F. S. Burt,

Pump Lift,

No. 37,383. Patented Jan. 13, 1863.

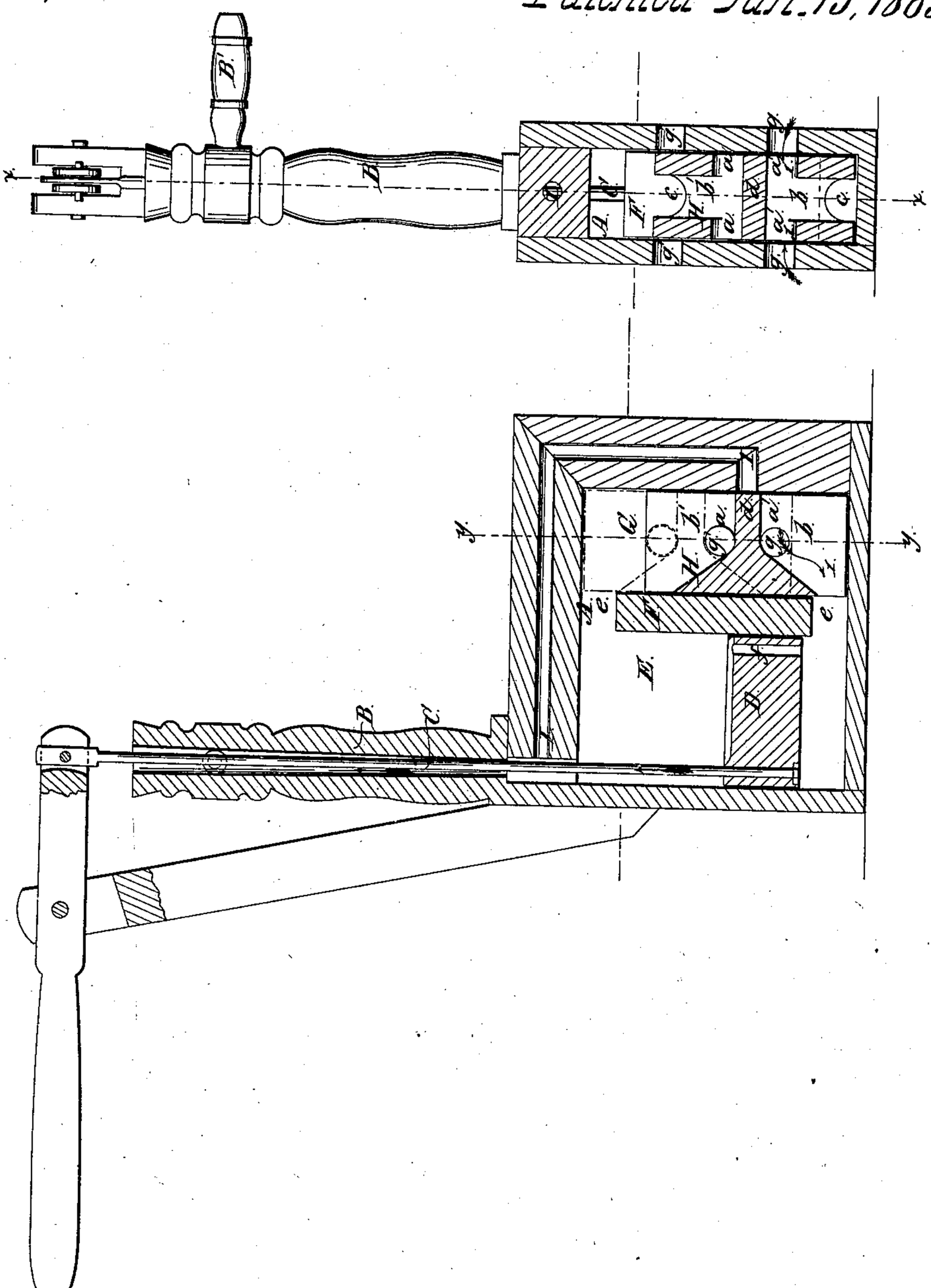

Fig. 2.

Fig. 1.

Witnesses.
J. W. Coombs
G. W. Reed

Inventor.
Francis S. Burt
Pierce Munn & Co
Attorneys

UNITED STATES PATENT OFFICE.

