No. 850,078. PATENTED APR. 9, 1907.

M. M. VINEYARD.

WATER LIFTING MOTOR.

APPLICATION FILED JAN. 22, 1906.

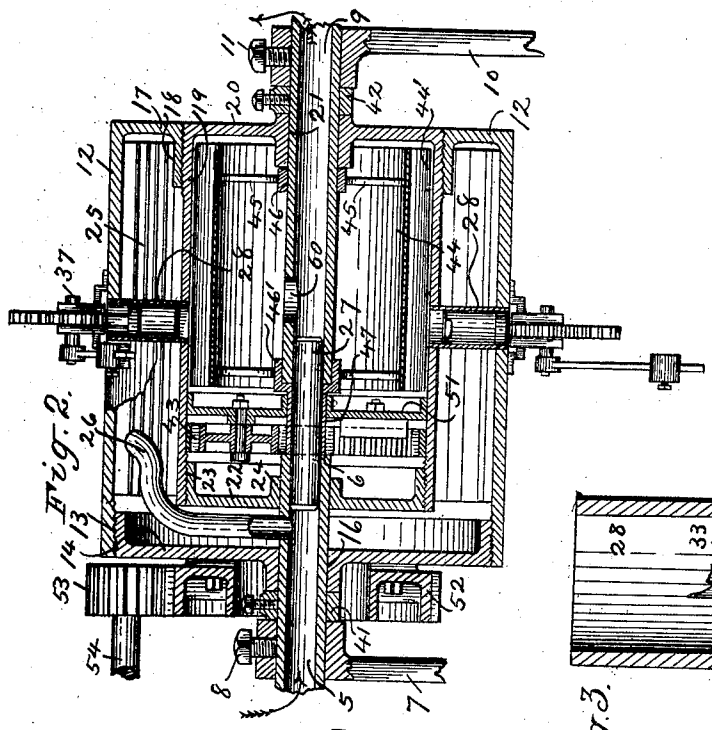


Fig. 2.

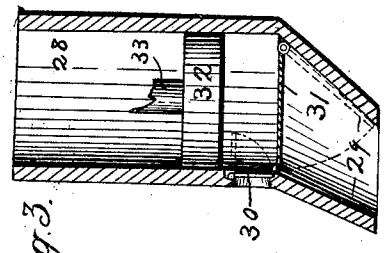


Fig. 3.

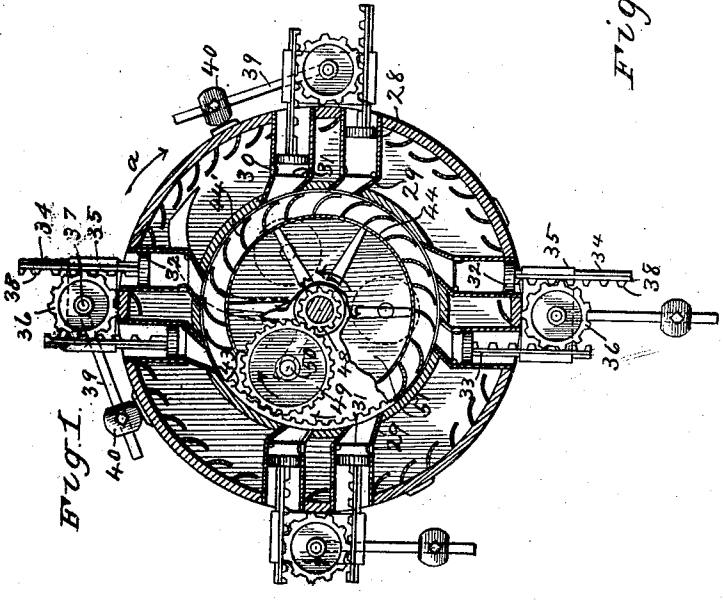


Fig. 1.

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UNITED STATES PATENT OFFICE.

MILES M. VINEYARD, OF FOSTER COUNTY, NORTH DAKOTA.

WATER-LIFTING MOTOR.

No. 850,078. Specification of Letters Patent. Patented April 9, 1907.

Application filed January 22, 1906. Serial No. 297,307.

To all whom it may concern:

Be it known that I, MILES M. VINEYARD, a citizen of United States, residing in the county of Foster and State of North Dakota, have invented certain new and useful Improvements in Water-Lifting Motors, of which the following is a specification.

My invention relates to a water-lifting motor, and has for its object the provision of a device of this character adapted to elevate water to a considerable height with a minimum expenditure of power, the head or force of the water from the source of supply being utilized to aid in the actuation of the motor.

Further objects and advantages of the invention will be set forth in the detailed description which now follows.

In the accompanying drawings, Figure 1 is a transverse vertical section of a water-lifting motor constructed in accordance with the invention. Fig. 2 is a longitudinal vertical section of said motor, and Fig. 3 is a vertical sectional view of a pump-cylinder and pump-plunger hereinafter described.

Referring to the drawings, the numeral 5 designates a supply-pipe, through which water may be supplied to the motor from a city water-supply. This pipe terminates at 6 and is clamped in a bearing or bracket 7 by a set-screw 8.

A discharge-pipe 9 is clamped in a bracket 10 by a set-screw 11.

A cylindrical shell 12 is interiorly threaded at 13 for the reception of a web 14, which bears at 16 upon the inlet-pipe 5.

