

W. J. PENNOCK.
PUMP.

APPLICATION FILED SEPT. 10, 1904.

Fig. 1.

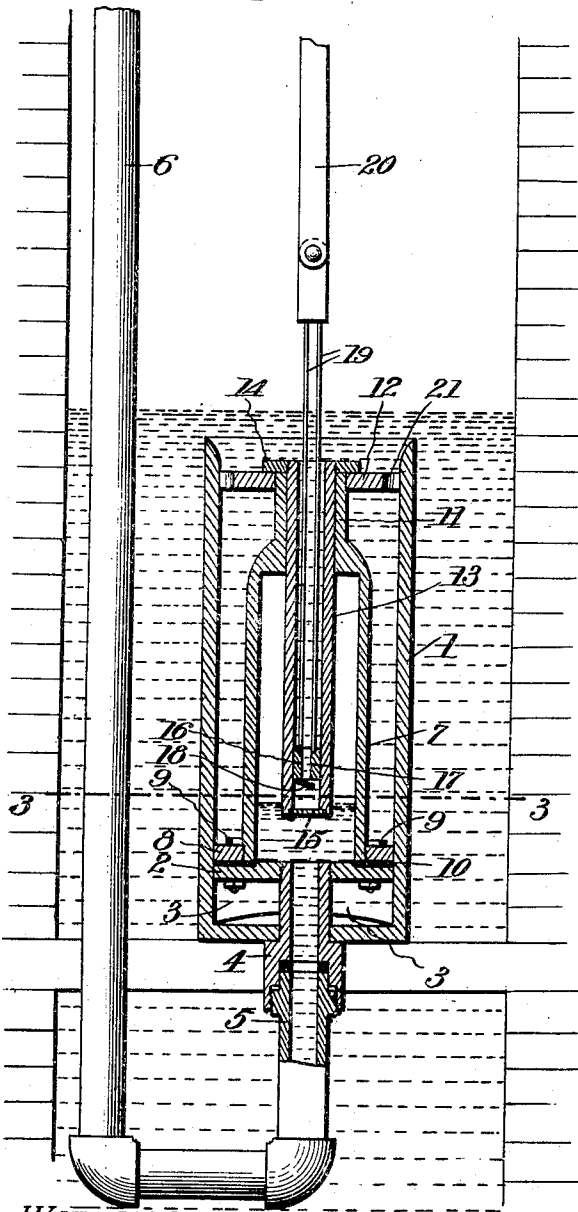


Fig. 2.

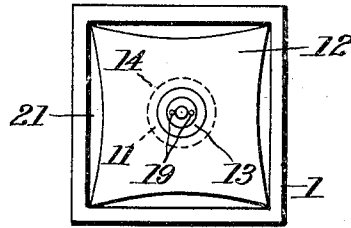


Fig. 3.

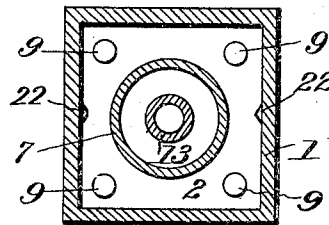
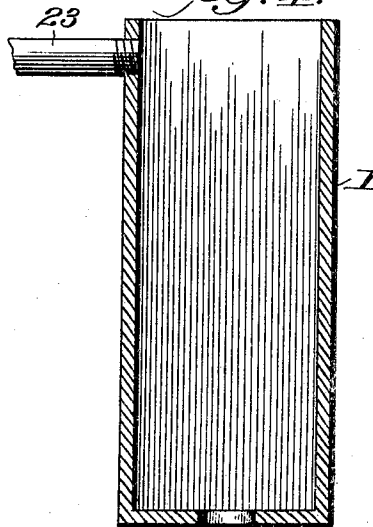


Fig. 4.



WITNESSES:

C. H. Walker.
L. D. Morrill

INVENTOR

William J. Pennock

BY
Shuphard & Parker
Attorneys

UNITED STATES PATENT OFFICE.

WILLIAM J. PENNOCK, OF AVONDALE, PENNSYLVANIA.

PUMP.

SPECIFICATION forming part of Letters Patent No. 794,186, dated July 11, 1905.

Application filed September 10, 1904. Serial No. 223,981.

To all whom it may concern:

Be it known that I, WILLIAM J. PENNOCK, a citizen of the United States, residing at Avondale, in the county of Chester and State of Pennsylvania, have invented new and useful Improvements in Pumps, of which the following is a specification.

My invention relates to pumps, and especially to that class of pumps commonly known as "submerged" pumps.

The object of my invention is to provide a pump adapted to be placed in a shallow well, a spring, a stream or pond, or in any place where the water is so near the surface or being at the surface renders the use of a pump of ordinary construction impractical.

A further object of my invention is to provide a pump which will force water and elevate it to any required height in a continuous stream under pneumatic pressure.

With these and other objects in view the present invention consists in the combination and arrangement of parts, as will be hereinafter more fully described, shown in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that changes in the form, proportion, size, and minor details may be made within the scope of the claims without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings, Figure 1 is a vertical sectional view of my improved submerged pump shown as it might appear in a shallow well or other body of water. Fig. 2 is a top plan view of my pump. Fig. 3 is a transverse sectional plan view taken on line 3-3 of Fig. 1. Fig. 4 is a vertical sectional view of the box of my improved pump with a pipe leading therein as it may be used when the pump is located below the source of water-supply.

