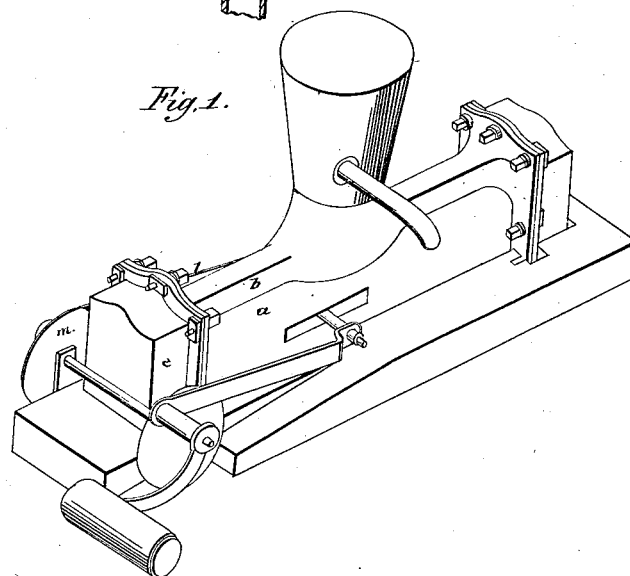
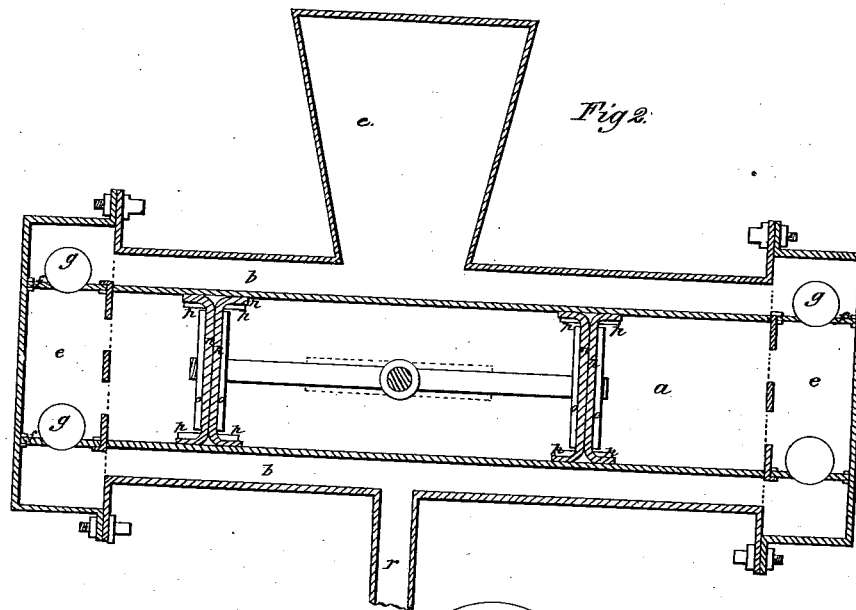


F. Walther,
Double-Acting Pump,
N^o 4,026. *Patented May 1, 1845.*



UNITED STATES PATENT OFFICE.

FRIEDRICH WALTHER, OF WINCHESTER, VIRGINIA.

PUMP.

Specification of Letters Patent No. 4,026, dated May 1, 1845.

To all whom it may concern:

Be it known that I, FRIEDRICH WALTHER, of Winchester, in the county Frederick and State of Virginia, have invented a new and Improved Double-Action Ball-Pump; and I do hereby declare the following to be a full and exact description of the construction and operation of the same, reference being had to the accompanying drawings, forming a part of this specification, Figure 1 being a perspective elevation, and Fig. 2 a vertical longitudinal section.

The same letters refer to similar parts in each figure.

15 I construct the cylinder —*a*— the upper and lower side pipes —*b b*— and the air vessel —*c*— and discharge pipe —*d*— of iron or some other suitable metallic substance, and usually all at the same time in one piece. To each end of the cylinder and side pipes are bolted the boxes —*e e*— connecting with both the cylinder and side pipes. Parallel with the partition between the cylinder and side pipes I insert in the 25 boxes at both ends, two pieces of yellow or pitch pine plank —*f f f f*— confined by grooves at each side of the same. In the center of these pieces of plank are formed round holes tapering downward; the apertures to be about the same area of the side pipes; *g g g g* are spherical balls or valves, (likewise of pitch pine wood) of such size as to accurately fit the seats in the openings in the planks *f f*.

35 *h* is the piston rod having pistons at each end of the same; *i* is an opening in the center of the piston rod through which the cross-piece *k* passes, the ends of which project out through the narrow oblong openings on each 40 side of the cylinder. The pistons are worked backward and forward by the levers *l l*, connecting each end of the cross piece *k* with the crank wheels, *m m*. I construct the pistons of two pieces of leather *n n* with me-

tallic plates *o o* on each side of them, the 45 outer plate screwed on to the end of the piston rod, so as to keep the pieces of leather firmly pressed between the metallic plates. The edges of each piece of leather forming the piston, are turned outward from the 50 center, and are pressed against the side of the cylinder by the whale bone ring springs, *p, p, p, p*, underneath them.

The operation of my improved ball pump is as follows: When the pistons are forced 55 toward one end of the cylinder, the upper ball at the opposite end of the piston is drawn down tightly over the upper aperture into the upper side pipe, and the lower aperture into the lower side pipe is opened and 60 the water is drawn from the suction pipe *r* into that end of the cylinder. At that end of the cylinder toward which the pistons move, the valve connecting with the lower side pipe is closed and the one into the upper 65 side pipe opened, and the water in that end of the cylinder is forced through the upper valve into the upper side pipe and air vessel, and out at the discharge pipe.

Having thus fully described the construction and operation of my improved double 70 action ball pump, I would observe that I do not claim the pump action, nor the working of two pumps together by one piston rod, but

75 What I do claim as new and desire to secure by Letters Patent is—

The working of two pumps upon one rod within one cylinder in the manner set forth—the cross piece *k*, attached to the piston rod and passing out through the slots 80 in the cylinder in the manner and for the purpose herein described.

FRIEDRICH WALTHER.

Witnesses:

DANIEL FAGAN,
JOHN NICHOLSON.