FRANCIS S. BURT, OF MOUNT PLEASANT, IOWA.

IMPROVEMENT IN PUMPS.

Specification forming part of Letters Patent No. **37,383**, dated January 13, 1863.

To all whom it may concern:

Be it known that I, FRANCIS S. BURT, of Mount Pleasant, in the county of Henry and State of Iowa, have invented a new and Improved Pump; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a vertical central section of my invention, taken in the line *x x*, Fig. 2; Fig. 2, a vertical central section of the same, taken in the line *y y*, Fig. 1.

Similar letters of reference indicate corresponding parts in the two figures.

This invention relates to an improvement in that class of pumps which are submerged, and elevate the water to the top of the well through a tube.

The object of this invention is to obtain a simple, efficient, and economical pump of the class specified, and one that will not be liable to get out of repair or become deranged by use.

The invention consists in the employment or use of a reciprocating piston in connection with a sliding valve placed in a compartment in the pump-chamber, and provided with openings and arranged in such relation with induction and eduction openings in the pump-chamber as to effect the desired end.

To enable those skilled in the art to fully understand and construct my invention, I will proceed to describe it.

A represents the pump-chamber, which may be of rectangular form, and is provided with a vertical tube, B, which has a nozzle or spout, B′, at its upper end, and also has a piston-rod, C, passing through it. To the lower end of the piston-rod C there is attached a piston, D, which works in a compartment, E, in the pump-chamber, said compartment being formed by a vertical partition, F. This partition also forms a smaller compartment, G, in which a valve, H, is placed, having two openings, *a a′*, in each side of it, and two chambers, *b b′*, which are open at their ends, as shown at *c c*, said chambers being divided by a partition, *d*. The valve H is of rectangular form, and is allowed to slide freely up and down in the compartment G, which communicates with the larger compartment, E, by passages *e e* at the upper and lower ends of the partition F, as shown in Fig. 1.

I is a water-passage, which is made in one side, and the top of the chamber A, as shown in Fig. 1. The lower end of this passage I communicates with the tube B at its lower part, and the lower end of said passage communicates with the valve-compartment G when the valve H is raised, but said passage is closed at its lower end when the valve is down, the partition *d* covering it, as shown in Fig. 1. The piston D has a hole, *f*, made through it to admit of the waste-water from the tube B when the pump is stopped, thereby preventing the freezing up of the tube B in winter.

The operation of the pump is as follows: The chamber A is submerged at the bottom of the well or reservoir, or nearly submerged, and when the piston D rises a suction is formed below it and the valve H falls in its compartment G, and the water passes through induction-holes *g g* in the sides of the chamber and through the lower holes or openings, *a′ a′*, in the valve and thence through the lower chamber, *b*, of the valve into the compartment E, underneath the piston, as indicated by the arrows 1. During this movement of the piston the water above it is forced up through the tube B and out through the nozzle B′. During the downward movement of the piston the valve H is forced upward in its compartment G, and the lower end of the passage I is thereby opened and the water below the piston is forced through the passage I, up into and through the tube B and out at the nozzle B′. During the downward movement of the piston the induction-openings *g* are closed by the valve H, and the upper openings, *a*, are in line with induction-openings *g′ g′* in the sides of the chamber A. As the piston descends, therefore, a suction is produced in the compartment E above it, and the water passes through the induction holes or openings *g′* into the chamber *b* of the valve, and thence into compartment E, said water being forced up through tube B, when the piston again ascends the valve H, covering the holes *g′ g′*, when it descends under the upward movement of the piston. Thus by this very simple arrangement an efficient pump is obtained, and one which may be constructed at a small cost without the liability of getting out of repair or becoming deranged by use.

Having thus fully described my invention,

what I claim as new, and desire to secure by Letters Patent, is—

The combination of the piston D and the slide-valve H, working in separate compartments E G in the pump-chamber A, in connection with the tube B and the water passage I in the side and top of the chamber A, and the induction-openings *g g g g'* in the sides of said chamber, all being constructed and arranged as and for the purposes herein set forth.

FRANCIS S. BURT.

Witnesses:
P. D. PUTNAM,
JAMES A. THROOP.