A. Bagley,

Double Acting Pump.

No. 105,162. Patented July 12. 1870.

Fig. 1.

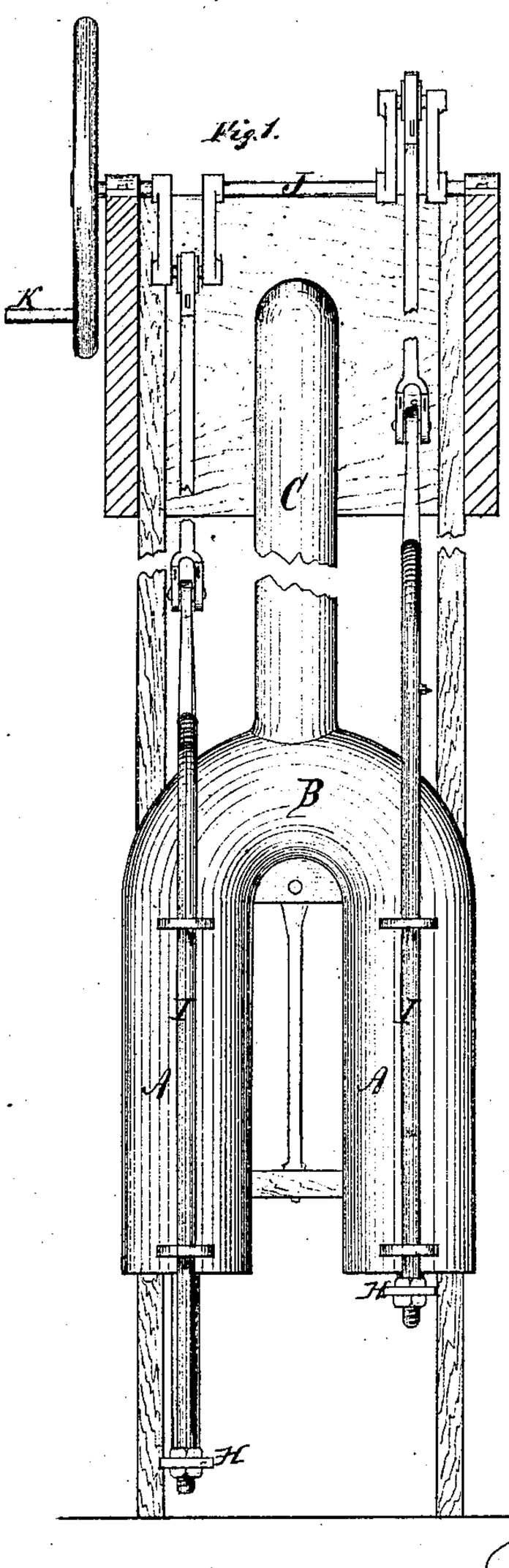

Fig. 3.

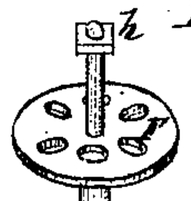

Fig. 4.

Fig. 2.

