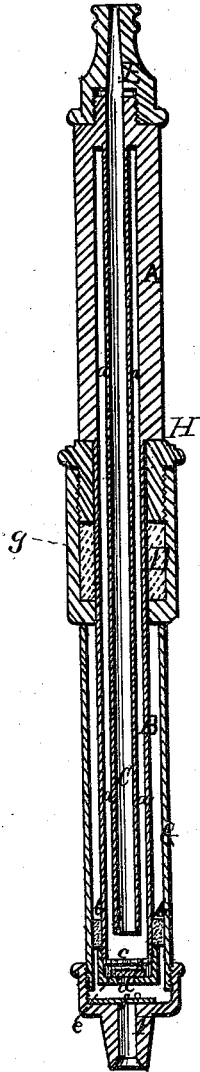


F. S. SHIRLEY.  
PORTABLE-PUMP.

No. 173,349.

Patented Feb. 8, 1876.

*Fig. 1.*



*Witnesses:*  
*Henry Eichling.*  
*Fred. C. Bond*

*Inventor:*  
*Frederick S. Shirley*  
*By* *Wm. H. Allen*  
*His Atty's.*

# UNITED STATES PATENT OFFICE.

FREDERICK S. SHIRLEY, OF NEW BEDFORD, MASSACHUSETTS, ASSIGNOR  
TO JOSIAH A. WHITMAN, OF CRANSTON, RHODE ISLAND.

## IMPROVEMENT IN PORTABLE PUMPS.

Specification forming part of Letters Patent No. 173,349, dated February 8, 1876; application filed July 24, 1875.

*To all whom it may concern:*

Be it known that I, FREDERICK S. SHIRLEY, of New Bedford, county of Bristol and State of Massachusetts, have invented an Improved Portable Pump, of which the following is a specification, reference being had to the accompanying drawings forming part hereof.

My invention consists in a portable pump, constructed with the hollow handle, hollow plunger, and eduction-pipe formed in one piece, and the pump-barrel, and a stuffing-box situated at the upper end of the said barrel, formed in one piece also, the two pieces being adapted to slide, the former within the latter, and when thus arranged to operate as a pump, throwing a continuous stream, whereby a very compact and readily portable pump is constituted, and whereby the construction thereof is greatly simplified and cheapened.

Figure 1 is a longitudinal central sectional view of a portable pump embodying my invention.

A is the hollow handle, B is the hollow plunger, and C is the eduction-pipe. These several parts I cast in one piece of metal, as shown. The said delivery-pipe is located centrally within the handle and plunger, and extends from the upper end of the handle down through and nearly to the lower end of the plunger, thus forming the space or air-chamber *a* around said pipe C, continuous through the hollow handle and plunger. G is the pump-barrel, which is cylindrical in shape, and has cast with it in the same piece, upon the upper end of the barrel, the packing-box D. The piece forming and composed of the hollow plunger with the hollow handle containing the eduction-pipe is then adjusted in the barrel, the plunger B passing through the stuffing or packing box D, which is packed at *g*, as shown, and the gland H having been adjusted in place, it is screwed down into the box D, as shown, when the two essential pieces of the pump, containing the devices most necessary to its action, will be properly in adjustment. The plunger has a strainer, *c*, at its lower end, and has the opening *d*, with the inwardly-opening valve *e* at its lower extremity. E is the nozzle-piece, screwed

upon the upper end of the hollow handle, and into which the eduction-pipe opens. F is a valve-chamber, with valve *f* screwed upon the lower end of the barrel G, and to which flexible hose, which supplies the water to the pump, is connected.

Now it is evident that, in a portable pump embodying my invention, the water drawn in on the first upstroke will fill the pump-body, and the first downstroke will force the water therefrom into and through the pipe C, and also into the chamber *a*, thus compressing the air therein into the upper part of the handle. Upon the next and each succeeding upstroke the water in the chamber *a* will be forced by the expansion of this compressed air out of said chamber *a* into and through the pipe C, thus causing, during the entire period of the operation of the pump, the delivery at the nozzle of a constant and continuous stream.

The plunger B may be desirably packed at its lower end at *b*, as shown, so that when the plunger is drawn up in the barrel the air above the said packing will be compressed, and will act on the downstroke to assist in expelling the water in the hollow plunger by its expansion, and thus decrease the force necessary to be applied by the operator. The air compressed behind the said packing *b* will operate continuously as a cushion, and will, by its pressure against the said packing, aid the downstroke of the plunger.

I do not intend to claim, broadly herein, a pump having a hollow plunger, nor one having an eduction-pipe within a hollow plunger, communicating with a hollow handle or nozzle piece, nor a pump adapted to be fed by a flexible tube or hose; as I am aware that these devices are not new. I intend to limit my claim hereunder to a pump in which the hollow handle and hollow plunger are arranged to open into each other, and are continuous one of another in a right line, and together with the eduction-pipe C, located within them and forming the chamber *a* extending into the handle, are cast in one piece of metal, and the pump-barrel has cast with it, located on its upper extremity, the stuffing-box D, in one piece also, these two pieces being arranged to

be adjusted together, and united for operation as a portable hand-pump, capable of throwing a continuous stream, and whereby the construction of the pump is very greatly simplified and cheapened.

What I claim as my invention, and desire to secure by Letters Patent, is—

A portable hand-pump, in which the hollow handle A, hollow plunger B, and central suction-pipe C, forming the chamber *a*, are cast

in one piece, and the pump-barrel G has also cast in one piece with it, and on the upper end thereof, the stuffing-box D, together with the gland H, as described, and for the purpose specified.

FREDERICK S. SHIRLEY.

Witnesses:

WENDELL H. COBB,  
FRED. A. BANGERT.