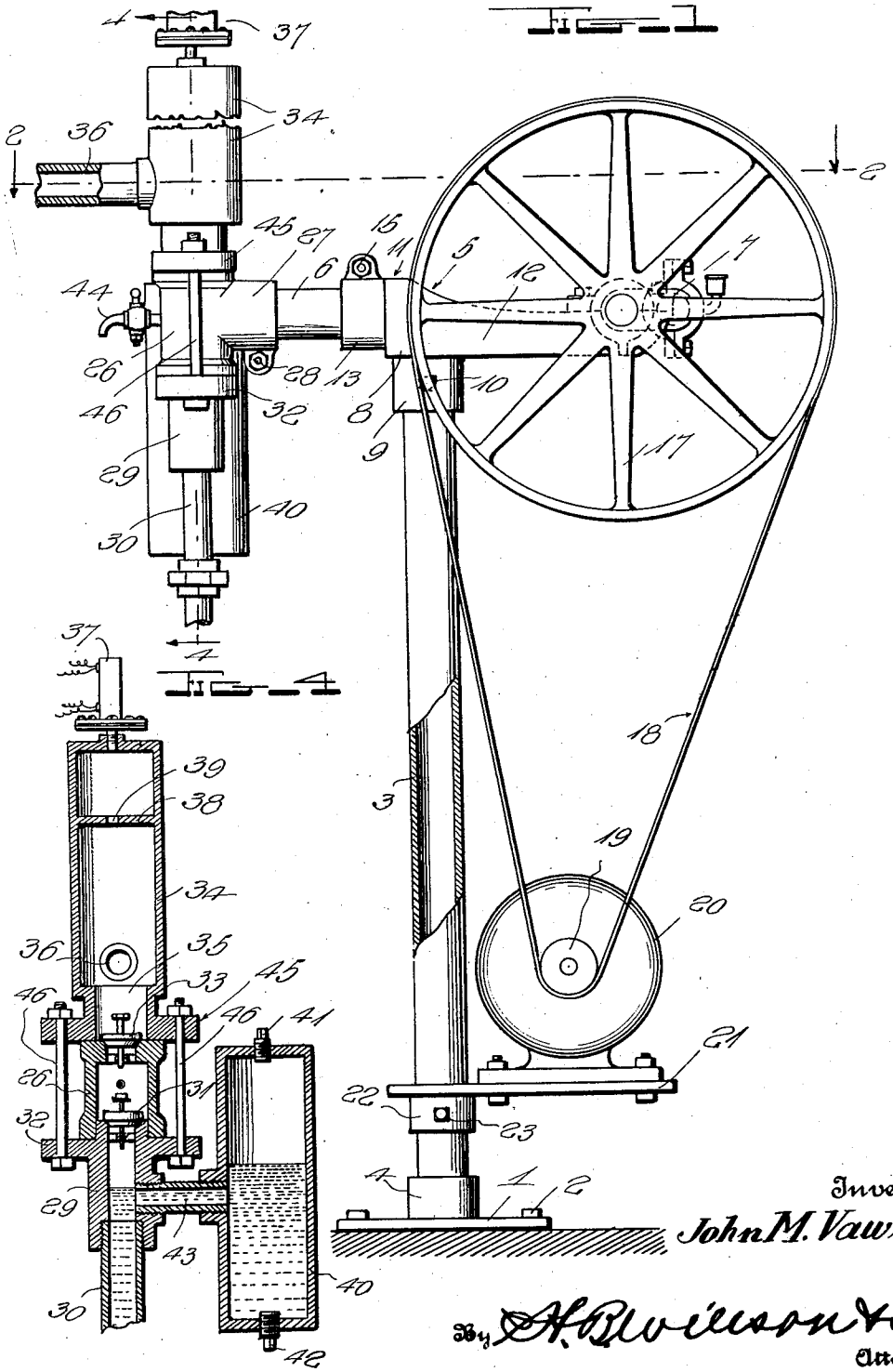
May 22, 1928. 1,670,944

J. M. VAWTER

PUMP

Filed Oct. 11, 1926 2 Sheets-Sheet 1



