P. A. MYERS.

PUMP.

APPLICATION FILED JUNE 15, 1921.

1,428,181. Patented Sept. 5, 1922.

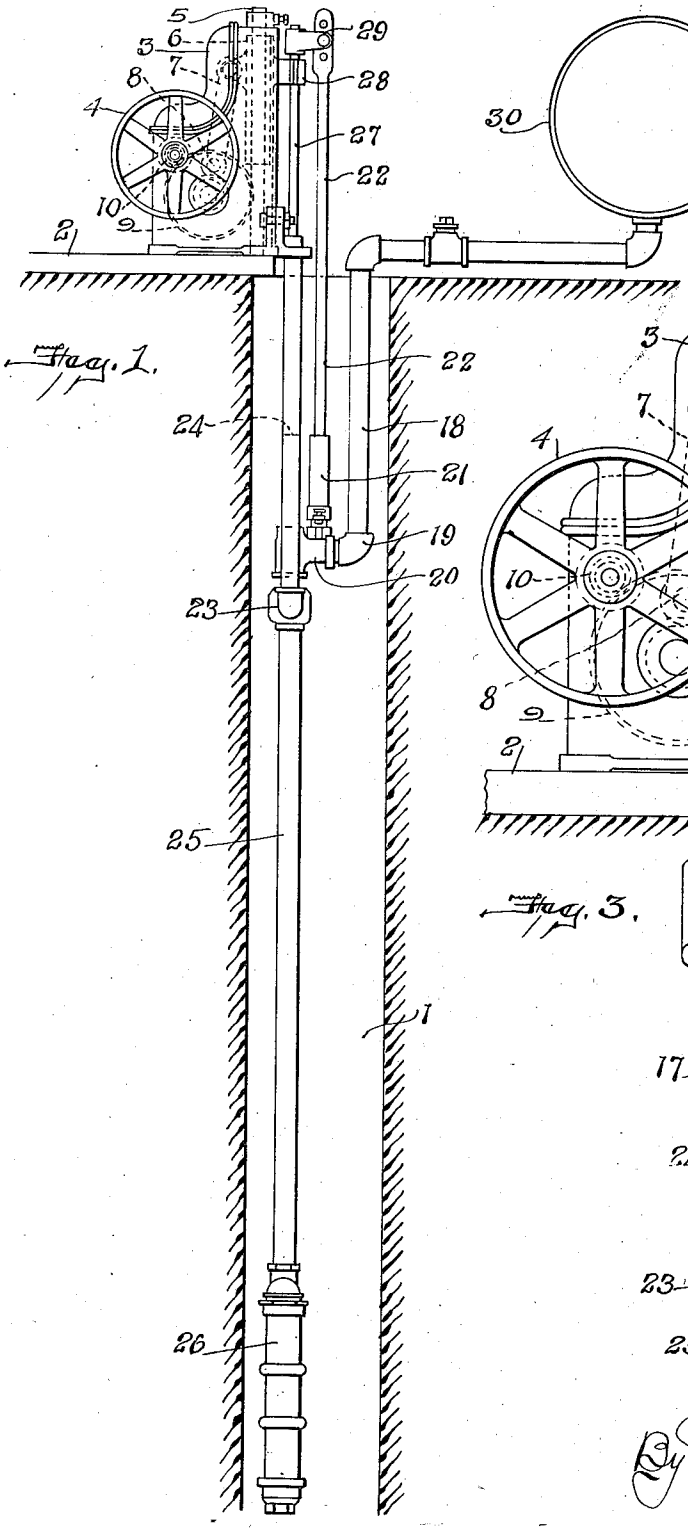


Fig. 1.

