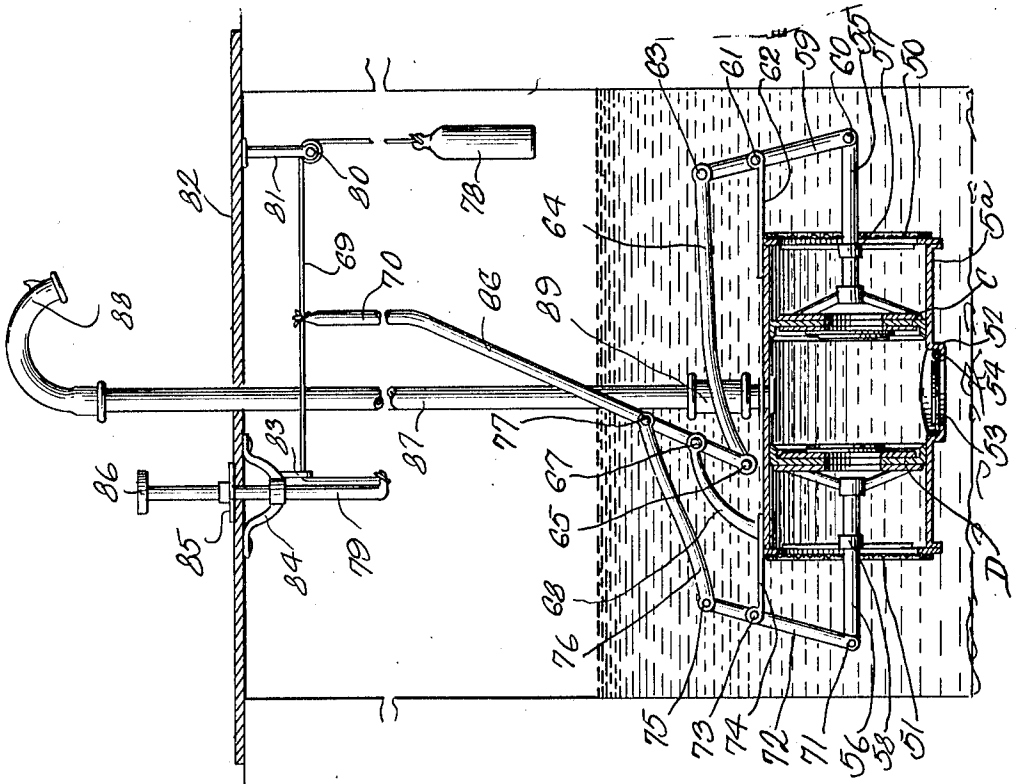
J. H. WHITAKER.

PUMP.

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PUMP.

1,314,448. Specification of Letters Patent. Patented Aug. 26, 1919.

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To all whom it may concern:

Be it known that I, JOHN H. WHITAKER, a citizen of the United States, residing at Dennisville, in the county of Cape May and State of New Jersey, have invented certain new and useful Improvements in Pumps, of which the following is a specification.

This invention is a pump more particularly adapted for use in forcing liquid from one point or level to another, and wherein the pump body is preferably placed near the lowest level of the liquid so that substantially all of the liquid may be lifted and forced to a point suitable for use.

One object of the invention is to provide a pump body with open screened ends to permit the entrance of a liquid to the interior of the body.

Another object of the invention is to provide a pump body with a valve on one of its walls intermediate its ends.

Still another object of the invention is to provide valved pistons including piston rods for coöperating within the pump body and serving to move the liquid outward through a suitable outlet intermediate the ends of the pump body and in one of the walls thereof.

A further object of the invention is to provide levers suitably connected with the piston rods and so arranged that a small movement of an operating rod will produce a large movement of the pistons, the pistons and levers being returned to their normal position by their properly proportioned counterweights, or springs.

