

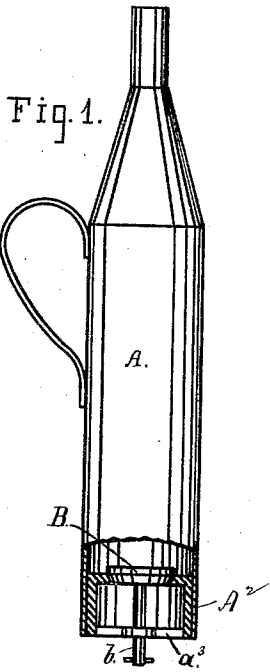
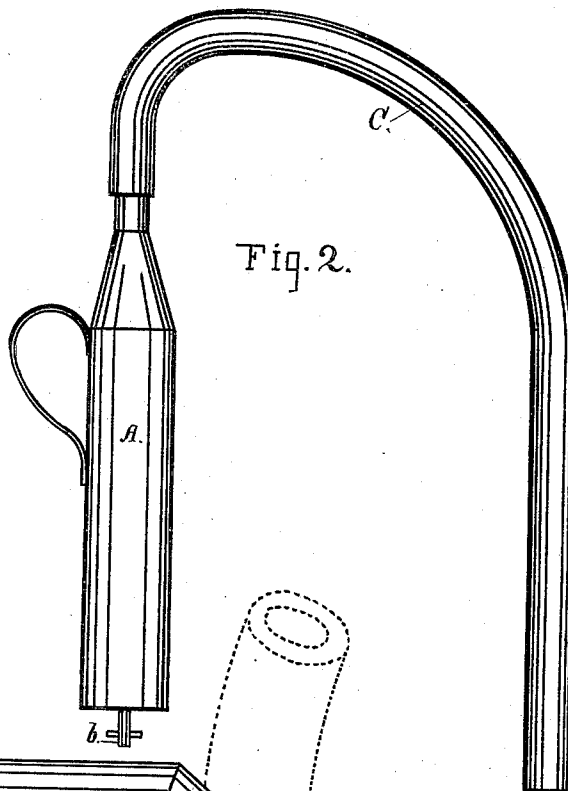
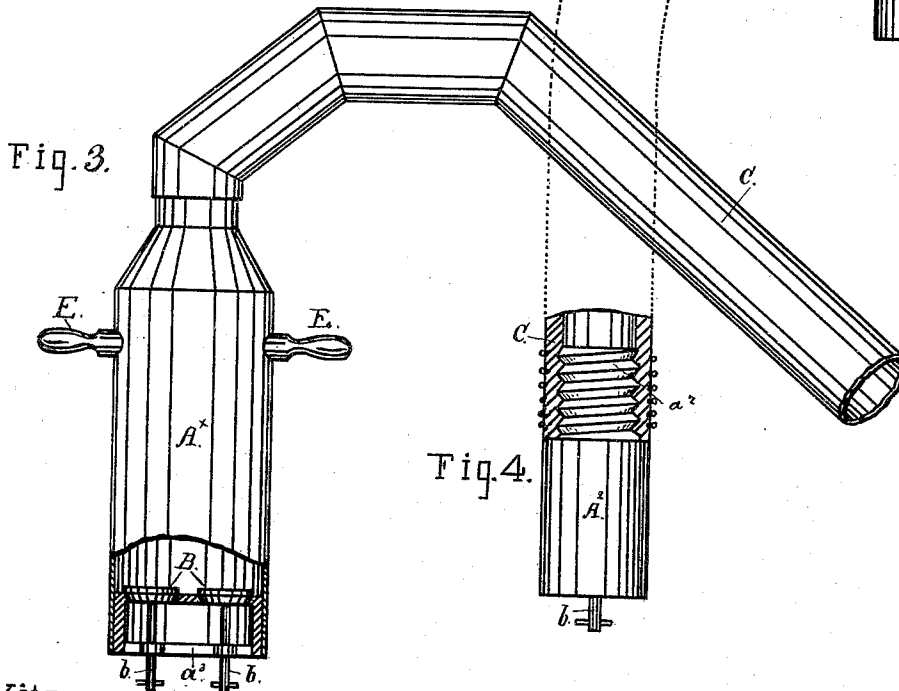
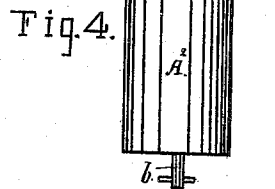
(No Model.)

2 Sheets—Sheet 1.

F. WITTRAM.
SIPHON PUMP.

No. 330,078.

Patented Nov. 10, 1885.



