

E. MARTIN.
PUMP.

APPLICATION FILED FEB. 28, 1908.

1,013,415.

Patented Jan. 2, 1912.

2 SHEETS-SHEET 1.

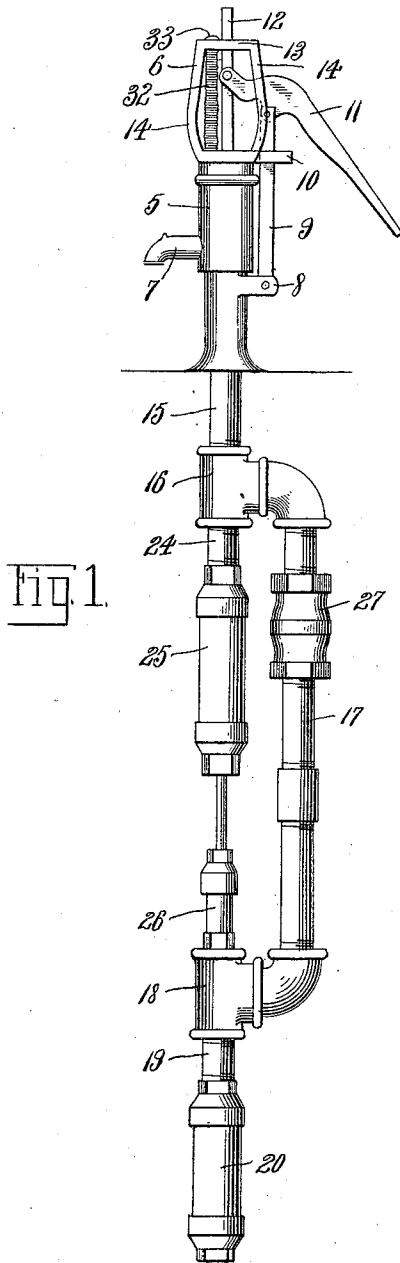


Fig. 1.

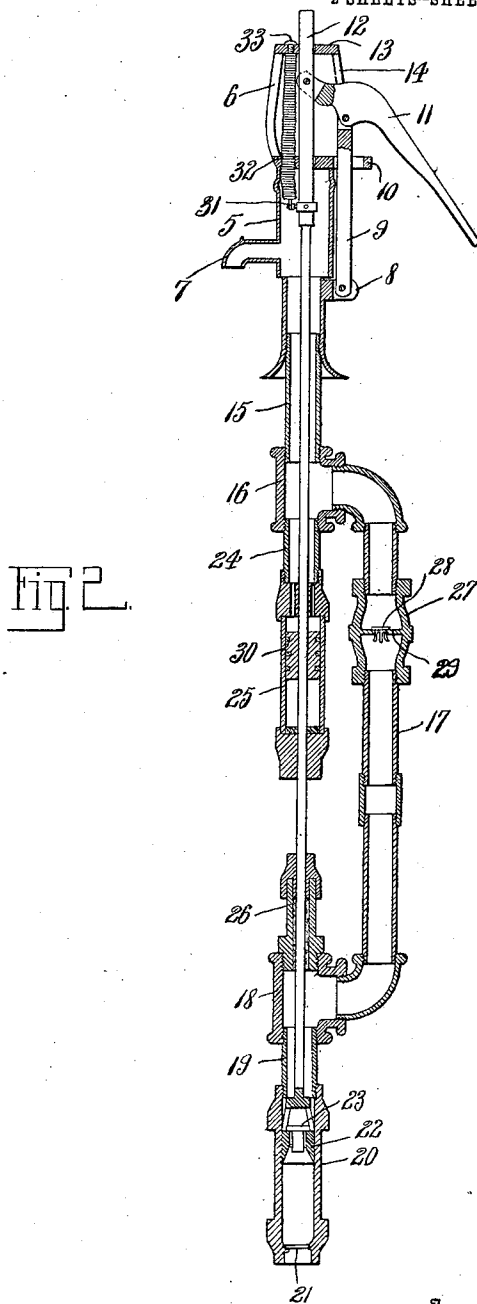


Fig. 2.

