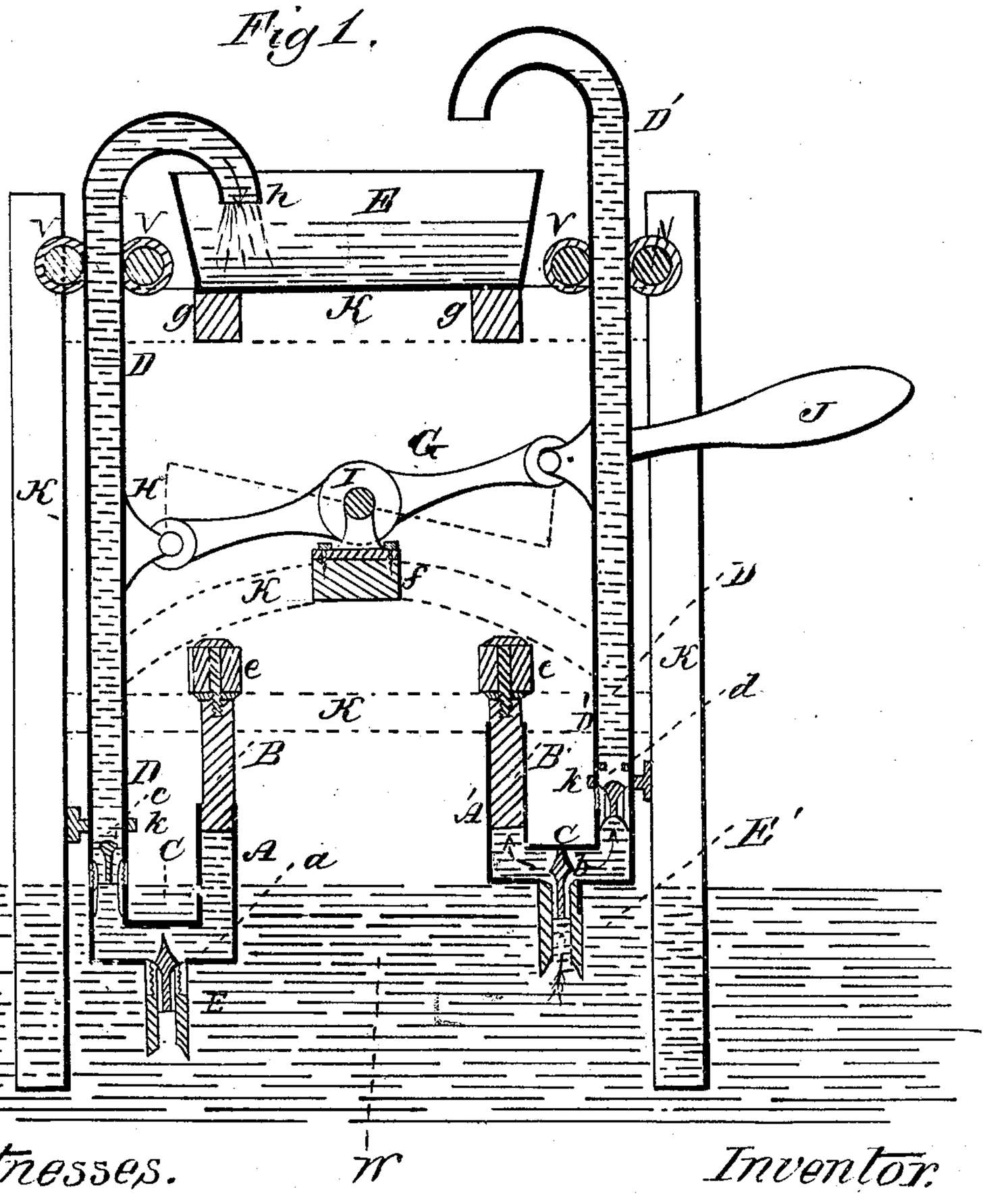
S. Belden,

Pump.

