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J. M. PHILLIPS

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PUMP

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Fig. 1.

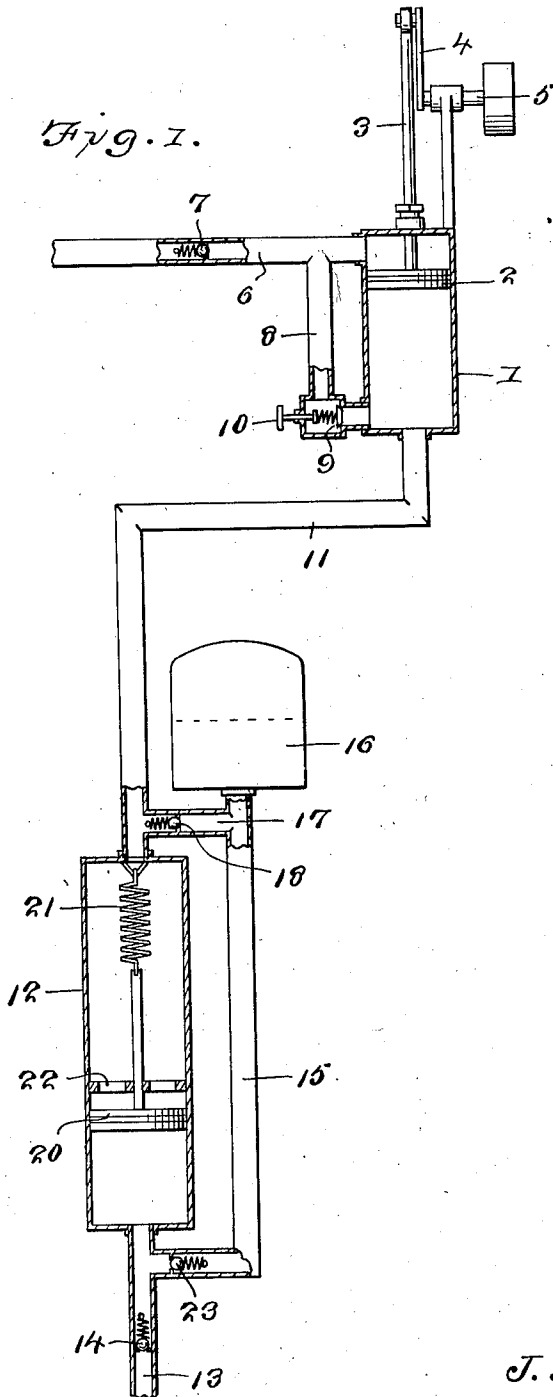
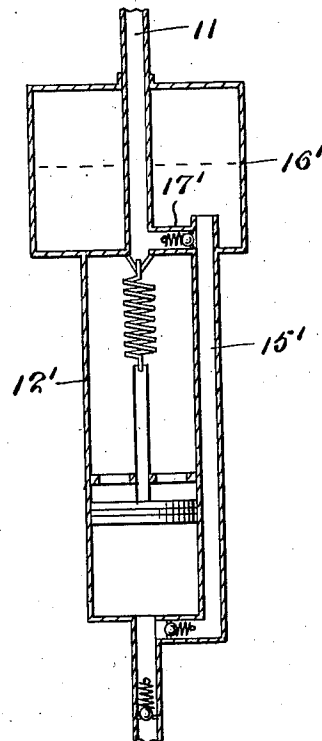


Fig. 2.



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This invention relates to a hydrostatic pump, the general object of the invention being to provide means whereby the operation of a piston in a cylinder located at any point outside of the well will operate means inside the well for raising water from the well, the cylinder being connected to the means in the well by a pipe, thus avoiding the use of a pump rod and enabling the operating means to be placed in a dwelling or the like a distance from the well, thus avoiding the use of a separate pump house over the well.

This invention also consists in certain other features of construction and in the combination and arrangement of the several parts, to be hereinafter fully described, illustrated in the accompanying drawing and specifically pointed out in the appended claim.

In describing the invention in detail, reference will be had to the accompanying drawing wherein like characters denote like or corresponding parts throughout the several views, and in which:—

Figure 1 is a diagrammatic view, partly in section, showing one form of the invention.

Figure 2 is a sectional view showing a modification.

