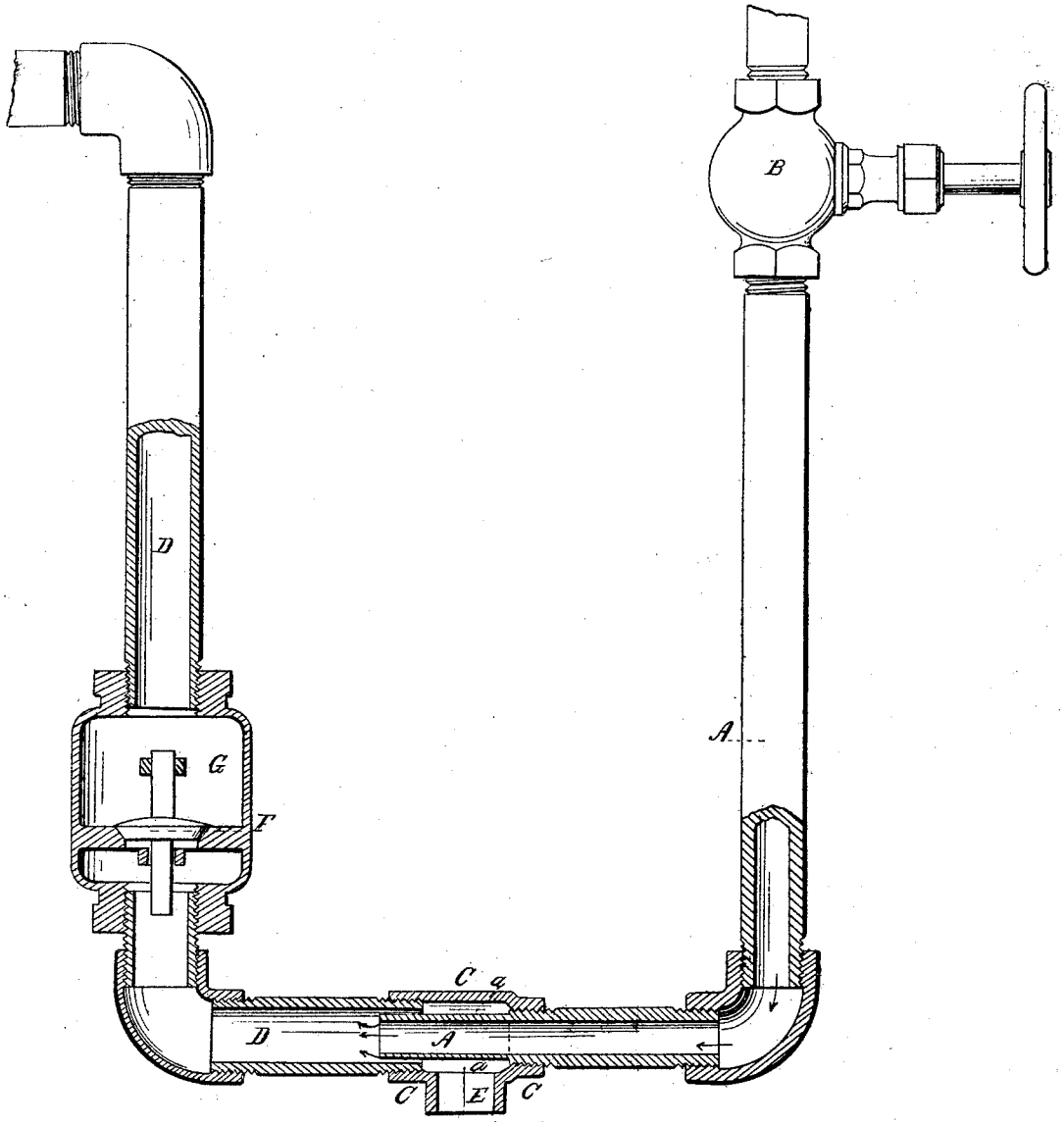
A. Brear,

Raising Water by Steam,

No. 34,810, Patented Apr. 1, 1862.



