

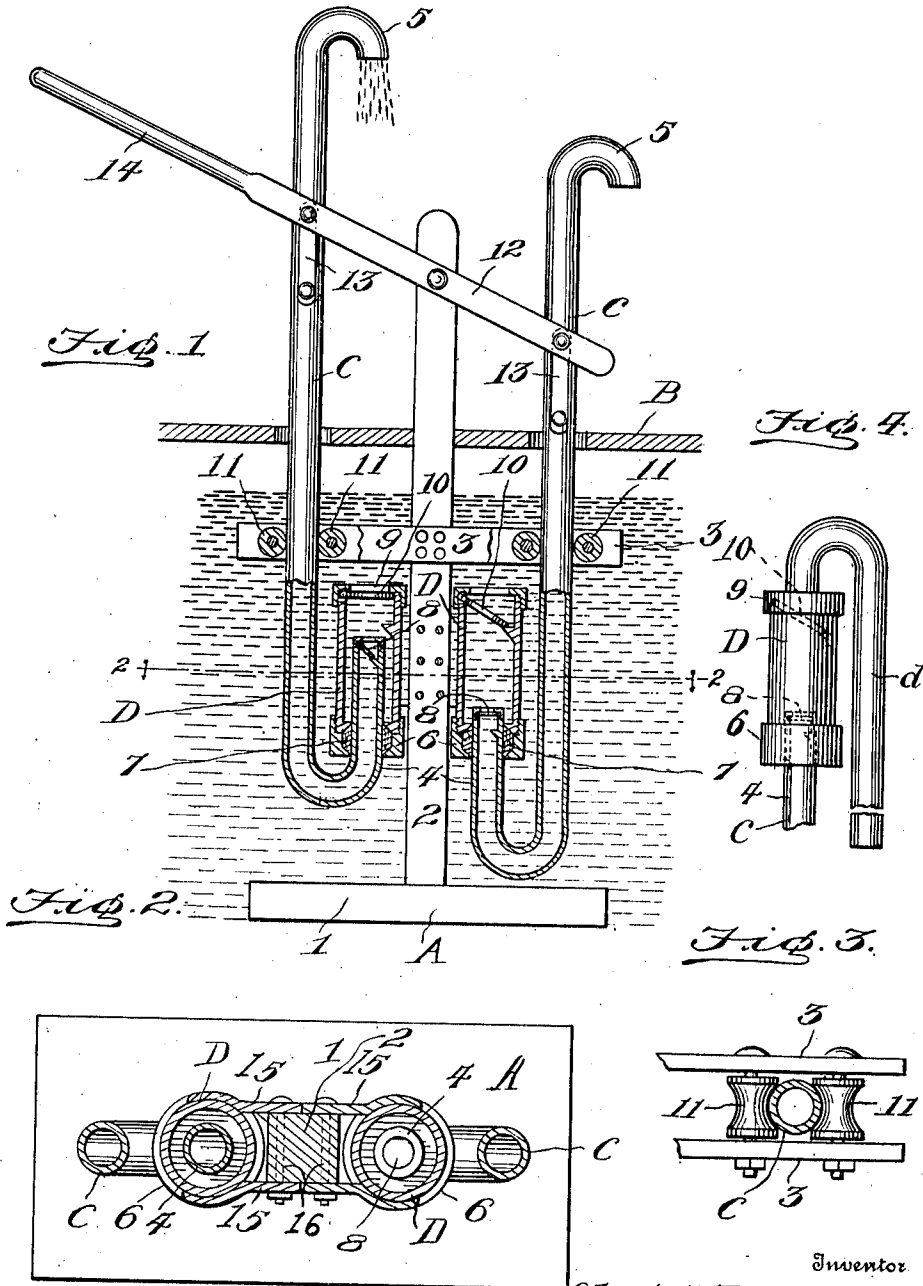
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PUMP.

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1,019,700.

Patented Mar. 5, 1912.



Witnesses

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To all whom it may concern:

Be it known that I, CHARLES F. PRESCOTT, a citizen of the United States, residing at Sunnyside, in the county of Yakima and State of Washington, have invented new and useful Improvements in Pumps, of which the following is a specification.

This invention relates to pumps of that type comprising alternately acting lifting elements mounted to counterbalance each other and actuated by a walking beam.

The invention has for one of its objects to improve and simplify the construction and operation of apparatus of this character so as to be comparatively easy and inexpensive to manufacture, thoroughly reliable and efficient in use, and so designed as to have a large output to render the pump useful for irrigation purposes or the like.

A further object of the invention is the provision of a pump which can be operated successfully when the water falls to a low level whereby a substantially continuous flow can be maintained.

With these objects in view and others, as will appear as the description proceeds, the invention comprises the various novel features of construction and arrangement of parts which will be more fully described hereinafter and set forth with particularity in the claim appended hereto.

In the accompanying drawing, which illustrates one of the embodiments of the invention, Figure 1 is a side elevation of the pump partly in section. Fig. 2 is a horizontal section on line 2—2, Fig. 1, drawn on an enlarged scale. Fig. 3 is a detail view of the guides for one of the lifting elements. Fig. 4 is a detail view showing modified features of the invention.

Referring to the drawing, A designates the supporting frame which is submerged in the well or other source of water and on this frame are mounted the operating parts of the pump. The frame comprises a base 1 which may rest upon the bottom of the well or cistern or be supported from its sides, and from which base rises an upright or post 2 that carries a pair of cross bars 3, the upper end of the post projecting through and perhaps being supported by a platform B on which the operator may stand while working the pump and forming a support for the pump handle or walking beam.

