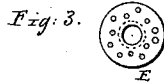
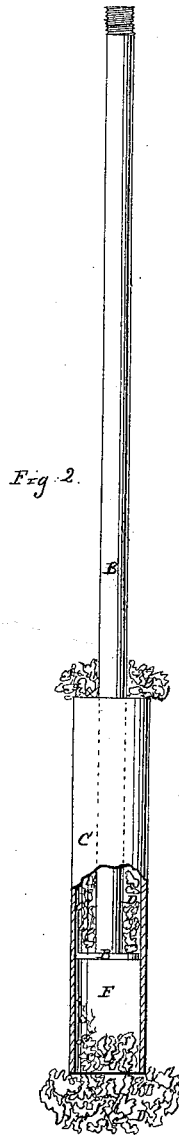
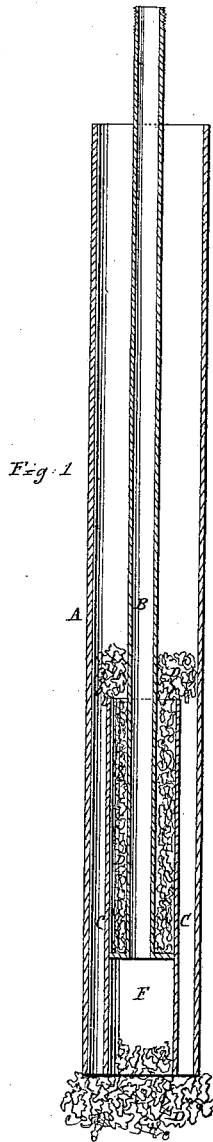


E. S. Alvord,

Well Tubing,

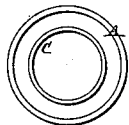
N^o 53,767

Patented Apr. 10, 1866.



Witnesses:

*Wm. Brown
Jm. Lee*



Inventor:

*E. S. Alvord
per *manuscript*
Attorneys.*

UNITED STATES PATENT OFFICE.

E. S. ALVORD, OF MILFORD, DELAWARE.

IMPROVEMENT IN CONSTRUCTING WELLS.

Specification forming part of Letters Patent No. 53,767, dated April 10, 1866.

To all whom it may concern:

Be it known that I, E. S. ALVORD, of Milford, in the county of Kent and State of Delaware, have invented a new and useful Improvement in Making Wells; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a vertical section of the well before the large tube is withdrawn. Fig. 2 is a vertical section of the well completed. Fig. 3 is a bottom view of the inner tube.

Similar letters of reference indicate corresponding parts.

The object of this invention is to construct a well by sinking or driving tubes into the ground and forming at the bottom a cavity, the lower part of which is filled with gravel or other filtering material to prevent dirt from entering the pump when it is operated.

A is a tube or pipe of considerable diameter, which I drive into the ground to such a depth as will bring it down to the vein or place of the water to be raised. The sand or soil is then removed from within it by the usual means, and also to a little distance below it, so as to form a cavity, D, which I fill with gravel or other suitable filtering material. The gravel or other material holds up the sides of the cavity and prevents them from falling in, and also keeps dirt and sand from reaching the pump, performing the office of a filtering apparatus. In the next place I lower a short pipe, C, open at its ends and of smaller diameter than the other, within said pipe A until it rests on the bed of gravel, into which it may be forced a little way to secure a firm position, if its weight is not sufficient to sink it therein.

Within the pipe C, I suspend the lower end of the pump-tube B, which is of much smaller diameter than pipe C, and has an annular perforated flange, E, upon its end, said flange being of a diameter to fit the interior of pipe C. The tube B is lowered so far within tube C as to leave a considerable space, F, between the lower gravel-bed and the perforated plate E, in which water may be collected, the tube B being then fastened in that position, so that it cannot descend any farther, and gravel or other suitable filtering material is next lowered upon the flange E, filling therewith the annular space between the inside of pipe C and the outside of tube B, and also rising over the top of pipe C, so as more effectually to secure it in place. I then withdraw the outer pipe, A, and leave the others, B and C, in the well. The water from the surrounding soil will pour into the space F both from below pipe C and from above it, in each case percolating through the beds of gravel, and becoming thereby separated from the loose dirt and sand and impurities. A pump is then attached to the upper end of tube B, and is operated in the usual way. The space around tube B is closed at the top of the well to prevent surface-water from entering it.

I claim as new and desire to secure by Letters Patent—

1. The combination of the driving-pipe A, the inclosed short pipe C, and the pump-tube B, arranged substantially as above described.
2. The combination of the short pipe C, and the pump-tube B, when surrounded by gravel or other analogous filtering material, arranged substantially as set forth.

E. S. ALVORD.

Witnesses:

JAMES BROWN,
JOHN F. BROWN.