No. 865,019. PATENTED SEPT. 3, 1907.

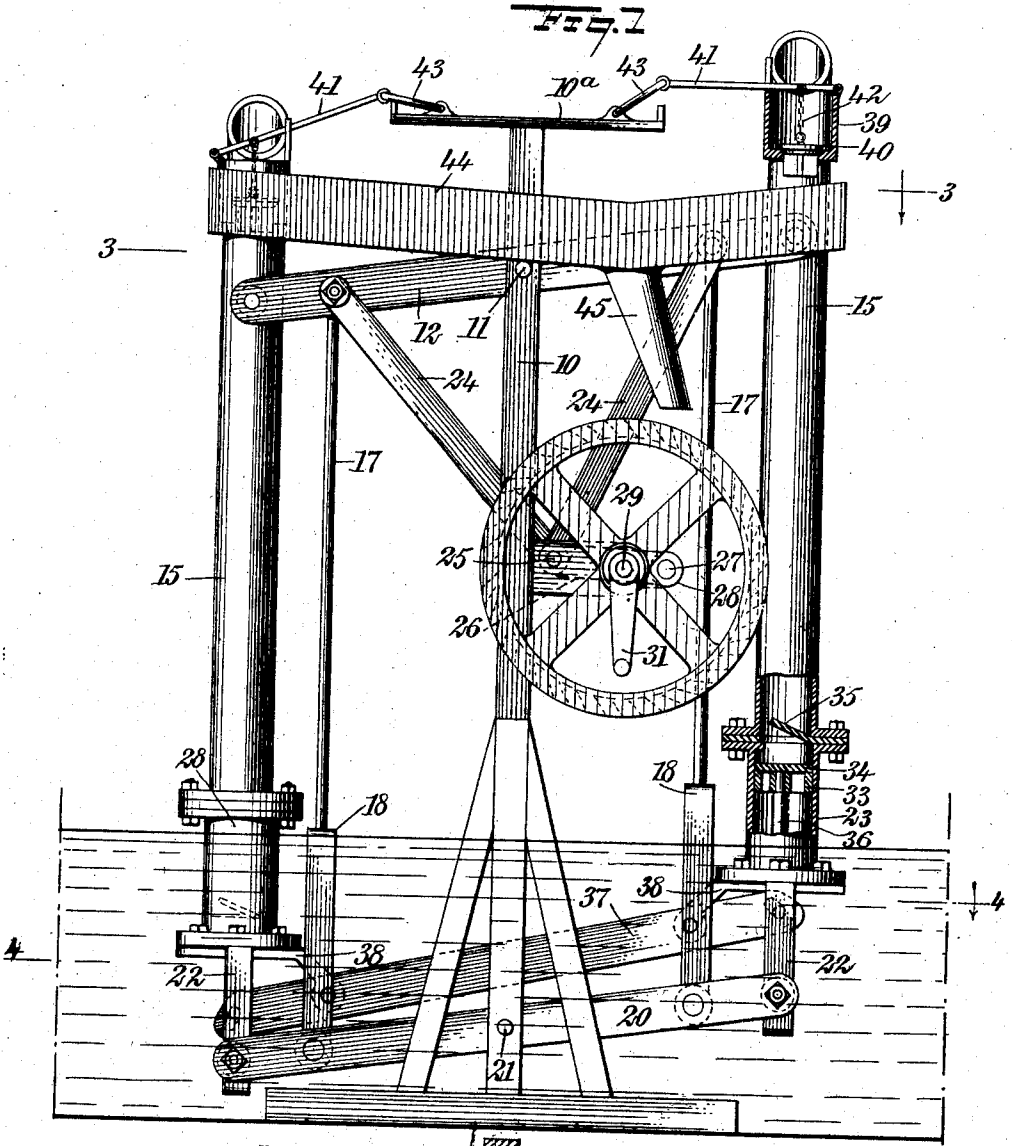
A. DELLANNA.

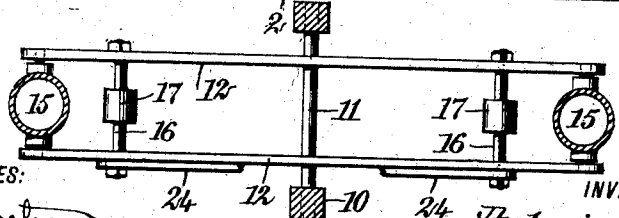
PUMP.

APPLICATION FILED SEPT. 22, 1904.

2 SHEETS—SHEET 1.

Fig. 1





WITNESSES:

John A. Bugbee

Isaac B. Owens.

Fig. 3

INVENTOR

Antonio Dellanna

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2 SHEETS—SHEET 2.