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FIG. 2

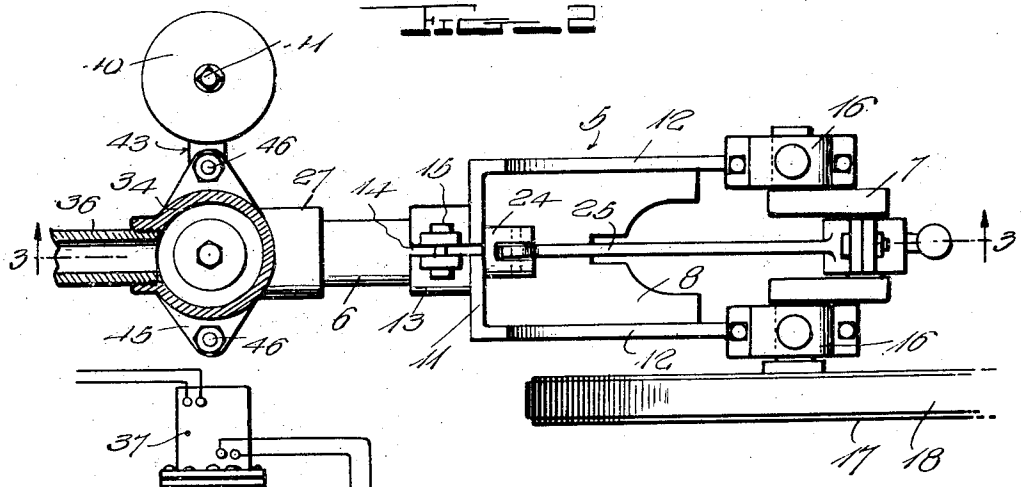
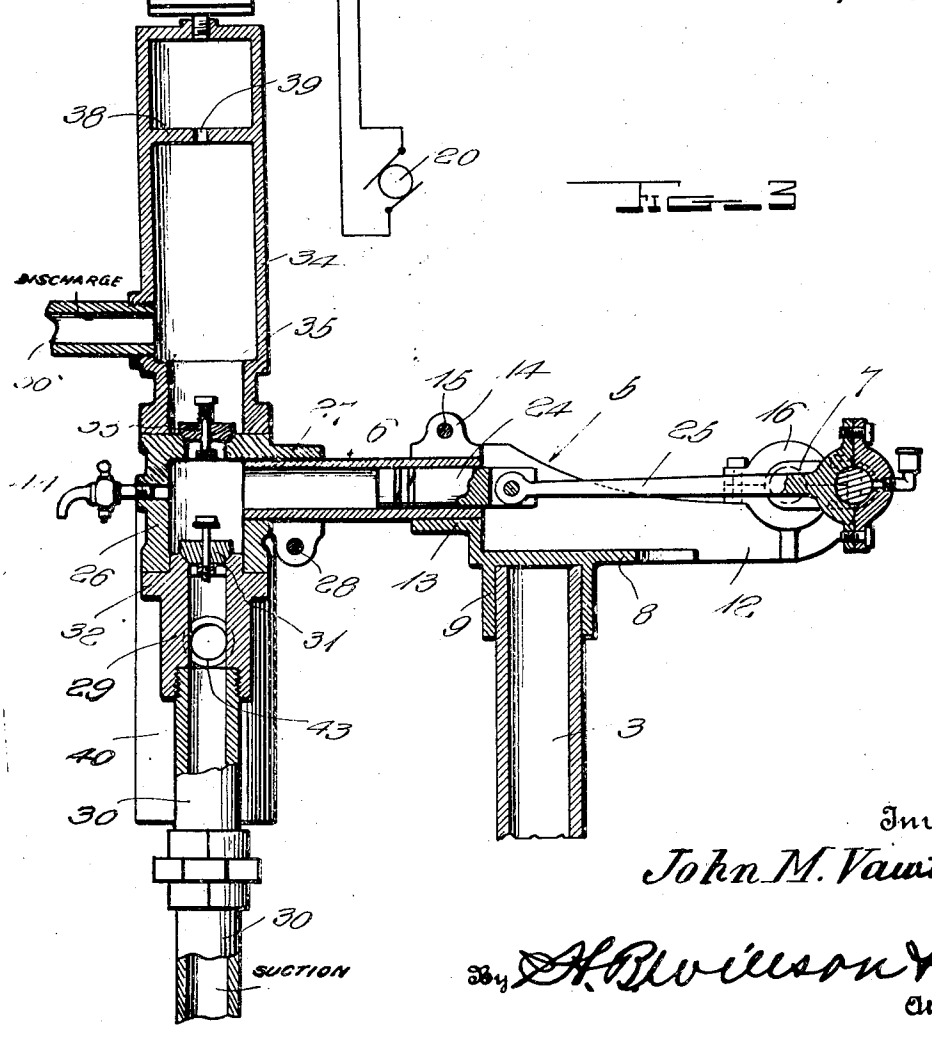