The lifting elements C are vertically movable metal tubes or the like that have their

lower ends bent backwardly and upwardly in the form of goose necks 4, while the upper ends are bent into discharge spouts 5. The upturned lower extremities of the tubes extend into the stationary cylinders D that are mounted adjustably on the upright 2 by clips 15 bolted thereto as at 16 and in the bottom heads 6 of the cylinders are packing boxes 7 through which the upturned ends of the tubes C work. In the receiving end of each tube is a flap valve 8 that opens inwardly so as to admit water from its respective cylinder D when the tube is moved upwardly and which is adapted to close when the tube moves downwardly for effecting a discharge of water from the tube. The cylinders B are formed with inwardly directed extensions D' forming stops to limit downward movement of the flap valves 10, and said stops are arranged so as to project into the vertical path of the intake ends of the tubular lifting element C and consequently limit the upward movement of said intake ends within the cylinders. The upper end of each cylinder D has a cap threaded thereon, said cap being provided with a port 9 which is controlled by a flap valve 10 that is adapted to swing open when the tube moves downwardly to admit a charge to the cylinder, and to close when the tube moves upwardly. On the cross bars 3 are mounted guide rollers 11 engaging at opposite points the bodies of the lifting elements C so as to guide the latter vertically and prevent the upturned ends 8 from binding in the cylinders D.

Mounted on the upper end of the upright 2, which projects above the platform and forms a post, is a pump handle or walking beam 12 pivotally connected by links 13 to the lifting elements or tubes C, the walking beam being extended at one end into a handle 14. If desired, the walking beam can be connected with a suitable motor mechanism for operating the pump by power.

In practice, the walking beam is oscillated so as to move the lifting elements simultaneously in opposite directions. In Fig. 1, the handle end of the walking beam is represented as moving upwardly and water is passing from the left hand cylinder D into the lifting element communicating therewith so that water will be discharged out of the nozzle 5 of said element. Simultaneously, the right hand lifting element is moved downwardly and a charge of water

is sucked into the right hand cylinder D so as to be ready to cause the water to deliver through the right hand lifting element on the next stroke. In this manner, the lifting elements alternately discharge an amount of water equivalent to the displacement of the portion of the lifting element moved into its respective cylinder D. The lifting elements may discharge into a trough or other device from which a continuous flow of water will be produced. The lifting elements and cylinders may be of any suitable size, according to the capacity desired, and as the lifting elements are constantly full of water and therefore counterbalance each other, comparatively little power is required to operate the pump.

When the body of water from which the pump draws the supply becomes so shallow that the entire device cannot be lowered into the well or cistern sufficiently to submerge the upper inlet ends of the cylinder D, the modification shown in Fig. 4 is employed temporarily. The device is withdrawn and the cylinders D are each provided with a suction pipe *d* in the form of a goose-neck which is supported in upright position by the cylinder by having its upper end connected with the upper end of the cylinder, while its lower end extends into the body of water. The device is then replaced in position and the lower end 4 of the lifting element C works in the cylinder D in the same manner while the lower inlet end of the pipe *d* can extend downwardly to any suitable distance depending upon its length and the position to which the frame A is set. This is but a temporary expedient, however, as the suction pipe *d* will not be necessary when the water in the well or cistern stands at its usual level, and the upright 2 is of a proper length to obviate the use of the suction pipes *d* under ordinary conditions.

The parts of the frame A are intended to be so proportioned and located as to render access to all valves possible as follows: The nuts on bolts 16 are loosened until clips 15 permit the cylinders to be raised perhaps into contact with cross bars 3, and the handle 14 is elevated to its highest possible point; this will raise the left end 4 and depress the right end until the latter passes out the packing box 7, and the walking beam is then thrown to its other extreme

position to free the left end 4 of its cylinder. Both cylinders are then removed from their clips, when their packing boxes and valves can be readily inspected and repaired, and the exposed valves 8 will be within easy reach. The parts are replaced by a reversal of this operation.

Another feature of construction which I consider advantageous because of its simplicity and cheapness, while also permitting access to all parts, is the frame A employed in this connection. As above stated, the upper end of the upright 2 extends through the platform B and forms a post for the pump handle or walking beam, and, as this post rises and falls with the elements C as the entire device is adjusted in the well, no disturbance of the connections 13 is required whatever the position of the frame. While this standard may be suspended from the platform, its lower end, or its base 1 if employed, is by preference (or may be in addition) supported by the bottom or the sides of the well. Thus the upright member of the frame constitutes both a post and a support, removable or adjustable as one, and carrying the other elements as above described.

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

In a pump, a supporting post, U-shaped straps mounted on the supporting post with their middle portions extending outwardly of said post and their terminals engaging the post, cylinders secured by the straps in vertical relation to each other and to the post, each of said cylinders being provided with inwardly directed extensions forming stops, flap valves hinged to the upper ends of the cylinders and adapted to engage the stops thereof, lifting elements having upturned intake ends disposed in the cylinders and adapted to engage the stops of said cylinders, flap valves carried by said intake ends, means for guiding the movement of the lifting elements, a lever mounted on the upright end of the supporting post and links pivotally connecting the lever with the lifting elements.

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

CHARLES F. PRESCOTT.

Witnesses:

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