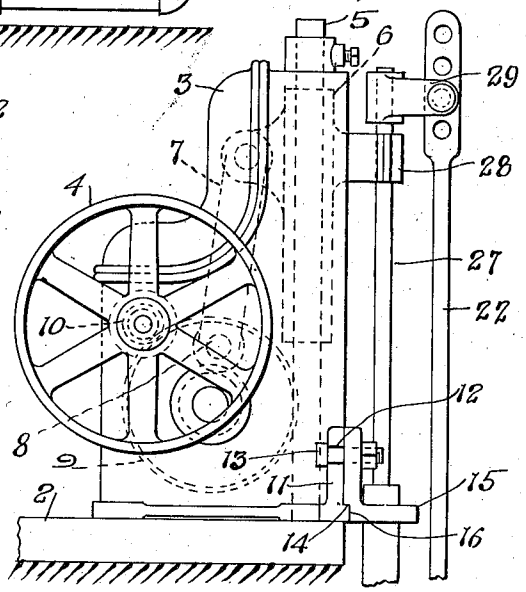


Fig. 2.

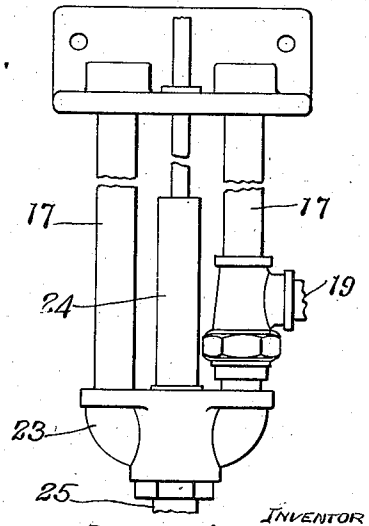


Fig. 3.

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UNITED STATES PATENT OFFICE.

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PUMP.

Application filed June 15, 1921. Serial No. 477,815.

To all whom it may concern:

Be it known that I, PHILIP A. MYERS, a citizen of the United States, residing at Ashland, in the county of Ashland and State of Ohio, have invented certain new and useful Improvements in Pumps, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to pumps, particularly to domestic pumps of the kind known as frost proof pumps, in which the cylinders, pistons and valves are located below the frost line, say usually about four feet beneath the surface of the ground.

This application is a division of part of the subject-matter originally presented in my previous application, Ser. No. 352,319, filed Jany. 19, 1920, which has resulted in my Letters Patent No. 1,385,143, dated July 19, 1921.

The general object of this present invention is to combine with a power head a detachable mounting head adapted to be connected with the power head and to sustain the drop pipes which extend below the frost line and to connect with a pump head by which the upper cylinder is carried and to which the lower cylinder is connected by an extension pipe. This mounting head is easily attached to the power head and readily detachable at times when it is desired to withdraw the pump structure from the well.

In the accompanying drawings:

Fig. 1 is a side elevation of a power head and pump embodying my invention;

Fig. 2 is an enlarged detail side elevation of the power head and mounting head with the adjacent devices; and

Fig. 3 is a front view of the mounting head, drop pipes and upper cylinder, together with the pump head.

In the drawings the pump is illustrated as set in a deep well indicated at 1. On the platform 2, of any suitable character, is located the power head comprised of a casing 3 containing operating mechanism driven by a belt pulley 4. This mechanism includes a guide, preferably in the form of a rod or shaft 5 and a slide or sleeve 6 to which is connected a pitman 7 operated by a wrist pin 8 carried by a gear wheel 9 driven by a pinion 10 connected to the pulley 4. As these parts do not form features of the present invention they are shown merely in dotted lines for purposes of illustrating the pertinent features of the invention.

The casing 3 has lugs 11 notched at 12 to receive bolts 13 and shouldered at 14.

The mounting head 15 composed of a casting in the form of a right angled plate is connected to the casing and secured in place through the instrumentality of the bolts 13 with their nuts and the shoulder 14, the head having a recess 16 which matches the shoulder. In this way the mounting head is readily attached to and detached from the casing, so that the same casing may be used with different forms of mounting heads, and so that this particular mounting head may be used with some other form of casing or power head.