FIG. 3



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UNITED STATES PATENT OFFICE.

JOHN M. VAWTER, OF INDIANAPOLIS, INDIANA, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO SHADBERG COMPANY, OF INDIANAPOLIS, INDIANA, A CORPORATION OF INDIANA.

PUMP.

Application filed October 11, 1926. Serial No. 140,920.

The invention relates to water pumps and has reference more particularly to those driven by motors.

It is one object of the invention to provide a pump of exceptionally simple and inexpensive construction, yet one which will be highly efficient and in every way advantageous.

The pump includes a base, a standard rising rigidly therefrom, a cylinder and crank support mounted upon the standard, a piston-containing cylinder projecting from said support, a hollow head connected with the cylinder and provided with inlet and outlet valves, a crank mounted on said support and connected with the cylinder-contained piston, a belt wheel on the crank shaft, a pulley-equipped motor, and a belt passing around the motor pulley and the aforesaid belt wheel.

Further objects are to provide novel means for connecting the cylinder with the crank and cylinder support and with the above-named hollow head, permitting quick and easy assembly of these parts and permitting disconnection thereof with equal ease, in case repairs are necessary; to provide a support for the motor connected with the above-named standard and adjustable along the same for the purpose of tightening the belt; and to provide for constructing the above-named hollow head, an associated air chamber and a co-acting body, in a simple manner and securing these parts tightly together in such a way that they may be readily disassembled whenever necessary.

With the foregoing in view, the invention resides in the novel subject matter hereinafter described and claimed, the description being supplemented by the accompanying drawings.

Fig. 1 is a side elevation partly broken away and in section.

Fig. 2 is a horizontal sectional view on line 2—2 of Fig. 1.

Fig. 3 is a fragmentary central vertical sectional view substantially on line 3—3 of Fig. 2.

Fig. 4 is a transverse section on line 4—4 of Fig. 1.

In the drawings above briefly described, the numeral 1 designates an appropriate base which may be secured to a well platform or other support by cap screws, bolts or the like 2. Secured to and rising rigidly from this base is a standard 3 which is preferably formed from a length of pipe, and this standard may well be connected with the base 1 by threading or otherwise securing it in a socket 4 formed on the upper side of said base.

Mounted upon the upper end of the standard 3, is a support 5 for a pump cylinder 6 and a crank 7. This support is preferably cast in substantially U-shape as shown in Fig. 2 and is formed at its lower portion with a bottom plate 8 having a socket 9 receiving the upper end of the standard 3, this standard and socket being preferably secured together by means of a set screw 10 (Fig. 1). The intermediate portion 11 of the support 5, that is the portion from which the arms 12 project, is provided with an integral outstanding collar 13, which collar is slit at 14 and is provided with a bolt 15 by means of which it may be contracted. The inner end of the cylinder 6 is received within the collar 13 and when the bolt 15 is tightened, said collar is so contracted about the cylinder as to tenaciously clamp the latter to the support 5, the connection however between said cylinder and support being such that it may be readily disconnected upon loosening of the bolt.

