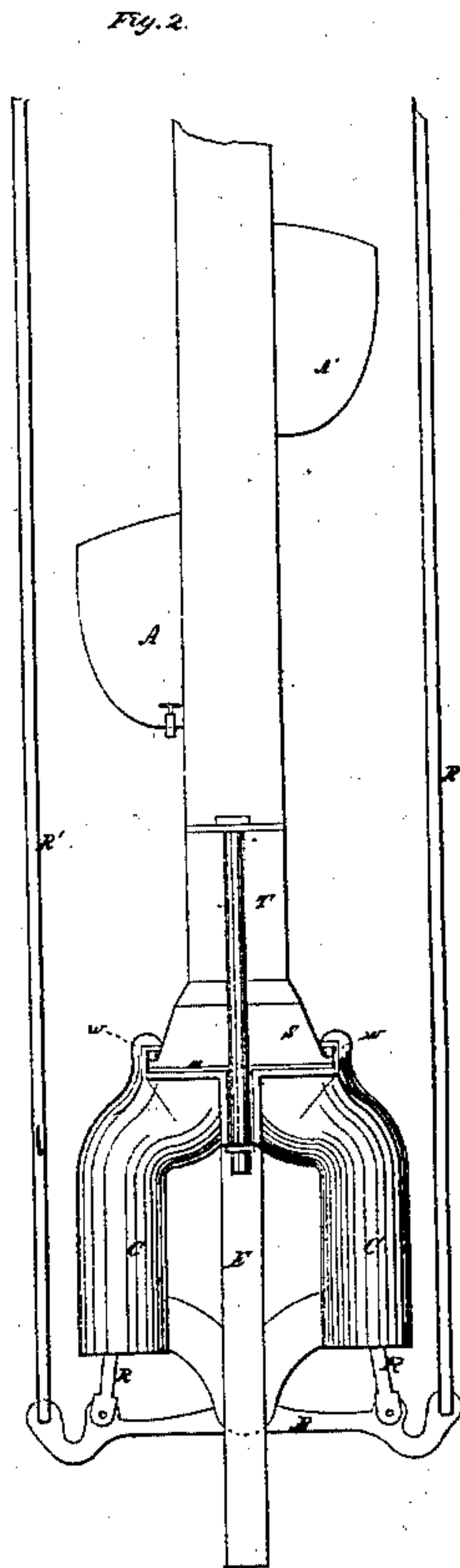
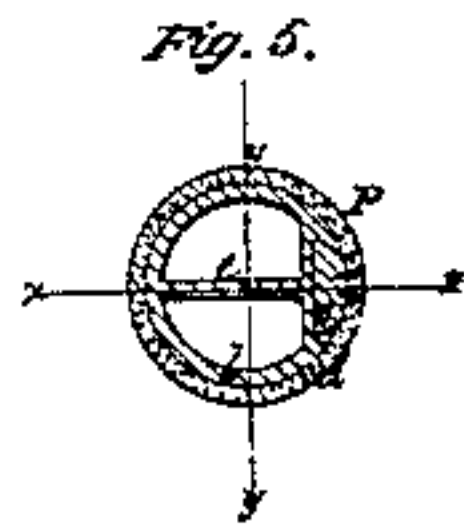
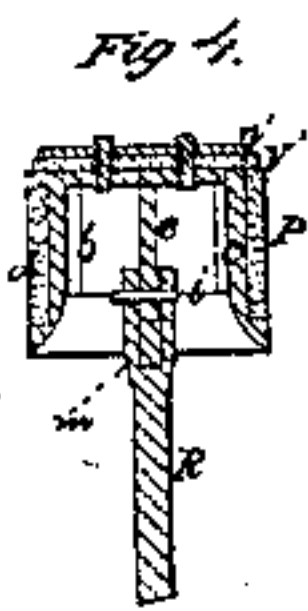
