

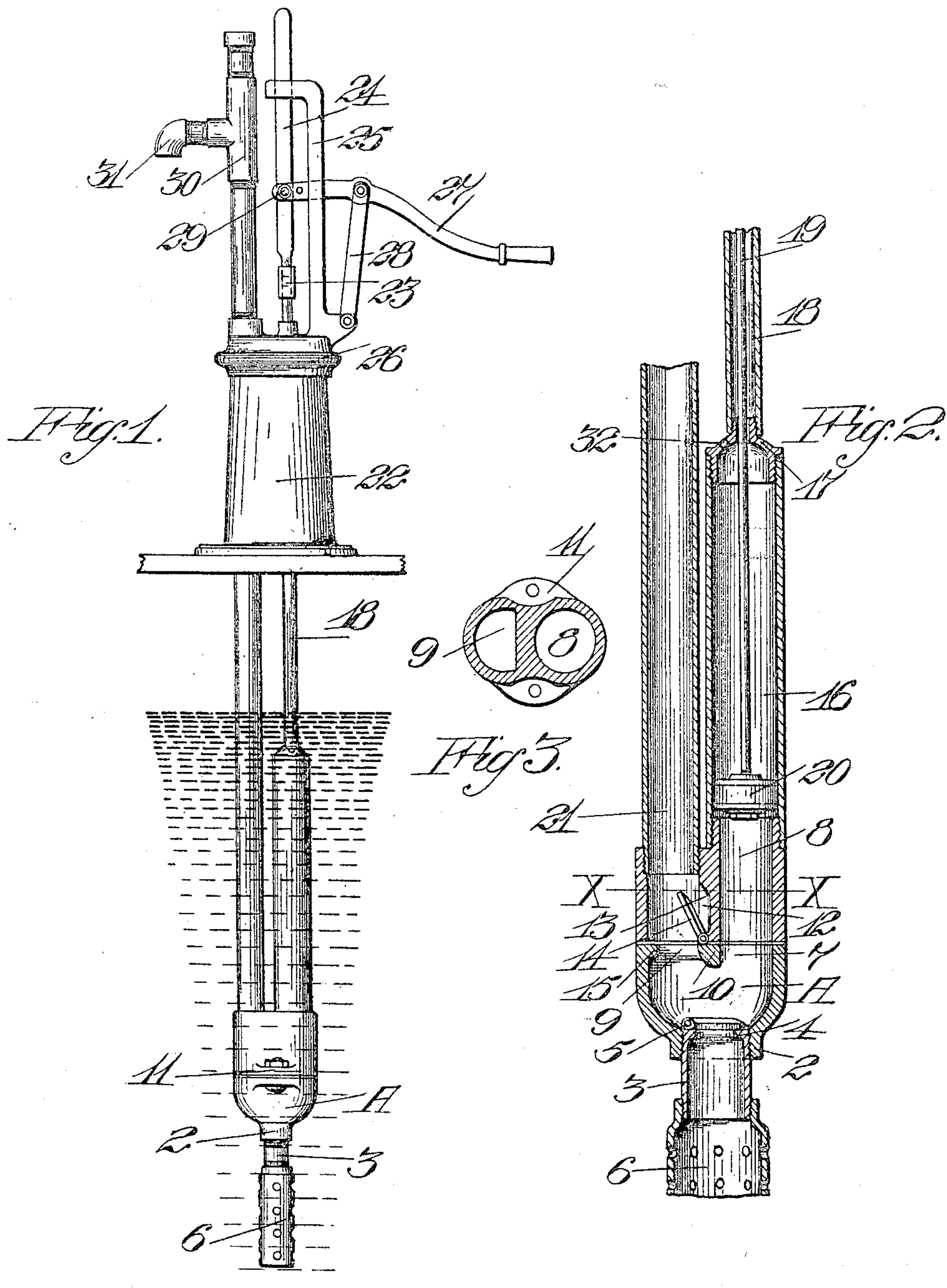
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PUMP.

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Patented Mar. 15, 1910.



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# UNITED STATES PATENT OFFICE.

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## PUMP.

952,340.

Specification of Letters Patent.

Patented Mar. 15, 1910.

Application filed June 19, 1909. Serial No. 503,129.

*To all whom it may concern:*

Be it known that I, HENRY N. MURPHEY, a citizen of the United States, residing at East Oakland, in the county of Alameda and State of California, have invented new and useful Improvements in Pumps, of which the following is a specification.

My invention relates to pumps, and is especially designed for use in deep well pumps where a heavy column of water is to be raised, but it is also adapted for pumps to be used in shallower wells.

It consists in the combination of parts, and in details of construction which will be more fully explained by reference to the accompanying drawings, in which—

Figure 1 is a side elevation showing my pump. Fig. 2 is a sectional view of the pump barrel and valve chamber. Fig. 3 is a section on line *x—x* Fig. 2.

In the construction of my pump I form a chamber A, the lower part of which is rounded and converging to a single substantially central opening, and it has a downwardly projecting cylindrical flange 2. Within this flange is screwed an interior sleeve 3 extending up to near the top of the flange, and this sleeve is thickened at the upper end to form an annular seat 4. The valve 5 is hinged upon the upper part of this seat and closable thereon.

The lower end of the sleeve 3 is screw-threaded, and upon it is screwed a larger perforated strainer tube 6, the holes in this tube serving to admit water and prevent the entrance of any matter which would be liable to clog and interfere with the operation of the pump.

The upper end of the chamber A has in general an oval shape, and on one side is an opening 7 which is in line with and connects with the chamber 8. Upon the other side is a D-shaped opening 9 which is separated from the opening 7 by a transverse diaphragm 10. This portion of the chamber has flanges 11 projecting from opposite sides of the narrowest portion of the chamber transverse to its major diameter.