The arms 12 carry appropriate bearings 16 for the shaft of the crank 7, and this shaft is provided with a belt wheel 17 around which a belt 18 passes. This belt is also trained around a pulley 19 on an electric motor 20, said motor being secured to a motor support 21 which is adjustable along the standard 3, so that the belt 18 may be tightened whenever desired, simply by lowering the support 21 and the motor 20. In the preferred construction, the support 21 is in the form of a horizontal plate having an integral collar 22 slidably surrounding the standard 3 and provided with a set screw 23 by means of which the collar and support may be locked in adjusted position. At this point, attention may be directed to the fact that the support 5 and the support 21 project laterally in the same direction from the standard 3, whereas the cylinder 6 projects in the opposite direction, and certain parts yet to be described, are connected with the outer end of said cylinder. By this general relation of parts, the

entire structure is more or less balanced so that there is no tendency for the standard 3 and base 1 to pry sideways in one direction or the other.

The cylinder 6 contains an appropriate piston 24 which is connected by a connecting rod 25 with the crank 7, and when this piston operates, it successively creates suction and compression in a pump head 26. This head is vertically disposed, is substantially cylindrical, and is provided at one side with an integral, contractible collar 27 which is similar to the collar 13 and surrounds the outer end of the cylinder 6. Thus, by tightening the bolt 28 of the collar 27, the head 26 is rigidly secured to the cylinder 6 and the latter serves to effectively and rigidly connect said head with the support 5. Whenever advisable, loosening of the bolt 28 permits detachment of the head 26 from the cylinder 6.

The lower end of the head 26 rests upon a vertically disposed cylindrical body 29, the water inlet pipe 30 being connected with the lower end of this body, while its upper end is provided with an appropriate inlet valve 31. Near this upper end, the body 29 is provided with an outstanding flange 32, for a purpose to appear.

Resting upon the upper end of the body 26, which end is equipped with an outlet valve 33, is a vertically elongated casing 34 whose interior constitutes an air cushion. The lower end of this casing 34 is provided with an inlet 35 which receives the water passing from the valve 33, and near said lower end, the casing 34 is connected with the water discharge pipe 36. In the present showing, an automatic cutoff device 37 for the motor 20, is connected with the upper end of the casing 34 and when sufficient air pressure exists in said upper portion of the casing, the device 37 operates to automatically break the circuit of the motor 20, bringing the latter to a standstill. Similarly, when the air pressure in the casing 34 drops below a predetermined degree, the device 37 automatically completes the circuit of the motor 20 and the latter starts to operate. In order to prevent water from the lower portion of the casing 34 from reaching the motor-controlling device 37, I provide a horizontal partition 38 across said casing near its upper end, said partition however having a restricted opening 39 through which the air compressed in the upper portion of the casing may act against the water in the lower portion of the casing. The partition 38 prevents the water from upwardly surging in the casing 34 upon each forcing stroke of the piston 24 and thus this water is prevented from reaching the control device 37 and causing corrosion or improper operation of the latter.

Offset laterally from the body 29, is a vertically elongated cylindrical casing 40 preferably having a screw plug 41 at its upper end and a similar plug 42 at its lower end. By means of a short length of pipe 43, the intermediate portion of the casing 40 is placed in communication with the water passage of the body 29, which passage leads to the valve 31. During operation of the pump, a partial vacuum is caused in the upper portion of the casing 40 and such vacuum aids the pump to operate without undue pounding. The lower portion of the casing 40 however constitutes a water trap which fills up with water from the main water passage of the pump, through the instrumentality of the pipe 43. When the pump is stopped, the vacuum in the upper portion of the casing 40 tends to draw water into said upper portion, but very little water will enter unless the valve 31 leaks to some extent. If this leakage does take place however, water from the cylinder 6 and the head 26 may leak past the valve 31 and this water will be drawn into the casing 40 and retained therein, as indicated in Fig. 4, even should the water level in the body 29 and the pipe 30 descend a few inches below the valve 31, as indicated in Fig. 4.

