

(No Model.)

G. W. LONG.
PUMP.

No. 470,063.

Patented Mar. 1, 1892.

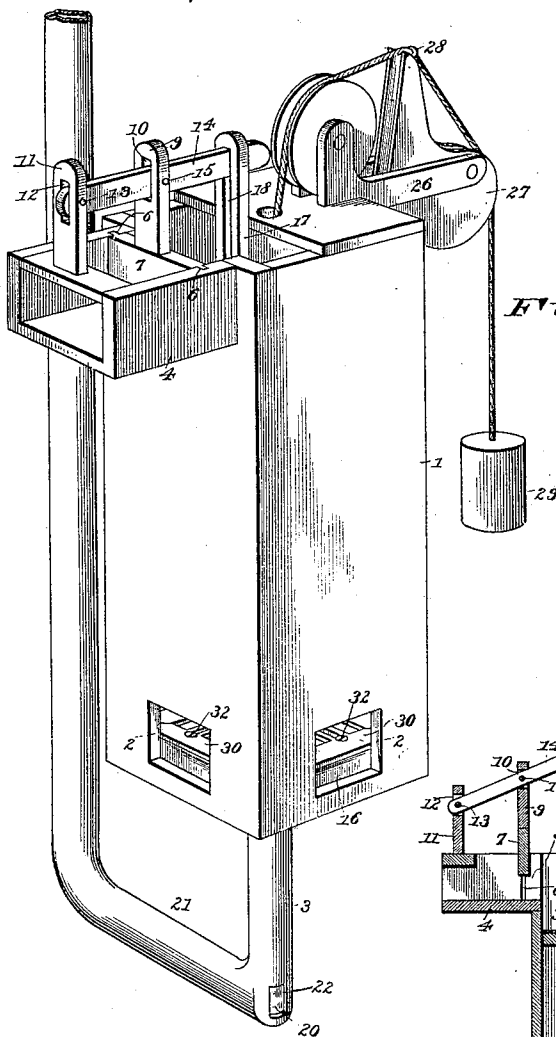


Fig. 1

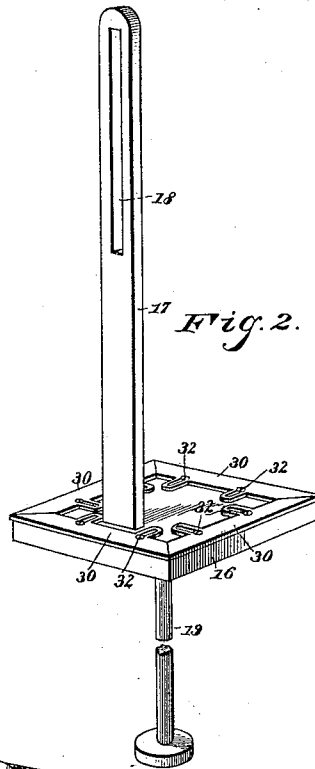


Fig. 2.

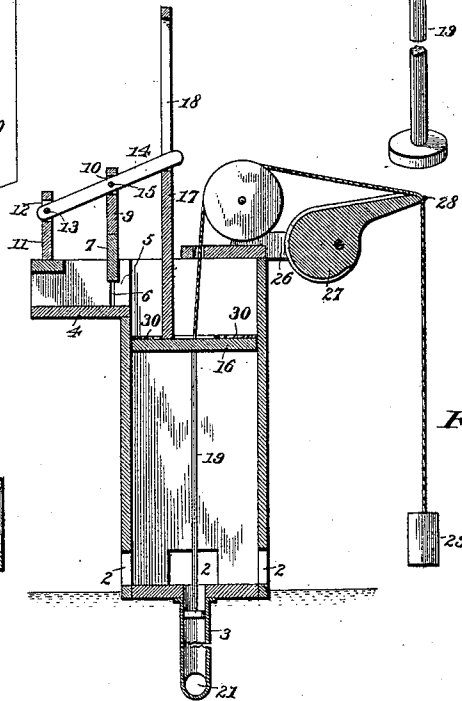


Fig. 3.

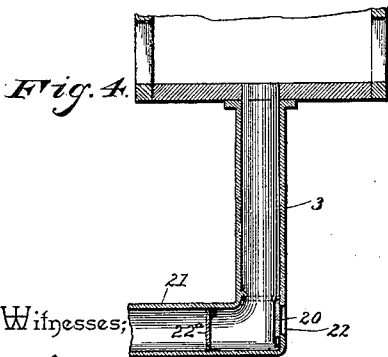


Fig. 4.

Witnesses,

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By his Attorneys,

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UNITED STATES PATENT OFFICE.

GEORGE W. LONG, OF GREENCASTLE, PENNSYLVANIA, ASSIGNOR OF TWO-THIRDS TO BARNETT LONG AND GEORGE F. GROVE, OF SAME PLACE.

PUMP.

SPECIFICATION forming part of Letters Patent No. 470,063, dated March 1, 1892.

Application filed August 5, 1891. Serial No. 401,772. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. LONG, a citizen of the United States, residing at Greencastle, in the county of Franklin and State of Pennsylvania, have invented a new and useful Pump, of which the following is a specification.

This invention relates to pumps; and the objects in view are to provide a pump of cheap and simple construction adapted to be used and operated by a body of water for the purpose of pumping said water when collected to some distant point.