Broadly stated, the invention comprises a cylindrical pump body arranged for the free entrance of liquid therein, a valve and an outlet port therefor, a valved piston and a rod operable in the body, a system of levers including a counter-weight for operating the rod and piston, a check valve in the outlet pipe, and an operating rod flexibly connected with the lever system and the counterweight for operating said levers.

With these and other objects in view my invention consists in the novel details of construction and arrangement of parts which will be more clearly understood from the following specification and drawings.

The figure illustrated in the drawings is a vertical sectional view of the well having a horizontally disposed pump utilizing two pistons with certain portions of the connections being shown in elevation.

In carrying out my invention a pump body 5^a is horizontally arranged adjacent the bottom of the well. This pump body 5^a is provided with open ends that are closed by means of screens 50 and 51. This pump body 5^a is provided at one side with a circular depressed opening the walls of which are indicated at 52. Mounted in this depression and acting to close the opening is a valve 53. This valve may be hingedly attached as indicated at 54. Mounted to reciprocate within the pump body 5^a are pistons C and D. These pistons may be composed of two disk like plates that may have clamped therebetween a leather cup-like washer. Any usual means may be employed to retain the plates in position to clamp this washer in position. As shown the outer periphery of the washer lies in contact engagement with the inner surface of the walls of the pump body 5^a. The plates and washers are preferably provided centrally with a circular opening. To one side of one of the plates there is connected a flap valve that may be hingedly connected. This valve and the hinged connection may be of any usual type of construction. These pistons C and D are also provided with the spaced members forming yokes for attaching the piston rods 55 and 56 with the pistons.

The piston rod 55 also operates in a bearing 57 that is centrally disposed and supported in any usual manner. The piston rod 56 is slidable in the bearing 58 that is supported near the opposite end of the cylinder in any usual or customary manner. The bearings 57 and 58 serve as guide means to cause the piston rods 55 and 56 to travel in straight lines. The outer end of the piston rod 55 is pivotally connected with a lever 59, the pivotal connection being indicated at 60. The lever 59 is pivotally connected at 61 with a support 62. The pivotal connection is intermediate the ends of the lever 59.

The support 62 extends longitudinally in a plane parallel to the walls of the pump body 5^a and is secured thereon in any usual or customary manner. The other end of the lever 59 is pivotally connected at 63 with a link 64. The other end of this link 64 is pivotally connected at 65 with an operating lever 66. As shown the pivotal connection 65 between the links 64 and the lever 66 is at the end of the lever 66. This lever 66 is pivotally connected at 67 with a curved support 68.

This support 68 may be secured to the outer surface of the pump body 5a. The upper end of the lever 66 is suitably connected with a flexible element 69. The lever 66 is provided with a portion indicated at 70 that extends angularly to the major portion of the lever. The piston rod 56 has its outer end pivotally connected at 71 with the lever 72. This lever is pivotally connected intermediate its ends as indicated at 73 with a support 74. This support extends in a plane parallel to the walls of the pump body 5a.

The other end of the lever 72 is pivotally connected at 75 with a link 76. This link 76 has its other end pivotally connected at 77 with the operating lever 66. As shown the link 64 comprises a straight portion terminating in a portion that is downwardly curved to connect with the lower end of the lever 66. The link 76 is reversibly curved and lies above the support 68. This link is so curved that it will be maintained out of contact with the support 68 when the operating lever 66 is oscillated.

The flexible element 69 which may be wire cable has one of its ends attached to a counter-weight 78 and its other ends attached to the end of the operating rod 79. To provide for this latter connection the operating rod 79 is provided with a laterally extending lug that may be perforated if desired to provide for a more secure attachment of the element thereto. The flexible element 69, at one point, passes over a guide pulley 80 that is carried at the lower end of a suitable hanger 81 that may be secured to the underside of the well cover 82.

