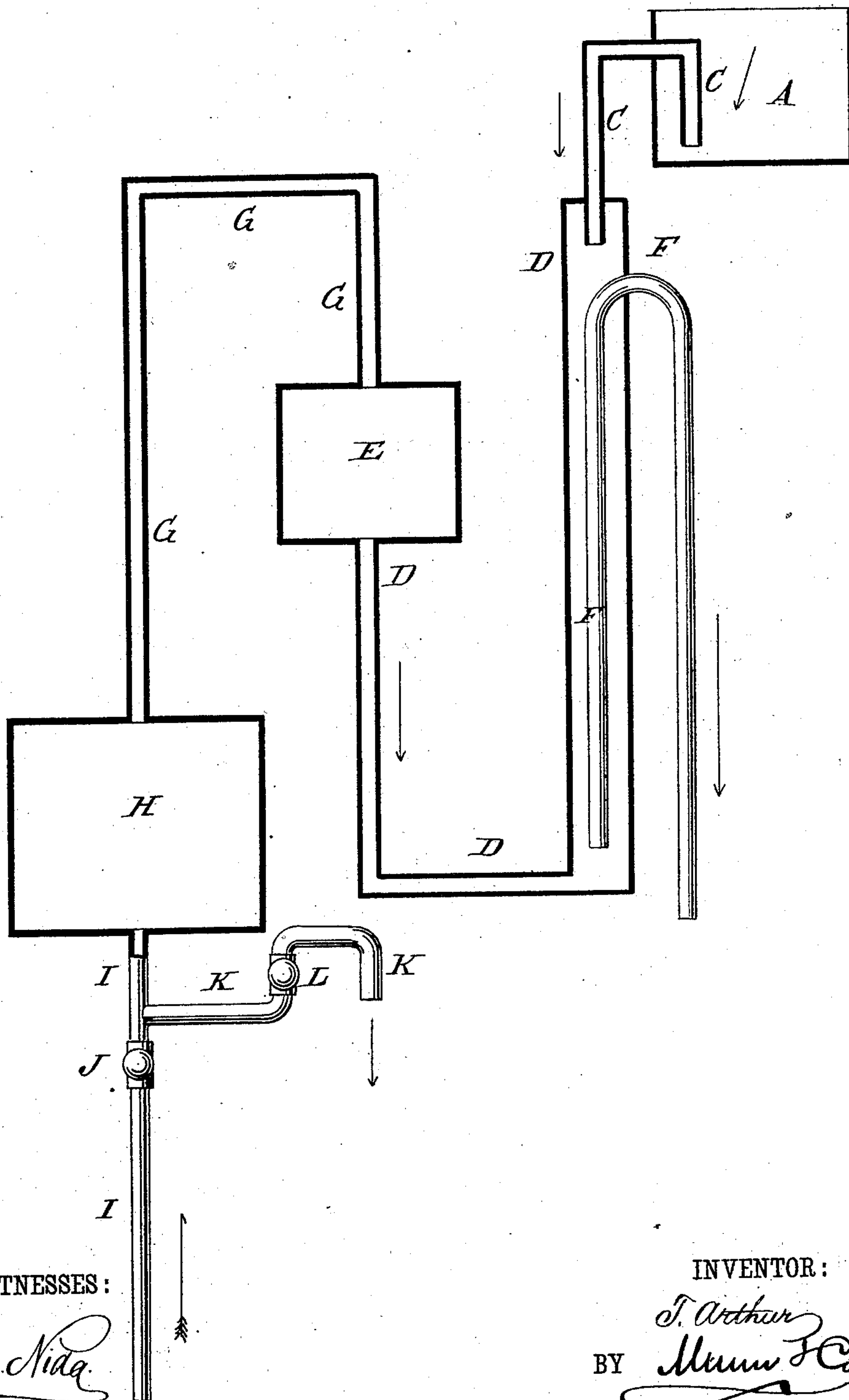


(No Model.)

T. ARTHUR.
APPARATUS FOR RAISING WATER.

No. 293,997.

Patented Feb. 26, 1884



WITNESSES :

Chas. Nida.
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UNITED STATES PATENT OFFICE.