With the above objects in view the invention consists in certain novel features of construction and combination of parts herein-after specified, and particularly pointed out in the appended claim.

Referring to the drawings, Figure 1 is a perspective of a pump constructed in accordance with my invention. Fig. 3 is a vertical longitudinal section thereof, the same being located in operative position. Fig. 2 is a detail of the pump-head. Fig. 4 is a detail sectional view of the lower part of the pump-casing and depending valve-chamber.

Like numerals of reference indicate like parts in all the figures of the drawings.

1 designates the pump-barrel, which is rectangular in cross-section and provided at its bottom and at its four sides with discharge openings or ports 2, and at the center of its bottom has depending therefrom and passed therethrough a valve-chamber 3. A chute 4, leading from under any body of flowing water, discharges through an opening 5 into the pump-barrel and is provided at opposite sides with a pair of vertical ways 6, in which is mounted for reciprocation a vertically-movable gate or cut-off 7, from which rises a standard 9, provided near its upper end with an opening 10. In rear of the gate there is mounted on the chute a fulcrum-standard 11, provided near its upper end with an opening 12, in which is fulcrumed or pivoted by a pin 13 the rear end of a lever 14, said lever also passing through the opening 10 of the standard 9 and being pivoted thereto, as at 15.

16 designates a pump-head or plunger, which is mounted within and loosely fits the

pump-barrel. A standard 17 rises from the pump-head, and at its upper end is provided with a slot 18, in which rides the inner or free end of the lever 14. From the under side of the head 16 depends the pump-rod 19, which has its lower end entered into the valve-chamber 3, and there provided with a suitable valve 20. The lower end of the valve-chamber communicates with a discharge-pipe 21, provided at its lower end with a valve-induction opening 22 and leading to any suitable point of discharge, and beyond its induction-opening provided with a discharge-valve 22^a.

In a suitable bracket 26, located at one side of and in this instance secured upon the pump-barrel, there is pivoted a grooved eccentric segmental lever 27. In rear of the lever, in bearings formed in the bracket, a grooved pulley is located, and a chain or rope (in this instance the latter) is secured between its ends, as at 28, to the point of the eccentric. One end of the rope or chain is made fast to a weight 29, located beyond and depending from the eccentric, while the opposite end of the rope passes within the pump-barrel and is made fast to the pump-head.

This completes the construction of the pump, and the operation is as follows: To operate the pump, the same is placed in a suitable cistern or other water-reservoir, as shown, and the discharge-pipe leads therefrom to any point to which it is desired to conduct the water. The water coming through the chute from any natural source of supply passes into the pump-barrel, and, when sufficient to counterbalance the weight 29, depresses the head, thus elevating the rope, and through the medium of the standard 17, which also descends, gradually closing the gate 7 and cutting off the supply of water through the chute to the pump-barrel. When the head has reached the bottom of the barrel, the water is poured therefrom into the cistern or water-reservoir, the water-level of which is just below the discharges of the barrel, and the sudden passage of the water from the head relieves the latter of the weight of the water, and being thus released is retracted or re-elevated to the upper end of the barrel by the falling of the weight 29, where-

upon a fresh supply of water is admitted to the barrel and exerts its influence upon the head, the gate admitting the supply being opened by the ascent of the standard 17, whose slot is properly proportioned in length, so as to actuate the gate near the extremity of its movements. As the head ascends and descends, it will be seen that the pump-rod and its valve is likewise reciprocated, the ascent of the rod and valve serving to draw water from the reservoir through the induction-opening into the discharge-pipe and valve-chamber, and in its descent serving to force the water by the narrow closed induction-opening through the discharge-pipe to the point of emission. From this it will be seen that the power operating the pump is in reality the weight of the water subsequently operated upon by the pump and that the pump is operated simply by the weight of the water and requires no force other than said weight. In this manner water may be successfully and cheaply conducted and forced to distant points, the apparatus accomplishing the same being of simple construction, easily and cheaply operated, and requiring but very slight attention. Slotted plates are adjustably mounted at the edges of the head 16 and serve as a packing between the cylinder and head, which packing may be adjusted by screws 32, passed through the slots in the plates.

Having described my invention, what I claim is—

In a pump, the combination, with the

pump-barrel provided at its lower end with discharges, the valve-chamber depending from the lower end of the barrel, the discharge-pipe located below the water-line of the reservoir, provided with a valved induction-opening and connected with the valve-chamber, a pump-head mounted for vertical reciprocation in the barrel, a chute leading from a source of supply and adapted to deliver water in the barrel above the head and provided with opposite ways, standards located upon the head, the gate, and the chute, and each provided with a slot, and a lever pivoted at its rear end to the standard of the chute, between its ends to the slot of the standard of the gate, and at its inner end mounted loosely for movement in the slot of the standard of the head, of a bracket projecting from the barrel, a pulley journaled in the bracket, an eccentrically-pivoted segmental lever having a peripheral groove mounted in the bracket in front of the pulley, and a rope connected to the lever at its apex or extremity, at its outer end provided with a weight for counterbalancing the head of the pump and at its inner end connected to the head, substantially as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

GEORGE W. LONG.

Witnesses:

J. H. LIGHT,

WM. W. LOWMAN.