I. MITCHELL.

PUMP.

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1,088,608.

Patented Feb. 24, 1914.

Fig. 1.

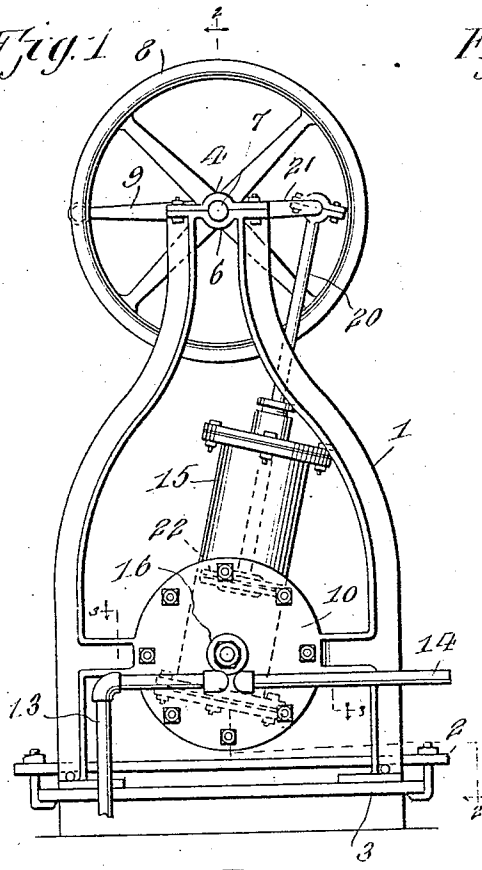


Fig. 2.

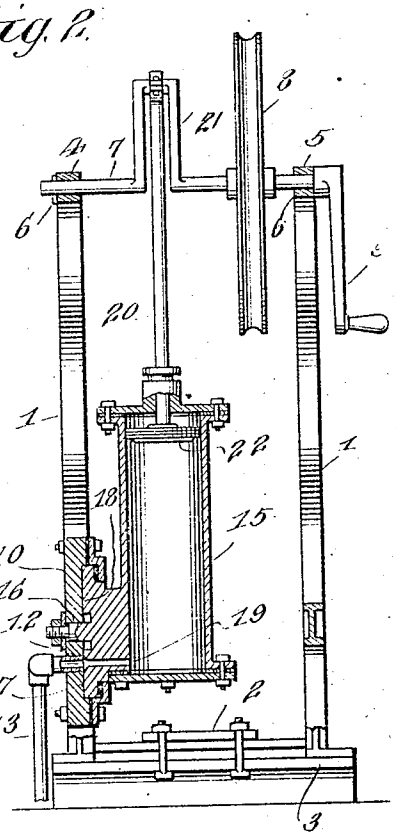


Fig. 3.

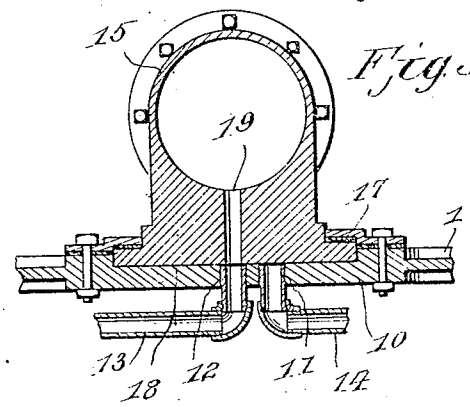
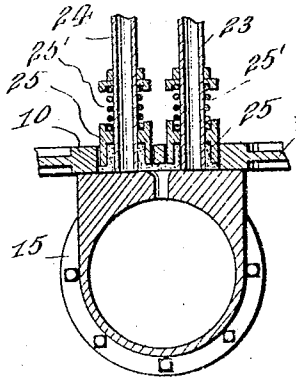


Fig. 4.



Witnesses

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IRA MITCHELL, OF SALEM, OREGON.

PUMP.

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To all whom it may concern:

Be it known that I, IRA MITCHELL, a citizen of the United States, residing at Salem, in the county of Marion and State of Oregon, have invented new and useful Improvements in Pumps, of which the following is a specification.

