J. Molyneux,

Air Pump,

No. 47,243. Patented Apr. 11, 1865.

Fig. 1

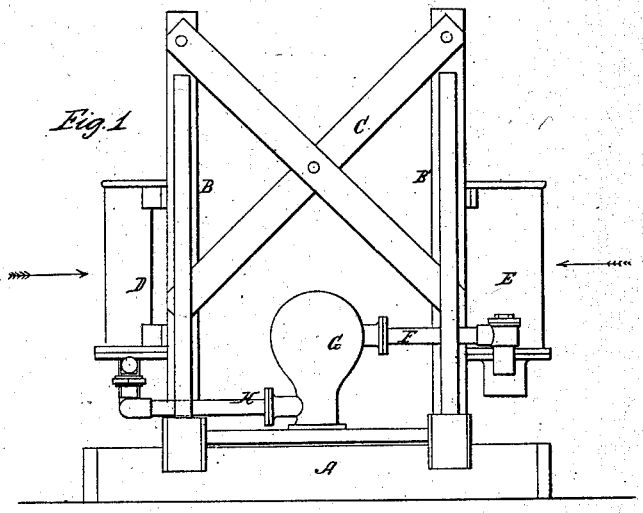


Fig. 2

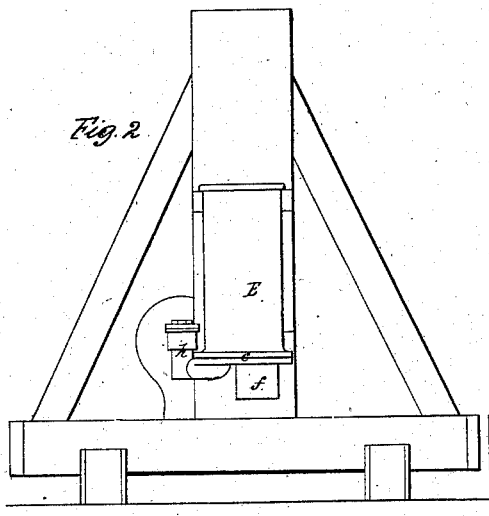
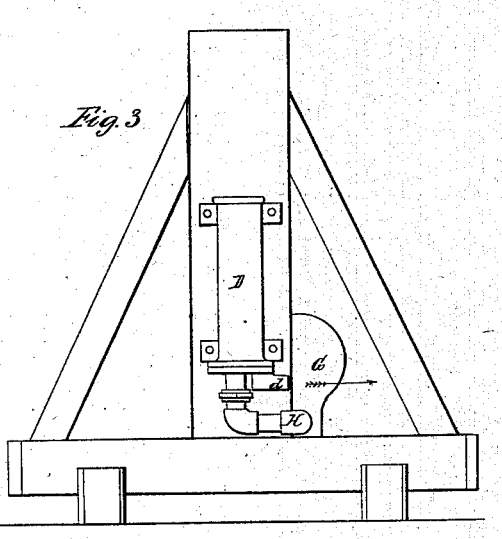


Fig. 3



Witnesses:
Wm. Keeany
Wm. Albert Smith

Inventor.
J. Molyneux.
by his Attorney
Henry Howson

UNITED STATES PATENT OFFICE.

JAMES MOLYNEUX, OF BORDENTOWN, NEW JERSEY, ASSIGNOR TO THE BORDENTOWN MACHINE COMPANY, OF SAME PLACE.

IMPROVEMENT IN AIR-PUMPS.

Specification forming part of Letters Patent No. **47,243**, dated April 11, 1865.

To all whom it may concern:

Be it known that I, JAMES MOLYNEUX, of Bordentown, New Jersey, have invented an Improvement in Air-Pumps; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

My invention consists in the combination of two pumps having barrels of different diameters with a reservoir situated between and communicating with both pumps, all substantially as described hereinafter, the air partially compressed by the larger pump being further compressed by the smaller pump, and the air-vessel serving to insure that uniformity of action which could not be attained in its absence.

In order to enable others to make and use my invention, I will now proceed to describe its construction and operation.

On reference to the accompanying drawings, which form a part of this specification, Figure 1 is a front view of my air pumping apparatus; Fig. 2, an end view, looking in the direction of the arrow 1, Fig. 1; and Fig. 3, an end view, looking in the direction of the arrow 2, Fig. 2.

Similar letters refer to similar parts throughout the several views.

A is the base of the machine, on which are erected the two side frames, B and B′, connected together and stayed by suitable diagonal braces, C. To the frame B is secured the pump-barrel D, and to the frame B′ the pump-barrel E, the latter barrel being of larger diameter than the former. In each barrel is an ordinary piston, to which is connected a piston-rod, a reciprocating motion being imparted to the piston through the medium of a crank and connecting-rods by any suitable system of gearing. On the bottom *e* of the barrel E is a box, *f*, containing an ordinary conical or or other suitable valve, which permits the entrance of air into the barrel on the piston being moved upward, and *h* is a box or chest containing the discharge-valve, this chest communicating through a pipe, F, with the air chamber or reservoir G, between which and the smaller pump-barrel, G, communication is afforded by the pipe H, the communication being intercepted when the piston of the smaller barrel descends by a valve, which, on raising the said piston, permits the air in the chamber G to pass into the barrel, from which it is forced on the piston, being again depressed through a box, *d*, containing a suitable discharge-valve.

It has been deemed unnecessary to illustrate the pistons, piston-rods, driving-gear, and valves, as they may be similar to those ordinarily used in pumps.

My improved pumping apparatus has been especially designed for obtaining a supply of highly-compressed air to be used in forcing oil from oil-wells.

I have found by practical experiments that this desired supply can be obtained more rapidly, and that the supply can be continued with less power and greater regularity by first compressing it in a larger barrel and increasing the pressure in a smaller barrel than by using a single barrel having an area equivalent to the combined area of the large and small barrels, or by the use of two barrels of the same diameter, and having together an area equal to that of the large and small barrel.

I have ascertained, however, that a uniform and efficient operation of the large and small pumps cannot be effected by causing the air, partly compressed in the former, to pass directly to the latter, and that the introduction of an air vessel or chamber, G, is most essential for insuring a uniform action of the pumps and the proper operation of the valves.

I do not desire to claim the use of two pumps having barrels of different diameters for obtaining a continuous supply of compressed air; but

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

The combination of two air-pumps having barrels of different diameters with an air vessel or reservoir, G, situated between and communicating with both pumps, all substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JAS. MOLYNEUX.

Witnesses:
WM. BURNS,
THOMAS BENNETT.