

J. V. CHAPMAN.

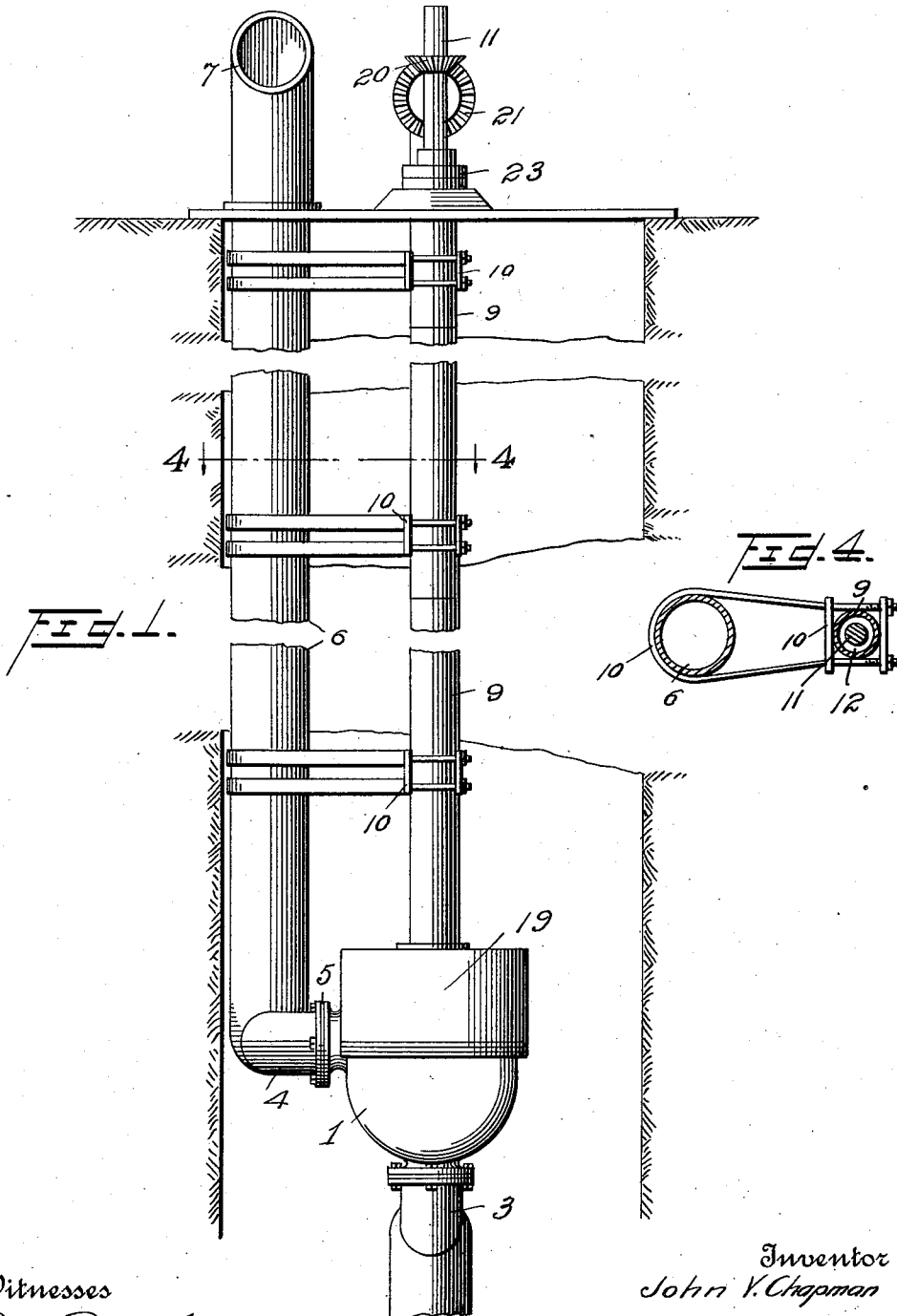
PUMP.

APPLICATION FILED MAY 15, 1911.

1,023,298.

Patented Apr. 16, 1912.

