(No Model.)

B. F. SAMMONS.

PUMP PISTON.

No. 419,713. Patented Jan. 21, 1890.

Fig. 1.

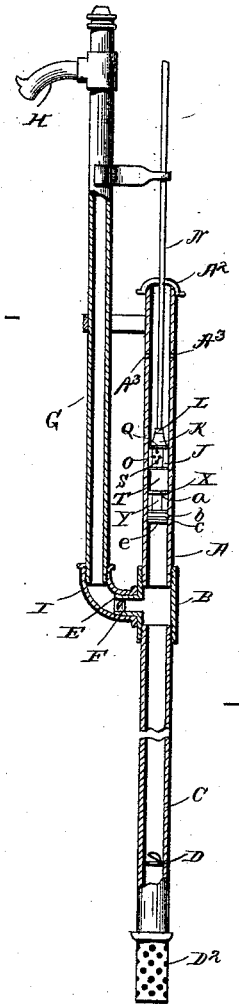


Fig. 2.

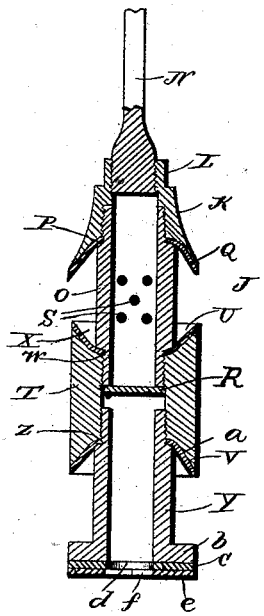


Fig. 3.

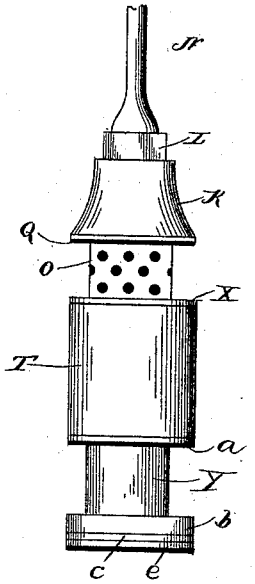
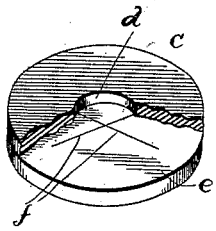


Fig. 4.



Witnesses

Geo. C. Fuch.

Wm. Bagger.

Inventor

Benjamine F. Sammons.

By his Attorneys,

C. A. Snow & Co.

UNITED STATES PATENT OFFICE.

BENJAMINE F. SAMMONS, OF SUMNER, MISSOURI.

PUMP-PISTON.

SPECIFICATION forming part of Letters Patent No. 419,713, dated January 21, 1890.

Application filed May 28, 1889. Serial No. 312,399. (No model.)

To all whom it may concern:

Be it known that I, BENJAMINE F. SAMMONS, a citizen of the United States, residing at Sumner, in the county of Chariton and State of Missouri, have invented a new and useful Pump-Piston, of which the following is a specification.

This invention relates to pump-pistons; and it is an improvement on the device shown in Letters Patent No. 379,543, granted to myself on the 13th day of March, 1888.

The object of my present invention is to construct a device which shall possess superior advantages in point of simplicity, durability, and general efficiency, and which shall provide for the aeration of the water raised thereby by so constructing the piston as to provide for the passage of air; and with these ends in view the invention consists in the improved construction, arrangement, and combination of parts, which will be hereinafter fully described, and particularly pointed out in the claims.

In the drawings hereto annexed, Figure 1 is a vertical sectional view of a pump equipped with my improved piston. Fig. 2 is a vertical sectional view, on a larger scale, of the plunger or piston removed from the pump; and Fig. 3 is a side view of said plunger or piston. Fig. 4 is a detail view.

The same letters refer to the same parts in all the figures.

A designates the pump stock or cylinder, which consists of a vertical pipe of suitable diameter, the upper end of which is a cap A^2, perforated for the passage of the piston-rod, and the lower end of which is connected by a T-coupling B with the suction-pipe C, which is provided near its lower end with an upwardly-opening valve D and a strainer D^2. The lateral branch E of the T-coupling B is provided with an outwardly-opening valve F, and a delivery-pipe G, provided near its upper end with a spout H, is connected to the said laterally-extending branch of the T-coupling by means of an elbow I.

J designates the plunger, the upper part of which is composed of an approximately-conical section K, the upper end of which is squared, so as to form a wrench-seat L, provided with a screw-threaded recess or perforation, into which the plunger-rod N may be screwed. The lower or inner end of the top section K, which is funnel-shaped, as shown, is screw-threaded to receive the upper end of a pipe O, which is provided with a collar P, between which and the conical top section K a washer Q is interposed. The lower end of the pipe O is ground, so as to form a seat for the downwardly-opening valve R, and the said pipe-section is provided with a series of ports or openings S.

