

R. A. RYRIE.  
BORED WELLS.

No. 190,624.

Patented May 8, 1877.

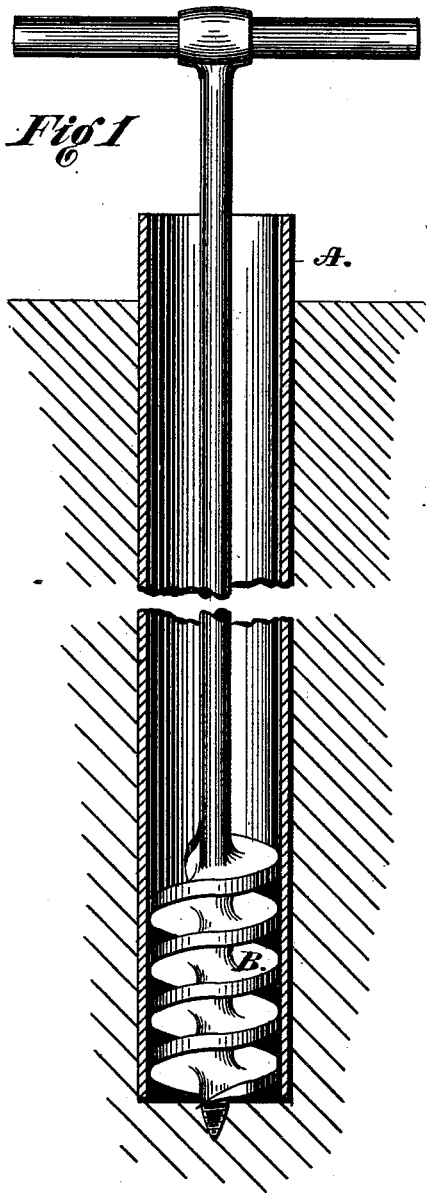
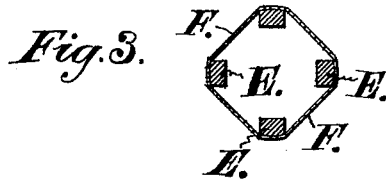
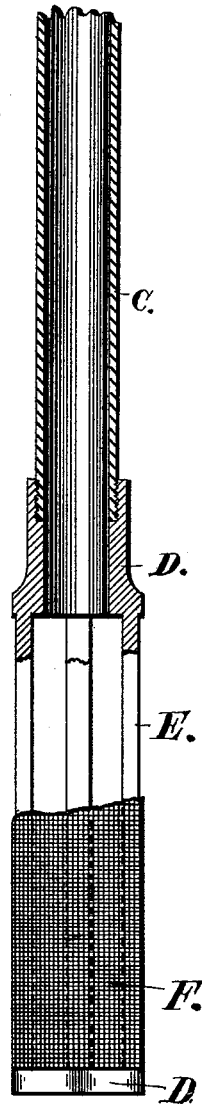


Fig 2



Witnesses.

*A. H. Bingham*  
*Stanley Williams*

Inventor.

*Robert A. Ryrie*  
*per J. Morgan & Co. Secys.*  
1877

# UNITED STATES PATENT OFFICE.

ROBERT A. RYRIE, OF CAMDEN, NEW JERSEY, ASSIGNOR OF ONE-HALF HIS  
RIGHT TO JOHN W. DONGES, OF SAME PLACE.

## IMPROVEMENT IN BORED WELLS.

Specification forming part of Letters Patent No. **190,624**, dated May 8, 1877; application filed  
February 15, 1877.

*To all whom it may concern:*

Be it known that I, ROBERT A. RYRIE, of the city of Camden and State of New Jersey, have invented a new and useful Improvement in the Construction and Operation of Bored Wells, which improvement is fully set forth in the following specification and accompanying drawings; in which—

Figure 1 is a sectional view of a well in process of being bored. Fig. 2 is a view of the permanent pipe with the strainer attached to it, and Fig. 3 a cross-section of the strainer.

The object of my invention is to bore a well and line it with temporary tubing while in process of being bored, and to furnish it with a permanent pipe, hermetically sealed above the stratum from which the water is drawn, and provided with a strainer which will admit a full supply of water and will not choke. To that end I take a tube or pipe, A, of sufficiently large inside diameter, and, standing it perpendicularly upon the ground, I apply pressure to it. I then place within it an auger, B, of any form proper for boring earth, and just large enough to clear the inside of the tube. Continuing the pressure upon the tube, I bore out and take away the earth from within and under it, and by reason of the pressure the tube descends as the earth is removed by the auger within it. The earth upon which the walls of the tube rest, being loosened by the auger, and having no support from within, falls in, and is lifted out by the auger, the tube acting as a support to the sides of the opening, where, from the nature of the ground, such support is necessary; and this operation is continued until the necessary depth is reached, using a sand-bucket when occasion requires.

When I have reached a proper supply of water I insert the permanent pipe C, furnished at the bottom with the strainer D, which I shall hereafter describe; and when, by the proper use of the sand-pump, I have sufficiently cleared the passages, I draw out the tube, leaving the permanent pipe in position, and I then pump water mixed with earth down the opening left by the tube and fill it up.

I have found by experience that in a very

short time the earth settles around the pipe, (where the lower strata are soft, by its own action,) and forms a joint, both air and water tight, above the stratum from which I draw the water.

By this process I am enabled to ascertain the character of the earth through which I am boring, and to determine when I have reached a water-bearing stratum such as I require, and I am able to use a larger and more open strainer and a lighter and less expensive pipe than I could in a driven well, and I obtain the same connection between the pump and the water-bearing stratum as is obtained in the driven well.

My strainer consists of a cage of perpendicular rods, E E, extending at the top into and connected with the pipe, and covered with a cylinder of wire-gauze, F, which is attached to the cage by soldering or otherwise.

This strainer may be of the same size as the pipe, or may be as much larger as can be inserted within the tubing, and, being inserted into the well without force, can be constructed as I have described, giving the largest amount of free gauze space for the admission of water, and the least obstruction by the solid metal of the cage, and with the further advantage that, the spaces of unsupported gauze being very large, there will be in them, from the recoil of the water at each stroke of the pump, an elastic motion, which will throw off such particles of sand or other obstruction as would otherwise collect upon it.

I claim as my invention—

1. The method of constructing wells by boring the earth from the inside of a larger-sized tube, sinking the tube upon the excavation thus made, inserting a smaller permanent pipe, furnished with a strainer, within the tube, and then removing the outer tube, substantially as herein described.

2. In combination with the permanent pipe of a bored well, the strainer consisting of the cage of rods covered with gauze, constructed substantially as and for the purpose described.

ROBERT A. RYRIE.

Witnesses:

SAML. P. HANSON,  
F. H. ELDRIDGE.