This invention relates to pumps, the primary object of the invention being the provision of apparatus of this character which will be designed particularly for drawing the water, by suction, from a natural source or other point from which the water is to be conveyed to a receiving destination, and for subsequently forcing the water to said receiving destination, through the medium of a single pump cylinder and working plunger and without the provision of check valves in the course of fluid intake and delivery respectively.

With the above and other objects in view, the invention consists of certain novel features of construction, combination and arrangement of parts, as will be hereinafter described and claimed.

In the accompanying drawings: Figure 1 is a side view of the pump; Fig. 2 is a vertical section therethrough; Fig. 3 is a section on the line 3—3 of Fig. 1; Fig. 4 is a view similar to Fig. 3, showing a slightly modified form of the invention.

The pump may be driven manually or by any well known form of power supplying device, and as illustrated the pump mechanism is shown to include a supporting frame 1 which may be secured through the medium of a clamping plate 2 to a working platform 3. In the construction of the frame, bearing plates 4 and 5 are employed and provided with alined bearings 6 to accommodate a revolving crank shaft 7 having secured thereon a pulley 8 which may be connected with any suitable form of power transmitting device, not shown. A manipulating handle 9 of the pulley wheel may be actuated manually, if desired.

The frame 1 is provided at one side with a valve plate 10 or conducting element having passages 11 and 12 therein, the latter receiving one end of an intake pipe 13, while the former receives a discharge pipe 14. The plunger cylinder 15 is mounted at 16 for oscillatory movements upon said plate 10 and provided with a head 17 having a flat inner surface 18 lying in mutual contact with the valve plate and provided with an opening 19 for alternate registration with the openings in the valve plate during the intake and discharge movements, respectively, of the plunger. The opening 19 extends directly into the cylinder adjacent to the lower end thereof.

The plunger rod 20 is operatively connected with the crank arm 21 of the driven shaft 7 and provided with a working head 22 sliding in the cylinder and oscillating therewith on movement thereof. From this construction it is evident that on the transmission of power to the shaft 7, the plunger head will be first drawn in an upward direction, the cylinder through the crank portion of the shaft having been moved to a position to cause the opening 19 thereof to register with the opening 12, whereby as the plunger is elevated the water from the receiving source will be taken into the cylinder beneath the plunger. Simultaneously with the down stroke of the piston, the cylinder will be brought to register with the opening 11 of the valve plate and as a consequence the water beneath the cylinder will be discharged into the pipe 14 and then conducted under pressure of the plunger to the receiving destination.

In the modified form of pump shown in Fig. 4, the intake and discharge pipes 23 and 24 are each provided with a sliding packing 25 which may be moved against the intake surface of the cylinder through the medium of a suitable spring 25. This construction is found desirable in that a perfect water-tight connection is formed between the pump cylinder and the valve plates to prevent the discharge of the water from this point during the pumping operation.

From the foregoing description, taken in connection with the accompanying drawings, the construction and operation of the invention will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention, as claimed.

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

1. In a pump, an oscillatory cylinder having a laterally opening combined intake and discharge portway, a plunger working in said cylinder, inlet and discharge pipes ex-

tending in the direction of the cylinder and alternately traversed by the portway of said cylinder, the cylinder having a flat face onto which the portway opens, a plate receiving said pipes and provided with a flat face lying in mutual contact with said flat face of the cylinder and yieldable portions of said pipes normally presented against the flat face of the cylinder.

2. A pump structure comprising a frame having a vertically disposed disk, a rocking pump cylinder having a head disposed at one side of the disk of the frame, the said head having a portway therein, pipes leading through the disk and adapted to respectively communicate with the portway on different positions of the pump cylinders, a reciprocating piston operating in the pump cylinder, means for actuating the piston in the cylinder and for oscillating the cylinder and yieldable members slidable on the pipes and through the disks and provided with backing portions bearing against said head.

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

IRA MITCHELL.

Witnesses:
HAX GEHLHAR,
JOHN RIESSBECK.