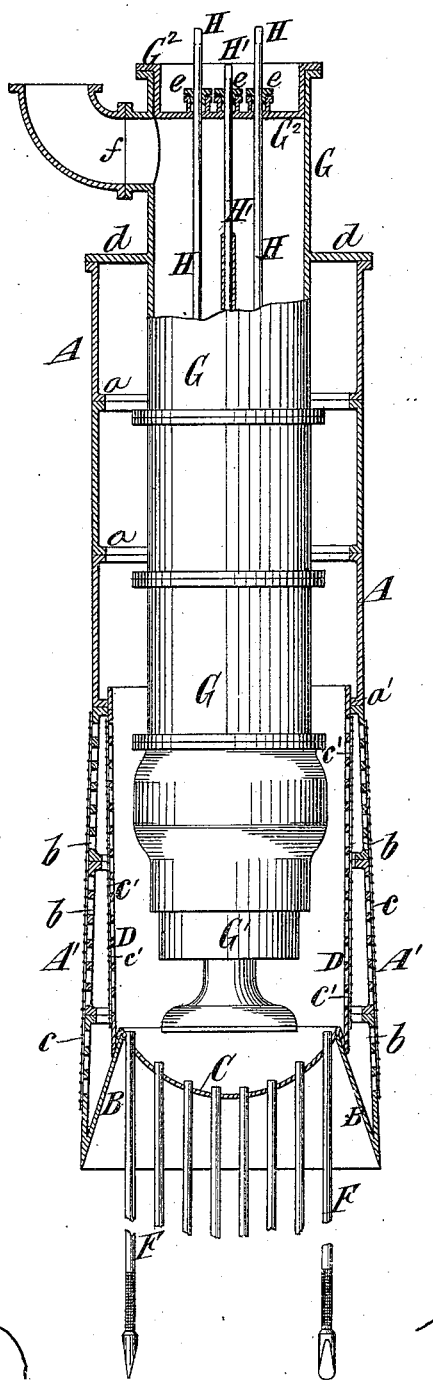
(No Model.) 2 Sheets—Sheet 1.

W. D. ANDREWS.

WELL AND PUMP FOR PROCURING WATER FROM THE EARTH.

No. 306,800. Patented Oct. 21, 1884.

Fig. 1.



Witnesses:
Matthew Pollock
by Dest & Haynes

Inventor:
Wm D. Andrews
by his Attys.
Brown & Hall

(No Model.) 2 Sheets—Sheet 2.

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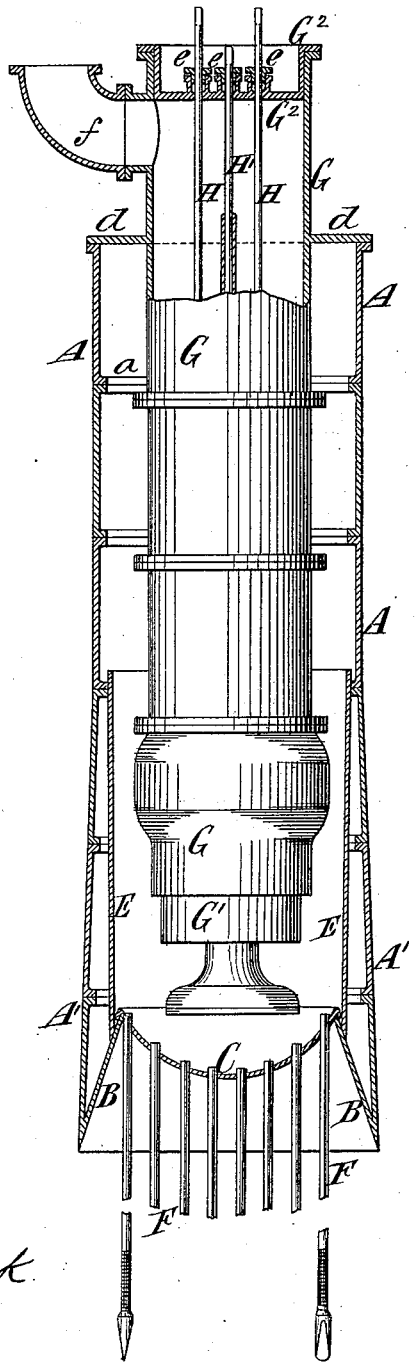
Fig. 2.



