No. 711,350. Patented Oct. 14, 1902.

D. SCHUURMAN.

SUCTION PUMP.

(Application filed Jan. 24, 1902.)

(No Model.) 3 Sheets—Sheet 1.

Fig. 1.

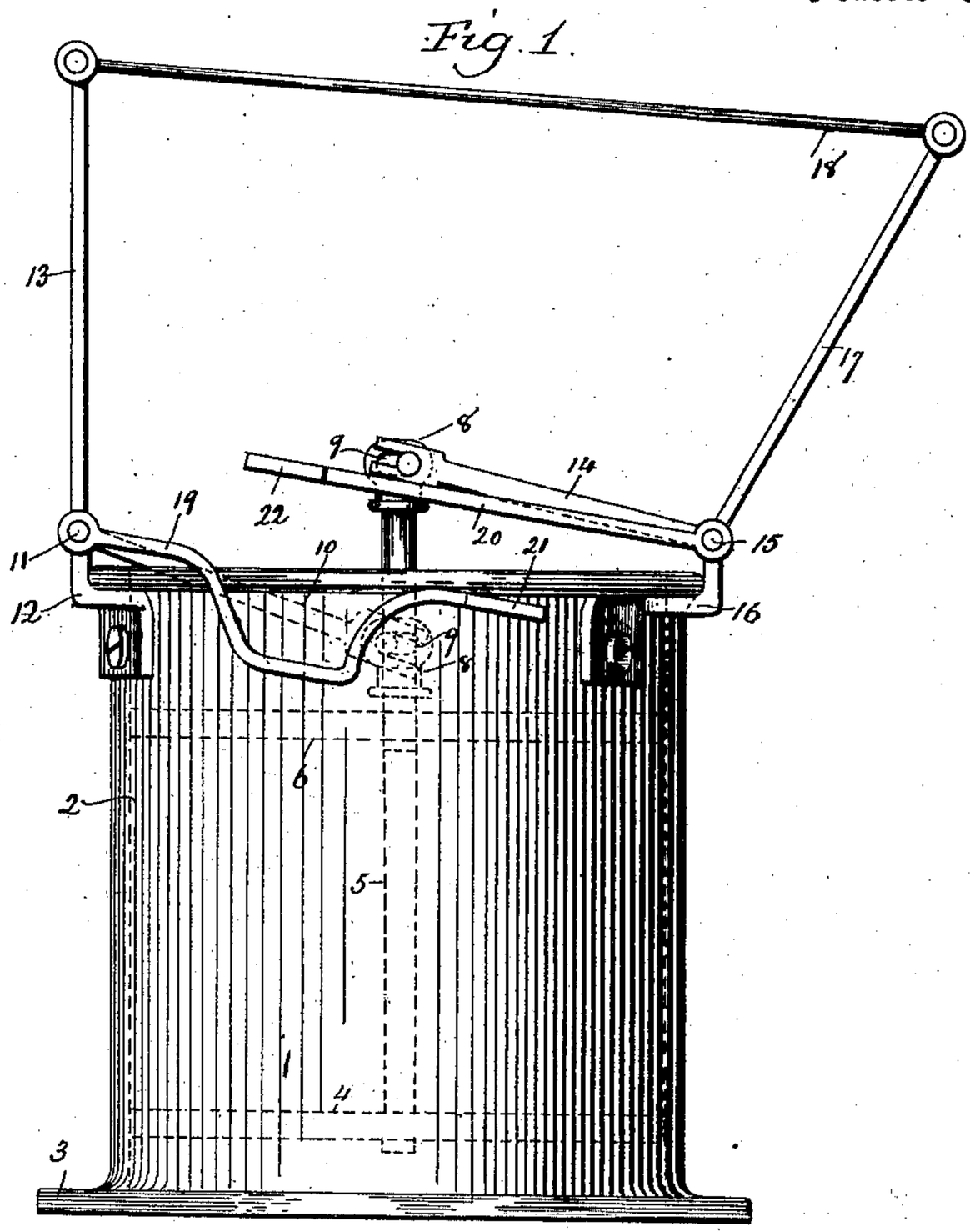
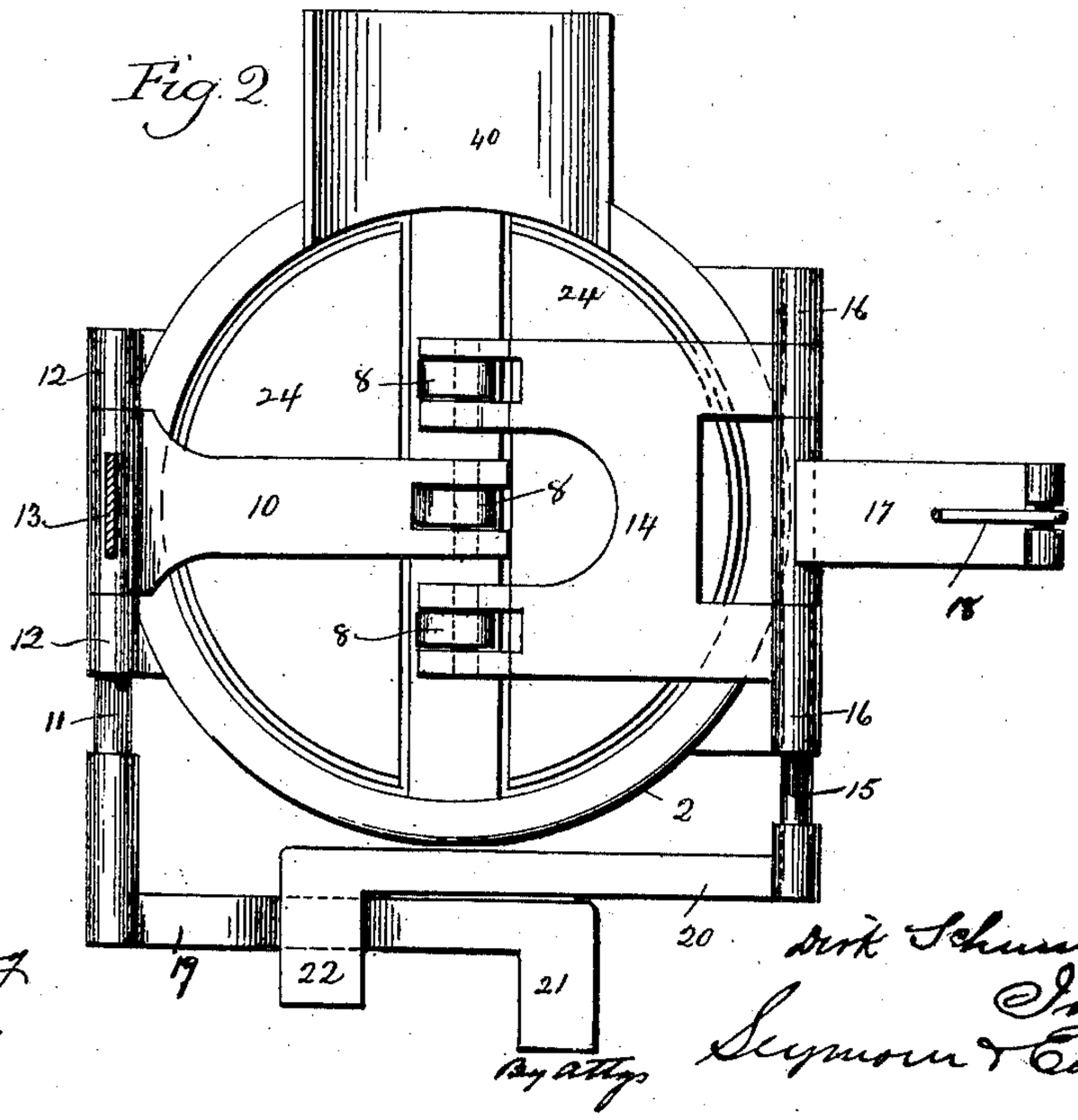