2 SHEETS—SHEET 1.



Witnesses

E. C. Duffy
J. B. Hopkins

Inventor
John V. Chapman

by *A. B. Wilson & Co.*

Attorneys

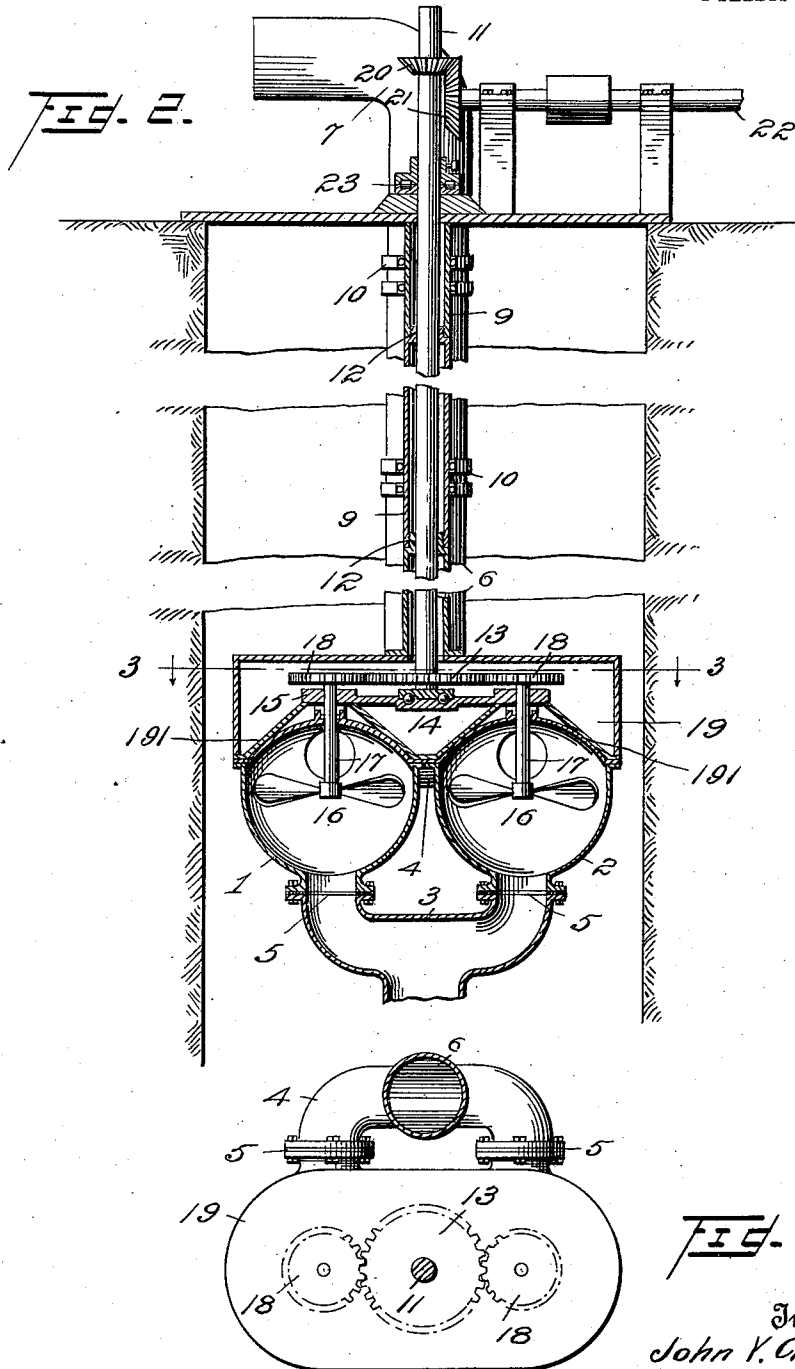
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UNITED STATES PATENT OFFICE.

JOHN VICTOR CHAPMAN, OF SCOTT, KANSAS.

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1,023,298.

Specification of Letters Patent.

Patented Apr. 16, 1912.

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To all whom it may concern:

Be it known that I, JOHN VICTOR CHAPMAN, a citizen of the United States, residing at Scott city, in the county of Scott and State of Kansas, have invented certain new and useful Improvements in Pumps; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to a twin pump for raising water from wells, cisterns, reservoirs and excavations.

The object of the invention is to provide a pump of this character in which the parts will be balanced at all times regardless of the speed at which the pump is running.

Another object is to provide means for reducing the friction of the lifted and discharged water to a minimum.

With these and other objects in view, the invention consists of certain novel features of construction, and the combination and arrangement of parts as will be more fully described and claimed.

In the accompanying drawings: Figure 1 is a side elevation of a pump constructed in accordance with this invention with parts broken out for convenience in illustration; Fig. 2 is a longitudinal vertical section through the bowl and the pipe; Fig. 3 is a horizontal section on line 3—3 of Fig. 2; Fig. 4 is a horizontal section on line 4—4 of Fig. 1.

In the embodiment illustrated, a twin pump is shown in which the bowls or chambers 1 and 2 are arranged between a tubular Y-shaped suction member 3 and an inverted Y-shaped discharge member 4, said walls of said chambers being secured to said members in water-tight relation, being preferably provided with laterally extending flanges which rest on similar flanges on the arms of the Y-shaped members 3 and 4 and between which gaskets as 5 are arranged, the flanges of the members being secured together by bolts or other suitable fastening means. A water discharge pipe 6 is connected with the free end of the upwardly projecting hollow stem of the member 4 in any suitable manner and is preferably provided at its upper end with a discharge elbow 7 which projects through a plate 8 which is adapted to rest on the ground line.

The arms of the discharge Y 4 are secured

to the chambers 1 and 2 at one side thereof to provide for the offsetting of the discharge pipe 6 for a purpose to be described. A tube 9 of a length corresponding to, or slightly greater than the length of the pipe 6 is arranged adjacent thereto and is preferably secured to said pipe 6 by means of suitable bands as 10 which are designed to hold the tube securely in position.

