

H. Lindsey.

Double-Acting Pump.

Patented Sept. 6, 1859.

N^o 25,340.

Fig. 1.

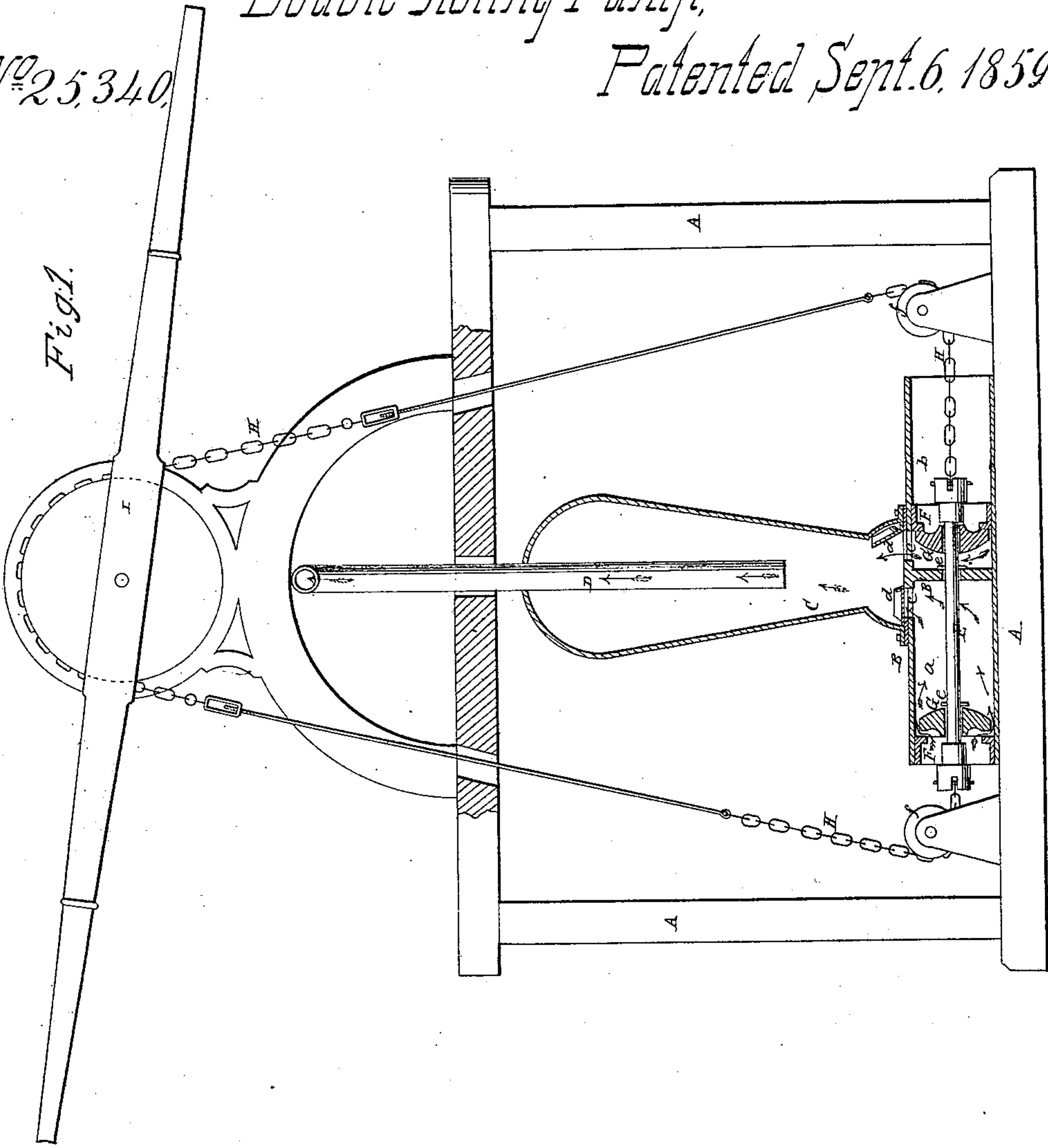
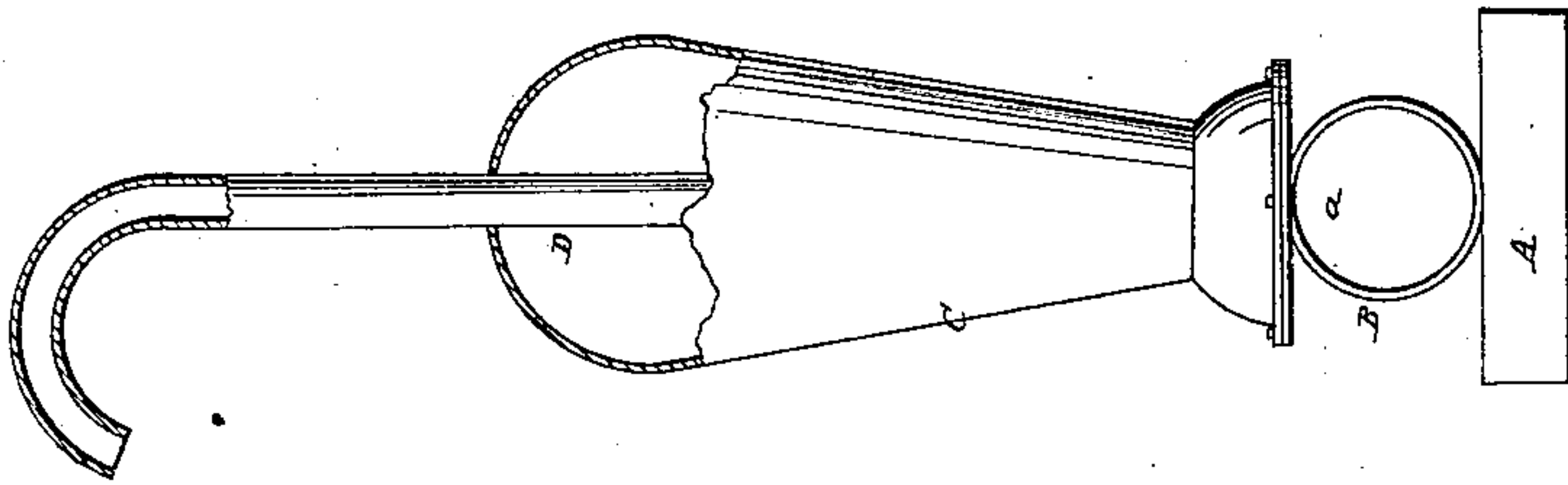