Witnesses:

Wm. Mayet
and J. Brown

Inventor:

Frederick Wittram

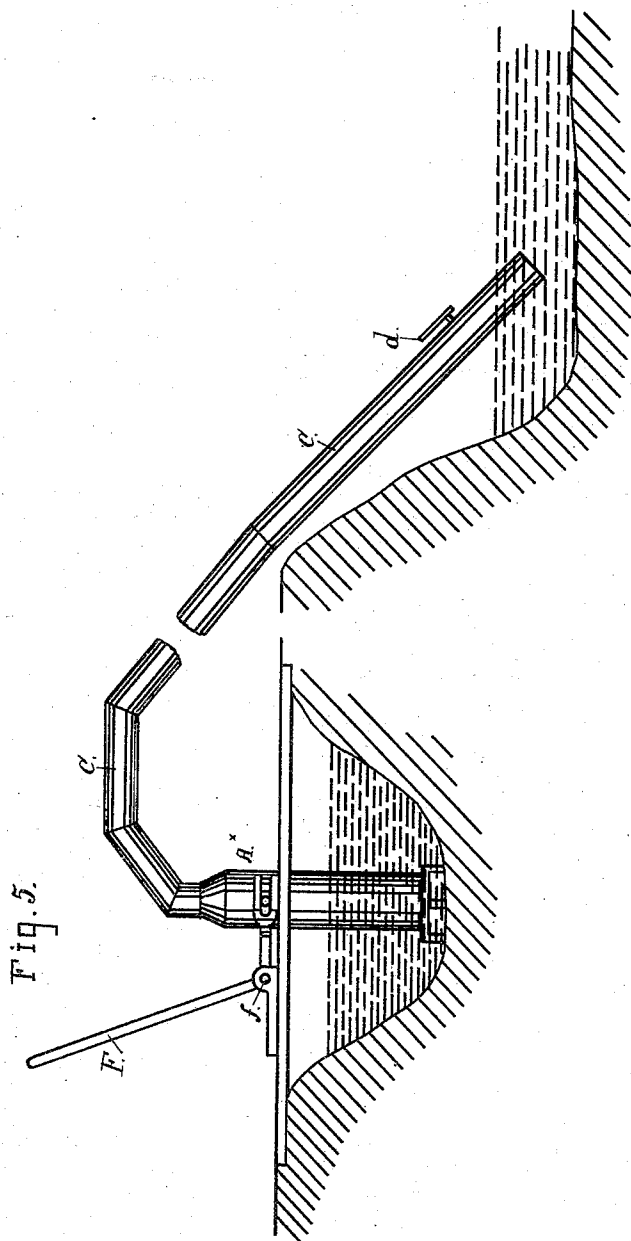
(No Model.)

2 Sheets—Sheet 2.

F. WITTRAM.
SIPHON PUMP.

No. 330,078.

Patented Nov. 10, 1885.



Witnesses:

Wm. Mayer

Edw. I. Osborn

Inventor:

Frederick Wittram

UNITED STATES PATENT OFFICE.

FREDERICK WITTRAM, OF SAN FRANCISCO, CALIFORNIA.

SIPHON-PUMP.

SPECIFICATION forming part of Letters Patent No. 330,078, dated November 10, 1885

Application filed May 11, 1885. Serial No. 165,149. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK WITTRAM, a citizen of the United States, residing in the city and county of San Francisco, State of California, have invented certain new and useful Improvements in Siphon-Pumps, of which the following is a specification, the accompanying drawings being referred to therein by figures and letters.

My invention relates to devices for raising and transferring water and other liquids from a higher to a lower level through the medium of atmospheric pressure; and it consists in the construction and combination of parts, as hereinafter described, producing what may be called a "siphon-pump." In its simplest form the device is a tube bent like a siphon with a valve set in the end of its shorter limb or member. The valve is placed to open inwardly, and is of such a character that while it closes the end of the tube it is also capable of standing open or of being held from its seat to uncover the inlet. When the device is of such size that it cannot be readily grasped in the hand, there are provided ears or handles on the valved part or member for convenience of the operator, as in working the device to set it in operation it is required to give this valved end a short quick movement up and down while immersed in the liquid.

Referring to the accompanying drawings, Figures 1 and 2 show the device constructed of a straight tube or cylinder having a valved opening in the bottom and a bent or curved pipe or tube connected to the other end to form the curved portion and the longer limb. Fig. 3 represents a cylinder of larger capacity, provided with handles on the sides and having a pipe or extension of the top end formed of jointed sections. Fig. 4 is a smaller and more portable form of the device composed of a length of flexible tube. Fig. 5 is a view showing the application of the device with means for giving the reciprocating movement to the cylinder.