Fig. 2.



Witnesses.
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C. L. Reed.

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Fig. 3

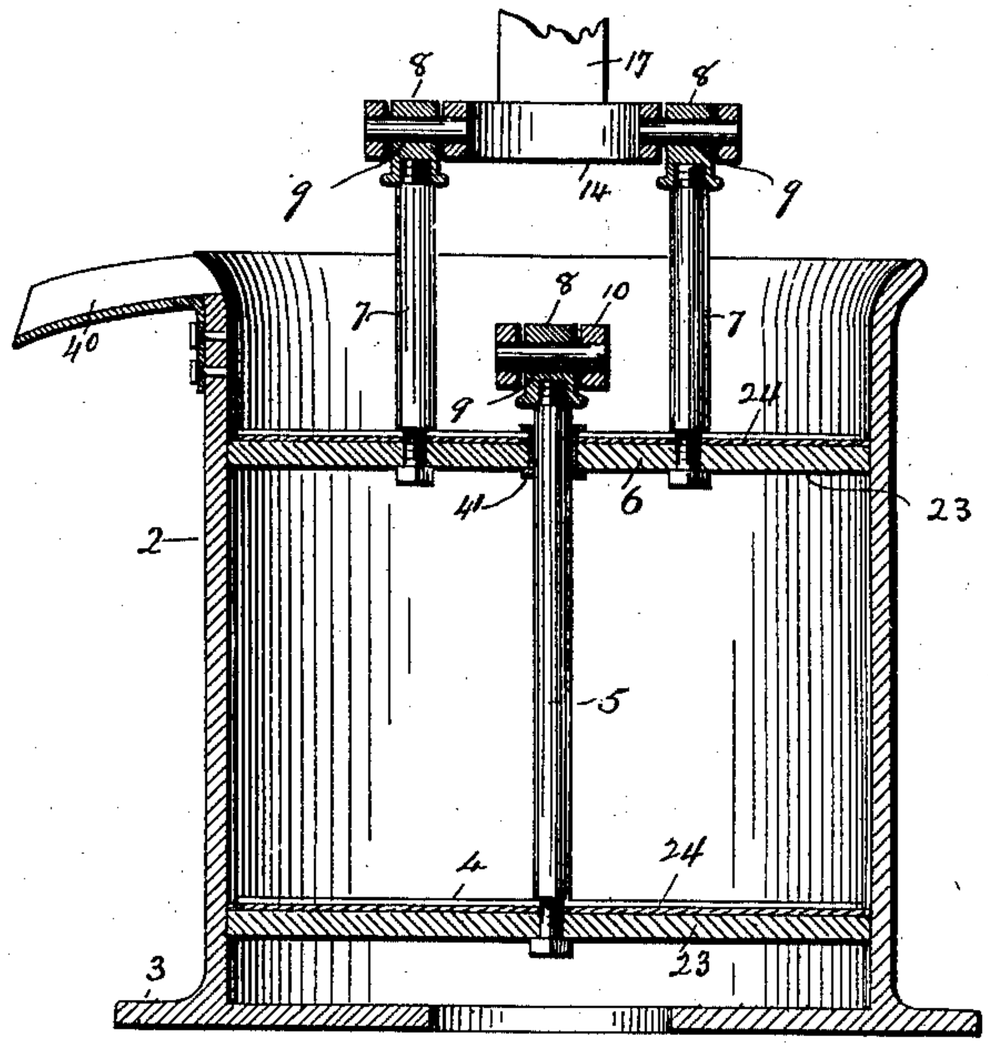


Fig. 4

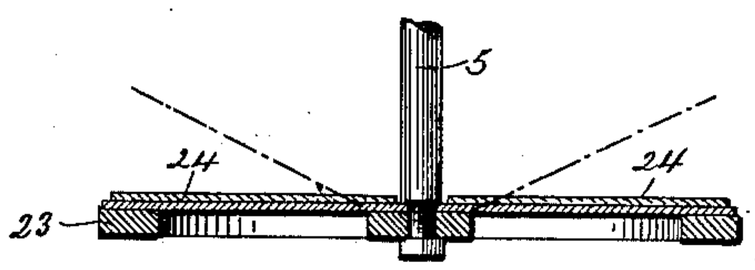
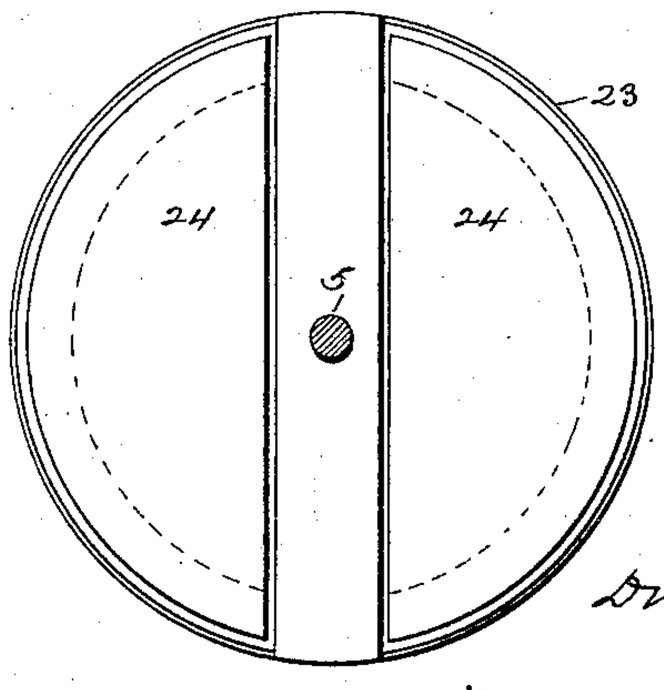


Fig. 5



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D. SCHUURMAN.

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(No Model.) 3 Sheets—Sheet 3.