The element is adapted to pass through a suitable antifriction device 83 so that a portion of the element will travel in a plane parallel to the operating rod 79. The antifriction device 83 is preferably secured to the yoke 84 which also serves as a bearing and guide for the operating rod 79. As shown this operating rod 79 is positioned vertically and passes through the cover 82. To provide for better guiding and also to form a bearing a flanged bearing or floor plate 85 is mounted upon the upper surface of the cover 82. The upper end of the rod 79 is provided with an enlarged portion 86 to provide means for exerting pressure on the rod 79 to move it down.

When pressure is placed upon this enlarged portion 86 the rod 79 moves downward and pulls on the flexible element 69. This raises the counter-weight 78, and moves the operating lever 66, to the left. As this lever 66 moves to the left it forces the link 76 toward the left, and the link 64 to the right. As the link 76 moves to the left it forces the lever 72 to rotate around the pivot 73 and forces the piston rod 56 inward. This will cause the piston D to move toward the center of the pump body 5a. At the same time the link 64 is moving toward the right it also causes the lever 59 to rotate on its pivot 61. This will cause the piston rod 55 to move inward carrying with it the piston C. Thus it will be noted that both of the pistons move toward and from each other simultaneously with the movement of the vertical travel of the operating rod 79 to which is connected the flexible element 69 and the counter-weight 78.

As the two pistons C and D move toward each other the water trapped therebetween is forced upward through the outlet pipe 87 to the spout portion 88. The outlet pipe 87 may be secured to the walls of the pump body 5a in any suitable or customary manner. This outlet pipe 87 is also provided with a check valve 89. When the pressure is released from the operating rod 79 the counter-weight will cause the pistons to separate and their valves to open so that the water will enter the open screened ends of the pump body and pass to the interior or space lying between the pistons. It will be noted that the water has a free entrance as no obstruction is placed at the ends of the cylinder.

The valve openings are relatively large compared to the pistons and therefore the space between the pistons will be rapidly filled with very little friction. The valves open toward each other so that when the pistons move toward the center the valves will tend to close as soon as the water or liquid is compressed.

It will be noted from the manner of operating the pump that just as soon as the pressure is released from the operating rod 79 that the counter-weight 78 serves to return the pistons to their normal position ready to move for pumping upon the application of pressure upon the operating rod 79.

The foregoing description and the drawings have reference to what may be considered the preferred, or approved form of my invention. It is to be understood that I may make such changes in construction and arrangement and combination of parts, materials, dimensions, etc., as may prove expedient and fall within the scope of the appended claims.

Having fully described my invention, what I claim as new and desire to secure by Letters Patent is:—

1. A pump, which comprises a cylindrical body having a valve in one wall thereof, the ends of said body being screened, a plurality of valved pistons and rods operable within the body, and levers connected to the rods for moving the pistons in the body, said body being provided with an outlet.

2. A pump, which comprises an open ended cylindrical body having a valve in one

wall thereof and intermediate its ends, an outlet port having a valved pipe connected thereto, valved pistons and piston rods therefor operable within the body, interconnected and counter-weighted levers connected to the rods, and means for operating the levers to move the pistons.

3. A pump, which comprises an open-ended cylindrical pump body, the ends of the body being covered by foraminous material, two valved pistons and piston rods operable within the body, a system of levers connected with the piston rods, and means including a counter-weight flexibly connected with the levers for operating said pistons.

4. A pump, which comprises a cylindrical body, a plurality of pistons and piston rods operable within the body, valves in said pistons operable to trap water between the pistons, supports on each end of the body and projecting outwardly therefrom, a lever pivoted intermediate its ends on each one of the supports, one end of each lever being pivotally connected to one end of a piston rod, curved links each having one end connected to one end of each of the levers, a curved support mounted on the pump body and having one of its ends pivotally connected with an operating lever, the other ends of each of said links being pivotally connected to the operating lever upon opposite sides of its pivotal connection, an operating rod having a flexible connection with a counter-weight, the upper end of the operating lever being connected with the flexible connection, said weight serving to return the operating rod and the pistons to their normal positions, and a valved outlet for said body.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN H. WHITAKER.

Witnesses:
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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."