SIPHON.

No. 378,811. Patented Feb. 28, 1888.

Fig. 3.

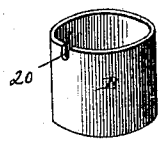


Fig. 1.

Fig. 2.

Witnesses
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UNITED STATES PATENT OFFICE.

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SIPHON.

SPECIFICATION forming part of Letters Patent No. 378,811, dated February 28, 1888.

Application filed April 2, 1887. Serial No. 233,428. (No model.)

To all whom it may concern:

Be it known that I, CHARLES N. TYLER, a citizen of the United States, residing at Buffalo, Erie county, New York, have invented certain new and useful Improvements in Siphons, of which the following is a specification.

My invention relates to certain improvements in siphons, fully set forth hereinafter, whereby to facilitate the starting of the siphon and regulate its action and control the discharge of the fluid therefrom.

In the accompanying drawings, Figure 1 is a sectional view illustrating the siphon with my improvements. Fig. 2 is a perspective view showing the siphon without the terminal section applied to a cask. Fig. 3 is a perspective of a charging cup or can.

The siphon is provided with two legs, 2 3, and a connection, 4, which, instead of being upwardly curved, as usual, is depressed at the center, forming a sort of trap, 5, and with this depressed portion communicates a vertical filling-pipe, 6, provided with a cock, 7, and in some instances having an upward extension in the form of a siphon, 8, and having at the highest point a port, 9, which may be covered or uncovered by adjusting a rubber sleeve, 10. One or both of the legs of the siphon may be extensible by the use of a tube, 11, sliding on said leg and carrying a box and packing, 12, so as to maintain a tight joint, whatever may be the position of the extensible portion, and the delivery portion may be provided at its lower end with a cock, 13; but I prefer to connect therewith, by a suitable packed joint, 14, a pipe, 15, which may be carried to a vertical position parallel with the delivery-leg, or may be turned down to either side toward a horizontal position, and the terminal portion of the pipe 15 is provided with a curved nozzle, 16, jointed to the pipe at the end by a box, 17, so that the portion 16 may be revolved to any suitable position. The siphon thus constructed may be inserted in the vessel from which the fluid is to be withdrawn, and is started by filling the depressed portion 5, so that there is a body of fluid completely filling the pipe at this point and flowing through the leg 2 of the siphon. In doing this the stop-cock 13 may be closed and the siphon charged until the legs and trap are filled with fluid, when, on opening the stop-cock 13, the fluid will flow from the vessel in the usual manner.

When the pipe 15, with its curved nozzle 16, is used and the siphon is charged while one end is in the fluid to be withdrawn, the pipe must be turned down, or at least be so depressed that the exit from the nozzle will be below the level of the fluid in the vessel to be discharged, and if the cock 13 be open it is only necessary to charge the siphon so that a full stream of fluid will flow from the nozzle 16. The fluid may be introduced into the portion 5 through the pipe 6 in any suitable manner; but I prefer to use the feed-siphon 8, and by dipping the end thereof into a small vessel, B, the cock 13 being closed, and momentarily raising the leg 3 slightly in the fluid to be discharged, and thus swinging the siphon laterally a sufficient distance to permit the fluid in the vessel B to pass into the feed-siphon, a suction will be established in the latter and cause the fluid to flow therein, which will continue until leg 2 and trap are filled, when the cock 7 should be closed. In this operation the port 9 is closed, and when the main siphon is charged by uncovering the port the fluid in the bent open end of the secondary siphon 8 may be discharged, leaving the main siphon charged and ready to operate as soon as the cock 13 is opened. In this condition the main siphon may be used, and may be charged again through the aid of the fluid in the secondary siphon above the cock 7, which serves to start the flow from a charging-cup as soon as the cock is turned. It will thus be seen that when the secondary siphon has been once charged, as above described, it may be used to charge the main siphon at any time by simply inserting the end thereof into a fluid and turning the cock.

To prevent the air contained in the discharge-leg of the main siphon from passing up through the secondary siphon in the act of charging, and thus breaking or otherwise impeding the inflowing column of fluid, (the cock 13 being closed in such case, as before stated,) the upward bend of the portion 4, connecting the legs 2 3, is greater between the feed-opening of the trap 5 and the leg 3 than the bend of the corresponding part on the opposite side of said opening, so that as the leg 2 becomes filled with fluid the air therein passes by the feed-opening into the more elevated part of the portion 4, and is thereafter forced down and out through the leg 3. Thus it will be observed

that when the siphonic action is once started in the secondary siphon it is maintained uniform throughout the entire charging of the main siphon, which would not be the case if the air in the latter were permitted to escape up through the secondary siphon.

