

(No Model.)

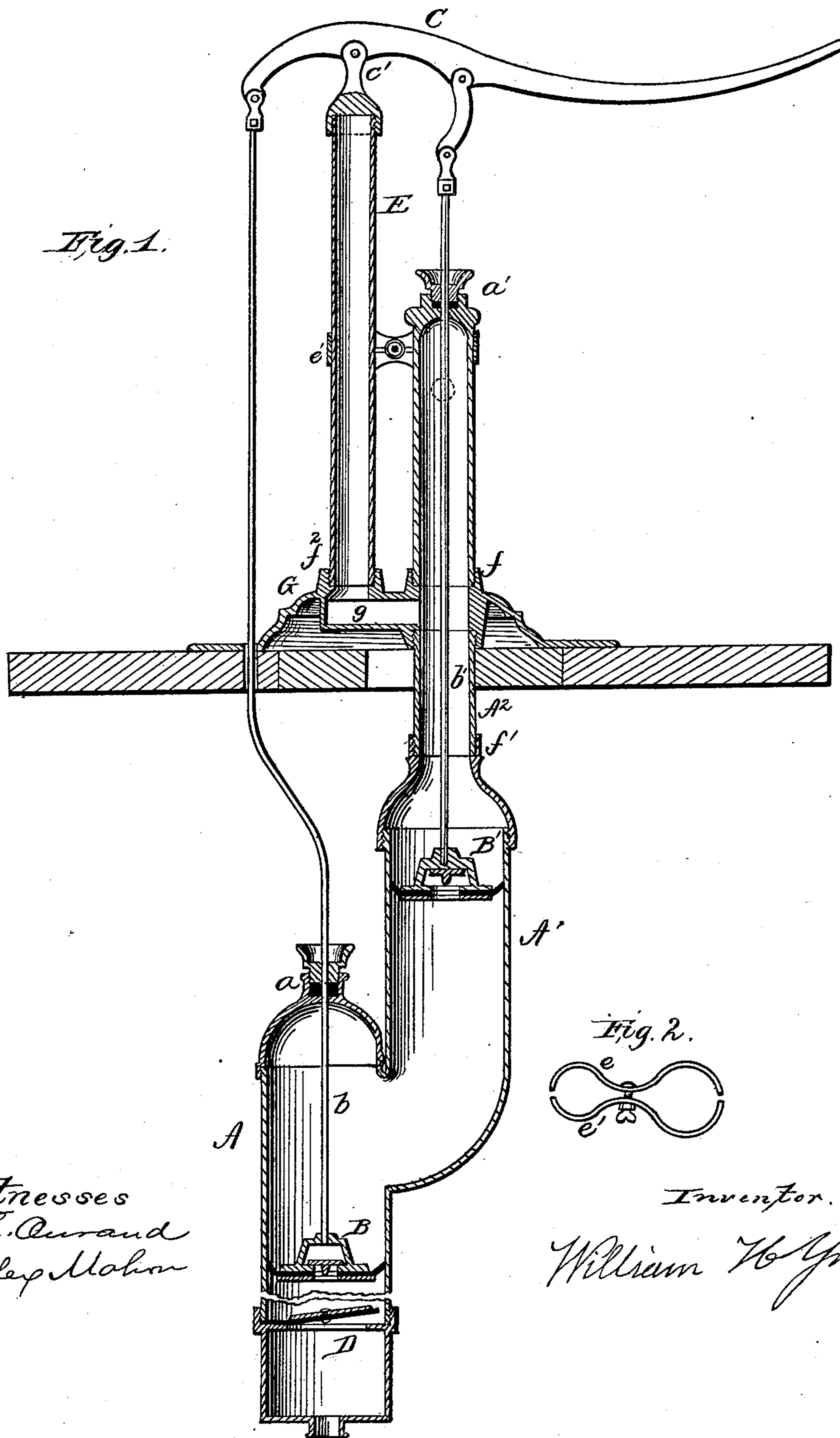
W. H. YOUNG.

PUMP.

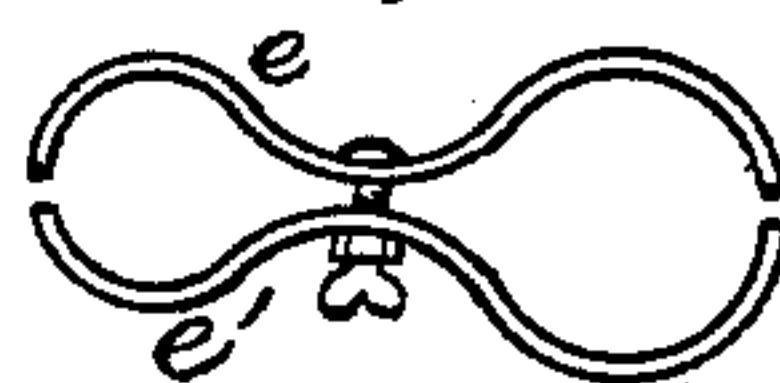
No. 245,989.

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*Fig. 1.*



*Fig. 2.*



Witnesses  
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# UNITED STATES PATENT OFFICE.

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## PUMP.

SPECIFICATION forming part of Letters Patent No. 245,989, dated August 23, 1881.

Application filed May 24, 1881. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM H. YOUNG, of Kenton, county of Hardin, State of Ohio, have invented certain new and useful Improvements in Pumps, of which the following is a full and exact description, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 represents a vertical section through my improved pump. Fig. 2 is a view of the clamping-plates.

