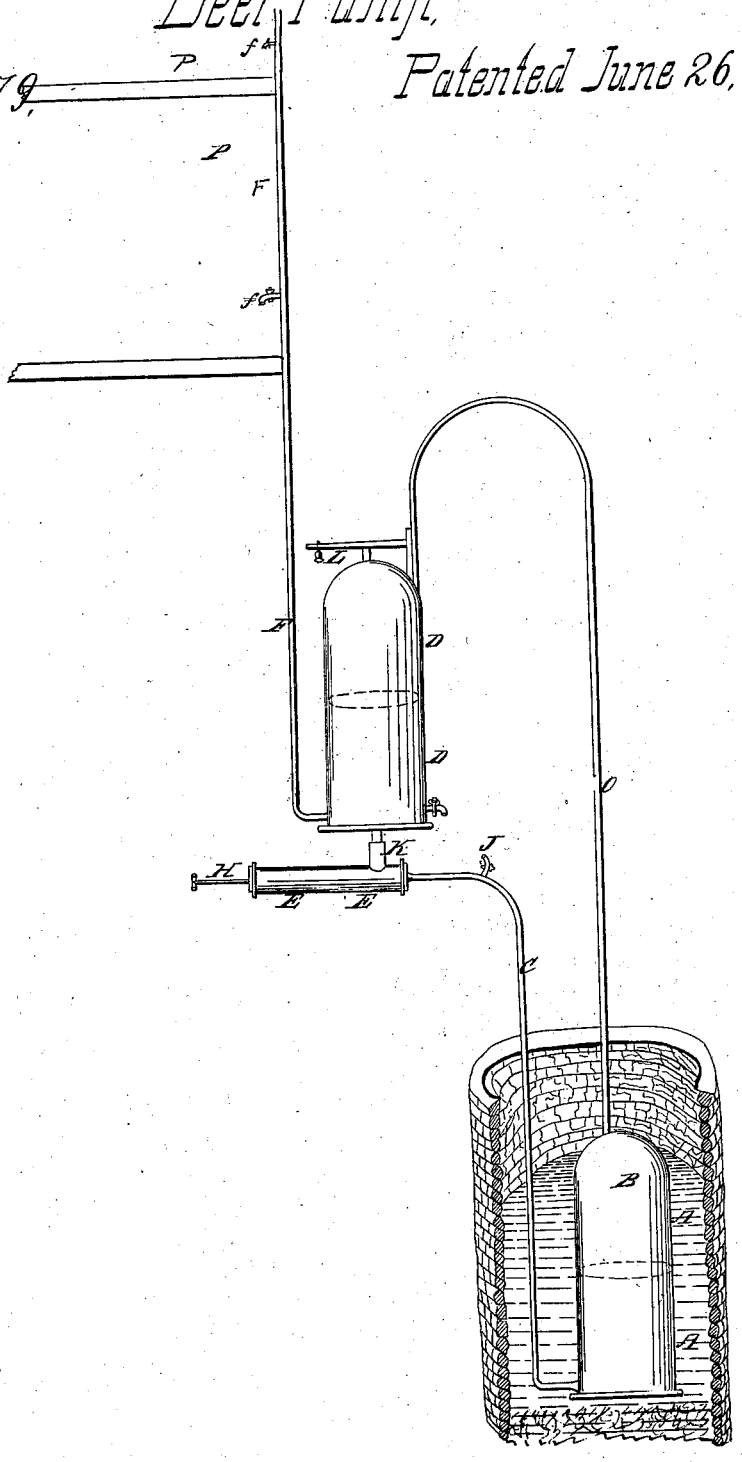
D. Winder,

Beer Pump,

No. 5,179. Patented June 26, 1847.



UNITED STATES PATENT OFFICE.

DANIEL WINDER, OF HAGERSTOWN, MARYLAND.

APPARATUS FOR RAISING WATER.

Specification of Letters Patent No. 5,179, dated June 26, 1847; Antedated December 27, 1846.

To all whom it may concern:

Be it known that I, DANIEL WINDER, of Hagerstown, in the county of Washington and State of Maryland, have invented a new and useful Improvement in the Method of Raising Water, and that the following is a full, clear, and exact description of the principle or character which distinguishes it from all other things before known and of the manner of making, constructing, and using the same, reference being had to the accompanying drawings, making part of this specification in which—

Figure 1 is an elevation of the apparatus, and Fig. 2, a vertical section.

