(No Model.)

C. JENSEN.

PUMP.

No. 346,206. Patented July 27, 1886.

FIG. 1.

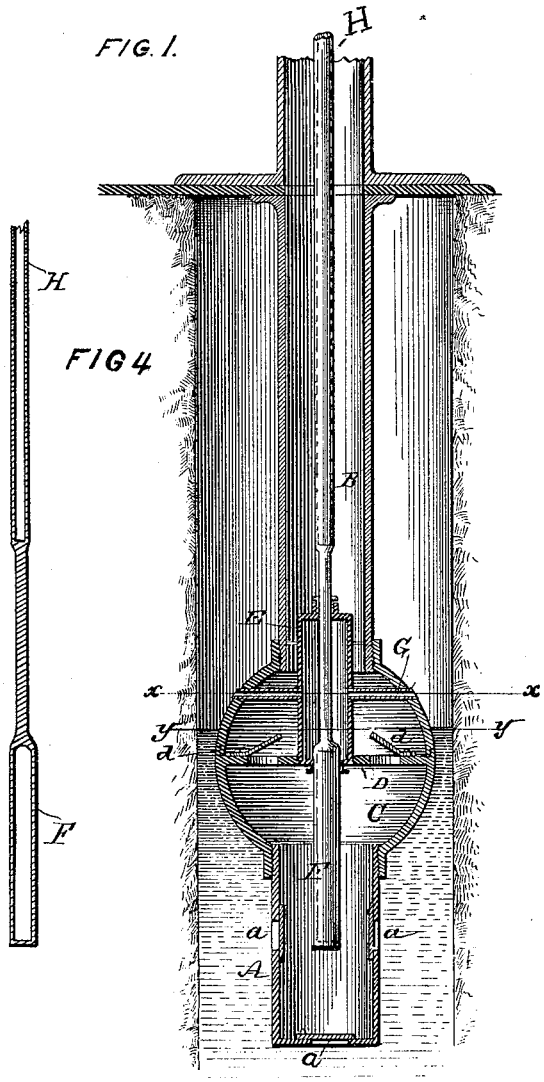


FIG 4

FIG. 2.

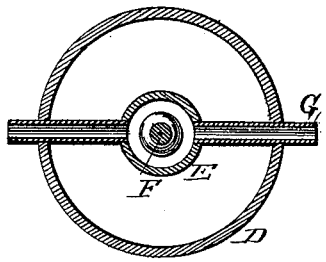
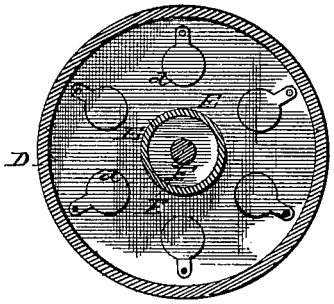


FIG. 3.



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CHRISTOPHER JENSEN, OF HOLDREGE, NEBRASKA.

PUMP.

SPECIFICATION forming part of Letters Patent No. 346,206, dated July 27, 1886.

Application filed September 30, 1885. Serial No. 178,650. (No model.)

To all whom it may concern:

Be it known that I, CHRISTOPHER JENSEN, a citizen of the United States, residing at Holdrege, in the county of Phelps and State of Nebraska, have invented certain new and useful Improvements in Pumps; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention consists of certain combinations of devices, which will be fully understood by the following description and claim.

In the accompanying drawings, Figure 1 is a vertical section of my pump in a well, the pump stock or pipe being cut away above the platform. Fig. 2 is a horizontal section through the enlarged chamber of the pump on the line *x x*, Fig. 1. Fig. 3 is a horizontal section through the same enlarged chamber on the line *y y*, Fig. 1, looking downward upon the valves.

In the drawings are represented a large pipe, A, forming the lower part of my pump, and having check-valves *a* therein. Another pipe, B, of the same diameter, rises to the top of the well. Between these two pipes A and B, and partly immersed in the water, is an enlarged globular chamber cast in two parts and containing an air-chamber, E, and a disk or diaphragm, D, provided with valves *d*. The plunger F works in a packed joint in the diaphragm D, and the plunger-rod H works in a packed joint at the top of the air-chamber E, which is provided with tubes G, for the escape of water, in case the latter finds its way into the lower part of the air-chamber. The globe or enlarged cylinder D may be cast with parallel sides, if desired, and the discharge-tube G should be near the high-water line, so as to leave the greater part of the air-chamber E free of water. The plunger F may be made much larger, if desired, to displace more water at each stroke; but in no case is it made to fill the tube A and work on the principle of a piston in a cylinder. The air-chamber E serves to prevent the water from pressing on the top of the plunger F, and thus allows the plunger to be raised with greater ease, while the downward stroke of the plunger must do the work of forcing the water up through the valves *d*. It is intended to make the plunger partly of wood and partly of iron, or to use a hollow plunger or rod, as indicated in dotted lines in Fig. 1, and shown in Fig. 4, so as to nearly balance the whole by the weight of water displaced by the same, and thus allow the plunger to play freely up and down in the water. By this construction the least amount of power is required to work the pump.

Having described my invention, what I claim is—

In a force-pump, the combination of a cylinder, a valved diaphragm, and an air-chamber supported on said diaphragm, the former being arranged below the limit of the upward stroke of the plunger, and a plunger working partly within said air-chamber, substantially as set forth.

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

CHRISTOPHER JENSEN.

Witnesses:
DANIEL BREED,
C. P. CRANDALL.