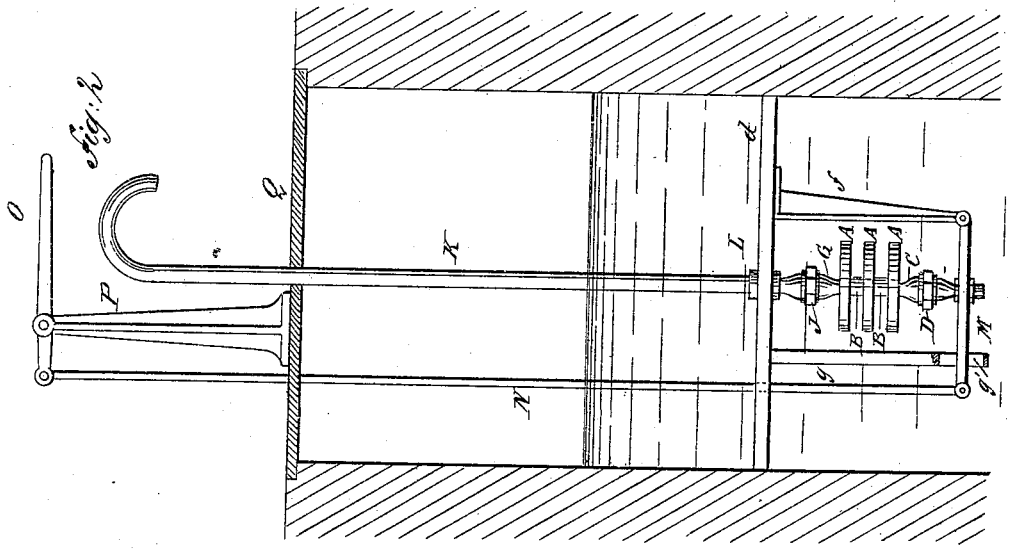
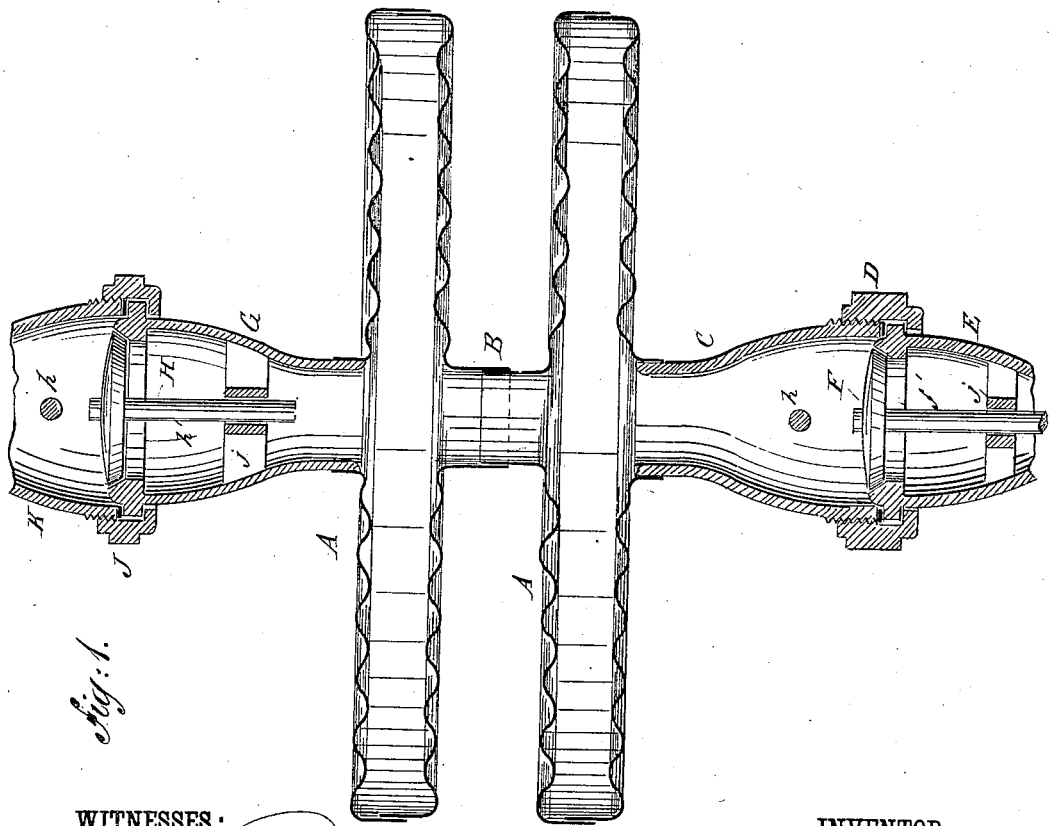
(No Model.)

