W. Shoup,

Pump for Oil & Salt Wells,

No. 45,647, Fig. 1 Patented Dec. 27, 1864.

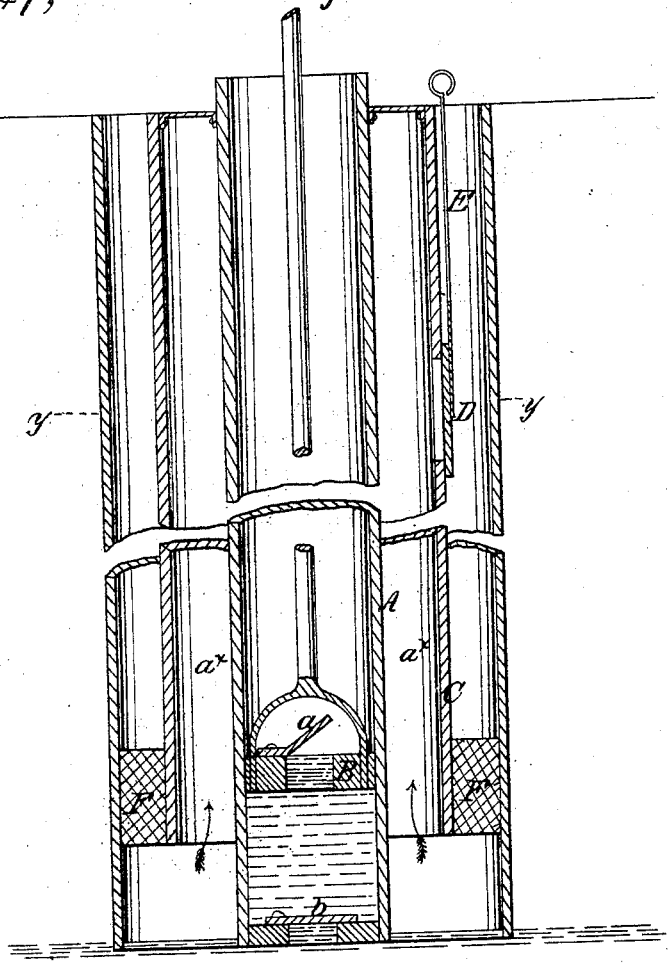
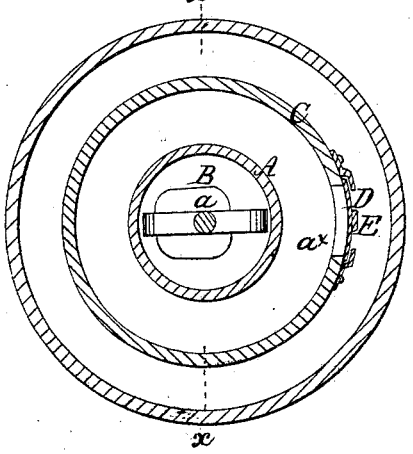


Fig. 2



Witnesses

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UNITED STATES PATENT OFFICE.

WILLIAM SHOUP, OF SALTSBURG, PENNSYLVANIA.

IMPROVEMENT IN PUMPS.

Specification forming part of Letters Patent No. **45,647**, dated December 27, 1864; antedated April 26, 1862.

To all whom it may concern:

Be it known that I, WILLIAM SHOUP, of Saltsburg, in the county of Indiana and State of Pennsylvania, have invented a new and useful Improvement in Pumps for Oil and Salt Wells; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a vertical central section of my invention, taken in the line *x x*, Fig. 2. Fig. 2 is a horizontal section of the same, taken in the line *y y*, Fig. 1.

Similar letters of reference indicate corresponding parts in the two figures.

Oil and salt wells are usually from three and a half ($3\frac{1}{2}$) to four and a half ($4\frac{1}{2}$) inches in diameter, and from one hundred (100) to six hundred (600) feet deep. The present mode is to place a single tube in the well, extending from the top to the vein of oil or salt-water to be pumped up to the surface of the earth. A seed or tallow bag is placed on the outside of the tube, just above the vein, to serve as a packing and prevent the water from the veins above from falling into the oil or salt-water vein at the lower end of the tube. This arrangement is attended with some difficulties. In the first place, there is usually more or less gas in these oil and salt wells, and the bags herein alluded to prevent the escape of the gas at the outer side of the tube and compel it to pass up through the valves of the pump, thereby greatly interfering with the pumping operation. In the second place, a vacuum is sometimes formed below the seed-bags, which cannot be avoided, and this also greatly interferes with the operation of pumping. In the third place, a certain amount of water is almost necessary to mingle with the oil in oil-wells in order to facilitate the pumping operation, for, in case the supply of oil is not sufficient to keep the pump filled, water must be introduced to supply the deficiency. The seed-bags in the old arrangement greatly interfere with the introduction of water for this purpose, and it is impossible to regulate the supply of water as required.

The herein-described invention, it is believed, fully obviates these difficulties, and to this end I employ two concentric tubes, the central one being the pump, and the outer one forming a passage or communication from the bottom to the top of the well at the outer side of the pump, the outer tube being provided with a gate by which water may be admitted to the well, as circumstances may require.

To enable others skilled in the art to fully understand and construct my invention, I will proceed to describe it.

A represents the pump tube or cylinder, which is provided with a piston, B, having a valve, *a*, opening upward, the lower end of the tube also having a valve, *b*, which opens upward, as shown clearly in Fig. 1. The above parts are precisely the same as those now used—in fact, comprise an ordinary pump, and therefore do not require a minute description.

C represents a tube which is larger in diameter than the pump-tube A, but is concentric with it. This tube C extends down to the bottom of the well or to the vein from which the oil or salt-water is pumped. The tube C is provided with a gate, D, which has a handle or rod, E, attached, said rod extending to the surface of the ground, so that the gate may be opened and closed or adjusted in a partially-closed state, as required.

The two tubes A C are sunk to the bottom of the well and a space, a^x, is allowed all around the outer tube C, between it and the sides of the well, and the seed-bag F is adjusted on the outer tube C.

By this arrangement it will be seen that all gas is allowed to escape from the well up between the tubes A C, and, in case of pumping oil, when water is required to be let into the well from a vein above in order to supply a deficiency of oil, it can be readily done by hoisting the gate D. In the old plan the seed-bag F required to be perforated, and this arrangement admitted of water passing down into the well when the pump was at rest or inoperative, the water forcing the oil back, and causing, when the pump is again started, a large quantity of water to be pumped up before the oil is reached. This difficulty, it will be seen, is fully obviated by my inven-

tion, as water is only admitted when required.

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

The combination of the pump-tube A and concentric tube C, the latter provided with the gate D, and seed or packing bag F, all arranged substantially as and for the purpose set forth.

WILLIAM SHOUP.

Witnesses:
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