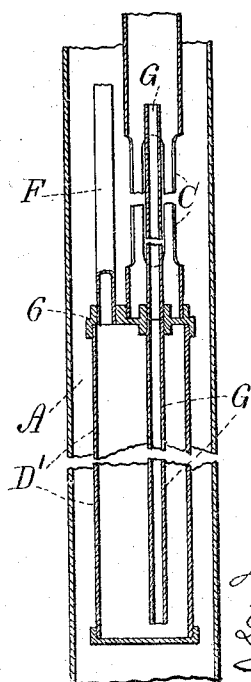
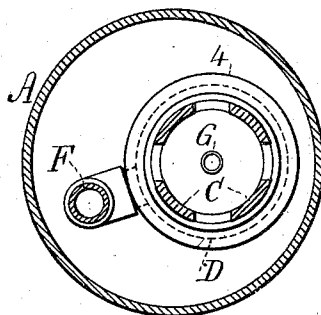
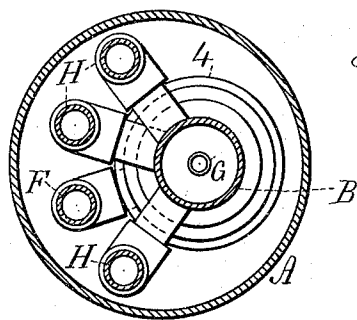
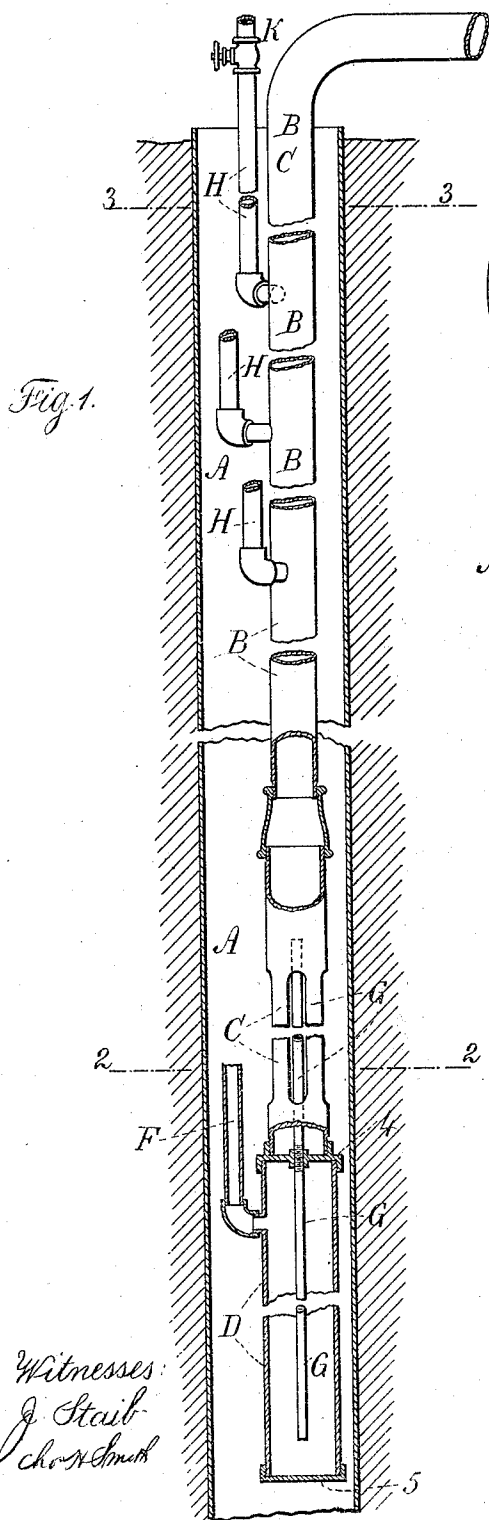


(No Model.)

J. E. BACON.
WATER RAISING APPARATUS.

No. 542,622.

Patented July 16, 1895.



Witnesses:
J. Staub
Chas. Smith

Inventor:
James E. Bacon
per
Lemuel W. Torrell
Atty.

UNITED STATES PATENT OFFICE.

JAMES E. BACON, OF RICHMOND, VIRGINIA.

WATER-RAISING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 542,622, dated July 16, 1895.