Fig. 2

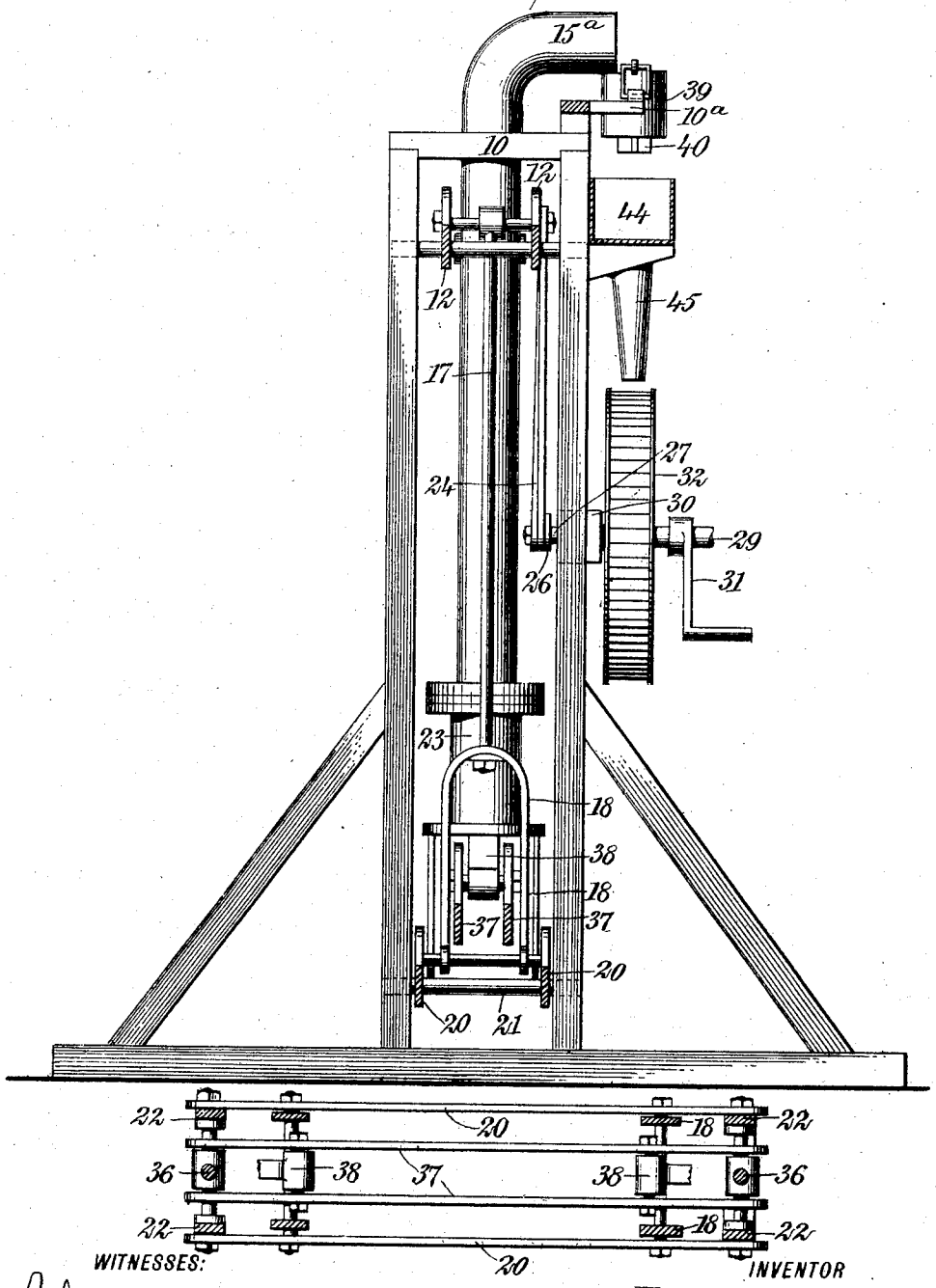

Fig. 4

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UNITED STATES PATENT OFFICE.

ANTONIO DELLANNA, OF SALT LAKE CITY, UTAH.

PUMP.

No. 865,019. Specification of Letters Patent. Patented Sept. 3, 1907.

Application filed September 22, 1904. Serial No. 225,469.

To all whom it may concern:

Be it known that I, ANTONIO DELLANNA, a citizen of the United States, and a resident of Salt Lake City, in the county of Salt Lake and State of Utah, have invented a new and Improved Pump, of which the following is a full, clear, and exact description.

The invention relates to certain peculiar features of construction and organization in a lift pump, of that class in which one or more vertically movable stand pipes are provided in connection with a means, such as pistons, for forcing the water through the stand pipes upon the vertical movement thereof, the pipes being equipped with valves and other complementary parts by means of which the water is caused to flow upward through the pipes from the upper ends thereof.

This specification is a specific description of one form of the invention, while the claims define the actual scope thereof.

Reference is had to the accompanying drawings which form part of this specification, in which drawings like characters of reference indicate like parts in the several views, and in which

Figure 1 is a side elevation of the pump with parts broken away; Fig. 2 is a sectional elevation on the line 2—2 of Fig. 1; Fig. 3 is a horizontal section on the line 3—3 of Fig. 1 showing the upper ends of the pipes and the connecting links; Fig. 4 is a horizontal section showing the levers for operating the pistons of the pump.

