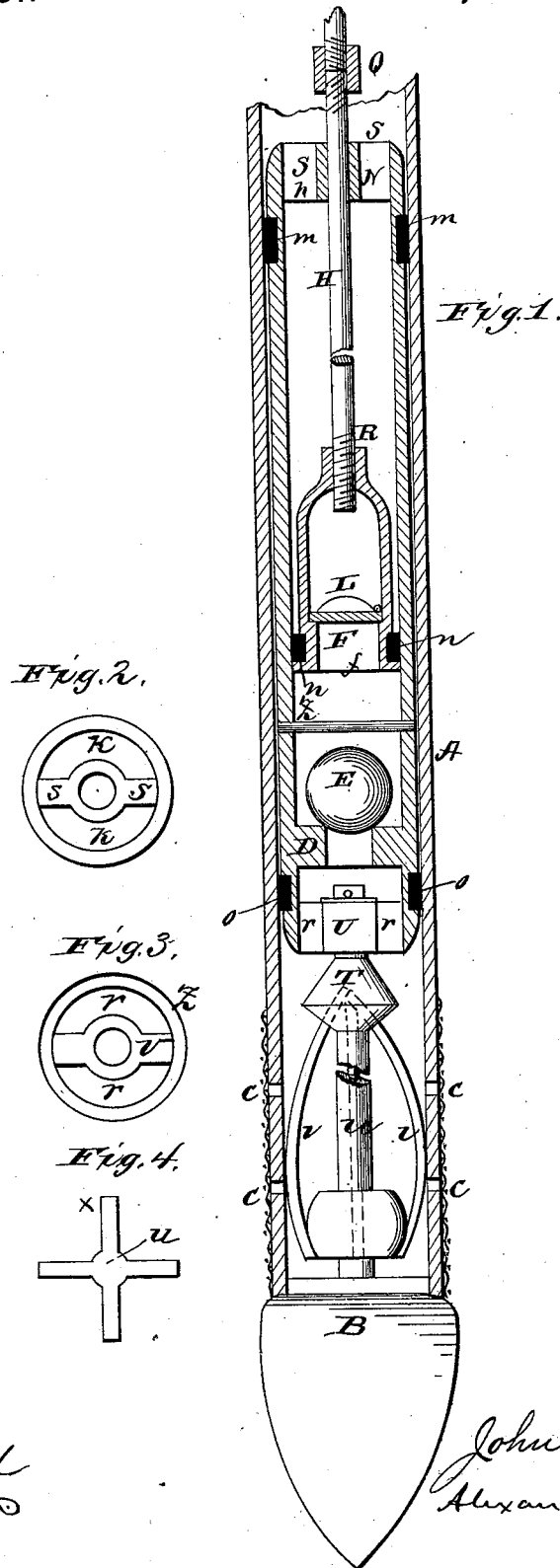


J. M. MAY.  
Submerged-Pump.

No. 215,951.

Patented May 27, 1879.



WITNESSES  
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# UNITED STATES PATENT OFFICE.

JOHN M. MAY, OF CEDAR RAPIDS, IOWA.

## IMPROVEMENT IN SUBMERGED PUMPS.

Specification forming part of Letters Patent No. **215,951**, dated May 27, 1879; application filed February 19, 1879.

### *To all whom it may concern:*

Be it known that I, JOHN M. MAY, of Cedar Rapids, in the county of Linn, and in the State of Iowa, have invented certain new and useful Improvements in Submerged Pumps, for pumping water and other liquids; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification.

The nature of my invention consists in the construction of a pump whereby I utilize the tube or pipe that forms the well-pit of "driven wells," so called, in making and using a submerged pump therein, to the end that greater depth to the water-bearing stratum of earth may be reached than is possible when a vacuum has to be produced by using a pump on the upper end of the pipe so driven into the earth.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawings, in which—

Figure 1 is a vertical section, showing the pump located at or near the lowest end of the tube forming the well-pit; and Figs. 2, 3, and 4 are detailed views of parts thereof.

A represents the tube extending to the water-bearing stratum either in an open well or driven or forced into the earth, said tube being provided with the point B and induction-holes C.

The lower part of the tube A serves as the receptacle for a smaller and supplemental cylinder, Z, containing the working mechanism of the pump, and said cylinder is provided with exterior packing-rings, *m o*, as shown, to make tight joints with the tube.

In the lower end of the tube Z is a cross-bar, U, forming water-ways *r r*, and in the center of this cross-bar is a swivel, T, provided with a central rod, *w*, extending downward, and provided at its lower ends with radial arms, which rest upon the point B, the wings keeping the rod central. This rod, with the swivel, makes a central rest for the pump, which is indispensable, while the rod *w* also keeps the pump the proper distance, according to its length, above the induction-holes in the tube A, to avoid quicksand and other obstructions getting into the pump.

The pump is kept in place by springs *v*, curved, as shown, with sufficient outward tension to hold the pump in place when pumping, but will yield to additional force in withdrawing the pump from the tube for repairs, &c., and in pushing it downward to its place. The equivalent of springs (as a suitable weight) may be used; but I prefer to use the springs.

In the lower part of the cylinder, above the cross-bar U, is formed the valve-seat D, with valve E on top thereof.

F represents the pump plunger or piston, provided with packing *n* and valve L. The plunger has also a bail, R, into which is screwed or otherwise fastened the pump-rod H, said pump-rod passing through a guide-bar, S, in the upper end of the cylinder Z. This guide-bar forms water-passages *h h* on the sides.

Above the guide-bar S the pump-rod is provided with a collar or enlargement, Q, as shown.

The pump-rod can, by means of this collar or enlargement, be used for pushing down the entire pump into the tube A, and in pulling out the pump the bail comes against the under side of the bar S and forms the proper bearing.

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

1. The supplemental tube Z, containing the working mechanism of a pump inside the well-pit tube A, in combination with the springs *v* and rod H, substantially as and for the purposes herein set forth.

2. The swivel composed of the parts T and U, the springs *v*, and rod *w*, in combination with a pump operated by the rod H, substantially as and for the purposes herein set forth.

3. The combination, with the well-pit tube A, of the supplemental tube Z, with valve-seat D and valve E, the swivel T U, springs *v*, piston F, with bail R, guide-bar S, and the rod H, with collar Q, all substantially as and for the purposes herein set forth.

In testimony that I claim the foregoing I have hereunto set my hand and seal this 31st day of January, 1879.

JOHN M. MAY. [L. S.]

Witnesses:

H. C. GILLETTE,  
CHARLES B. KEELER.