In order that the main siphon may be discharged without discharging the secondary siphon, I provide the trap-opening for the pipe 6 with a slot, *x*, so that by slightly unscrewing the pipe 6 air may be admitted through the slot into the main siphon, thus allowing the fluid to flow freely from the legs of the siphon.

In order to facilitate the filling of the pipe 6 and secondary siphon, I prefer to use a vessel or cup substantially in the form shown in Fig. 3, which is provided with a notch or recess, 20, formed in the edge of the cup, which is adapted to fit around the pipe and against the rubber sleeve 10, so that the level of the liquid in the cup can be easily raised to or above the bend in the pipe 8, so that the fluid will rise in the pipe and flow freely therein until sufficient has passed to set the siphon running. In other cases the starting may be effected by closing the end of the siphon 8, as with the finger or other means, and uncovering the port 9, and exhausting the siphon by the mouth or otherwise to lift the fluid into the short leg of the main siphon, so as to fill the latter from the vessel or reservoir from which the liquid is to be drawn.

By adjusting the section 11 upon the legs of the siphon the length of the column in either branch may be increased or diminished to any desired extent, as circumstances may require. The jointed terminal section 15 permits the siphon action to be arrested by so setting the part 15 that the highest point of the terminal section shall be above the surface of the fluid in the receptacle, the flow continuing when the terminal section 15 is turned down to a position with its upper end lower than the level of the fluid in the receptacle, thus arresting the action of the siphon, when desired, without closing the latter, and in all cases preventing the siphon from being completely discharged, and when the end of said section is higher than the supply in the main vessel—say, for instance, the cask C—the flow may be alternately started and stopped until the supply is exhausted.

The adjustable nozzle 16 permits the fluid flowing from the siphon to be directed to any desired position, and by adjusting the legs of the siphon the portion to which the nozzle 16 is connected may be lifted higher than either leg, so that the nozzle 16 may be inserted in a vessel to reverse the action of the siphon and carry the fluid back through the opposite leg into the vessel C.

It is evident that instead of a rigid tubing it is perfectly practicable, and in some instances desirable, to use flexible tubing. It is also evident that the fluid can be caused to flow in either direction through the siphon by raising or lowering the jointed siphon in a manner well understood.

I am aware that it has been proposed to charge a siphon at the point of union between the two legs through a feed-tube communicating with a hermetically-sealed tank; but such a construction differs radically from my invention, inasmuch as the air contained in the siphon necessarily passes into the sealed tank to take the place of the fluid flowing therefrom, thus breaking or otherwise interrupting the inflowing column of fluid and rendering the feed device wholly incapable of a siphonic action as herein set forth.

Without limiting myself to the precise construction and arrangement of parts shown, I claim—

1. A siphon consisting of legs 2 3, connected by a transverse portion having a depression constituting a trap, said transverse portion being higher at one side of the trap than at the other, as described, in combination with a feed-tube communicating with said trap, and a cock in the line of the feed-tube open to the air at its upper end, substantially as and for the purpose set forth.

2. A siphon consisting of legs 2 3, connected by a transverse portion having a depression constituting a trap, said transverse portion being higher at one side of the trap than at the other, as described, in combination with a feed-tube communicating with said trap and terminating at its free end in a secondary siphon, substantially as and for the purpose set forth.

3. A siphon consisting of substantially-parallel legs 2 3, a downwardly-curved portion, 4, connecting the upper ends of the legs, and a feed-tube, 6, communicating with the depression in the portion 4 and having a cock, 7, in combination with a supplemental siphon, 8, communicating with the feed-tube and having a port at its highest point, and a valve therefor, substantially as and for the purpose described.

4. A siphon consisting of the substantially-parallel legs 2 3, connected by a depressed portion, 4, constituting a trap, a feed-opening in the trap, and a slot, *x*, in the feed-opening, in combination with a feed-tube adjustable within said opening and having a shoulder adapted to close the slot therein, and a stop-cock, 7, substantially as and for the purpose set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES N. TYLER.

Witnesses:
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