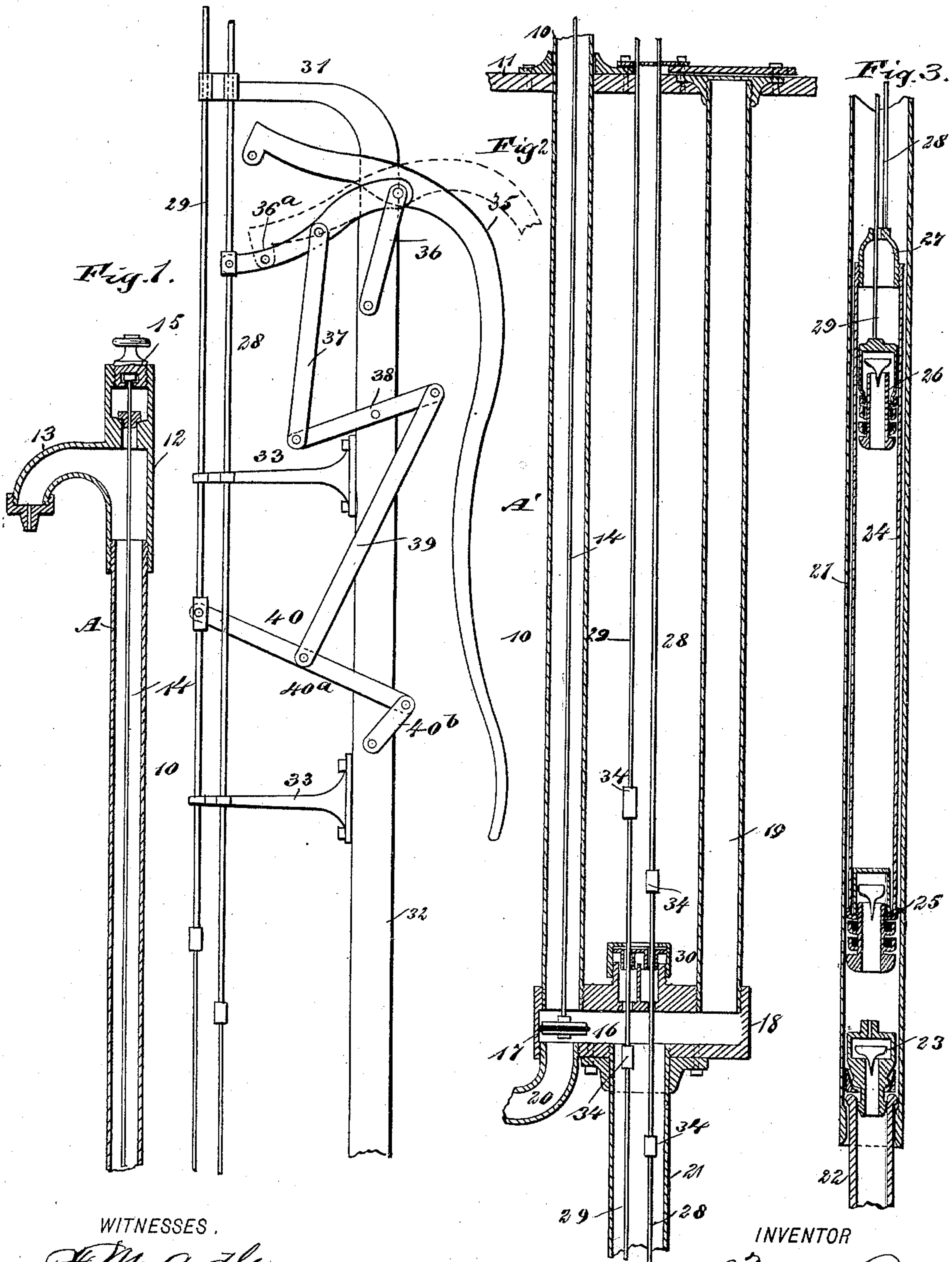


(No Model.)