No. 89,378. Patented Apr. 27. 1869.

Fig 1.



Witnesses.

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Letters Patent No. 89,378, *dated April* 27, 1869.

IMPROVEMENT IN PUMPS.

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

To all whom it may concern:

Be it known that I, SALMON BELDEN, of Visalia, in the county of Tulare, and State of California, have invented certain new and useful Improvements in Hydrostatic Water-Lifters, or Double-Acting Force-Pumps; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing, forming a part of this specification, and to the letters of reference marked thereon, in which—

Figure 1 is a central vertical section of my invention.

A designates a pump, (cylinder,) within which is fitted the piston B.

C designates a cross-pipe connecting the cylinder A with the discharge, or delivery-pipe D.

E designates the suction-pipe, which communicates with the cylinder A and discharge-pipe D, by means of the cross-pipe C, as shown in the drawing.

F designates a box, or water-trough, situated at the top of the well from which the water is to be pumped.

G designates a rocking-lever, which vibrates or rocks on shaft I, which is supported in bearings upon suitable cross-timbers *f* and K, or their equivalents, as shown in the accompanying drawing.

H designates brackets firmly attached to the inside of delivery-pipes D and D′, and at any convenient distance above the top of the pistons B and B′.

J designates a lever, by means of which the pump may be operated.

K K K K designate a strong and suitable frame, made of wood or metal, and of such a shape and size as to suit the locality in which the pump is to work. To this frame the pump is attached, as shown in fig. 1.

V designates guide, or friction-rollers, which may be used to steady the upper portions of delivery-pipes D and D′.

Near the bottom of delivery-pipes D and D′ are strap-guides *k*, surrounding the pipes, and fastened to that part of the frame K immediately behind the pipes D and D′.

These strap-guides *k* may be used instead of guide-rollers V, if desired.

The principal object of my invention has been to construct a pump that can be used with advantage in mines or deep wells, to raise large quantities of water with the least possible outlay of power, and that would be simple in its construction and easily operated.

This object I accomplish by constructing a double-acting pump, consisting of two single force-pumps, connected together by and operated with a beam, or lever, as will be hereinafter more fully described.

Each pump has two valves, as shown at *a*, *b*, *c*, and *d*, in the accompanying drawing. Said valves may be conical-lifting valves, as shown in the drawing, and must be made sufficiently strong to bear the requisite amount of pressure, which will be equal to the weight of the column of water to be sustained in the delivery-pipes D and D′.

It will be seen from the above description, that the pistons B and B′ are stationary, and that the cylinders A and A′ and the two discharging-pipes, D and D′, are moved up and down, or with a reciprocating motion, by means of lever G.

Lever G may be reciprocated by means of the handle J, or shaft L may have a crank attached to it, and receive a reciprocating motion from a steam-engine in the well-known and usual manner.

It will also be seen that each side of the pump is equally balanced, whether they are both filled with water, or whether empty.

To operate this pump will require very little more force or power than would be necessary to force the plunger against a column of water of its own height.

The water will be delivered into a reservoir, F, at the top of the well, and in the reverse order of the ascent and descent of the handle J; that is, when the handle J is raised, the water will be delivered from the opposite side, as shown at *h*, in the drawing.

The lower part of this pump may be submerged to any required depth.

The operation of the valves *a*, *b*, *c*, and *d*, is well known.

For convenience of reaching said valves *a*, *b*, *c*, and *d*, the pipes in which they are contained may be coupled together, so as to be easily taken apart whenever desired.

Having thus described my invention, its construction and mode of operation, so as to enable others skilled in the art to make and use the same,

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

1. The two pumps D and D′, having vertical extensions A and A′, provided with stationary pistons B and B′, and arranged to operate substantially as described.

2. The pumps D and D′, arranged to rise and fall with the columns of water, substantially as and for the purpose herein set forth.

SALMON BELDEN.

Witnesses:

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