The apparatus is mounted in a suitable frame 10. Mounted in said frame to rock around a pin 11, are links or walking beams 12 which are joined by pivots 14 to the stand pipes 15.

Pivoted by pins 16 between the beams or links 12 are rods 17 which extend downward and have forked lower ends 18. These forked lower ends 18 are pivotally engaged with transverse pins 19 carried in the ends of walking beams 20, which beams are arranged at the lower part of the frame and mounted to rock around a pin 21 supported therein. The extremities of the beams 20 are respectively pivotally joined to hangers 22 depending from the lower ends of the pump cylinders 23, whereby to connect the beams with the pump cylinders. In this manner the stand pipes 15 and cylinders 23, the cylinders being located at the lower ends of the stand pipes and forming continuations thereof, are mounted to move vertically with a parallel motion, dipping the cylinders in and out of the body of water which is indicated in Fig. 1.

Connected to the beams 12 are links 24 which extend downward to a link 26 with which the links 24 are connected by a pin 25. The link 26 is connected to a wrist pin 27 of a crank 28 fastened on a shaft 29. This shaft is arranged to turn freely in an arm 30 mounted on the frame 10, and is provided with a handle 31 or other means of applying power to the shaft, and also with an over-shot water wheel 32. Through the medium of said handle 31 or its equivalent, the water wheel 32 and the shaft 29 are rotated, and the stand pipes and cylinders are given their characteristic reciprocal movement.

Operating within the cylinders 23 are pistons 33 provided with valves 34 commanding ports in the pistons, these valves opening inward toward the stand pipes. At the lower ends of the stand pipes foot valves 35 are located. The pistons 33 have rods 36 extending downward through the open lower ends of the cylinders, and these rods are connected respectively to the ends of two bars 37 which are pivotally supported at their end portions by two brackets 38 fastened to and projecting downward from the lower end of the cylinders 23. As the stand pipes and cylinders move vertically, the bars or levers 37 rock to impart reciprocal movement to the pistons 33, and in this manner water is forced through the cylinders into and through the stand pipes.

At their upper ends the stand pipes 15 are turned horizontally, as indicated at 15^a in Fig. 2, and discharge into cups 39 suitably supported from the upper ends of the stand pipes. These cups have outlet valves 40 commanding openings in the bottoms of the cups, and said valves are alternately opened and closed by levers 41 fulcrumed on the cups and connected by chains 42 with the valves. Said levers 41 are joined by suitable links 43 with a cross piece 10^a forming part of the frame 10, so that as the cups move up and down the valves 40 are alternately closed and opened. Below the discharge orifices of the cups 39 a trough 44 is located, and this trough is fitted with a spout 45 discharging on the water wheel 32. Said trough is supported by the frame 10.

In the operation of the invention power being applied to the shaft 29, the stand pipes and cylinders will be given their alternate vertical movement. This will bring about a movement of the pistons within the cylinders, and the forcing of the water upward through the stand pipe causing the water to be discharged from the horizontal ends 15^a of the stand pipes into the cups 39. This water is retained in the cups until the valves 40 are operated to discharge the same, such discharge taking place when the stand pipes and cylinders reach the limit of their downward movement, and in this manner the weight of the water is utilized to assist in the operation of the pump. As the water is discharged it runs through the trough 44 and through the spout 45 into engagement with the water wheel 32, thus assisting in turning the shaft 29.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. A pump provided with a stand pipe, means for mounting the stand pipe to move vertically, means for forcing the water upward through the stand pipe, a cup connected

with the stand pipe and adapted to receive the discharge from the upper end thereof, a valve commanding the outlet from the cup, and means for automatically opening the valve as the stand pipe and cup reach the limit of their downward movement.

2. A pump provided with a stand pipe, means for mounting the stand pipe to move vertically, means for forcing the water upward through the stand pipe, a cup connected with the stand pipe and adapted to receive the discharge from the upper end thereof, a valve commanding the outlet from the cup, and means for automatically opening the valve as the stand pipe and cup reach the limit of their downward movement, said means for operating the valve comprising a lever in connection with the valve and a link connection between the lever and a relatively stationary part.

3. A pump, comprising two movable cylinders, a bar pivotally connected to both cylinders, a piston operating in each cylinder, and a connection between each piston and said bar.

4. In a pump, the combination of two movable cylinders, a bar pivoted to both cylinders, a piston in each cylinder, and a sliding connection between each piston and said bar.

5. In a pump, the combination of two cylinders, a stand pipe connected to each cylinder, a frame, walking beams mounted on the frame and connected to the cylinders and stand pipes to permit the cylinders to move alternately up and down, means at the inner end of the stand pipes for carrying off the discharge from the pump, pistons and rods operating in the cylinders, valves controlling the fluid movement in the cylinders, and a bar having its end portions respectively in pivotal connection with the cylinders, said bar having its ends respectively connected to the piston rods.

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

ANTONIO DELLANNA.

Witnesses:

E. F. SCHUETER,

B. H. SCHETTLER.