Fig. 6

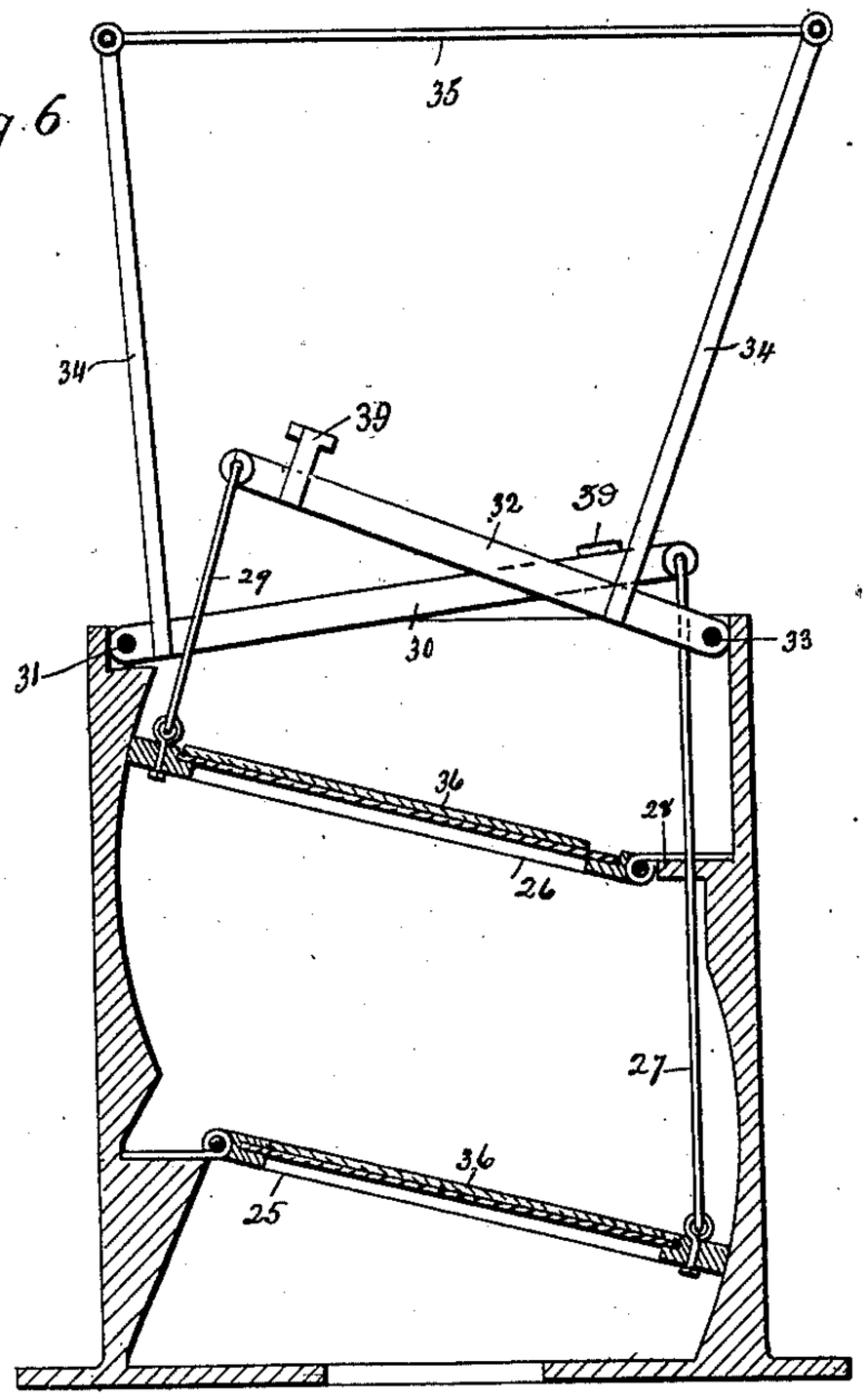
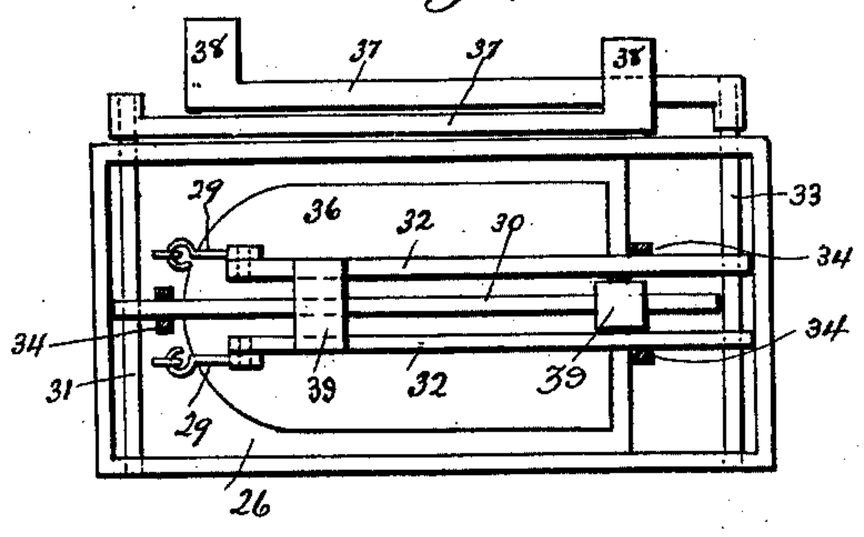


Fig. 7



Witnesses.
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C. L. Reed.

Dirk Schuurman
Inventor.
By Attys Seymour & Earle

UNITED STATES PATENT OFFICE.

DIRK SCHUURMAN, OF HOBOKEN, NEW JERSEY.

SUCTION-PUMP.

SPECIFICATION forming part of Letters Patent No. 711,350, dated October 14, 1902.

Application filed January 24, 1902. Serial No. 91,036. (No model.)

To all whom it may concern:

Be it known that I, DIRK SCHUURMAN, of Hoboken, in the county of Hudson and State of New Jersey, have invented a new and useful Improvement in Suction-Pumps; and I do hereby declare the following, when taken in connection with the accompanying drawings, and the numerals of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a side view of a suction-pump having a cylindrical casing constructed in accordance with my invention; Fig. 2, a top or plan view thereof; Fig. 3, a vertical central sectional view of such a pump; Fig. 4, a sectional view of the lower piston; Fig. 5, a top or plan view of the same; Fig. 6, a vertical sectional view of the pump embodying my invention having a rectangular casing; Fig. 7, a top or plan view of the same.

This invention relates to an improvement in suction-pumps, and while particularly intended for ship-pumps is equally applicable to suction-pumps for other purposes, the object of the invention being to arrange two pistons within one cylinder, so that the action will be almost continuous—that is, the pump will act at both strokes; and the invention consists in the construction and arrangement of parts, as will be hereinafter described, and particularly recited in the claim.