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FIG 5

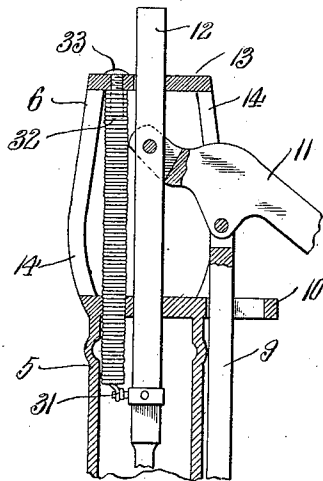


FIG 3

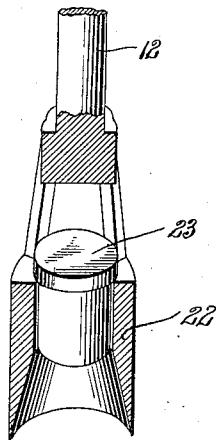
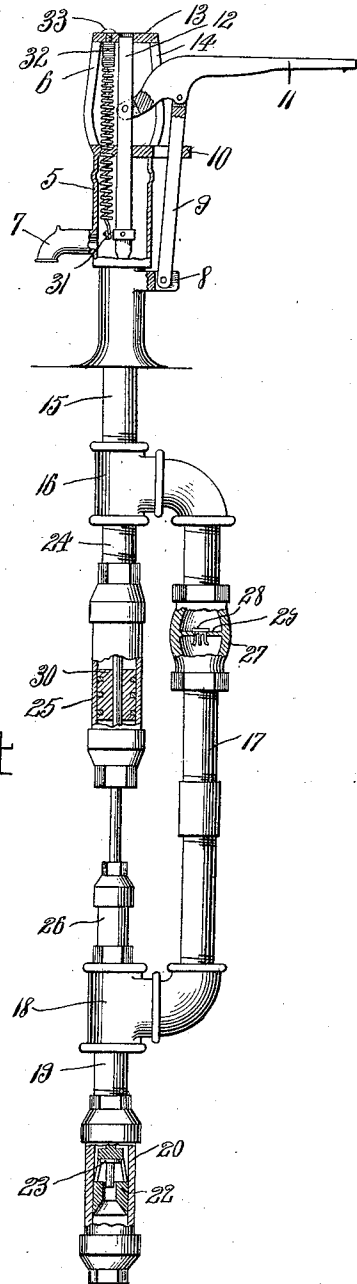


FIG 4



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UNITED STATES PATENT OFFICE.

EUGENE MARTIN, OF SOLDIERS GROVE, WISCONSIN.

PUMP.

1,013,415.

Specification of Letters Patent.

Patented Jan. 2, 1912.

Application filed February 28, 1908. Serial No. 418,308.

To all whom it may concern:

Be it known that I, EUGENE MARTIN, a citizen of the United States, residing at Soldiers Grove, in the county of Crawford, State of Wisconsin, have invented certain new and useful Improvements in Pumps; and I do hereby 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.

The present invention has reference to pumps, and it aims, generally, to provide an exceedingly simple, inexpensive and efficient structure of that class including a valved flow pipe which is offset from the suction cylinder and the pump barrel in which the pump rod is movable, the latter having connected thereto one end of a retractile coil spring whose other end is connected to the pump-head located upon the top of the barrel, so as to assist the upward movement of the pump rod and thus permit the operation of the pump with an expenditure of but little power.

The invention further resides in the particular construction of the pump barrel and its head, and in the particular manner in which the above-mentioned spring is attached to the latter and to the pump rod.

These and other features which compose the subject matter of this case will be readily understood from a consideration of the following detailed description, and their preferred embodiment is illustrated in the accompanying drawings, in which corresponding parts are designated by similar reference numerals in the views.

Of the said drawings: Figure 1 is an elevation of the improved pump. Fig. 2 is a vertical section therethrough. Fig. 3 is a detail view of the piston carried by the pump rod. Fig. 4 is a view similar to Fig. 2, showing the parts in opposite positions. Fig. 5 is an enlarged detail section through the upper portion of the pump barrel and the head formed thereon.