T designates the main body of the plunger, which is made of such a diameter as to fit neatly in the pump-cylinder, and the upper and lower ends of which are funnel-shaped, as shown at U and V, respectively, in the drawings hereto annexed. The lower end of the pipe-section O is screw-threaded to enter the upper end of the body T, and it is provided with an annular shoulder W, forming a seat for a washer X. The lower end of the body T is likewise screw-threaded to receive the upper end of a pipe-section Y, which is provided near its upper end with an annular shoulder Z, between which and the body T a washer *a* is interposed. The lower end of the pipe-section Y is enlarged, so as to fit neatly in the pump-cylinder, as shown at *b*, and to the said flange or enlargement is secured a packing-disk *c*, having a central perforation *d*. To the under side of the said packing disk or washer *c* is secured a guard-lip *e*, made of leather, rubber, or other suitable material, which is provided with a slit or opening *f* in the shape of a cross, and arranged directly under the central opening *d* in the washer *c*. The object of this construction is to admit of the passage of air through the piston or plunger, while sand, mud, and other impurities shall be excluded.

Air ports or openings A^3 A^3 are formed in the pump-cylinder A near its upper end, but at a sufficient distance from the cap A^2 to enable the piston to be raised to a point where the ports or openings S shall register with the air-inlet ports A^3.

The operation of my invention will be readily understood from the foregoing description, taken in connection with the drawings hereto annexed. The operator first closes the mouth of the spout with one hand, and with the other he operates the plunger-rod so as to cause the plunger to reciprocate

vertically in the pump-stock. During the major part of each upstroke of the plunger air is prevented from being admitted by reason of the packing Q at the upper end of the plunger, and consequently a vacuum is formed in the lower portion of the pump-stock and water is sucked into the same through the valve D. When the plunger approaches the upper limit of its stroke, the packing Q rises above the air-ports A^3, and consequently the ports or openings S in the plunger become uncovered and air is drawn into the pump-stock. On the descent of the plunger the valve R closes and the air in the pump-stock is forced downward on the column of water therein. At the succeeding upstroke of the plunger the valve D opens and the valve F closes, causing the water to rise in the suction-pipe to the T-coupling, and from thence up into the cylinder or pump-stock to within a short distance of the plunger. On the next downstroke of the plunger the valve D closes and the check-valve F opens, and the water in the lower portion of the cylinder is forced upward through the delivery-pipe. After a few strokes of the plunger the water will begin to flow from the spout, as will be readily understood. A pump thus constructed can be operated with great ease and, after the first few strokes, with a very short stroke, and is adapted to raise water to a great height. The water, as will be seen, does not pass through the plunger, and the device may therefore be advantageously used for raising water in which sand and other impurities are held in suspension.

By the improved construction of the piston or plunger the packing composed of the washers Q, W, and *a* is rendered much more effective. The parts may be readily separated for the purpose of repairing the same, and impurities held in suspension in the water will be to a great extent excluded from the valves, and thus be prevented from interfering with the successful operation of the pump.

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

1. In a pump piston or plunger, the combination of the cylindrical body having funnel-shaped recesses at its upper and lower ends, the pipe-section connected to the upper end of said body and provided with a downwardly-opening valve at its lower end, a series of ports or openings in its sides, and annular shoulders at its upper and lower ends, a conical cap-piece secured to the upper end of said pipe-section and having a funnel-shaped recess in its under side, and washers interposed between said pipe-section and the body and the cap-piece, and resting in the funnel-shaped recesses of said body and cap-piece, substantially as set forth.

2. In a pump piston or plunger, the combination of the cylindrical body, the pipe-section connected to the upper end of the same and provided with a downwardly-opening valve and having a series of ports or openings in its sides, the pipe-section connected to the lower end of said body and having an enlargement or flange at its lower end, a washer secured to the under side of said flange, and a guard-lip secured to the under side of said washer and having a cross slit or opening, substantially as and for the purpose set forth.

3. In a pump piston or plunger, the combination of the cylindrical body having funnel-shaped recesses at its upper and lower ends, the pipe-section connected to the upper end of said body and having a downwardly-opening valve and provided in its sides with ports or openings, the conical cap-piece secured to the upper end of said pipe-section and having a funnel-shaped recess in its under side, the pipe-section secured to the under side of the body and having a flange or enlargement at its lower end, a washer secured to the under side of said flange or enlargement, an elastic guard-lip secured to the under side of said washer and having a cross-slit, and washers interposed between the cylindrical body and the upper and lower pipe-sections and between the upper pipe-section and the conical cap-piece, and resting in the funnel-shaped recesses, substantially as and for the purposes herein shown and specified.

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

BENJAMINE F. SAMMONS.

Witnesses:
L. S. SAMREY,
DAN. B. TRAX.