Witnesses:
Matthew Pollock
Jas. T. Haynes

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UNITED STATES PATENT OFFICE.

WILLIAM D. ANDREWS, OF BROOKHAVEN, NEW YORK.

WELL AND PUMP FOR PROCURING WATER FROM THE EARTH.

SPECIFICATION forming part of Letters Patent No. 306,800, dated October 21, 1884.

Application filed February 28, 1884. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM D. ANDREWS, of Brookhaven, in the county of Suffolk, in the State of New York, have invented a new and useful Improvement in Wells and Pumps for Procuring Water from the Earth, of which the following is a specification.

My invention relates to a well, which consists of a cylinder or tube sunk in the earth to a point below the level of the water therein, and to which water is admitted through openings in the side of the cylinder at its lower portion, or through supplemental drive-wells extending through the closed bottom of the cylinder, or through both such openings and tubes, if desired. Such a well is shown and described in my application for Letters Patent filed February 25, 1884, and of which the serial number is 122,025.

My present invention consists, essentially, in the combination, with such a well, of a pump arranged therein, the lower portion of the pump preferably being below the level of water in the well.

The invention also consists in extending the pump cylinder or casing upward through and above the top of the well cylinder or tube, and inclosing the latter around the pump cylinder or casing, so as to form a closed well from which the pump takes the water.

In the accompanying drawings, Figure 1 represents a vertical section of a well, which receives its water through openings in the sides, and also through supplemental drive-wells extending downward from the bottom thereof, also including a partly sectional elevation of a pump arranged in the well, and Fig. 2 is a vertical section of a well similar to that shown in Fig. 1, but receiving water only from supplemental drive-wells extending downward from the bottom thereof, said figure also including a pump within the well.

Similar letters of reference designate corresponding parts in both figures.

A designates the well which may consist of a cylinder composed of cast-metal sections connected by flange-joints *a*, through which securing-bolts may be passed. The lower portion, A′, of the cylinder is made downwardly-flaring, and at its lower end is an upwardly-contracted shoe, B, the upper end of which is preferably slightly smaller in diameter than the internal diameter of the flange-joints *a*. The cylinder is sunk in the earth, as described in my aforesaid application for Letters Patent, filed February 25, 1884, and the serial number of which is 122,025. After sinking the cylinder, its lower end is tightly closed by a head or bottom, C, which is securely attached to the upper end of the shoe B.

The flaring portion A′ of the cylinder shown in Fig. 1 is perforated or provided with openings *b*, and on the exterior thereof is secured a brass or other metallic reticulated or perforated strainer, *c*, which prevents the inflow of earth through the perforations, and clogging thereof.

D designates a supplemental inner perforated tube, covered externally by a strainer, *c′*, and extending from the exterior of the shoe B to a point above the openings *b* in the flaring portion A′. This tube and strainer are made largest at the upper end, and taper downward slightly, whereby provision is afforded for readily removing the said tube and strainer by an upward movement and reinserting it or inserting another tube and strainer downward into its place. The inner tube and strainer, D C′, are additional to the other strainer, C, and prevent the entrance of earth and sand into the well in case the outer strainer gives way by reason of decay or abrasion.

In the example of my invention shown in Fig. 2 the lower flaring portion, A′, of the well is solid or imperforate, and from the exterior of the shoe B a guard or lining, E, extends upward to the interior of the cylinder A. The purpose of the said guard or lining is clearly set forth in my aforesaid application for Letters Patent, filed February 25, 1884, and of which the serial number is 122,025, and I do not here make any claim thereto.

F designates supplemental drive-wells, which, in both examples of my invention, extend downward from the bottom of the well, and which have lower perforated portions covered and protected by strainers. These drive-tubes F will preferably extend to different depths in order to control the horizontal supply of water through a greater depth of soil, and decreasing the rapidity of its flow through the earth.