Referring more particularly to the drawings, 5 designates the pump barrel, and 6 the head formed upon the upper end thereof. The barrel is provided upon opposite sides with the usual discharge spout 7 and with a pair of laterally-projecting spaced ears 8, between which latter is pivoted at its lower end a rocking link 9 which passes through a lateral guide 10 formed upon the

barrel and has its upper end pivoted to the pump handle 11, the inner end of said handle being bifurcated for the reception of the pump rod 12 which is pivoted thereto. The upper end of the pump rod projects through an opening in the top 13 of the head 6, which latter is in the form of a skeleton frame, as shown, comprising the top 13 above referred to and a series of four ribs 14 connect the same with the upper end of the barrel and are slightly bowed, the handle extending between the rear pair of ribs. The lower end of the barrel has secured thereto, a vertical pipe section 15 connected by a T-joint 16 with the upper end of the vertical flow-pipe 17, whose lower end is connected by a similar joint 18 with a short pipe section 19 to which, in turn, the suction cylinder 20 is attached, the flow-pipe being thus offset from said cylinder and from the pipe section 15 and the pump barrel, as is apparent.

The pump rod extends through the pump barrel in the usual manner, and through the vertical arms of the T-joints 16 and 18 the cylinder 25 and the suction cylinder 20, the lower end of which latter is provided with a check-valve 21. A piston head 22 is secured on the lower end of the pump rod and is movable within the suction cylinder 20 as the pump rod is raised and lowered, said piston head being provided with a check valve 23. The vertical arm of the upper joint 16 has connected thereto by means of a short pipe section 24 a cylinder 25, while that of the lower joint 18 is provided with a stuffing-box 26, through which the pump rod likewise passes, the packing within the stuffing-box forming a water-tight joint around the rod and causing the water drawn through the suction cylinder and the pipe section 19 to pass into the flow-pipe 17. This pipe is provided between its ends with a valve casing 27 in which is disposed a check-valve 28, said valve being raised from its seat 29 by the force of the upwardly-flowing water, as hereinafter described.

The cylinder 25, above referred to, has slidable therewithin a piston 30, which is likewise carried by the pump rod and is preferably provided with peripheral packing rings, to prevent the passage of water between the walls of the cylinder and the periphery of said piston. The lower end of said cylinder may likewise be provided with a packing ring, if desired.

Adjacent its upper end, the pump rod is provided with a laterally-projecting pin or bolt 31, to which is secured the lower end of a retractile coil-spring 32, which extends through an opening formed in the top of the pump-barrel and has its upper end fastened to a threaded bolt 33, which is fitted in an opening formed in the top 13 of the head 6, it being possible, therefore, to vary the tension of said spring by rotating the threaded bolt in one direction or the other.

In the operation of the pump, water will be drawn through the valve 21 into the space below the piston 22, upon the up-stroke of the pistons, and the water above this piston will be raised through the flow pipe and the valve 28 into the joint 16. As the cylinder 25 and the pipe section 24 are filled with water which is being raised by the piston 30, the water from the flow-pipe will pass directly therefrom into the pipe section 15, from which it will be discharged through the spout 7. At the end of the up-stroke of the pistons, the pump is filled with water from the valve 21 to this spout. Upon the succeeding down-stroke, the piston 22 will descend through the water in the cylinder 20, and as the piston 30 descends a volume of water above it will follow it down into the cylinder 25, which volume of water will be forced into the pipe 15 on the succeeding up-stroke.

The upper end of the pump rod projects sufficiently far above the top of the pump head to permit its attachment to the pitman of a wind-mill if desired, but as this feature forms no part of the invention, illustration thereof is regarded as unnecessary.

On account of the construction of the cylinder 25 and piston 30 it will be apparent

that a pocket is produced in the upper end of the cylinder which is closed at its lower extremity by the piston 30. On account of the sealed construction of the bottom of the cylinder it will be apparent that when the piston moves toward the lower end thereof the air in that end will be compressed obviously preventing any leakage within the cylinder of the fluid which might run below the piston head and prevent its downward movement. The water or like fluid located within the pocket or trap serves to prime the valve plunger in the suction cylinder upon the movement of the pump rod.

What is claimed is:

A pump comprising a barrel having an outlet and a pipe connecting with and extending downwardly from said barrel, a cylinder at the lower end of said pipe, a suction cylinder below and spaced from the first mentioned cylinder and having a valve at its lower end, a flow pipe establishing connection between the said cylinders and discharging into the first named pipe at a point above the first named cylinder, said flow pipe having a downwardly closing check valve, a pump rod and solid piston thereon operating in the first named cylinder and a valved piston on said pump rod operating in said suction cylinder, said first named cylinder and the piston therein cooperating to form a trap for water from the flow pipe and to utilize the same when the pump is started in operation to prime the valve plunger in the suction cylinder.

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

EUGENE MARTIN.

Witnesses:

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