The shell 12 is provided with a vertical annular flange 17 and an inwardly-extending annular flange 18, the latter flange being interiorly threaded for the reception of a cylinder 19, one end of which is closed by an integral web 20, which has its bearing at 21 upon the discharge-pipe 9 and the opposite end of said cylinder being closed by a head 22, threaded into said cylinder, as at 23, and having a bearing upon inlet-pipe 5, as at 24.

Arranged about the inner periphery of the shell 12 are buckets 25, adapted to receive water from the inlet-pipe 5 through a pipe 26. A plug 27, which extends from inlet-pipe 5 to discharge-pipe 9, forces the water to flow through pipe 26 into the buckets 25.

Radially disposed within the wall of the shell 12 are pump-cylinders 28, having angularly-disposed discharge-spouts 29. Inlet-valves 30 and outlet-valves 31 are located in said pump-cylinders.

Reciprocatively mounted within the pump-cylinders 28 are plungers 32, to which are secured pump-rods 33. These rods are provided with ribs 34 and slide in ways formed in bearing-blocks 35.

Mounted in the blocks 35 are gear-wheels 36, which are fast upon shafts 37. These gear-wheels mesh with teeth 38, formed upon the pump-rods 33.

Secured to the shafts 37 are arms 39, upon which are mounted weights 40.

Collars 41 and 42 prevent endwise movement of the shell 12 upon the pipes 5 and 9.

The cylinder 19 is provided with an internal rack 43.

A cylinder 44, provided with spokes 45 and bearing-hubs 46 46′, is loosely mounted upon the discharge-pipe 9 and has buckets 44′ arranged about its periphery.

The bearing-hub 46′ has a sleeve 47 formed integrally therewith, said sleeve rotating loosely upon the plug 27. Secured to this sleeve is a pinion 48, which meshes with a gear-wheel 49, mounted upon a shaft 50.

The shaft 50 is borne by a web 51, which is loosely mounted upon the sleeve 47.

The gear-wheel 49 meshes with the internal rack 43.

Formed upon the web 14 is a gear-wheel 52, which meshes with a pinion 53, carried by a power-shaft 54.

The operation of the device is as follows: Water under pressure enters the inlet-pipe 5, passes through pipe 26, and impinges upon the buckets 25. Power being supplied to shaft 54 and gear-wheel 52, shell 12 and cylinder 19 are rotated in the direction of the arrow *a* in Fig. 1. This water quickly fills the interior of shell 12; but the velocity with which said water enters through relatively small pipe 26 creates a current, which striking upon the buckets 25 tends to rotate shell 12 in the direction indicated. As the shell 12 rotates the weights 40 move from side to side of the bearing-blocks 35. This results in reciprocating the plungers 32 by virtue of the engagement of the gear-wheels 36 with the teeth 38, carried upon the pump-rods 33. As these plungers are drawn outwardly water enters pump-cylinders 28 through the inlet-valves 30.

When the plungers descend, the valves 30 close and the discharge-valves 31 open, permitting the water to be discharged through the discharge-spouts 29, which pass through the wall of cylinder 19 into the interior of

said cylinder, where it impinges upon the buckets 44′ and rotates said cylinder 44 in a direction opposite to the rotation of shell 12 and cylinder 19. The pinion 48 will consequently be rotated in the same direction and the gear-wheel 49 rotated in the opposite direction. This in turn tends to turn the cylinder 19 in the same direction as shell 12 through the engagement of gear-wheel 49 with the internal rack 43. The water passes around the ends of cylinder 44 and through a discharge-opening 60 to the interior of the discharge-pipe 9.

From the foregoing description it will be seen that efficient means are herein provided for accomplishing the objects of the invention; but while the elements shown and described are well adapted to serve the purpose for which they are intended it is to be understood that my invention is not limited to the precise construction set forth, but includes within its purview such changes as may be made within the scope of the appended claims.

Having thus described my invention, what I claim is—.

1. The combination with a rotative casing having a plurality of pumps, of weights arranged to shift their position and to actuate said pumps as the casing revolves, an inlet-pipe, an outlet-pipe, and buckets arranged to receive water from the source of supply, said buckets being carried by the rotative casing.

2. In a device of the character described, the combination with a rotative casing, of means for applying power to said casing, an inlet-pipe leading to said casing, a secondary casing, a plurality of pumps, an outlet-pipe leading from said secondary casing, said pumps discharging into the secondary casing, and weights arranged to shift their position and actuate the pumps as the casing revolves.

3. In a device of the character described, the combination with an inner and outer casing, of an inlet-pipe leading to the interior of the outer casing, an outlet-pipe leading from the interior of the inner casing, a plurality of pumps arranged about the periphery of the outer casing and adapted to take water therefrom and discharge said water to the interior of the inner casing, means for imparting rotative movement to both of said casings, weights arranged to shift their positions by gravity to actuate said pumps as said casings revolve.

4. In a device of the character described, the combination with an inner and outer casing, of means for imparting rotative movement to said casing, an inlet-pipe leading to the interior of the outer casing, a plurality of buckets arranged about the inner periphery of said outer casing and adapted to receive the water discharged into said casing, a discharge-pipe leading from the interior of the inner casing, pumps arranged to receive water from the interior of the outer casing and discharge said water into the interior of the inner casing, a rotative cylinder loosely mounted in said inner casing and having buckets arranged about its periphery adapted to receive water discharged from the pumps, gearing between said cylinder and said inner casing, and weights adapted to be shifted by gravity upon the rotation of the casings and to actuate the pumps as their positions are shifted.

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

MILES M. VINEYARD.

Witnesses:

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FRANK G. CAMPBELL.