In the example of the invention shown in Fig. 1 only a portion of the water entering

the well passes through the tubes F; but in the example shown in Fig. 2 all the water is supplied by said tubes.

The pump which I have here shown to illustrate my invention is like that shown and described in my application for Letters Patent, filed February 25, 1884, and of which the serial number is 122,023. A pump of any other suitable construction may be substituted.

G designates the pump cylinder or casing, which, as here shown, extends upward through and above the upper end of the well-cylinder A, the top of the latter being closed air-tight around the pump by a head or flange, *d*. At the lower end of the cylinder or casing G is a working-barrel, G′, which is preferably removable from the cylinder or casing, and in which are two valvular pistons, one, or the upper piston, being operated by the piston-rods H H, and the other, or lower piston, being operated by the single piston-rod H′. The two pistons, through their rods, are moved simultaneously toward and from each other by any suitable mechanism—such, for example, as that shown and described in my aforesaid application, the serial number of which is 122,023.

The cylinder or casing G is closed at the top by a head, G^2, in which are stuffing-boxes *e*, through which the rods H H′ work, and the water is delivered or forced upward through a discharge pipe or outlet, *f*.

In case it is desired simply to lift the water, the cylinder or casing may be provided with a pitcher-spout outlet.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination of a well consisting of a cylinder or tube sunk below the level of water in the earth, and having water-inlets at the lower part thereof, of a pump arranged within the well and serving to deliver water therefrom, substantially as herein described.

2. The combination, with a well consisting of a cylinder or tube sunk below the level of water in the earth, and having water-inlets at the lower part thereof, a pump cylinder or casing arranged within the well, with its lower portion below the water-level, and its upper portion and discharge above the top of the well, substantially as herein described.

3. The combination, with a well consisting of a cylinder or tube sunk below the level of water in the earth, and having water-inlets at its lower part, of a pump cylinder or casing arranged within the well with its lower portion below the water-level therein, and its upper portion and discharge above the top of the well, the top of the well being closed air-tight around said pump cylinder or casing, substantially as herein described.

4. The combination, with a well consisting of a cylinder or tube sunk below the level of water in the earth, and having supplemental drive-wells extending downward through its bottom, of a pump arranged within the well for delivering water therefrom, substantially as herein described.

5. The combination, with a well, consisting of a cylinder or tube sunk below the level of water in the earth, and having inlet-openings for water in the lower portion of its sides, of supplemental drive-wells extending downward from the bottom of said cylinder, and a pump arranged within the cylinder for delivering water therefrom, substantially as herein described.

6. The combination, with a well consisting of a cylinder, A, sunk below the level of water in the earth, and having the perforated and strainer-protected lower portion, A′, and closed bottom, of the supplemental drive-wells F, extending downward from said bottom, and a pump arranged within the cylinder for delivering water therefrom, substantially as herein described.

7. The combination, with a well consisting of a cylinder or tube sunk below the level of water in the earth, and having water-inlets at its lower part, of the pump cylinder or casing G, having a working-barrel, G′, extending downward within said well cylinder or tube below the water-level therein, and a valvular piston or pistons working in said barrel, all substantially as herein described.

8. The combination, with a well consisting of a cylinder or tube sunk below the level of water in the earth, and having supplemental drive-wells F, extending downward from its bottom, of the pump cylinder or casing G, and working-barrel G′, arranged within said well cylinder or tube, and a piston or pistons working in said barrel, all substantially as herein described.

9. The combination, with a well consisting of a cylinder or tube sunk below the level of water in the earth, and having strainer-protected openings in its lower portion, of supplemental drive-wells F, extending downward from its bottom, the pump cylinder or casing, and its working-barrel G G′, arranged within said well cylinder or tube, and extending downward into the water therein, and a valvular piston or pistons working within said barrel, all substantially as herein described.

WM. D. ANDREWS.

Witnesses:
SARAH N. PARSHALL,
FREDK. HAYNES.