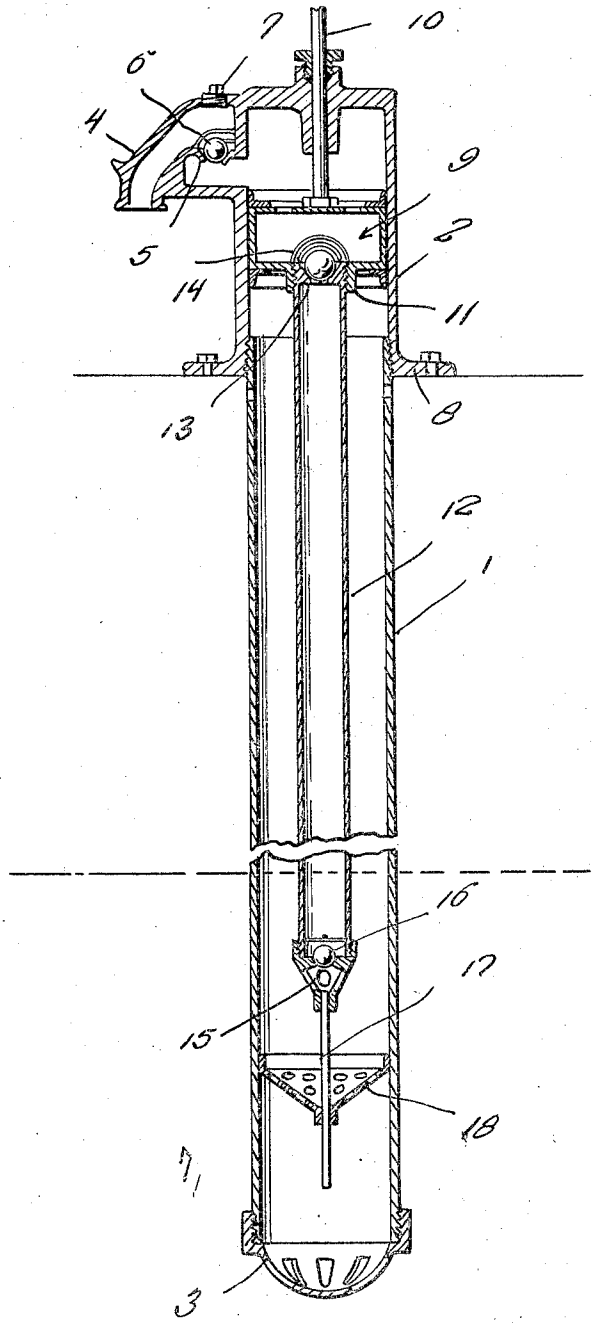
Oct. 13, 1925. 1,557,436

C. DIX

PUMP

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UNITED STATES PATENT OFFICE.

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PUMP.

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To all whom it may concern:

Be it known that I, CECIL DIX, a citizen of the United States, residing at Cohasset, in the county of Butte and State of California, have invented certain new and useful Improvements in a Pump, of which the following is a specification.

This invention relates broadly to an improved pump and has more specific reference to a single acting pump which has been constructed for deep well pumping.

The invention relates more particularly to a single acting pump which embodies a hollow valve plunger head to which a comparatively long pipe is connected, this pipe being provided at its bottom with a foot valve and serving to conduct the water from the bottom of the well into the plunger head, from which it is forced and discharged from the cylinder.

One feature of the invention resides in the valve carrier which is attached to the lower end of the water column conducting pipe wherein this carrier is provided with a depending guide stem or rod which reciprocates through a guide member anchored in the well casing.

Other structural distinctions and features will become apparent from the following description and drawing. In the accompanying drawing:

The figure represents a central vertical section, with parts in elevation, through a pipe constructed in accordance with this invention.

Referring to the drawings in detail, the reference character 1 designates a casing detachably connected to the lower end of a combined stand and cylinder 2. At its bottom, the casing is equipped with an appropriate strainer 3. The cylinder is provided with a discharge spout 4 constructed at its inner end with a diaphragm 5 fastened to form a seat for a ball check valve 6. If desired, cage for the ball may be provided at this point, also, a removable screw cap or plug 7 may be provided in the spout for permitting access to the interior to be had. Furthermore, the body of the cylinder may be provided with a base 8 by means of which it is attached to a platform or the like. Slidable within the cylinder is a hollow plunger head 9 which is adapted to be reciprocated by an operating rod 10 passing through the guide and stuffing box of the stand. This plunger head is provided at the center of its bottom with a screw threaded neck 11 and a column lifting pipe 12 is detachably connected with this neck. The upper end of the pipe is constructed to provide a seat for a ball check valve 13. At this point, an appropriate cage 14 for the valve may be provided.

Mounted upon the lower end of the pipe 12 is a valve carrier 15 of the design shown. In the present instance it is somewhat conical in general contour and is provided with a diaphragm forming a seat for a foot valve 16. It is also constructed to carry a depending rod or guide stem 17 which passes through a central guide in the apertured guide plate 18 anchored within the casing.

In practice, as the plunger, which includes the pipe 12, is moved downwardly the foot valve 16 is unseated, permitting water to enter the pipe 12. On the upstroke of the plunger, the valve 16 is closed and on the return down stroke the valve is again unseated. The column of water is thus built up into the tube or pipe 12 until on the down stroke, the valves 16 and 11 are unseated. Water then enters the plunger head 9 until the cylinder is completely full. After the cylinder has filled, the check valve 16 is unseated on the upstroke of the plunger and water is discharged through the spout 4.

Having thus described the invention, what I claim is:—

1. A pump of the class described comprising a stand including a cylinder and a valved discharge spout, a hollow plunger head mounted for reciprocation in said cylinder, an operating rod passing through said stand and connected with said plunger head, a well casing attached to said stand, a fluid conducting tube attached to said plunger head and depending therefrom into said casing, and a check valve at the lower end of said tube.

2. A pump of the class described comprising a stand including a base, a valved discharge spout, and a cylinder, said cylinder being provided at its top with a guide and a packing gland, an operating rod passing slidably through said guide and packing gland, a hollow plunger head attached to the inner end of said rod and slidable in said cylinder, a check valve carried by said plunger head, a fluid conducting pipe attached to said head and depending therefrom, a check valve carried by the lower end of said fluid pipe, and a well casing attached

to said stand and depending therefrom and surrounding said pipe.

3. In a pump structure of the class described, a hollow plunger head, an operating rod attached thereto, said plunger head provided with water discharge openings at its top and being provided at the center of its bottom with a water intake, a check valve cooperative with said intake, a tube attached to and depending from said plunger head, a valve carrier connected to the lower end of said tube, said carrier being provided with a diaphragm forming a valve seat, a check valve cooperative with said seat, a guide rod carried by said carrier and depending therefrom, and an apertured guide plate with which said guide rod is adapted to cooperate.

In testimony whereof I affix my signature.

CECIL DIX.