Of course, under some circumstances, it may be desirable to otherwise connect the mounting head to the casing or power head than in the manner shown.

Connected to the mounting head are drop pipes 17, one or both of which may constitute air chambers. To one of them a delivery pipe 18 is connected by an elbow 19 connected with a coupling 20. This coupling sustains an air pump cylinder 21 whose piston rod 22 is actuated in the manner presently to appear.

Both of the drop pipes 17 are connected with a pump head 23 upon which is mounted the upper cylinder 24 of the pump and to which is attached the extension pipe 25 which extends down into the well and carries the lower cylinder 26. A piston rod 27 passes through the cylinder 24 and into the cylinder 26 and carries in each cylinder the usual or any approved piston or so-called bucket.

Both piston rods are connected to the power mechanism, through an extension 28 projecting from the slide 26 and attached directly to the piston rod 27 and through a bracket 29 connecting the rod 22 to the rod 27. In this way both rods are actuated at the same time so that as water is pumped through the piston rod 27 and its pistons and cylinders 24 and 26, air is pumped by the piston rod 22 and its piston and cylinder 21. Both the water and air are delivered into the pipe 18 and then stored in the tank 30 where the pressure of the air, due to its expansion, operates to discharge

the water from the tank and to distribute it through any system of pipes which may be connected therewith.

It will now be seen that the mounting head is carried by the power head or casing, that the drop pipes are carried by the mounting head and they in turn sustain the pump head by which the upper water cylinder and the air cylinder are supported, as also the extension pipe and its cylinder 26. The detachability of the mounting head, with its connection with the casing, permits of its detachment, affords a ready means of easily removing the pump structure from the well, the piston rods being in such case detached from all connection with the operating mechanism. In the form shown the bolt and shoulder connection between the mounting head and the casing or power head forms a strong and durable attachement of the parts, in which the shoulder 14 and recess 16 aid in sustaining the weight, which is not at all inconsiderable in case of a very deep well.

While I have shown and described an upper cylinder and an air cylinder as supported by the mounting head, it is to be understood that in lieu of such upper cylinder and air cylinder or in lieu of such upper cylinder alone I may substitute a mere packing gland for the piston rod. Also that the piston rod may carry pistons in the ordinary sense or in lieu of such pistons I may use what is known in this art as a differential ram plunger, that is, a rod enlarged to form a plunger. Therefore, wherever in this specification I refer to the incidental features of an upper cylinder or an upper cylinder and an air chamber I am not limiting myself to these details.

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

1. In a pumping apparatus, the combination with a power head including a casing in which the power mechanism is housed, of a mounting head detachably secured to a vertical face of said casing, a drop pipe secured to the mounting head and a lower cylinder, an upper cylinder all supported by such drop pipe and an air cylinder, a piston rod common to the lower and upper water cylinders and another piston rod for the air cylinder, and a connection between said piston rods and an operating extension of the power mechanism.

2. In a pumping apparatus, the combination with a power head including a casing in which the power mechanism is housed, of a mounting head detachably secured to said casing, a drop pipe secured to the mounting head, a pump head secured to the drop pipe, an air cylinder supported near the pump head, an upper water cylinder sustained by the pump head, an extension pipe secured to the pump head, a lower cylinder connected to the extension pipe, a piston rod common to the upper and lower water cylinders, and another piston rod for the air cylinder, and a connection between said piston rods and an operating extension of the power mechanism.

3. In a pumping apparatus, the combination, with a casing having flanges and a shoulder, of a mounting head having a recess adapted to receive said shoulder, and fastening devices to secure the mounting head to said flanges.

4. In a pumping apparatus, the combination with a casing having flanges provided with notches and a shoulder, of a mounting head comprising vertical and horizontal portions and having a recess to receive said shoulder, and bolts fitted to said notches and extending through the upper part of the mounting head and provided with fastening nuts.

In testimony whereof, I affix my signature.

PHILIP A. MYERS.