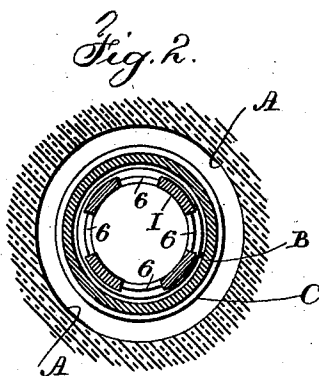
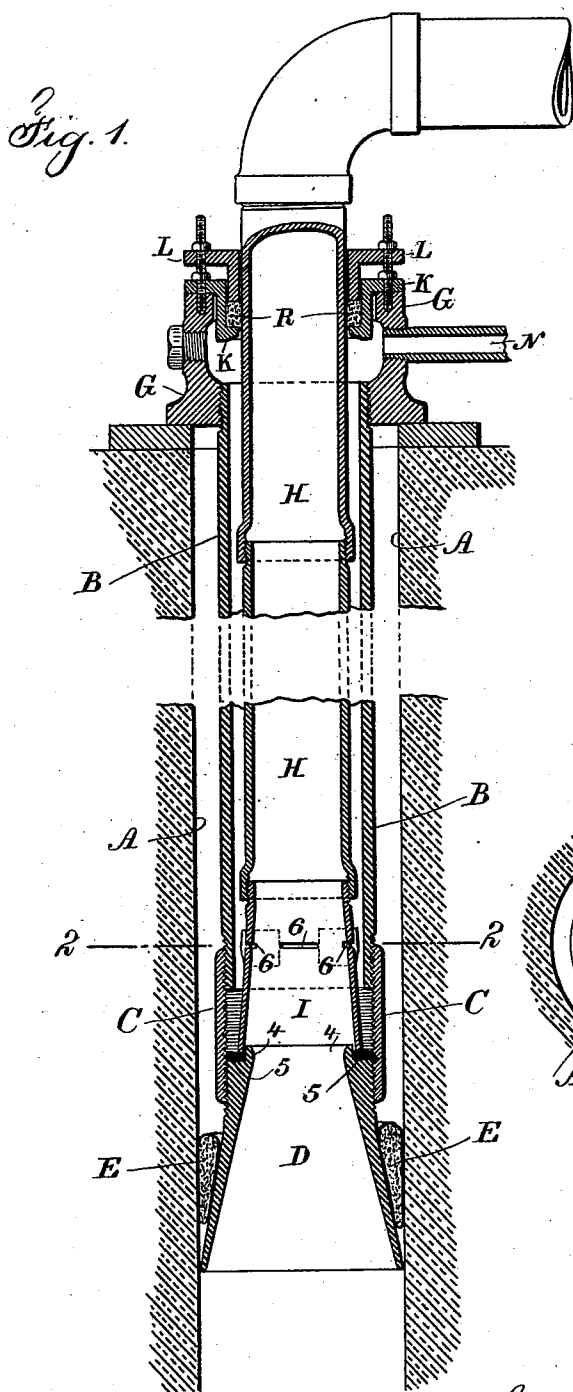


(No Model.)

G. R. YOUNG & C. SHAW.
WATER RAISING APPARATUS.

No. 562,266.

Patented June 16, 1896.



Witnesses
Chas. H. Smith
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Inventors
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UNITED STATES PATENT OFFICE.

GEORGE R. YOUNG, OF RIDGEWOOD, NEW JERSEY, AND CLIFFORD SHAW,
OF NEW YORK, N. Y.

WATER-RAISING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 562,266, dated June 16, 1896.

Application filed August 22, 1895. Serial No. 560,104. (No model.)

To all whom it may concern:

Be it known that we, GEORGE R. YOUNG, of Ridgewood, in the county of Bergen and State of New Jersey, and CLIFFORD SHAW, of the city of New York, county and State of New York, citizens of the United States, have invented an Improvement in Water-Raising Apparatus, of which the following is a specification.

Water has been raised in an uptake-pipe by the supply into the bottom of that pipe of air, which rising with the water in the pipe has displaced the water partially, so as to render the higher column lighter than the external column of water in the well, and thereby causing the water to rise to a height proportionate to the displacement of water by the air.