THOMAS ARTHUR, OF BANGOR, PENNSYLVANIA, ASSIGNOR TO HIMSELF
AND ROBERT JAMES NAGLE, OF SAME PLACE.

APPARATUS FOR RAISING WATER.

SPECIFICATION forming part of Letters Patent No. 293,997, dated February 26, 1884.

Application filed March 7, 1883. (No model.)

To all whom it may concern:

Be it known that I, THOMAS ARTHUR, of Bangor, in the county of Northampton and State of Pennsylvania, have invented a new and Improved Apparatus for Raising Water, of which the following is a full, clear, and exact description.

Reference is to be had to the accompanying drawing, forming a part of this specification, and which is a sectional side elevation of my improvement.

The object of this invention is to facilitate the raising of water from mines and other places.

The invention consists in an apparatus for raising water constructed with three tanks, placed at different levels, and connected by two bent tubes and a siphon, one of the said bent tubes being provided with a discharge-siphon, and the lower tank being provided with a pipe leading to the water to be raised, and having an upwardly-opening valve, and a discharge-pipe having an outwardly-opening valve, whereby water can be raised by atmospheric pressure induced by the flowing of water through the said tanks, siphon, and bent tubes, as will be hereinafter fully described.

A represents a tank, into which water is conducted through a pipe, B, or other suitable means from a waterfall or other elevation.

C is a siphon the short arm of which is inserted in the tank A, and its long arm is inserted in the upper end of the long arm of the bent tube D, the end of the other or short arm of which enters the bottom of a tank, E.

In the long arm of the bent tube D is inserted the short arm of a siphon, F, the bend of which is at a higher level than the top of the tank E, and the short arm of which extends to or nearly to the bend of the tube D.

With the top of the tank E is connected the end of the short arm of a bent tube, G, the end of the long arm of which is connected with the top of the tank H.

With the bottom of the tank H is connected the upper end of the pipe I, which extends down to the bottom of the mine or other place from which the water is to be raised.

In the upper part of the pipe I is secured a valve, J, opening upward.

With the pipe I, above the valve J, or with the bottom of the tank H, is connected the end of the discharge-pipe K, which is provided with a valve, L, opening outward. With this construction, when the water rises in the tank A above the bend of the siphon C, it begins to flow through the said siphon C into the bent tube D until it has filled the tank E, and has risen in the short arm of the bent tube G to the level of the bend of the siphon F, when it begins to flow out through the said siphon F, and continues to flow until the bent tube D is nearly empty. As the water rises in the tank E, the air in the said tank passes through the bent tube G into the tank H, opens the valve L, and escapes through the pipe K. As the water begins to flow out through the siphon F, it forms a vacuum in the tank H, which causes the atmospheric pressure to close the valve L and force the water from the mine or other place up through the pipe I, which opens the valve J, and flows into the tank H. As the water ceases to flow out through the siphon F and the bent tube D, and the tank E again begins to fill with water through the siphon C from the tank A, the water in the tank H closes the valve J, opens the valve L, and flows out through the pipe K. If the siphon C has a diameter equal to or greater than the diameter of the siphon F, the flow of water into the tank A must be stopped each time the water begins to flow out through the siphon F; but if the diameter of the siphon C is less than that of the siphon F, the water may be allowed to flow continuously into the tank A. In the latter case the operation of the apparatus will be automatic, and will continue as long as there is a supply of water at both ends of the apparatus.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. An apparatus for raising water constructed substantially as herein shown and described, and consisting of three tanks placed at different levels, and connected by two bent tubes and a siphon, one of the said bent tubes being provided with a discharge-siphon, and the lower tank being provided with a pipe leading to the water to be raised, and having

an upwardly-opening valve, and a discharge-pipe having an outwardly-opening valve, as set forth.

2. In an apparatus for raising water, the combination, with the three tanks A E H, placed at different levels, of the siphon C, the bent tubes D G, the discharge-siphon F in the bent tube D, and the valve-pipes I K, substantially

as herein shown and described, whereby water can be raised by atmospheric pressure induced by the flowing of water through the said tanks and siphons, as set forth. 10

THOMAS ARTHUR.

Witnesses:

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