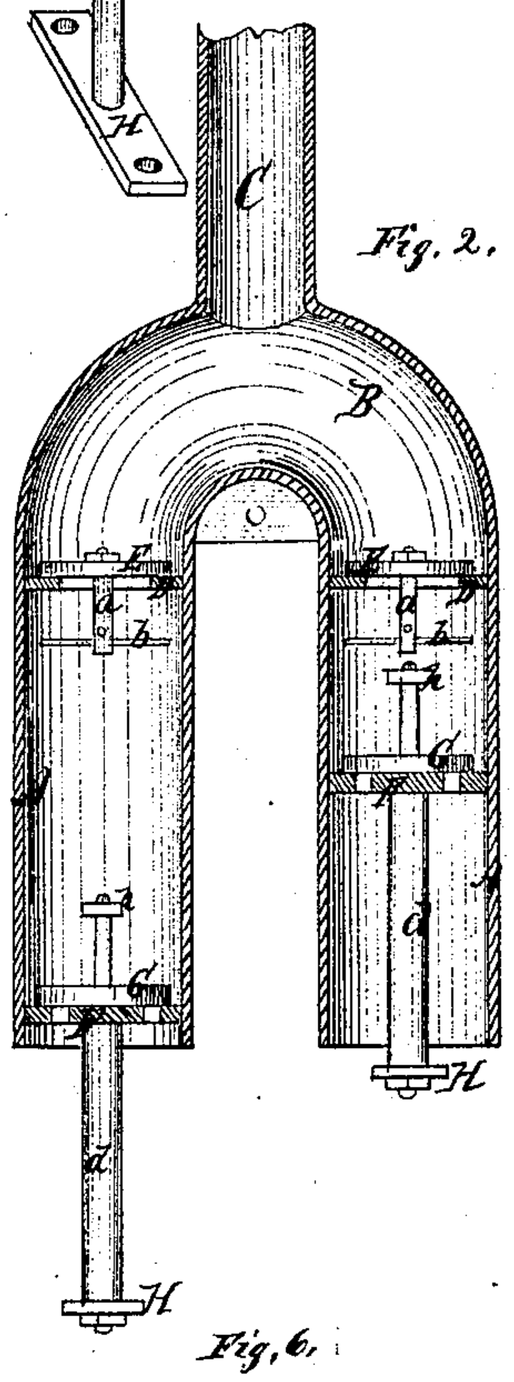

Fig. 5.

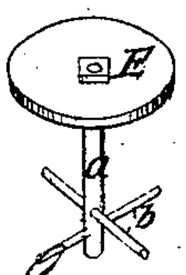

Fig. 6.

Witnesses.

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ALLEN BAGLEY, OF YPSILANTI, MICHIGAN.

Letters Patent No. 105,162, *dated July* 12, 1870.

IMPROVEMENT IN DOUBLE-ACTING FORCE-PUMPS.

The Schedule referred to in these Letters Patent and making part of the same.

To whom it may concern:

Be it known that I, ALLEN BAGLEY, of Ypsilanti, in the county of Washtenaw and State of Michigan, have invented a new and useful Improvement in Double-acting Force-Pumps; and I do declare that the following is a true and accurate description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon and being a part of this specification, in which—

Figure 1 is a perspective of the curb and its attachments, and its connection with the pump below.

Figure 2 is a vertical section of the pump.

Figure 3, a perspective view of the lower valve.

Figure 4, a view of the cap on the lower valve-stem.

Figure 5 shows the upper valve, stem, and spider.

Figure 6 is the valve-seat for the upper valve.

Like letters indicate like parts in each figure.

The nature of this invention relates to an improved double-acting force-pump, by means of which a continuous flow of water may be obtained, and which will force water from deep wells with but comparatively little labor; and

It consists in a new and ingenious construction and arrangement of valves, and in a new and novel combination of its various parts.

In the accompanying drawing—

A represents two pump-barrels or cylinders, to the top of which is secured, in any convenient manner, the semicircular neck B, whose internal diameter is the same as that of the barrels, and from the center of which rises the discharge-pipe C.

D is a ring fitted to the top of each of the barrels, and forms a seat for the valve E, which is provided with a stem, *a*, the lower ends of which are provided with spider-arms *b*, whose length is equal to the cross-section of the diameter of the barrels, and which act as guides, to compel the valve to its place in the seat.

F is a diaphragm, perforated, as shown, and secured to stem *d*.

A disk, G, is sleeved on said stem *d*, and rises and falls, as occasion may require, between the diaphragm F and the nut *h*, on the upper end of the stem *d*.

H is a yoke, the center of which is secured to the lower end of the stem *d*, and through or to its ends are secured the outside connecting-rods I, which are bifurcated, as shown in fig. 1, and connected at top to the double crank-shaft J, which receives motion from the crank K, or from any other convenient device.

The pump being in place at the bottom of the well, and the crank at top in place, with the connections made as herein described, the rotary motion of said crank causes the valves or disks G to alternately rise and fall; that is, as one of the valve-stems *d* has a downward motion, the water flows upward through the perforations in the diaphragm F, raising the disk G, which, until this movement, has covered said perforations. Then, as said valve-stem is given an upward motion, the disk again covers the perforations in the diaphragm, thereby retaining the water within the barrel. This operation continues, with the continued rotation of the crank, until the barrels are full, when the further operation of the crank compels the valves E, alternately, to open and close, and the water is discharged in a continuous stream through the pipe C.

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

1. The combination of the valve E, provided with stem *a* and spiders *b*, and seat D, with the diaphragm F, secured to stem *d*, having sleeved upon it the disk-valve G, when the several parts are constructed substantially as described and shown, and arranged to operate as and for the purposes set forth.

2. In combination with the above-named parts, the barrels A, neck B, and discharge-pipe C, the crank-shaft J, the connecting-rods I, and the yoke H, when constructed substantially as described and shown, and arranged to operate as and for the purposes set forth.

ALLEN BAGLEY.

Witnesses:

SAML. J. SPRAY,

FREDERICK EBERTS.