If the pump remains in this condition for some time, the piston leathers and the valves of course dry out to some extent, and the chances are that the piston would not create sufficient suction to elevate the column of water from the bottom of the well. However, this suction is sufficient to draw some of the surplus water from the tank 40 through the pipe 43 and through the body 29 into the head 26, and from this head, the water finds its way into the cylinder 6 to moisten the piston leathers, thus effectively priming the pump so that it will quickly start to operate efficiently.

If, due to a leaky foot valve on the pipe 30, the water in said pipe should so recede as to bring the water level in the tank 40 to the lower side of the pipe 43, the pump may be primed in a different manner, that is by removing the plug 42, discharging the water from the tank 40 into a cup or the like, and introducing this water into the head 26, for instance, through a spigot 44. If this spigot is inserted into the water within the cup or the like, while the piston is reciprocating, this water will be drawn into the head 26 and the cylinder 6 to prime the pump. When initially priming the pump, that is, before it is first set in operation, the plug 41 may be removed and water poured into the tank 40, or possibly it may be primed through the spigot 44 or by pouring water into the casing 34, before the device 37 is attached.

It will be seen from the foregoing that an exceptionally simple construction and arrangement of parts has been provided for

attaining the desired ends, and while the details disclosed are preferably followed, variations may be made within the scope of the invention as claimed. For attaching the casing 34 to the head 26, while other means could be provided, I prefer to equip said casing with an outstanding flange 45, disposed over the flange 32, vertical tie-bolts 46 being passed through said flanges. These bolts effectively secure the three parts 34, 26 and 29 together but permit these parts to be readily disassembled whenever advisable.

I claim:—

1. A pump comprising a base, a standard rising therefrom, pumping means mounted on said standard and having a driving wheel, a motor support projecting laterally from said standard under the pumping means, said motor support being connected with the standard for vertical adjustment, a pulley-equipped motor mounted on said support, and a belt passing around the motor pulley and the aforesaid driving wheel.

2. A pump comprising a base, a standard rising therefrom, a crank and cylinder support secured upon the upper end of said standard, a piston-containing cylinder secured to, supported by and projecting horizontally from said support, a hollow head secured to and supported by the outer end of said cylinder, said head having inlet and outlet valves, a crank mounted on said support and connected with the cylinder-contained piston, said crank having a belt wheel, a motor support extending laterally from the standard and connected therewith for vertical adjustment along the same, a pulley-equipped motor mounted on said motor support, and a belt passing around the motor pulley and the aforesaid belt wheel.

3. A pump comprising a base, a standard rising therefrom, a crank and cylinder support secured upon the upper end of said standard and projecting laterally in one direction therefrom, a piston-containing cylinder secured to said support and projecting laterally from the standard in the opposite direction from that in which said support projects, a hollow head secured to and supported by the outer end of said cylinder, said head having inlet and outlet valves, a crank mounted on the outer end of said support and connected with the cylinder-contained piston, said crank having a belt wheel, a motor support extending laterally from the standard in the same direction as said crank and cylinder support, said motor support being connected with said standard for vertical adjustment along the same, a pulley-equipped motor mounted on said motor support, and a belt passing around the motor pulley and the aforesaid belt wheel.

4. In a pump, a rigid supporting member for a cylinder and piston-driving means, said supporting member being provided with a contractible collar, a pump cylinder having one end tightly clamped in said collar, and a hollow head at the outer end of the cylinder equipped with inlet and outlet valves and provided with a contractible collar tightly surrounding said outer end of the cylinder, the latter serving to support the head and being in turn supported by said supporting member.

5. In a pump, a cylinder and crank supporting member having bearings for the crank and provided with a contractible collar in which to secure one end of the cylinder.

In testimony whereof I have hereunto affixed my signature.

JOHN M. VAWTER.