D. E. WASHBURN.

PUMP.

No. 266,232. Patented Oct. 17, 1882.





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DAVID E. WASHBURN, OF HOUGHTON, MICHIGAN.

PUMP.

SPECIFICATION forming part of Letters Patent No. 266,232, dated October 17, 1882.

Application filed February 24, 1882. (No model.)

To all whom it may concern:

Be it known that I, DAVID E. WASHBURN, of Houghton, in the county of Houghton and State of Michigan, have invented a new and Improved Force or Lift Pump, of which the following is a full, clear, and exact description.

The invention consists in combining certain instrumentalities in a pump, as hereinafter described, and pointed out in the claim.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in both the figures.

Figure 1 is a sectional elevation of my new and improved pump; and Fig. 2 is a side elevation thereof, showing the same as it appears when placed in the well for use.

In Fig. 1 I have shown the pump composed of the two circular connected chambers, A A, while in Fig. 2 I have shown the pump composed of three such connected chambers. It will therefore be understood that these chambers may be multiplied indefinitely, according to the desired capacity of the pump, and that a single chamber may be used where a pump of small capacity is required.

The chambers A A are by preference made of corrugated sheet-brass or of similar sheet metal possessing great elasticity and tenacity, and are connected together by the central connection, B.

To the lower chamber A is attached the induction-pipe C, which has attached to it by the coupling-ring D the valve-seat E, which carries the valve F, and to the upper chamber A is attached the valve-seat G, which carries the valve H, and connected to this valve-seat by the coupling-ring J is the eduction-pipe K, which leads to the top of the well, as shown in Fig. 2.

The means I employ for securing the pump in the well and for operating the pump consists of the frame L, lever M, connecting-rod N, and the pump handle or lever O, fulcrumed in the upright P, supported upon the platform or curb Q of the well, as shown in Fig. 2. The frame L is composed of the cross-piece or stay *d*, which is made fast at its ends to the walls of the well for holding the pump from any vertical or lateral movement, and of the arm *f*, depending therefrom, to which the end of the lever M is pivoted, and of the arm *g*, which is slotted, as shown at *g'*, for guiding the lever M as it is moved up and down by the connecting-rod N for operating the pump. The lower end of the valve-seat E of the pump is connected by any suitable means to the lever M at about the center of its length, as shown in Fig. 2, so that the up-and-down movement of the lever M, caused by operating the handle O, will cause the top and bottom of the chambers of the pump to vibrate or to move to and from each other, which will alternately contract and enlarge the size of the chambers, and thus cause the water to enter and be expelled therefrom and to flow out the eduction-pipe K, as will be readily understood, the valve F opening, when the chambers are extended, to permit the influx of the water into the chambers, and closing when the chambers are contracted, the valve H opening when the chambers are contracted and closing while they are being extended.

The advantages of this pump consist mainly in its efficiency, cheapness, and simplicity. It will be seen that it dispenses entirely with pistons, plungers, plunger-valves, packing, &c., and, acting as it does upon the respiratory or bellows principle, its action is direct, so that water can be raised to any height, and acts entirely without friction, and the pump, being entirely submerged in the water, is proof against all injury from freezing.

The flexibility and durability of the chambers is much increased by the corrugation of the metal of which the chambers are formed, and this constitutes a principal feature of my invention.

The valves F and H are held against displacement by means of the stops *h h*, above them, and the guides *j j*, through which the stems *f'* and *h'* of the valves pass, as shown in Fig. 1.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

The metallic connected chambers A, having expansible and contractible sides, the upper chamber being provided with a valved eduction-pipe and the lower one with a valved induction-pipe, in combination with the frame and the levers M O, connected by a rod, N, and arranged to cause the upper and lower sides of said chambers to alternately move to and from each other, as described.

DAVID E. WASHBURN.

Witnesses:
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