J. W. Redding,

Double-Acting Pump.

No. 32,716. Patented July 2, 1861.

Fig. 3.

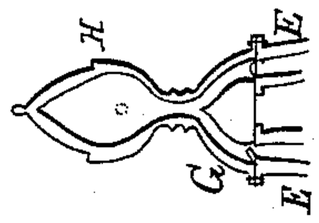
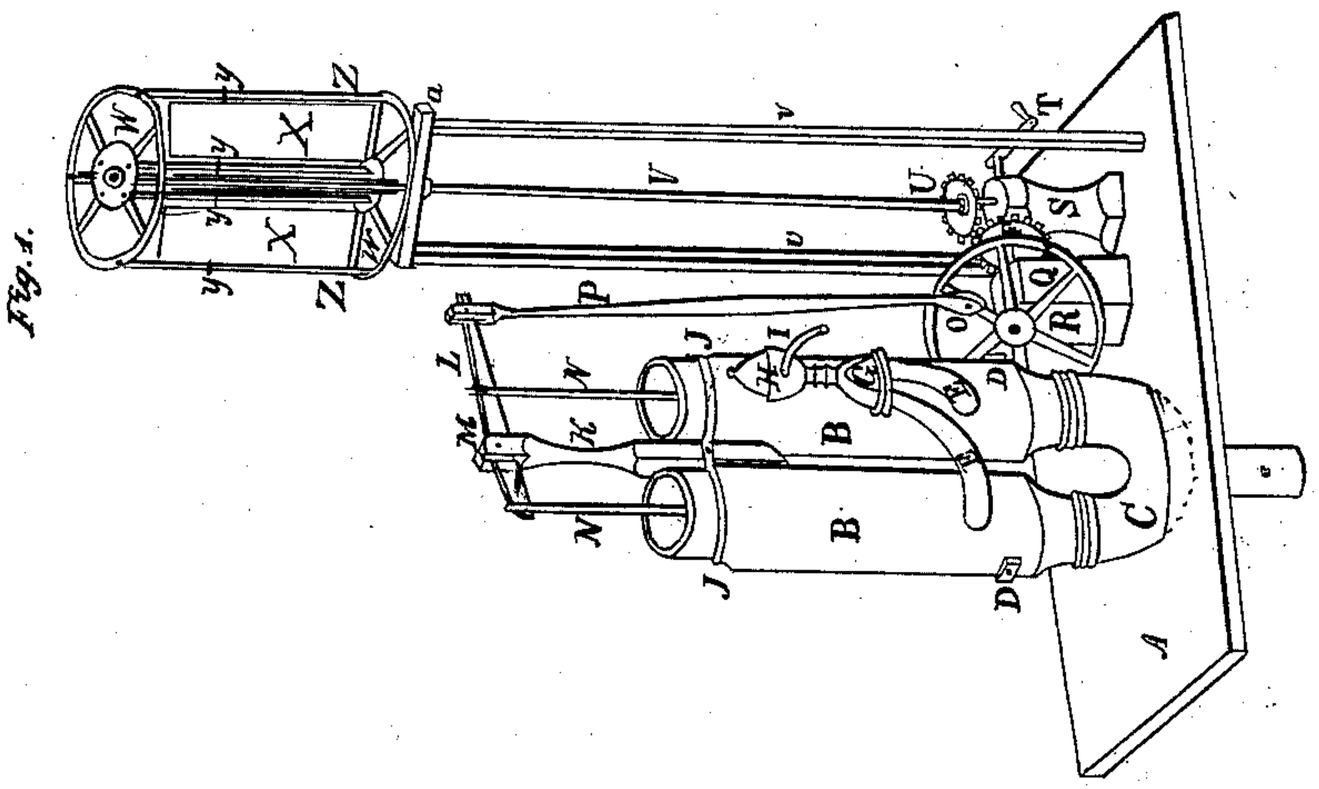


Fig. 2.

Fig. 1.



Witnesses.
Abraham Lash
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Inventor
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UNITED STATES PATENT OFFICE.

JOHN W. REDDING, OF BELLEVILLE, OHIO.

PUMP.

Specification of Letters Patent No. 32,716, dated July 2, 1861.

To all whom it may concern:

Be it known that I, JOHN W. REDDING, of Belleville, in the county of Richland, in the State of Ohio, have invented a new and useful Improvement in Raising and Forcing Pumps; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a perspective view, Fig. 2 a longitudinal elevation, Fig. 3 a longitudinal section of air chamber, connecting pipes and valves.