The chamber 8 is substantially of the same shape as the upper end of the chamber A, and has flanges extending similar to those shown at 11 through which the two may be bolted together. The diaphragm 12 which separates the two parts of the chamber 8 has a recess formed in it at 13, and this recess is of such shape and size as

to receive the hinged valve 14. This valve may be of D shape, having its straight edge hinged upon one side of the opening 9 of the chamber A, and the upper part of this chamber has a correspondingly inward projecting flange or ledge 15, which serves as a seat for the valve 14.

One branch of the upper end of the chamber 8 is screw-threaded upon the outside, and the pump barrel 16 is correspondingly threaded on the interior of its lower end, and thus is adapted to screw upon the chamber 8. The length of this barrel will depend upon the stroke of the piston.

The upper end of the pump barrel has a cap 17 with a small inwardly projecting threaded flange made centrally upon it, and this cap is adapted to screw into the pump chamber 16.

18 is a tube which screws upon the flange of the cap 17 and is of sufficient diameter to receive the plunger rod 19 which may reciprocate in this tube.

The plunger 20 is of any suitable or desired description fitting within the pump barrel 16, and is reciprocated in unison with the plunger rod 19.

The plunger and the plunger rod are designed to be of a weight which will substantially counterbalance the weight of the column of water which is being lifted. This column of water is lifted through the opening 9 of the chamber A, and through a pipe 21 which is screwed into the upper part of that portion of the chamber 8 which corresponds with the discharge from the chamber A.

22 is a stand or base at the surface of the ground, and through this the tube 18 extends. The plunger rod 19 passes up through the top of the tube, and is connected by any suitable connection 23 with the flat guided and slidable bar 24.

25 is a standard fixed to the cap 26 which covers the standard 22, and this standard has an arm bent at right angles with the upper part, with a flat slot made through it which serves as a guide for the rod 24.

27 is a lever handle fulcrumed to a link 28, which is loosely pivoted at the bottom to a lug or projection from the standard 25. The inner end of this lever 27 is pivoted at 29 to the flat guide bar 24, and by the movement of this lever, the pump rod and plunger are reciprocated.

30 is a coupling to which the upper end of



the discharge pipe 21, or an extension thereof, is connected, and this coupling may have a discharge spout or nozzle 31, or it may be continued upwardly and to any desired point of discharge above it.

It will be understood that in place of the lever 27, any suitable power apparatus may be connected with the lifting-rod or pitman 24 to reciprocate the parts.

The operation of the device will then be as follows: The pump barrel is preferably submerged below the surface of the water in the well, and it has a small hole 32 made in the cap 17 through which water may enter above the plunger, and thus form at all times a tight joint between the plunger and the cylinder. The upward movement of the plunger opens the valve 5, water being drawn into the chamber 8, and such part of the cylinder 16 as is exposed, and when the plunger descends, the valve 5 closes, and the pressure of the water opens the valve 14, allowing the water to be forced up through the pipe 21 to the point of discharge. The weight of the piston and rod being properly calculated, it will approximately balance the weight of the column of water which is being acted upon, and thus the pump will operate easily, and without the jerking and heavy strains which would otherwise come upon the moving parts.

By disposing the chamber A, with its openings 7 and 9 substantially equidistant from the center to the inlet pipe or passage, the water changes direction but little in being drawn into the pump cylinder and when forced out; and is also but little changed in direction when forced into the discharge pipe.

The construction of the chamber A, its connection with the chamber 8, and connection of the various parts of the pump, make it a very simple one to assemble, or take down when necessary for transportation or other purposes.

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

1. The combination in a pump of a pump cylinder and a discharge pipe, superposed chambers, the upper one having two openings with which the pump cylinder and discharge pipe are connected respectively, the lower one having openings registering with those of the upper, and flanges on opposite sides by which the two chambers are united, a seat formed by thickening the wall of the opening of the lower chamber which connects with the discharge pipe, a valve hinged there-

to, a recess formed in the diaphragm between the passages of the upper chamber adapted to receive the valve when opened, said lower chamber converging downwardly having a single opening, and a screw-threaded flange at the bottom, a coupling connection adapted to screw into said flange, said coupling having a thickened seat around its upper end, a valve hinged thereto and closable upon the seat, said valve being removable with said coupling a plunger reciprocating in the pump cylinder, and a tube extending upwardly, through which the pump rod passes, a guided slidable rod, with the upper end of which the pump rod is connected, and a fulcrumed lever connected with the guide rod.

2. The combination in a pump, of a suction pipe and strainer, a chamber having a single opening at the bottom, a coupling between the suction pipe and said opening, said coupling having a seat and a valve hinged thereto, said chamber diverging upwardly and having an oval form, two openings at the top with a central diaphragm, a correspondingly shaped chamber registering with the upper end of said first named chamber, both chambers having flanges projecting from their narrowest diameter whereby they may be bolted together, a seat formed on the upper end of the lowermost chamber having a valve hinged thereon, a recess formed in the vertical wall of the upper chamber between the passages, and adapted to receive the valve when opened, a pump cylinder and a discharge pipe screwing into the upper ends of the openings of the uppermost chamber, said pump cylinder having a cap, and a central pipe extending upward therefrom, said cap having an opening for the admission of water, a plunger fitting said cylinder, a plunger rod extending upwardly through the pipe, a base through which said pipes pass, said base having a guide standard fixed thereto, a rod having a fulcrumed lever handle connected therewith, and slidable through the guide, said rod having the lower end connected with the upper end of the pump rod, and an outlet pipe or nozzle connected with the upper end of the discharge pipe.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

HENRY N. MURPHEY.

Witnesses:

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