W. G. FAWCETT.

Lift and Force Pump.

No. 214,556. Patented April 22, 1879.

Fig. 1.

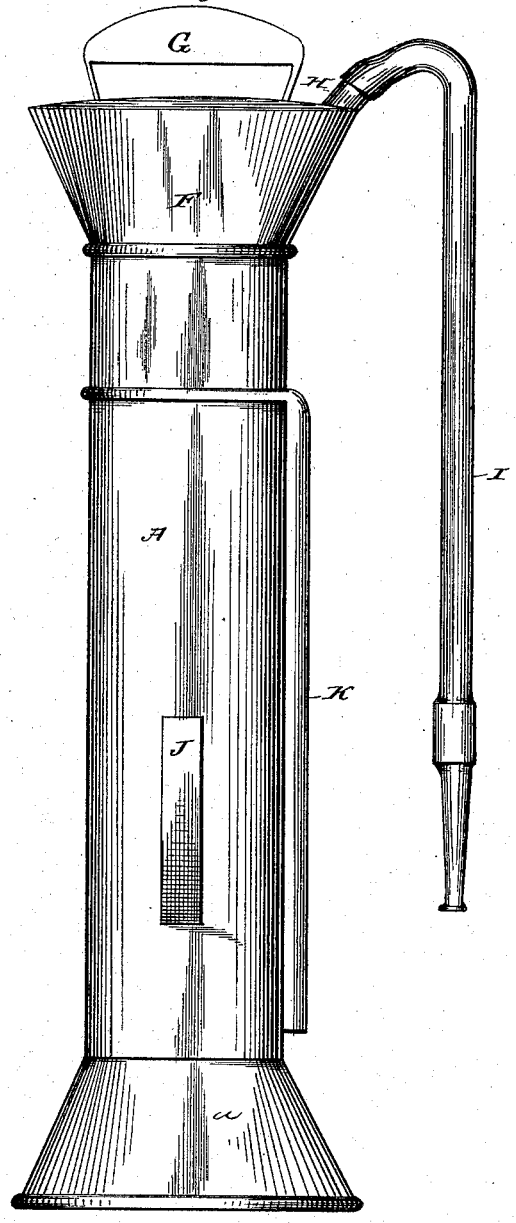
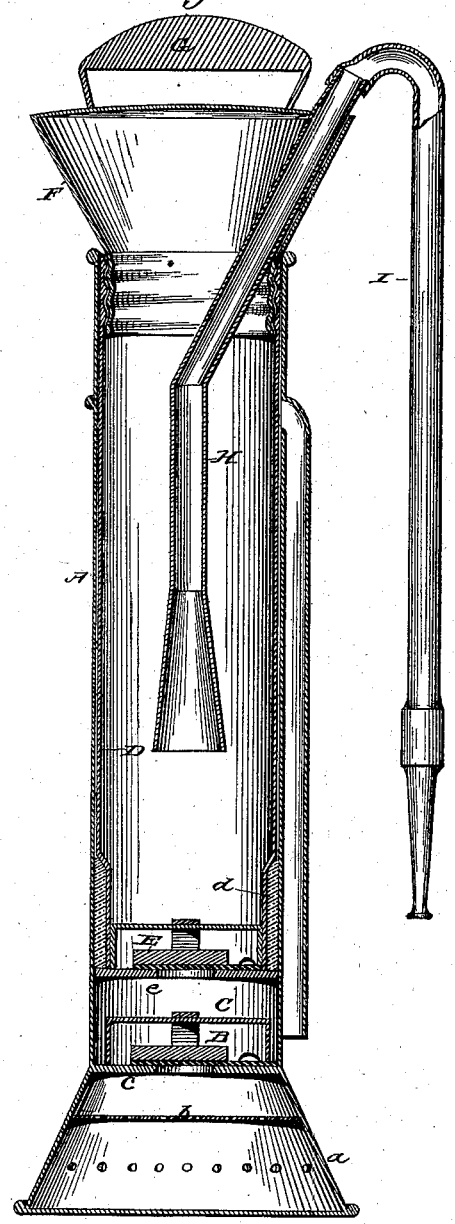


Fig. 2.