The present invention is made for the purpose of allowing the easy removal of the uptake-pipe without disturbing the surrounding tube, and also for closing off the well adjacent to the lower end of the stationary pipe, so that surface-water or objectionable materials may be prevented from commingling with the supply of water that rises from below, and our invention relates to the combination of devices, as hereinafter described and claimed.

In the drawings, Figure 1 is a vertical section representing the improvement, and Fig. 2 is a sectional plan at the line 2 2.

The well is of any desired character. Usually it will be a well drilled through the rock down to the desired water-bearing strata. We have represented such a well at A and within the same is a well-pipe B, having at its lower end a coupling C, that is screwed on and receives within it the upper end of the conical intake D, the lower end of which is as large as the internal bore of the well or nearly so, so that water that might run into the well down this conical intake may be shut off by a packing introduced at E around such conical intake and between the same and the interior of the well, such packing being preferably made of a seed-bag that may swell and tightly fit against the adjacent surfaces.

There is an interior annular flange 4 at the upper end of the conical intake D; and a washer 5 of india-rubber or other elastic ma-

terial around this flange 4, and at the upper end of the well there is a head G, screwed onto the upper end of the well-tube B and having a suitable base, so as to be properly supported by a curb or ring around the top end of the well, and within the well-pipe B is an uptake-pipe H, having at its lower end a flaring mouth I, the lower edge of which surrounds the flange 4 and rests upon the washer 5, and in this flaring mouth there are openings or slits 6 for air to pass into the uptake-pipe, and the head G has upon it a suitable packing-gland formed of the two parts K and L, set together around the uptake-pipe H and provided with a flexible packing R to make a tight joint between the uptake-pipe H and the head G, and there is an air-pipe N opening through the head G into the space between the well-tube B and the uptake-pipe H, and the pressure of air is sufficient to drive down the column of water in the well, so that the air escapes through the openings or slits 6 in the form of numerous bubbles which, rising in the water, displace the same and render the column of water in the uptake-pipe to the point of delivery less than the column of water in the well, so that the pressure of the water of the well raises the column in the uptake-pipe to the place of delivery; and it will be observed that by loosening the packing and separating the parts K and L from the head G, the uptake-pipe H can be drawn up at any time that may become necessary or desirable for changing or repairing the same and the well-tube will not be disturbed, and the water as it passes to the uptake-pipe is directed without any obstruction through the gradually-tapering intake D and the mouth I, so that such water flows freely into the lower end of the uptake-pipe and is aerated by the air forced in through the slots or openings 6.

In some instances it has been found that the pressure of the air not being absolutely uniform and the column in the well also varying, the water surges up and down, the column in the uptake-pipe descending and the surrounding water in the well rising and the reverse. By our improvement this surging is lessened and almost entirely prevented, because the lower end of the annular air-chamber is closed by the washer 5 and the

water in the well is shut off by the flaring-down end of the well-tube and the surrounding packing.

We claim as our invention—

5 1. The combination with the well-pipe and its head at the upper end, of a conical intake screwed to the lower end of the well-tube and having a flange at its upper end and an elastic washer around the flange, an uptake-pipe
10 having a flaring mouth resting at its lower end upon the washer, and slots for the passage of air under pressure, a packing around the uptake-pipe and between the same and the head and an air-pipe for supplying air
15 under pressure into the annular space between the uptake-pipe and the well-pipe, substantially as set forth.

2. The combination with the well-pipe and its head at the upper end, of a conical intake
20 screwed to the lower end of the well-tube and having a flange at its upper end and an elastic washer around the flange, a packing between such conical intake and the wall of the well, an uptake-pipe having a flaring mouth

resting at its lower end upon the washer and 25 slots for the passage of air under pressure, a packing around the uptake-pipe and between the same and the head and an air-pipe for supplying air under pressure into the annular space between the uptake-pipe and the 30 well-pipe, substantially as set forth.

3. The combination with the well-pipe and its head at the upper end, of a conical intake secured to the lower end of the well-tube and having its smaller end within the well-pipe, 35 an uptake-pipe within the well-pipe having a flaring lower end resting upon the upper end of the conical intake, there being air-inlets near the lower end of the uptake-pipe, such uptake-pipe and its flaring lower end being 40 removable from the well-tube, substantially as set forth.

Signed by us this 15th day of August, 1895.

GEORGE R. YOUNG.

CLIFFORD SHAW.

Witnesses:

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S. T. HAVILAND.