Preferably the casing 2 will be cylindrical and provided at its lower ends with a flange 3, by which it may be secured to the deck of a vessel or wherever it may be used. Within the cylinder are two pistons, the lower one, 4, having a centrally-arranged piston-rod 5, which extends up through the piston 6, while the piston 6 is provided with two piston-rods 7 7, arranged on opposite sides of its center. All the rods have heads 8 with slots 9 therein. The rod 5 is connected by a lever 10, which is keyed or otherwise secured to a rock-shaft 11, mounted in brackets 12 at one side of the cylinder. Also secured to this rock-shaft 11 is an upwardly-extending handle 13. The two rods 7 7 are connected with a yoke 14, which is keyed or otherwise secured to a rock-shaft 15, mounted in brackets 16 at the opposite side of the cylinder, and also secured to this shaft and extending upward therefrom is a handle 17, the upper ends of the two handles 13 17 being connected by a rod 18. The rock-shafts 11 and 15 project beyond the cylinder at one side, as shown in Fig. 2, and to their outer ends are secured foot-levers 19 20, the ends of which extend past each other and are provided with footholds 21 22.

The pistons 4 and 6 are of usual construction—that is, they include a packing ring or washer 23, of leather or rubber, and valves 24, which open as the pistons descend, but close as they are raised.

Instead of forming the cylinder or casing round it may be rectangular, as shown in Figs. 6 and 7, and instead of having the pistons move in a vertical line they may be hung at opposite sides. Thus the lower piston 25 will be pivotally connected at one side of the casing near the lower end thereof, while the upper piston 26 will be pivoted on the opposite side of the casing near the upper end, the piston-rod 27 of the piston 25 extending up through the bearing 28 of the piston 26, while the piston 26 will be provided with two piston-rods 29, arranged on opposite sides of its center, as clearly shown in Fig. 7. The piston-rod 27 is connected to the outer end of the lever 30, which extends to the opposite side of the casing, where it is mounted on a rock-shaft 31, while the piston-rods 29 are connected with two levers 32, which extend into engagement with the rock-shaft 33 at the opposite side of the casing. Connected with these levers are handles 34 34, which extend upward and are connected at their opposite ends by a rod 35. The pistons 25 26 are provided with valves 36, which open as the pistons descend and close as they are raised. Like the construction before described, the rock-shafts 31 33 may extend beyond the side of the casing and be provided with foot-levers 37 for footholds 38, or footholds 39 may be arranged upon the levers 30 32. The cylinders will also be provided with the usual discharge-mouths 40. The piston-rods 5 and 27 will also extend through stuffing-boxes 41 of usual construction.

The operation will be the same whatever the shape of the casing or cylinder may be—

that is, the movement of the levers will alternately raise and lower the pistons. As the lower piston rises it will draw the water into the cylinder, and as it rises the water which is between the pistons will be discharged through the valves in the upper piston, the upper piston descending at the same time the lower piston rises. As the lower piston descends its valves will open, and at the same time the upper piston rises and draws water through the lower piston and discharges the water which rests on its upper surface. Thus at both movements of the levers a suction and discharge takes place. The foot-levers are arranged so that one man standing on the levers and grasping the upwardly-extending handles can exert his entire weight on both pistons alternately, thus practically obtaining the same result as would two men, and substantially the same result is accomplished with one pump as would ordinarily be accomplished by two.

I am aware that double-acting pumps comprising a single cylinder with two pistons arranged therein adapted to operate reversely are old, and therefore do not wish to be understood as claiming, broadly, such as my invention.

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

In a suction-pump, the combination with the casing thereof, of two pistons arranged therein, one above the other, piston-rods secured to said pistons and extending upwardly therefrom, rock-shafts arranged at opposite sides of said casing, levers connecting said piston-rods with said rock-shafts, foot-levers secured to the ends of said rock-shafts, the ends of said levers extending past each other, substantially as described.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

DIRK SCHUURMAN.

Witnesses:
MAX BORCHARDT,
WILLEM KLOMP.