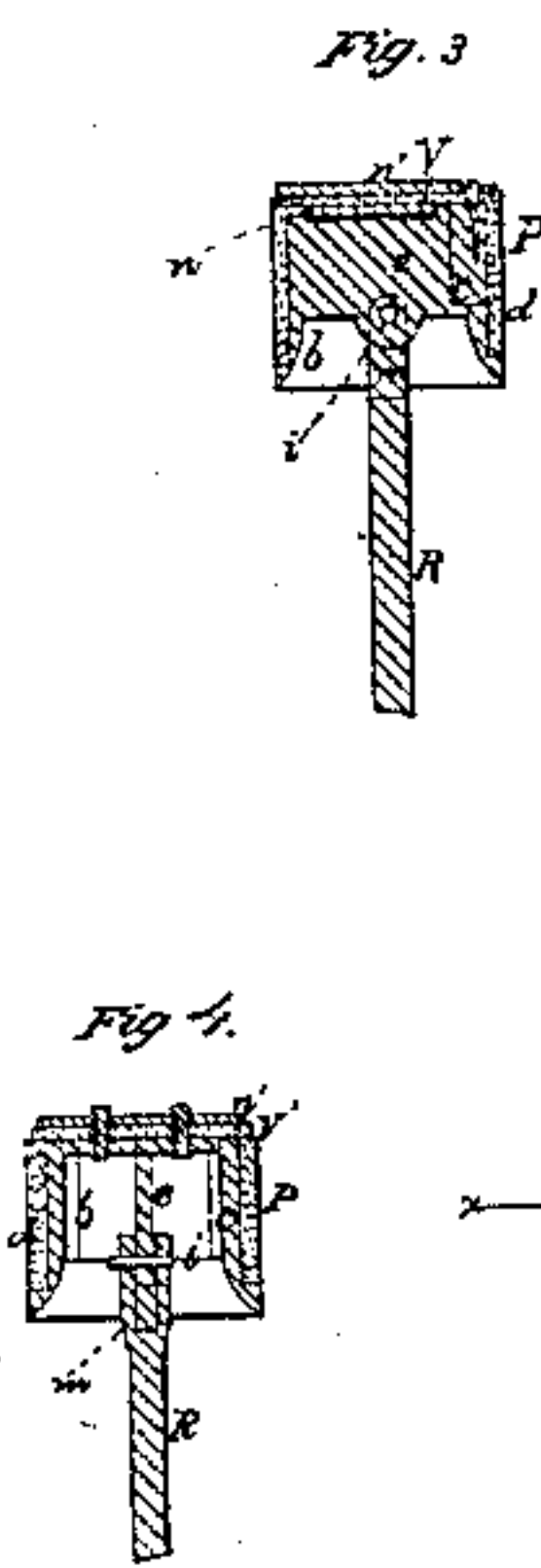
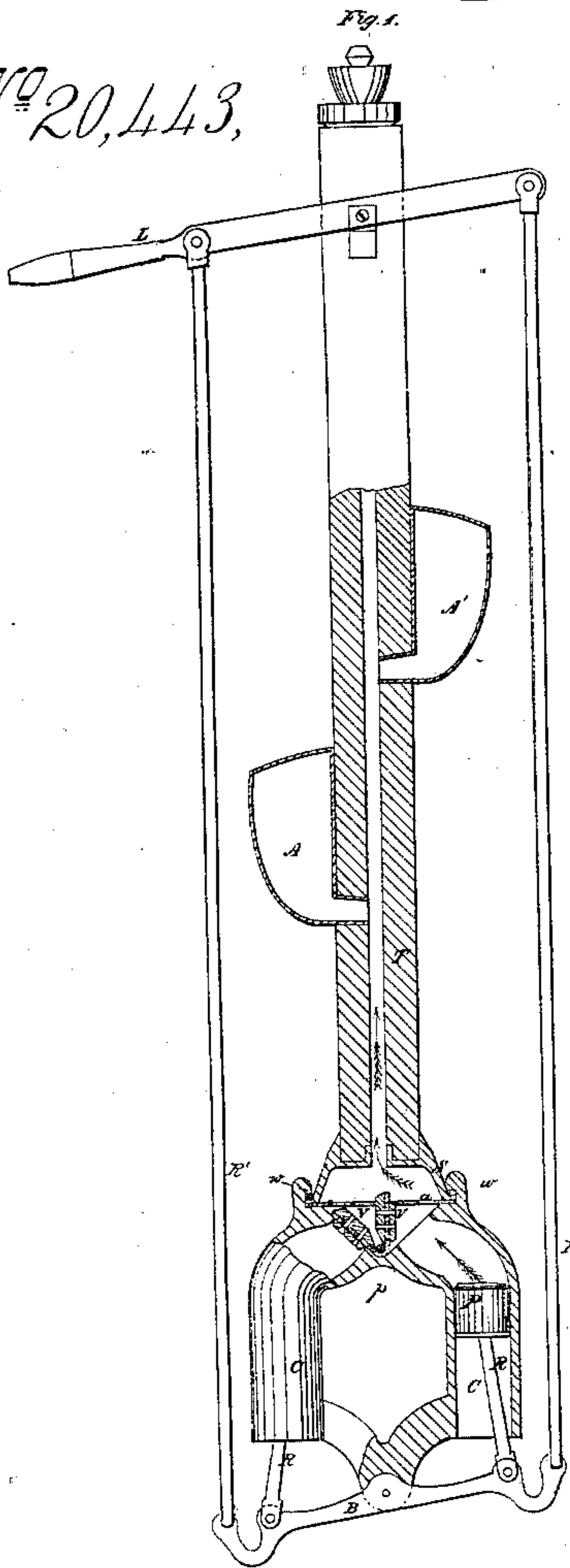