My invention relates to that class of pumps employing two pistons in one and the same cylinder, the water passing through both pistons to reach the discharge-outlet; and it consists in forming an offset in the cylinder, whereby one portion of it is arranged out of the same plane with, while forming a continuation of, the other, in such manner as to bring the pistons, arranged one in one part of the cylinder and the other in the other part or branch thereof, upon opposite sides of the fulcrum of the pump-lever, from which, on opposite sides of said fulcrum, the two piston-rods extend directly through separate stuffing-boxes or openings to the pistons, as hereinafter explained.

It further consists in a novel construction of the base or support and bracing or stiffening clamp, and in a novel arrangement of the air-chamber in connection therewith.

In the accompanying drawings, the cylinder of the pump is represented as composed of two parts or branches, A A', arranged in different vertical and horizontal planes, one, A, being arranged with its upper end by the side of and opening into the lower end of the other branch, A', as shown. These two parts of the cylinder may be made in one piece, as shown, or they may be formed separately and united by a short lateral branch, giving them the relation shown, and removing them more or less from the same vertical plane, as may be found desirable. The part or branch A is provided with a stuffing-box in its upper end, at *a*, and the part A', terminating in the stock A<sup>2</sup>, which is more or less contracted in diameter, is also provided at the upper end of the latter with its stuffing-box *a'*, through which boxes rods *b* and *b'* pass to the lever C, on opposite sides of its fulcrum, as shown, from pistons B and B', arranged in the parts A and A', respectively,

of the cylinder. The pistons or plungers B B' are provided with valves of any preferred form and construction, opening upward as the piston descends and closing as the piston rises; and below the piston B the cylinder A is, by preference, provided with a check-valve at D, which prevents the escape or return of any water raised by the pistons, though in some instances the pistons alone, without the aid of the check-valve, may be found sufficient to meet the requirements of the situation of the pump.

The lever C has its fulcrum at *c'* in the cap-piece of an upright tube, E, forming the air-chamber, said tube being secured at its lower end in a base-plate, G, which forms, also, a base or support for the pump-stock A<sup>2</sup>, as shown. This base-plate is made in one piece, with screw-sockets *f f'*, for the reception of ends of sections of the pump-stock, one from above and other from below, as shown, and has a horizontal channel at *g*, extending from between said sockets to and terminating in the screw-socket at *f*<sup>2</sup>, for the reception of the tube-standard E, the communication of the air-chamber with the pump-stock being through said channel *g*. The tubular standard E is further connected with the pump-stock, near its upper end, by means of clamping-plates *e e'*, Fig. 2, having half rings or sleeves formed on their ends and united by a through-bolt between the sleeves, as shown. These can be readily applied after the other parts are in place, and serve to materially strengthen the connection between the parts and to stiffen the lever-standard. Similar plates may be used clamped to the pump stock or cylinder with the outer or free end or sleeve serving to guide and steady the piston-rod, where required.

The action of the volume of air in the tube E as it becomes compressed by the weight of the water above the channel *g* in the stock A<sup>2</sup> in assisting in the discharge of the water is well understood and need not be here explained.

In the operation of my improved pump it will be seen that the water rises through the check-valve D as the piston B is lifted, and said valve closes to prevent its return as the piston B descends. It will also be seen that when the piston B rises the piston B' descends, and its valve or valves opening, the water in



the cylinder above piston B passes freely through the same to the discharge-outlet, when, the movement of the lever being reversed, the piston B' rises and continues to force the water above it outward to the discharge outlet or spout, while at the same time drawing up the water from beneath through the descending piston B, and also through the check-valve, where the latter is employed, to prevent the formation of a vacuum, which would otherwise be created. Thus while the water passes through both pistons to the discharge-outlet each acts independently of the other where the check-valve is used in forcing the water outward to the discharge-outlet, and by reason of the offset in the cylinder I am enabled to make direct connection of the pistons in the different parts thereof, each with the actuating-lever and on opposite sides of the fulcrum of the latter, as shown, thus obviating the necessity of passing the rod of one piston through the hollow rod of or through perforations in the other piston, as has heretofore been done in this class of pumps. As the lift upon the lower piston is heavier than that upon the upper one, the rod of said piston is, by preference, connected with the short arm or heel-extension of the lever beyond its fulcrum, as the lever is operated with greater ease on its downward than on its upward throw.

The pump constructed as described may be used either as a submerged pump, as a suction, or suction and lift pump, and under either arrangement of the same as a double-acting force-pump; and by making the two parts of the cylinder with removable caps and stuffing-boxes, the two parts thereof are made separately accessible for repairs, renewal of parts

when they become worn or broken, &c., thereby greatly facilitating and reducing the cost of such repairs. Besides, the pump is simple in construction, being composed of but few parts, and therefore is not liable to get out of order.

The construction of the base G is such as to give as firm a support, not only to the pump-stock itself, but also to the tube-standard, on which the pump-lever has its fulcrum, as though said parts were made in one piece therewith.

Parts of the pump not particularly described may be of any usual or preferred construction.

Having now described my invention, I claim—

1. The pump-cylinder having the offset formed in it, bringing its parts or branches into different vertical planes, in combination with a piston in each part or branch, substantially as and for the purpose described.

2. The pump-cylinder provided with the bend or offset, bringing its parts or branches into different vertical planes, and adapting the two piston-rods connected with the pump-lever on opposite sides of its fulcrum to be directly connected with its piston, each independently of the other, substantially as described.

3. The tubular lever-standard forming the air-chamber secured to the base-plate in a vertical plane intermediate between the plane of the two pistons connected with and operated by the pump-lever, substantially as shown and described.

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Witnesses:

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