To enable others skilled in the art to make and use my invention I will proceed to describe its construction and operation.

I construct my improved raising and forcing pump, as seen in drawing, Fig. 1. A is a platform on which rest two perpendicular cylinders B B, connected at the lower ends with a curved cylinder or half circle C, which connection, or joint, is made air tight by the use of packing. (The curved cylinder is supplied with descending pipe *c*.) Just above the connection, and on the outside of each cylinder, are two cuts or cavities, entering inward, in which are located two sliding or adjusting valves D D, which can be taken out, repaired and inserted at pleasure. These valves are thus arranged in order to save time and labor in repairing; they are easy of access, and can be taken out without taking the pump apart, as is the case in other pumps. These valves, as seen in Fig. 2, consist of two boxes of wood or metal, perforated in the center sufficiently large for the passage of the water; on the upper side of these boxes are found the valves, let down a little below the surface, resting on a shoulder cut around the orifice, and there fastened in common form; these valves are composed of leather, faced with india rubber to give an increased impetus to their action and facilitate their operation. The ends of these boxes entering in are pointed, entering a cavity on the opposite inner side from which they entered, which secures permanency to their ends. On the external ends of each of these boxes there is an eye, by which they may be drawn out at any time. Just above these slide or adjusting valves, on another side from them emerge from the cylinders two curved or connecting pipes E E, extending upward and converging toward a point. Upon the ends of these pipes are located two valves of common form, as shown in Fig. 3, playing alternately with the adjusting valves, governed by the action of the pistons N N; also, upon the top of these pipes E E rests a block G, of pyramidal form, possessing a flange to be fastened with bolts to the flange of each pipe on which it rests; in this block of said form there are two orifices or water passages continuous with those in the pipes to which it is connected. These passages extend from the base of the blocks upward, converging in their course; and finally, toward the cone of the pyramid, they unite and form one passage for the water. On the top of this pyramid is constructed the air chamber H, with a discharge pipe I, to which may be attached a hose.

There is passing around the upper ends of the cylinders B B, or a little down from the ends, a band J J, compressed somewhat between the cylinders and embracing the fulcrum post K, made fast with a bolt passing through the band and lower end of said post. The upper ends of these cylinders, on the inside, for some distance down, are enlarged to give room and play to the piston rods when in operation, to prevent the rods from coming in contact with the inner surface of the cylinders when I wish to give them a long or extended sweep, as is known to be very important when water is low and precludes charging the pump with water in such instances. At the upper end of post K is the lever L, from which, at an equal distance from the center or fulcrum M, descend two piston rods N N to the lower end of each of which is attached a cylindrical piece of wood or metal of spool form, possessing packing in the center, so as to make them work air tight in the cylinders. At a convenient distance from one of these rods is connected to the lever L a pitman P. The lower end of this pitman is attached to a crank O on a balance, or fly wheel, R. The shaft of this wheel passes through post Q, and then adjusts the bevel wheel F, and passes through post S, and terminates in a crank T. On the upper end of post S is a step, or bearing, for the reception of the lower end of shaft V. At a proper distance

from the bottom of said shaft is permanently secured the bevel pinion U to mesh into the bevel wheel F.

v. v. are posts of wind wheel frame. On the top of said posts is the cap *a*, to support shaft V. On the upper extremity of this shaft is situated a wind wheel with cylindrical heads W W, which is secured to shaft V.

X X are fans, or boards hung on pivots Y Y in posts Z Z, so as to secure but little variation in the running of the wheel, either in high or low winds. The fans as seen will pass the wind, except the required amount to cause a rotary motion to said wheel, by which motion the balance or fly wheel R is caused to revolve, to which the pitman P is connected, which connects with the lever L and causes the pistons N N to reciprocate, by which motion the water is raised into the cylinders B B and forced through the curved or connecting pipes E E into the air chamber H, from which it escapes through the discharge pipe I.

By detaching the bevel wheels the pump can be worked by the hand of the operator on the crank T.

What I desire to secure by Letters Patent is,

The cylinders B B flaring at top, and united at bottom by the curve C, into which flows the induction pipe or cylinder *e;* also the confluent eduction pipes E E, air chamber H and discharge pipe I; all combined and arranged as described, when operated by means of the fulcrum M, piston rods N N, pitman P, crank O, and wheel R.

J. W. REDDING.

Witnesses:

ABRAHAM LASH,

J. C. CLARK.