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WILLIS G. FAWCETT, OF SALEM, OHIO.

IMPROVEMENT IN LIFT AND FORCE PUMPS.

Specification forming part of Letters Patent No. **214,556**, dated April 22, 1879; application filed February 17, 1879.

To all whom it may concern:

Be it known that I, WILLIS G. FAWCETT, of Salem, in the county of Columbiana and State of Ohio, have invented certain new and useful Improvements in Lift and Force Pumps; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification, in which—

Figure 1 is a side view, and Fig. 2 a vertical section.

My invention relates to hand force-pumps, and is designed for use in washing windows, buggies, and in watering gardens.

It consists in the construction hereinafter detailed, whereby there is formed a large air-space and a small water-space; the object being to produce quite a continuous and regular stream of water both on the down and up motion of the plunger.

In the accompanying drawings, the letter A indicates the barrel or cylinder of the pump, which has a flaring lower end, *a*, the sides of which are perforated, and within which is formed or placed a perforated partition, *b*. Above this partition there is formed a valve-seat, *c*, which has the usual opening therein, and over it is fitted a valve, B. This valve may be secured in position by a frame-work, C, over the same, or may be hinged or operatively secured in any other known way.

A hollow plunger, D, fits and works within the pump-barrel, and its diameter is nearly that of the barrel. It is contracted or recessed at its lower end, as seen in Fig. 2, in order that a packing, *d*, of rubber or other suitable material, may be fitted therearound. At this same end of the plunger there is made a valve-seat, *e*, with the usual opening therein, and above is the valve E, the construction of the valve and its appendages being the same as described for the valve to the barrel, if so desired. The upper end of this plunger is provided with a flaring cap, F, which is preferably made to screw into the plunger. A handle, G, is fastened to the top of this cap, while there is passed through it and extended down to near the valve F a tube or pipe, H, the lower end thereof flaring outwardly, as shown in Fig. 2. This pipe is soldered or otherwise secured to the cap or to the sides of the plunger, and to the end, which extends to the outside, there is affixed a flexible pipe or tubing, I.

To the outside of the pump-barrel there is attached a step, J, and also a pipe, K, which communicates with the interior of the barrel, and extends on the outside from near the top down to near the bottom of the barrel, its function being to conduct such water as may get between the sides of the plunger and the barrel down outside the latter, and in that manner prevent it from squirting out at the top of the barrel.

The air-chamber in the form of pump illustrated by Fig. 2 is of nearly the same diameter as the barrel, and of greater diameter than the interior of water-pipe H, the object thereof being to get an air-space much larger than the chamber for the outflow of the water, so that considerable air-pressure will be exerted on the water admitted into the plunger, and thereby force it out through pipe H in quite a continuous and uniform stream on the upward stroke of the plunger, as well as on the downward stroke thereof.

In operating this form of pump, the barrel is set in a vessel containing water; the foot is rested on the step J, the handle to the cap of the plunger grasped with the hand of the operator, and the plunger alternately raised and lowered. On the upward stroke of the plunger the valve B opens, and valve E closes; water is drawn into the barrel and fills the space between the plunger and barrel. Then, on the downstroke of the plunger, valve B closes and valve E opens; water flows into the tubular plunger, and is forced up through pipe H and out through tubing I. Now, on the upward stroke of the plunger, the operation is as before stated, with the exception that the water is continued to be forced through pipe H in quite as uniform a stream as before, by reason of the

pressure continued to be exerted on the water, the air-chamber being sufficient for that purpose.

This pump is cheap, simple, and durable in construction, and effective in operation.

Having described my invention, what I claim is—

The barrel A, provided with flaring and perforated end *a*, valve B, and pipe K, in combination with tubular plunger D, provided with valve E and packing *d*, and cap F, constructed as described, and adapted to screw into the plunger, and provided with exit-pipe H, all constructed and adapted to operate substantially as set forth.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

WILLIS G. FAWCETT.

Witnesses:

ALLEN K. TATEM,

RUSH TAGGART.