C. Rogers,

Water Elevator.

No. 104,650. Patented June 21. 1870.

Fig. 1.

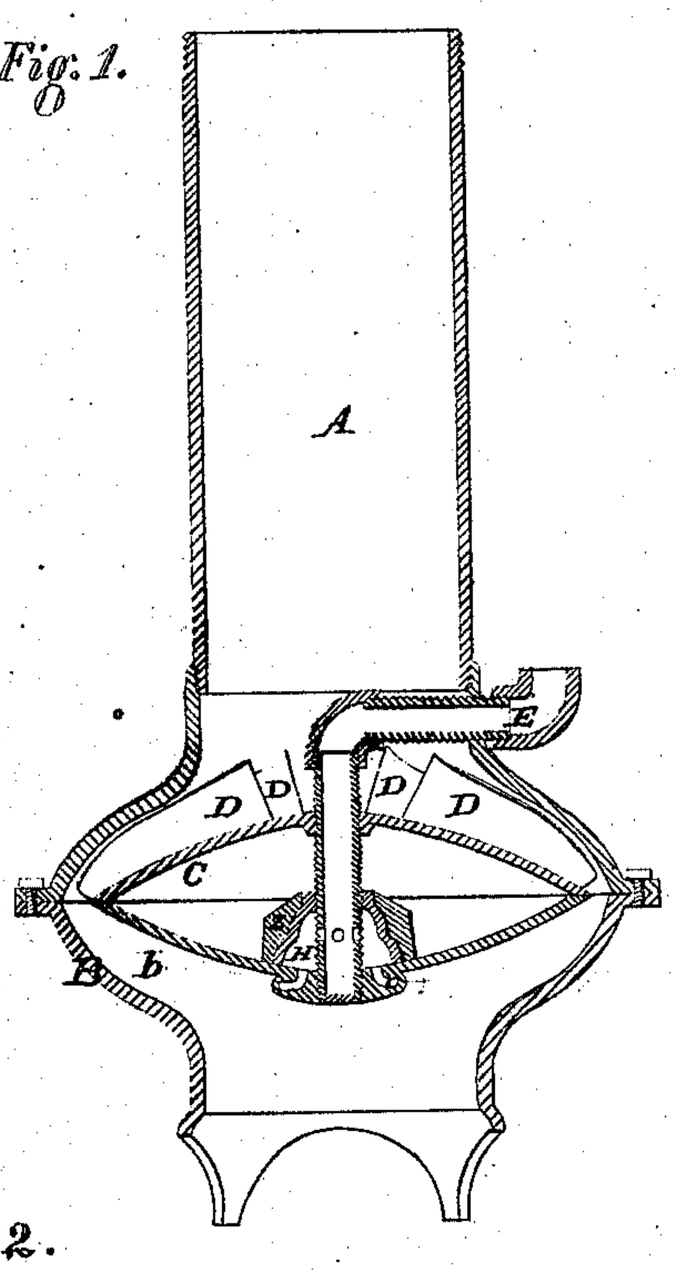


Fig. 2.

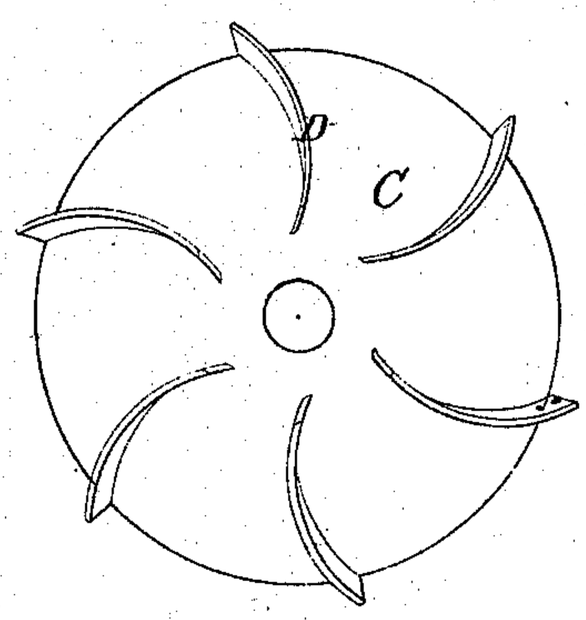
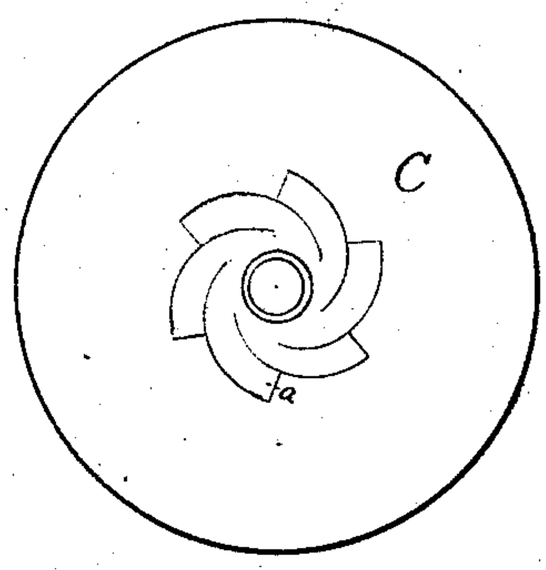