E. Quinn,

Double Acting Pump,

N^o 20,443,

Patented June 1, 1858.



UNITED STATES PATENT OFFICE.

E. QUINN, OF TRENTON, NEW JERSEY.

PUMP-BUCKET.

Specification of Letters Patent No. 20,443, dated June 1, 1858.

To all whom it may concern:

Be it known that I, EMMETT QUINN, of Trenton, in the county of Mercer and State of New Jersey, have invented a new and
5 useful Improvement in Pumps; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawing, forming part of this specification, in the
10 several figures of which similar characters of reference denote the same part.

Figure 1 is a sectional view showing the interior of cylinder, air chambers and tubing. Fig. 2 is a side elevation of the pump.
15 Fig. 3 is a section of piston, through its axis, on line *x x*. Fig. 4 is a section of piston through its axis on line *y y*. Fig. 5 is a cross section of piston.

The nature of my invention consists in a
20 peculiar construction of piston, the details of construction and operation being as follows.

In the drawing, C C are the cylinders of the pump, open at bottom, and each containing a piston P, connected by rod R
25 with a beam B, operated by rods R', leading to the lever L. Above the cylinders are valves V V held in position by passing a pin *p* across the leather connection, as
30 seen in Fig. 1.

The tubing T, which is designed to be of wood, fits at bottom into a metal shoe S, having flanges for connecting it with the body of the pump, by wedges *w*, the joint
35 being packed as shown at *a*. At a suitable distance above the cylinders the tube T is tapped and the mouth of an air chamber A inserted, the said chamber being suitably secured upon the outside of the tubing.
40 Another chamber A', is attached to the opposite side and above the chamber A, as shown in Fig. 1. Should the well be of great depth the chambers may be attached in pairs or singly at suitable intervals upon
45 the tube. But for ordinary depths the attachment figured in the drawing is found to serve the desired purpose.

The pump is supported by the piece E which rests upon the bottom of the well,
50 the cylinders being submerged. Power is applied to the lever L, which causes the water to be forced upward as indicated by arrows. The upper air chamber A' serves to correct the irregularity of the upward
55 flow of fluid and renders the discharge uniform.

The piston P is made up of a metallic core *b* and wooden plug *c* driven in a recess cast in the side of the core. Around the core and plug is the packing *d*. When this
60 packing is of leather, it is held by nails driven into the plug *c*, as shown in Fig. 5. This wooden plug also serves for the attachment of the valve by furnishing a substance into which nails may be driven as shown in
65 Fig. 3. In this particular there exists a great advantage over the ordinary construction, inasmuch as without the plug the valve has to be secured by drilling holes in the metal core for screws, and an entirely
70 different arrangement has to be adopted for securing the packing. The piston rod R is attached to the central diaphragm *e* by a pin *i* passing through it and the jaws of the rod. The under edge of this diaphragm
75 is an arc concentric with pin *i*, which rests upon filling *m* in the jaw, so as to take the pressure from the pin *i* and thus insure greater durability to the piston. Or the
80 jaw may be so made that its bottom will be in contact with the diaphragm, the object being to transmit the pressure of fluid through the diaphragm to the piston rod. The valve V' is made up of two plates of
85 metal *n n'* with a disk of leather or other elastic substance held between them by rivets, as shown in Fig. 4. The central diaphragm *e* runs up to within the thickness of the lower plate of the upper edge of the piston, as shown in Figs. 3 and 4, so that the
90 valve when closed rests upon the upper edge of the diaphragm *e*. This prevents the wear which is caused to the leather when the entire pressure forces the leather down upon the edge of the piston. These
95 improvements in the construction of the piston are favorable to economy of construction and to durability and possess decided advantages over the ordinary construction.

The construction of the pump is economical and effective. It is not liable to get
100 deranged, and is easily repaired when any of the parts are worn out.

The air chambers are designed to be constructed with cocks as shown in Fig. 2.
105 These cocks are to be operated from above. In winter they will be left open so as to permit the water remaining in the pump to pass off, and thus prevent freezing. Should there be any leakage of the air chambers
110 they furnish a means of discharging the water.

Having described my invention and the operation thereof, I claim—

1. The central diaphragm *e* having its under edge concentric with the connecting pin
5 of the rod and in contact with the bottom of its jaw, in combination with the valve *V'*, constructed and operating so that the diaphragm receives the pressure on the valve and transmits it directly to the piston rod.
- 0 2. I also claim the combination of the dove-tail recess in the metallic core with the

plug penetrable by nails filling the same, for the more easy and economical attachment of the valve and packing as herein-
before described.

15

In testimony whereof, I have hereunto signed my name before two subscribing witnesses.

EMMETT QUINN.

Witnesses:

GEO. PATTEN,

JOHN S. HOLLINGSHEAD.