W. PETERSON.  
PUMP.

No. 482,588.

Patented Sept. 13, 1892.



WITNESSES.

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# UNITED STATES PATENT OFFICE.

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## PUMP.

SPECIFICATION forming part of Letters Patent No. 482,588, dated September 13, 1892.

Application filed April 22, 1892. Serial No. 430,230. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM PETERSON, of the township of Genesee, in the county of Kandiyohi and State of Minnesota, have invented a new and useful Improvement in Pumps, of which the following is a full, clear, and exact description.

My invention relates to an improvement in pumps especially adapted for use in tubular wells, and has for its object to construct a pump with two pistons actuated from a single lever reciprocated simultaneously but in opposite directions, which lever may be operated by hand or by a wind-wheel or other applied power.

A further object of the invention is to provide a pump from which a continuous stream of water may be made to flow and to construct the pump in a simple, durable, and economic manner.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claim.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures and letters of reference indicate corresponding parts in all the views.

Figure 1 is a partial side elevation and partial vertical section of the upper portion of the pump or that portion adapted to be located above the platform or ground. Fig. 2 is a continuation of the pump, the said continuation being shown in vertical section and representing that portion of the pump contained between the upper platform and the well-tubing; and Fig. 3 is a vertical section through a portion of the well-tubing.

The body A of the pump may be made in any suitable or approved manner, but preferably consists of a shell or casting 10 of metal, which extends some distance above a platform 11 and some distance below the platform, as shown in Fig. 2. The upper end of the shell of the pump-body is provided with a head 12, which carries a delivery-nozzle 13, and the pump-body is also provided with a valve-rod 14, extending through it from top to bottom, the said rod having attached to its top a knob 15, to which the valve-rod is connected, the said knob being adjustable in the

top of the pump. At the lower end of the valve-rod a valve 16 is located. This valve is of disk form and has its periphery covered by a cushion 17, of rubber or a like material, the cushion being preferably made to extend some distance from the periphery.

The lower end of the pump-body 10 is screwed or otherwise secured in an opening produced in a box 18, near one end of the upper surface of the latter, and a second opening is made in the upper portion at the opposite end of the box, which receives the lower end of a tube 19, the upper end of this tube being closed by reason of its engagement with the platform 11, and this tube serves the dual purpose of a support for the platform and as a reservoir for air.

In the bottom of the box 18, immediately beneath the lower end of the pump-body, an elbow-pipe 20 is screwed or otherwise secured, and this pipe is normally closed by the valve 17 above referred to. Piping is to be connected with the elbow leading to tanks located at any desired point. Thus while the valve is seated over the elbow water will flow up to the mouth of the pump, and when the valve is screwed up to close the lower end of the body-tube 10 the water will flow through the elbow 20. The upper section 21 of the main well-tube is screwed into or otherwise placed in connection with the box 18 at or near its center, and this upper tube is connected with a second strainer-section 22 of the well-tube in any suitable or approved manner, and where the two sections of well-tubes unite a suction-valve 23 is located, the valve being preferably of the character known as a "puppet-valve."

Within the upper section of the main well-tube a tube 24 is held to slide, the lower end of which tube is provided with a plunger-valve 25 of like nature as the suction-valve 23, the valve-stem being provided with three or more packing-rings arranged one above the other. A second plunger-valve 26 is held to slide in the interior tube 24, and this upper valve is similar to the lower one. When the upper valve is carried downward it opens and when it is carried upward it closes, and the lower valve 25 has a like action. The extreme upper end of the interior sliding tube 24 is connected with a valve-rod 28 through