Like characters of reference designate corresponding parts throughout the several views.

In its preferred embodiment my improved pump consists of an elongated vertically-disposed box-like casing 1, adapted to be submerged in the fluid to be pumped. Within the lower part of box 1 is disposed a stool 2, provided with a flange or legs 3, adapted to rest upon the bottom of the box 1, but to allow

a space between the bottom of said box and the top of the stool. An opening is provided through the bottom of the box and an aligned opening through the top of the stool, within which is placed one member 4 of a pipe-union. 55 The other member 5 of the pipe-union is secured to the member 4 in the usual manner and connected with the pipe 6. A receptacle 7, provided with a flange 8 at one end thereof, is placed within the box 1 in such position 60 that the flange 8 rests upon the top of stool 2 and is secured thereto by any convenient means, as the bolts 9, and may be provided with an elastic gasket 10, interposed between the flange 8 and the stool 2 to insure a tight 65 joint. The receptacle 7 is provided at its upper end with a contracted hollow neck portion 11 and is retained in an upright position within the box 1 by a plate 12, provided with a central opening which fits over the neck 70 portion 11. Within the hollow neck portion 11 is disposed an ingress-pipe 13, extending longitudinally within the receptacle 7, but stopping somewhat short of the bottom of said receptacle. The pipe 13 extends somewhat above the 75 neck 11 of receptacle 7 and is secured by a nut 14, which screws upon the upper end of pipe 13 and bears against the upper face of the plate 12. The pipe 13 is provided at its lower end with a valve 15, adapted to open into the interior chamber of receptacle 7 and to be seated 80 against and close the lower end of pipe 13. Within the pipe 13 a plunger 16 is mounted adapted for vertical reciprocation and is provided with a centrally-disposed opening 17 85 therethrough and a valve 18, mounted upon the lower side of such plunger, opening downward and adapted to close the opening 17 in the plunger 16. As a means for operating plunger 16 a plurality of parallel rods 19 are 90 rigidly secured to such plunger and extend upwardly through the pipe 13 and above the pump-body. To the upper ends of rods 19 may be secured the pitman-rod 20 of a windmill or other motive power. The plate 12 at 95 the top of the pump is provided with any convenient form of openings, as shown at 21, to permit the flow of fluid therethrough and into the box 1 and about the receptacle 7. The flange 8 and the stool 2 are likewise provided 100

with any convenient openings, as 22, to permit the further flow of the fluid beneath the stool 2 and about the section 4 of the union. Where the pump is designed to be so located—
 5 as, for instance, in connection with a spring— that the water may more conveniently be piped to the pump, a pipe 23 is provided, which enters the top of and discharges water into the box 1.

10 The operation of my improved pump is as follows: With the pump submerged, as shown in Fig. 1, or with the fluid conducted to the box, as by pipe 23, the box is filled with the fluid and the receptacle 7 entirely surrounded
 15 thereby. Water will also flow into and fill the pipe 13. With the power now applied the plunger-rods 19 and the plunger 16 thereto attached are reciprocated and upon lifting the water in pipe 13 passes through the opening
 20 17 in the plunger 16. Upon the return or downward stroke the valve 18 closes the opening 17 and the plunger 16 forces the water contained in pipe 13 downwardly through the
 25 valve 15 and into the air-chamber of the receptacle 17. A continued reciprocation of the plunger 16 will obviously continue to force water into the air-chamber, and the pressure of the air therein will force the fluid through
 30 pipe 6 in a constant stream. It is obvious that by disconnecting the sections 4 and 5 of the union the pump is thereby disconnected and may be conveniently removed.

While I have shown the receptacle 7 as being disposed within a casing 1, it is obvious
 35 that, while desirable, the casing 1 is not necessary to the operation of the pump when being used as a submerged pump, but is necessary when the fluid is piped to the pump.

It is obvious that numerous other changes

may be made in the construction of my pump 40 without departing from the spirit of my invention or the scope of the claims.

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

1. A pump comprising an air-pressure chamber, an inlet-pipe piercing and extending longitudinally within said air-chamber, a valved piston mounted to reciprocate within the inlet-pipe and all adapted to be entirely sur-
 45 rounded by the fluid to be pumped and provided with an operating-rod and a discharge-pipe extending without the fluid. 50

2. A pump comprising an air-pressure chamber, an inlet-pipe piercing said air-chamber
 55 and extending longitudinally across but stopping short of the opposite end thereof, a valve secured to and adapted to close the lower end of the inlet-pipe and to permit the flow of
 60 fluid into but not out of the air-chamber, an annular piston mounted to reciprocate within the inlet-pipe, a valve secured to said piston and disposed to permit the flow of fluid there-
 65 through toward but not away from the air-chamber and all of said pump being adapted to be surrounded by the fluid to be pumped, a piston-rod secured to said piston and extend-
 70 ing without the fluid for connection with a source of power and a discharge-pipe communicating with the air-chamber and extending without the fluid.

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

WILLIAM J. PENNOCK.

Witnesses:

AUGUSTUS BROSIUS,
 R. F. MELONEY.