A is an open tube or cylinder with an opening and seat for a valve in the end. B is a valve opening inwardly on this seat. C is a pipe or tube forming a siphon-like continuation of the part A and of suitable length to bring the discharge end below the level of the

liquid into which the valved end of the cylinder is immersed, as well as to reach a point of discharge more or less distant. For a small pump I prefer to make this tube C of a length of hose or tubing, either of rubber or such material that is sufficiently flexible to enable it to take the necessary curved shape. The valve is fixed in a short tube, A², on which is a coarse thread, a², or other means for securing it to the end of the hose, and forming a tight joint between the two. This construction is seen in Fig. 4.

For a pump of large capacity the pipe or tube can be made of sheet metal, as shown in Figs. 3 and 5. It can also be formed of an inflexible tube or length of pipe, either in one or in several pieces or sections.

The valve may be of any suitable construction that affords a ready opening and closing of the inlet under a rapid movement of the end of the tube or valved part up and down in the liquid. In the construction shown in the drawings I have employed a flat disk-valve fitted loosely to its seat, with a stem, b, working through a fixed guide, a³. For an inlet of large area, as in Fig. 3, a number of smaller openings, aggregating the area required, and each controlled by a valve, is substituted for one opening and a single valve.

In the operation of this device it is placed upright with the valved end immersed in the body of liquid to be drawn from, and is moved up and down with a short quick reciprocating movement. Under this movement of the tube or part A the valve is caused to rise from its seat by the downstroke, while the upward movement brings the valve to its seat behind each portion of liquid taken in through the inlet. By this means working the valved end like a pump the whole tube becomes filled and the siphon is established, so that as the discharge end of the longer limb is held at lower level than the valved end the discharge becomes continuous. It will be understood of course that at the beginning of this operation it is required to exclude the air from the discharge end until the liquid fills the whole tube, and also that the valve must hold up or be kept off its seat sufficiently to let the liquid pass in an unbroken stream or flow into the tube.

For the first-mentioned purpose the discharge may be closed by a plug inserted into that end of the tube, and instead of a plug the outlet can be controlled by a cock, as *d*, Fig. 5. In the case of a flexible tube it may be stopped by simply compressing it at some point near the end.

The valve can be of such character, either in the material employed in its construction or from the construction made use of, that it will be held open by the force of the inflowing liquid alone, or a mechanical means can be used to hold it open where the valve would not be sufficiently buoyant to be lifted by the stream. Such a mechanical means is employed in the device shown in the drawings, for which purpose the stem of the valve is carried out beyond the end of the tube or cylinder with sufficient projection to force up the valve when the end of the tube is pressed and held down against a fixed surface.

Provision is made for conveniently grasping and handling the device where it is of considerable size and capacity by fixing handles *E* on the sides of the valved tube or cylinder, and the reciprocating movement can be produced also by attaching a lever, *F*, as shown in Fig. 5. This arrangement illustrates a mode of setting up and working the device for drawing water from a pond or stream in irrigating land, and in draining, &c. The pump-cylinder is set through an opening in a plank laid over the water, and the lever-handle is fixed to a fulcrum-block, *f*. By removing the tube *C* the disjointed valved part *A* constitutes a convenient device of itself for taking up a limited quantity of liquid to transfer it from one receptacle to another.

The tube *C* is fastened directly to the upper end of the cylinder *A* without any branch or other connection, and the valves *B* open directly upward from the bottom, so that the flow of water or other liquid is in a direct unobstructed line from the bottom of the cylinder into the pipe in a right line.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A siphon-pump consisting of the plain cylindrical body *A*, having a conical top and contracted tube upon the conical top at the upper end, a flexible or curved pipe, *C*, secured upon said contracted tube, and the removable short tube or length in the bottom of the cylinder, having a plate or disk on top, with valve-seats and guides for the valve-rods at the bottom, and the valves described having the stems extending below the bottom of the cylinder, as set forth.

2. In a siphon-pump, the combination, with the cylinder adapted to be vertically reciprocated, as described, and having automatic valves with stems projecting below its bottom, and provided with side handles or connections near the top thereof, of the fulcrum-block *f*, adapted to rest upon a suitable support, and a bell-crank lever, *F*, pivoted in the fulcrum *f*, and having bifurcated ends to embrace the side handles on the cylinder, substantially as and for the purpose set forth.

FREDERICK WITTRAM. [L. S.]

Witnesses:

EDWARD E. OSBORN,
LEWIS B. HARRIS.