The same letters indicate like parts in all the figures.

The object of my invention is to raise water by atmospheric pressure above the height due to the pressure of one atmosphere, and the nature of my invention consists in connecting the lower part of an air tight receiver placed in the lower part of a well, with a pump placed more than thirty-two feet above the level of the water in the well by means of a pipe provided with a two way cock that the pump may communicate with the receiver or with the atmosphere, which pump communicates with another air tight receiver above it, the top of the said upper receiver being connected with the top of the receiver in the well by means of a pipe, and the lower part thereof by means of another pipe with the tank or tanks above it into which the water is to be raised. The tube which connects the pump and lower receiver is exhausted that the water from the lower receiver may be forced up by atmospheric pressure to the height due to the pressure of one atmosphere, the two way cock is then turned to close this communication and open the pipe to the atmosphere for the purpose of drawing in air and compressing it in the upper receiver which being in connection with the top of the lower receiver, the elastic force of the air acts on the surface of the water in the lower receiver to force it up to the height of the pump so that returning the two-way cock to re-establish the communication between the pump and lower receiver the water will be forced up into the pump, and thence transferred to the upper receiver, from which it will be forced up the delivery pipe by the elastic force of the compressed air.

In the accompanying drawings (A) represents a well into which is placed an air tight receiver (B) provided with an induction valve (*b*) at the bottom through which the water flows when the pressure in the receiver is reduced by exhaustion. The lower part of this receiver opens by an eduction valve (*c*), into a pipe (C) that communicates with a suction and force pump (E) placed more than thirty two feet above the level of the water in the well, and this pipe is provided with a two way cock (J) placed near the pump by means of which cock the pump can be made to communicate with the receiver (B) or with the atmosphere, the junction of the pipe and pump being provided with an induction valve (*d*), so that the air or water which enters the cylinder of the pump by the aperture of the piston (H) will be prevented from running back into the receiver (B) by the return stroke of the piston, but be forced up through a valve (*e*) in a pipe (K) that communicates with the lower part of an air tight receiver (D) which is similar to the one (B). The top of the two receivers (B) and (D) are connected together by means of a pipe (*o*), and the lower part of the upper receiver (D) communicates by means of a pipe (F) with tanks (P) at any elevation required. A safety valve (L) of the usual construction may be used on the receiver (D) to prevent the bursting of the receivers.

When it is desired to operate, the two way cock is turned so as to open the communication between the pump and the lower receiver (B); the pump is worked until the pipe (C) is exhausted which will cause the water to rise in it from the lower receiver (B) to the height due to the pressure of one atmosphere; the two way cock is then turned to close this communication and to open the pipe to the atmosphere so that by the continued working of the pump atmospheric air will be compressed into the upper receiver (D), and when a sufficient amount of pressure has been obtained the cock (J) is turned to re-open the connection between the lower receiver and the pump so that the elastic force of the compressed air in the upper receiver (D) acting through the pipe (*o*) on the surface of the water in the lower receiver (B) will force the water up through the pipe (C) into the pump, and by the working of the pump it will be forced up into the pipe (F) to be drawn by faucets

(*f*, *f*) into the tanks (P) or other receptacle. In this way the elastic force of the air acting on the surface of the water in the lower receiver forces it up into the pump which is more than thirty-two feet above the level of the water in the well, or above the height to which it would rise by atmospheric pressure in an exhausted tube; and in like manner after the apparatus has been charged the water will be kept in the tube (F) by the elastic force of the atmospheric air, from which it can be drawn at any time by turning the cocks (*f*, *f*).

Having thus described the principle or character of my invention, the construction thereof, and the manner of operating it, what I claim as my invention and desire to secure by Letters Patent is—

The lower receiver placed in a well or other reservoir of water in combination with the pump placed more than thirty feet above the level of the water in the well or reservoir and with the upper receiver, the pump and lower receiver being connected by means of a pipe provided with a four way cock or other valve so that the pump may connect with the receiver or the atmosphere, and the two receivers being connected by means of an air pump that the air forced into the upper one by the pump may act on the surface of the water in the lower receiver and force the water up to the pump to a height greater than is due to the pressure of one atmosphere, as herein described.

DANIEL WINDER.

Witnesses:
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