A main driving shaft 11 extends through the tube 9 and is mounted in suitable bearings as 12 arranged in said tube at suitable distances apart to hold the shaft securely against vibration. The lower end of this shaft 11 is secured to a main driving gear 13. This shaft passes through said gear wheel and the lower end thereof rests on a ball bearing 14 which is suitably mounted, being preferably supported by the pump bowls by means of a steel plate 15 on which said ball bearing is mounted. This ball bearing will assist in supporting the weight of the shaft during the operation thereof.

Mounted within each pump chamber is a propeller 16, the shaft 17 of which extends through an opening in the upper end of the bowl which is provided with a suitable stuffing gland and a packing for rendering the bearing fluid-tight. Each of the propeller shafts is provided at its upper end with a gear wheel 18 arranged to mesh with the main driving gear 13, said driving gear 13 being preferably arranged between the gears on the propeller shafts. The gears on the propeller shafts are preferably made considerably smaller than the main driving gear to provide for the rapid rotation of the propellers with a comparatively slow rotation of the main driving gear.

An oil casing 19 is fitted over the gear wheels 18 and 13 and when filled with oil, will prevent sand from coming in contact with the gear wheels and will furnish an oil reservoir for the gear wheels to run in. The pipe or tube 9 is also filled with oil and communicates at its lower end with the upper end of the oil casing 19 and when so filled, the shaft 11 will be submerged in oil which prevents heating of the boxes and also prevents the sand from entering and cutting the shafts or its boxes. The casing is cylindrical in form and has a circular flat top and a circular bottom composed principally of two cones 191 each fitting over the top and down substantially over the upper half of one of the chambers 16. The steel

plate 15 before described rests upon the cut-away or open upper ends of the cones 191 within the casing 19.

The upper end of the shaft which projects above the top of the well is provided with a bevel gear wheel 20 which meshes with a similar wheel 21 arranged on a horizontally disposed shaft 22, said wheel 21 being considerably larger in diameter than the wheel 20 so that when the engine which drives the shaft 22 is running at a reasonable speed, the drive shaft 11 will run at a much greater speed and the gears on the propeller shafts will be driven at a still greater speed causing the propeller shafts to revolve at a high rate of speed causing a suction from below the pump bowls 1 and 2 which draws the water up into the pump and discharges it through the pipe 6.

A roller bearing 23 is preferably secured to the shaft 11 near the top thereof to assist in carrying the weight of the shaft, which roller bearing, coacting with the ball bearing at the bottom of the shaft, will greatly reduce the friction.

By mounting the driving shaft 22 in a horizontal position, it will be obvious that the power from an engine may be transmitted directly to the pump or by the use of a pulley, as may be desired. It is also obvious that by providing two propellers with a driving wheel arranged between them, the parts of the pump will be balanced at all times, regardless of the speed and the division of the water as it enters the pump bowl, one part being taken by one propeller and the other by the other propeller, greatly lessens the work on the propellers and the friction on each of them. By providing an unobstructed discharge pipe also greatly reduces the friction and economizes the power of operating the pump.

From the foregoing description, taken in connection with the accompanying drawings, the construction and operation of the invention will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of the claimed invention.

I claim as my invention:—

1. A pump comprising separated twin chambers arranged side by side and having a common supply pipe at their lower ends and a common discharge pipe at their upper

ends, vertical shafts journaled in the tops of and depending in said chambers and having horizontally arranged blades thereon within the chambers, a larger gear wheel horizontally arranged above said chambers, smaller gears fixed to the propelling shafts and meshing with the larger gear, means for driving the larger gear, and a water elevating pipe connected with the discharge pipes of said chambers.

2. A pump comprising separated twin chambers arranged side by side, vertical propelling shafts journaled in the tops of and depending into said chambers and carrying horizontally arranged blades thereon within the chambers, gear wheels fixed to said shafts outside of and above said chambers, an oil casing fitting upon the tops of both chambers inclosing said gears and having a ball bearing in the bottom thereof, a vertical tube extending centrally from the top of the casing and opening therein, a driving shaft mounted in said vertical tube, extending into said casing and mounted on said ball bearing, a gear on said driving shaft within the casing meshing with the gears on the propelling shafts, entrance and discharge pipes for each chamber, and means for connecting, bracing, and actuating said drive shaft.

3. A twin pump comprising a pair of substantially spherical, separate chambers mounted side by side, a Y fitting connecting a suction pipe with the bottom of each chamber, a Y fitting connecting each chamber on one side with a discharge pipe, an oil casing having two cones formed in its bottom and fitted over the top of the two chambers, a vertical tube extending upwardly from the top of the casing, a plate mounted in the casing on top of the cones, a ball bearing on the plate in line with the vertical tube, a shaft in the tube depending into the casing and supported upon the ball bearing, vertical shafts journaled in the plate and the tops of the casing and depending centrally into the chambers, propellers on the shafts in the chambers between their entrance and discharge openings, and gearing in the casing connecting the three shafts.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

JOHN VICTOR CHAPMAN.

Witnesses:

A. R. LOSLEY,

C. J. VAN ANTWERP.