Witnesses:
James Laird
E. M. Hodgen

Inventor:
A. L. Brear

UNITED STATES PATENT OFFICE.

ABEL BREAR, OF SAUGATUCK, CONNECTICUT.

IMPROVED DEVICE FOR RAISING WATER BY STEAM.

Specification forming part of Letters Patent No. **34,810**, dated April 1, 1862.

To all whom it may concern:

Be it known that I, ABEL BREAR, of Saugatuck, in the county of Fairfield and State of Connecticut, have invented a new and Improved Apparatus for Raising and Forcing Water and other Liquids; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing, making a part of this specification, said drawing representing a central vertical section of the apparatus.

This apparatus consists, principally, of a steam-pipe the mouth of which enters and is surrounded by a socket in which is an opening for the admission of the water or other liquid to be raised from the well, reservoir, or other source of supply, and from which a delivery-pipe leads to the point where it is to be delivered, the direction of the steam-pipe being the same as that of the contiguous portion of the delivery-pipe. The issuing steam expels the water from the delivery-pipe, and the place of the water so expelled is supplied by water forced up into the socket from the well, reservoir, or other source by the presence of the atmosphere.

A is the steam-pipe, through which steam is admitted from a boiler by opening a stop-valve, B, or cock.

C is the socket, into one end of which is secured the steam-pipe A, and into the opposite end of which is secured the delivery-pipe D. The end of the steam-pipe enters the delivery-pipe, and the interior of the latter pipe and of the socket C is larger than the exterior of the end of the steam-pipe, in order that a space, *a*, may be left around the latter.

E is the opening in the socket for the entrance of the water or other liquid, communicating directly with the space *a*, surrounding the steam-pipe.

F is a check-valve in the delivery-pipe, situated a short distance above the socket C. The socket C and contiguous portions of the steam-pipe and water-delivery pipes are arranged horizontally, but at a short distance from the socket C. The steam-pipe A and delivery-pipe D have an upward direction.

To place the apparatus in an operative condition, the lower part is submerged to any depth above the check-valve in the delivery-pipe, in the water or other liquid in the well, reservoir, or other source of supply, and the upper end of the steam-pipe is connected with a boiler.

To set the apparatus in operation steam is admitted through the pipe A by opening the stop-valve. The pressure of the steam quickly opens the check-valve, and the steam, meeting the water in the pipe D, drives it forward and causes a vacuum to be formed in the lower part of the said pipe and in the space *a a*, and the water or other liquid rushing thereinto through the opening E is driven forward by the steam through the delivery-pipe in a continuous stream. When the steam is shut off, the check-valve closes and retains the water or other liquid remaining in the pipe D above it, and the steam remaining in the pipe A, being soon condensed, has its place supplied by water or other liquid rising through the opening E, so that the apparatus is immediately set in operation again by opening the stop-valve B.

By providing a chamber, G, in the delivery-pipe D much larger than the pipe itself, so that a larger quantity of liquid is retained above the check-valve than could be retained in the pipe itself, the column is moved more quickly in the starting of the apparatus, and the operation is commenced instantly.

The apparatus may be used with great advantage in raising water from mines, as it will work at any depth or at any distance from the boiler to which steam can be conveyed, and will raise it to any height. It may be also used as a substitute for a fire-engine in extinguishing fires or for other purposes which require water to be ejected with considerable force, the issue from D being very forcible when a high pressure of steam is used.

Compressed air may be used in place of steam to effect the same purpose, such air being admitted through the pipe A in the same manner as the steam, as above described.

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

The combination of the steam or air pipe A, the open socket C, and the delivery-pipe D with the check-valve F and the chamber G, the whole operating substantially as and for the purpose herein specified.

ABEL BREAR.

Witnesses:
JAMES LAIRD,
EDW. W. HODGSON.