Application filed January 14, 1895. Serial No. 534,734. (No model.)

To all whom it may concern:

Be it known that I, JAMES E. BACON, a citizen of the United States, residing at Richmond, in the county of Henrico and State of Virginia, have invented an Improvement in Water-Raising Apparatus, of which the following is a specification.

In this improvement an uptake-pipe is provided with an air-chamber at the lower end, into which a fluid under pressure is supplied by a pipe leading down to the same, and there is a discharge pipe or nozzle for the air under pressure passing from near the lower end of the air-chamber up into the uptake-pipe and lateral openings for the admission of the water or other liquid into the uptake-pipe, so that the reservoir at the lower end of the uptake-pipe equalizes the action of the air in causing a continuous and uninterrupted jet of air to drive the water or other liquid up the uptake-pipe and aerate the column, so as to lessen the pressure sufficiently for such column to be raised to the point of discharge and to facilitate the operation of the well. Separate pipes are provided for supplying air into the uptake-pipe at one or more places, the separate pipes passing down to the respective points of discharge and having valves to regulate the action of the air, as may become necessary, according to the height of the water in the well.

In the drawings, Figure 1 is a vertical section representing a well with the water-raising apparatus applied to the same. Fig. 2 is a sectional plan in larger size at the line 2 2. Fig. 3 is a similar sectional plan at the line 3 3, and Fig. 4 is a vertical section of a modification of the lower part of the apparatus.

The well A may be of any desired character. The same is usually bored and provided with a lining-tube extending down to the rock, and the uptake or discharge pipe B is of a size adapted to the volume of liquid to be discharged, and the lower end of this uptake-pipe is slotted, preferably in a tube of larger diameter, as represented, and below the slotted tube C an air-reservoir D is provided, the same having upper and lower heads 4 and 5, as shown in Fig. 1, and the air-supply pipe F passes down to the reservoir D and opens into the same through a quarter-circle bend, as seen in Fig. 1, or when the head of the reservoir

D' is made in the form represented in Fig. 4 such air-supply pipe F may be screwed into the upper head 6. Within the air-reservoir is an ejector nozzle or tube G, passing through the top head of the air-reservoir and rising above the inlet-openings in the pipe C, and in consequence of such nozzle G extending to near the bottom of the reservoir D the pressure of the air in starting the well must be sufficient to drive the water out of the reservoir D, and then the air will discharge the water rapidly from the nozzle G and start the well suddenly by the upward movement given to the column of water in the uptake-pipe, and in so doing any sediment or foreign materials in the well will be rapidly carried out and the pressure afterward necessary to continue the flow of water in the uptake-pipe will be but little in excess of the weight of the column in the well above the upper end of the ejector-nozzle G.

In some instances it is advantageous to supply air to the uptake-pipe at one or more places above the air-reservoir D, and with this object in view pipes H are provided with quarter-circle bends and nipples screwed into the uptake-pipe B at the respective places, and this separate tube or tubes H extend to the top of the well and are provided with valves K to regulate the admission of air or other fluid under pressure, so that its discharge into the uptake-pipe may aerate the water to the extent necessary to raise the same to the required place of delivery.

I do not claim an air-chamber at the lower end of the uptake-pipe and a nozzle from the same for the discharge of air into the uptake-pipe, as the same is set forth in my application, Serial No. 516,548.

I claim as my invention—

1. The combination with an uptake pipe, of a closed air reservoir below the lower end of the uptake pipe and connected therewith, and a pipe for supplying air into such reservoir, and a jet tube from the said reservoir extending up into the uptake pipe, there being an opening into the lower end of the uptake pipe for the admission of the liquid, substantially as set forth.

2. The combination with the uptake pipe in a water elevating apparatus, of a slotted tube at the lower end of such uptake pipe, a

head screwed to such slotted lower end, a
tubular reservoir connected with such head
and having a closed lower end, an air inlet
pipe for supplying air to the reservoir, an
5 ejector nozzle passing from near the lower end
of the air reservoir through the upper head
of such reservoir and centrally within the up-

take pipe above the lateral inlet openings,
substantially as set forth.

Signed by me this 8th day of January, 1895.
J. E. BACON.

Witnesses:

E. S. BLANTON,
O. E. BUET.