Fig. 2



Witnesses:

A. M. Sawyer
Ed J. Aston

Inventor:

H Lindsey

UNITED STATES PATENT OFFICE.

HOSEA LINDSEY, OF ASHEVILLE, NORTH CAROLINA.

SUBMERGED PUMP.

Specification of Letters Patent No. 25,340, dated September 6, 1859.

To all whom it may concern:

Be it known that I, HOSEA LINDSEY, of Asheville, in the county of Buncombe and State of North Carolina, have invented a new and useful Improvement in Submerged Pumps; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1, is a vertical longitudinal section of a pump with my improvements. Fig. 2, is a transverse section of the same.

Similar letters of reference in each of the several figures indicate corresponding parts.

This invention relates to an improvement in the construction of the submerged pumps patented by me in 1855 and 1857, and is designed to simplify and render the same capable of being operated within a much smaller compass.

The nature of my present improvement consists in arranging two valved pistons on the ends of a short reciprocating piston rod which is supported and guided centrally within the stationary double chambered cylinder by means of the central diaphragm or division plate of said cylinder; said piston rod with its pistons having a parallel reciprocating motion imparted to it by means of chains, pulleys, and a vibrating brake or lever, and its pistons acting together or at the same time, the right one to admit water at the right end of the cylinder and the left one to expel the water at the left side of the central division or diaphragm of the cylinder, and vice versa.

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

A, is intended to represent a well.

B, is the cylinder placed firmly on the bottom of the well. This cylinder is open at both ends and is divided transversely at the center of its length by means of a central plate or diaphragm B'. By being thus divided, two chambers *a*, *b*, are formed, each of which has a discharge passage *c*, near the diaphragm and on the upper part of the cylinder, as shown, said passages being covered by flap valves *d*, *d*, which open upward, as illustrated. Over these valves an air chamber C, is placed, and up through said air chamber a small conducting pipe D, passes to the top of the well, terminating in a discharge spout, as shown.

E, is a short piston rod, passing loosely and centrally through the diaphragm B. On the ends of this rod open pistons F, F, are fixed securely. Against the inner faces of these pistons ring valves G, G, work and alternately close up and open the passages in the same. These ring valves are arranged loosely on the piston-rod, and made of smaller diameter than the pistons, so that they may have a chance to slide longitudinally a certain distance in order to open the passage of the pistons, and the water, after they have thus opened the passage of the pistons, may have a chance to pass by their circumference, as illustrated by arrows.

The movement of the valve is controlled by shoulders or stop pins *e*, *e*, which are placed far enough from the face of the pistons to allow the valves the requisite sliding movement. These pins or shoulders also serve to control the extent of the movement of the piston rod, as they are located so as to strike the diaphragm when the piston rod has performed its full stroke either way.

In the drawing, the red arrows illustrate the course of the water when the piston rod is moving to the left. It will be understood that while the left piston is admitting water, the right one is expelling it and vice-versa.

In order to give a parallel reciprocating motion to the piston, I attach a chain or cord H, to the top of a cylindrical drum, and carry its ends down under pulleys *f*, *f*, and then attach them to the ends of the piston rod, as represented. The chains may be provided with link nuts and screw rods so that it may be kept at a proper tension under all temperatures of weather. To the axis of the drum, I attach a vibrating brake or lever I, by which to impart motion to the chain and through it to the pistons.

What I claim as my invention and desire to secure by Letters Patent, is

The arrangement of the short reciprocating piston rod E, open pistons F, F, sliding ring valves G, G, cylinder B, B', having a conducting pipe D, with the chain H, and brake I, in the manner and for the purpose herein set forth.

H. LINDSEY.

Witnesses:

ED. I. ASTON,
I. B. SAWYER.