the medium of a spider or cage 27, and the plunger-valve 26 is carried by a cage which has attached to it a rod 29. The rod 29 passes upward through the cage 27, and both rods 28 and 29 are carried upward through the box 18, the latter being provided with suitable stuffing-boxes 30, and likewise up through the platform 11 and also above the platform, preferably at one side of the pump-body, the upper ends of the rods being guided by passing through sockets in an extension 31 of a standard or post 32, and the rods are further guided by passing through apertures in arms 33, projected from said standard, as shown in Fig. 1. Both of the plunger-rods are provided with the usual stops 34, limiting their upward and downward movement. The rods are to be vertically reciprocated simultaneously, but in opposite directions, the object being to draw one plunger-valve upward while the other is forced downward. This is accomplished through the medium of a series of levers and a main or handle lever 35. The handle-lever is connected indirectly with the plunger-rod 28, the handle-lever being fulcrumed upon one end of the arm 36, the opposite end of the arm being pivotally attached to the post 32. Where the handle and arm 36 are pivotally connected, one end of a bar 36<sup>a</sup> is pivotally secured, the opposite end of the rod being fastened to the plunger-rod 28, and the inner end of the handle-lever is secured to the bar 36<sup>a</sup> near the attachment of the latter with the plunger-rod, as shown in dotted lines in Fig. 1. Near the center of the connecting-bar 36<sup>a</sup> one end of a link 37 is pivoted, and this link extends downward, and its opposite end is pivoted to one extremity of a lever 38, which is fulcrumed near its center upon the post 32. At the opposite end of the lever 38 one extremity of a longer link 39 is pivotally attached. This link extends downwardly and forwardly in direction of the plunger-rods, and at its lower end is in its turn attached to a lever 40 near the center of the latter, this lever consisting of a long section 40<sup>a</sup> and short section 40<sup>b</sup>, the two being pivotally united. The short section is pivoted to the post 32 and the long section is attached to the plunger-rod 39. It will be observed that by working the handle-lever 35 up and down the toggle connection, which consists of the links 37 and 39 and the lever 38 between the handle-lever and the lower sectional lever 40, will cause a vertical reciprocating movement of the plunger-rods; but the rods will be moved alternately in opposite directions—that is, one upward and the other downward. Consequently the plunger-valves attached to the rods will be operated in the same manner, and the effect will be as follows: The pump having been in operation for a short time, and presuming the position of the plunger-valves to be that shown in

Fig. 3, a column of water will be maintained between the two plunger-valves. Upon the manipulation of the handle-lever 35 the upper plunger-valve will be forced downward in an open position, the lower plunger-valve will be carried upward in a closed position, and the column of water between the two valves will be forced through the upper valve, while the lower valve will create sufficient suction to draw up water through the well-tube through the suction-valve, and when the upper plunger-valve is carried upward it (closing at that time) forces the column of water above it upward also, and the lower plunger-valve in passing downward closes the suction-valve, yet opens itself, and the column of water which has risen between the suction-valve and the lower plunger-valve will find its way upward through the latter, so that when next the upper plunger-valve is moved downward and the lower plunger-valve upward a column of water will be at hand to be forced through the upper plunger-valve by the lower one, and this operation takes place repeatedly, the result being that water will flow uninterruptedly through the nozzle of the pump during the process of pumping. The elbow-valve is opened only when it is desired to discharge water from the pump proper—as, for instance, to prevent freezing.

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

In a pump, the combination, with the well-tube, its suction-valve, a tube having sliding movement in the well-tube above the suction-valve and having its lower end provided with a plunger-valve, a second plunger-valve having sliding movement in the sliding tube, and plunger-rods, one connected with the sliding tube and the other with the valve sliding in the tube, of a pump-body in connection with the well-tube above the sliding tube and sliding valve, a standard, a handle fulcrumed upon the standard through the medium of a link and having a connection with one of the plunger-rods, a lower lever comprising a long and a short section pivotally connected, the short section being pivoted to the post or standard and the long section attached to the other plunger-rod, a lever fulcrumed near its center upon the post or standard between the upper and lower levers, a link connection between the fulcrum of the upper lever and its connection with the plunger-rod and one extremity of the intermediate lever, and a second link connecting the opposite extremity of the intermediate lever with the longer member of the lower sectional lever, as and for the purpose set forth.

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Witnesses:

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