Referring to Figure 1, the numeral 1 indicates a cylinder having a piston 2 therein, the rod 3 of which is reciprocated through any desired means, the drawings showing the rod being connected by a crank 4 to a driven shaft 5 which may be rotated by hand or power. A delivery pipe 6 is connected with the top of the cylinder and has a check valve 7 therein and a branch pipe 8 connects this pipe 6 with the bottom of the cylinder, a spring pressed valve 9 being arranged in this branch pipe, the spring of which can be adjusted by means of the handle 10.

A pipe 11 connects the bottom of the cylinder 1 with the top of a cylinder 12 located in the well, the feed pipe of said cylinder 12 being shown at 13, and this pipe has a check valve 14 therein. A pipe 15 connects the upper end of the pipe 13 with the bottom of

a pressure chamber 16 and a branch pipe 17 connects the upper part of the pipe 15 with the lower part of the pipe 11. A check valve 18 is arranged in this branch pipe. A piston 20 is arranged in the cylinder 12 and a spring 21 connects the upper end of the piston rod with the top of the cylinder, this spring tending to hold the piston against a spider 22 placed in the cylinder 12.

On the down stroke of the piston 2, the water in cylinder 1 and pipe 11 and the upper part of cylinder 12 will be placed under pressure so that the piston 20 will be pushed downwardly and during this action, the valves 14 and 18 are closed. The downward movement of the piston 20 forces water from the bottom of the cylinder 12 past the check valve 23 in the lower part of pipe 15, through the pipe 15 into the pressure chamber 16, compressing the air in said chamber. The downward movement of the piston 2 creates a partial vacuum in the upper part of the cylinder 1 which causes the valve 9 to open so that some of the water in cylinder 1 will pass through the pipe 8 into the upper part of the cylinder 1. On the up stroke of the piston 2, the partial vacuum created in the lower part of the cylinder 1 will reduce the pressure in pipe 11 so that the air in the air chamber will force the water in said chamber through the branch 17 into the pipe 11, from which the water passes into the cylinder 1 as the piston 10 moves upwardly. The reduction of pressure in the pipe 11 also permits the spring 21 to raise the piston 20 and the partial vacuum created by the upward movement of the piston 20 draws water through the pipe 13 into the lower part of the cylinder 12. As the piston 2 moves upwardly, the water in the upper end of the cylinder 1 is forced through the pipe 6 past the valve 7 to the point of use.

Thus it will be seen that the reciprocation of the piston 2 will result in the vibration or reciprocatory movement of the piston 20 so that water is alternately drawn into the lower part of the cylinder 12 and then forced into the pressure chamber 16 and the compressed air in said chamber will force this water through the pipe 11 into the cylinder 1 on each up stroke of the piston 2 and the move-

ment of the piston 2 will cause the water to pass from the cylinder 1 to the point of use.

In the modification shown in Figure 2, the pressure chamber 16' is formed on the top of the cylinder 12', with the pipe 15' and the branch 17' formed integral or suitably connected with the parts and the lower part of the pipe 11 passing through the compression chamber. In other respects, this form of the invention is the same as that before described.

This invention provides a pump system which is inexpensive to manufacture and install, one which can be used to pump from different wells at the same time and as it eliminates a pump rod, the operating parts outside of the well can be placed in a dwelling or the like a distance from the well so that a separate pump house is not needed. By placing the cylinder 1 in the dwelling, in the kitchen, for instance, it is not necessary to carry water from the pump to the engine.

It is thought from the foregoing description that the advantages and novel features of the invention will be readily apparent.

It is to be understood that changes may be made in the construction and in the combination and arrangement of the several parts, provided that such changes fall within the scope of the appended claim.

What I claim is:—

A pump system comprising a cylinder, an imperforate piston therein, means for operating the piston, a pipe connected with the top of the cylinder and having a check valve therein, a branch pipe connecting said pipe with the bottom of the cylinder, a spring pressed valve in the branch pipe, means for adjusting the tension of the spring thereof, a second cylinder, a pipe connecting the bottom of the first cylinder with the top of the second cylinder, an imperforate piston in the second cylinder, a spring connecting the piston rod thereof with the top of the cylinder and tending to hold the piston in raised position, a well pipe connected with the bottom of the second cylinder and having a check valve therein, a compression chamber, a pipe connecting the same with the well pipe and a pipe connecting the pipe which is connected with the compression chamber with the pipe which connects the two cylinders together, said pipe containing a check valve.

In testimony whereof I affix my signature.

JACOB MILTON PHILLIPS.