Fig. 3.



Witnesses
Edward Marr
Chas. Kenyon

Inventor
Chas. Rogers,
Chipman Hosmer & Co
Attys

United States Patent Office.

CHARLES ROGERS, OF ALLEGHENY CITY, PENNSYLVANIA.

Letters Patent No. 104,650, *dated June* 21, 1870.

IMPROVEMENT IN STEAM WATER-ELEVATOR.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, CHARLES ROGERS, of Allegheny City, in the county of Allegheny and State of Pennsylvania, have invented a new and valuable Improvement in Steam Water-Elevators; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawing making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawing is a central vertical section of my invention.

Figure 2 is a top view of the inner hollow diaphragm, showing the upper guide plates.

Figure 3 is a bottom view of the diaphragm, showing the orifices for the exit of the steam.

My invention relates to steam water-elevators; and consists, mainly, in the construction and novel arrangement of a circular swell or chamber in the stock, within which is a hollow diaphragm inclosing the steam-chamber, incased in brimstone or other similar non-conducting substance, and provided with jets designed to impart, by the action of the steam issuing therefrom, a swift rotary motion to the water in the swell of the stock, thereby causing it to rise in the stock by centrifugal force.

The letter A of the drawing designates the stock or central tube through which the water rises.

B, the expansion thereof, forming the water-chamber *b*, which is made in the form of a double conoid or oblate spheroid.

C represents the inner diaphragm, similar in form to the outer case B, but more flattened or oblate. This hollow diaphragm or case forms the inner wall of the water-chamber, and is so arranged that the distance between the walls of the chamber gradually diminishes, both above and below, as it approaches the central or widest part of the case B.

D D represent curved partitions or dividing-plates, placed spirally in the upper half of the water-chamber, and extending from the circumference of the diaphragm toward the center of the upper surface thereof.

The hollow diaphragm is secured to the steam-pipe E, which passes down within it to the steam-chamber.

On the under side of the diaphragm, and arranged about the center thereof, are the spiral jets *a*, small pipes communicating with the steam-chamber within the diaphragm, and so formed that they will deliver the steam into the water-chamber at or near its lowest point, and will cause it to strike the water therein at an angle of about forty-five degrees from the radius of the circle in which the jets are placed.

Within the hollow diaphragm is the steam-chamber H, receiving the steam from the generator through the pipe E, and delivering it in jets against the body of water in the chamber *b*.

For the prevention of condensation, a jacket, *z*, of brimstone, or other suitable non-conducting material, is arranged to envelope the steam-chamber within the diaphragm.

The lower portion of the steam-pipe E, where it is in contact with the water, is covered with similar non-conducting material, for the same purpose.

The operation of my invention is as follows:

The lower portion of the stock, including the chamber *b*, or the lower part of it, is placed in the water. Steam, having been let on from the generator, issues from the mouths of the pipes *a* in jets of great force, causing a rotary movement of the water in the chamber. A centrifugal movement of the particles of water follows, which is enhanced by the fact that the water-chamber tapers upward and outward from the position of the steam-jets. Therefore the particles of water rise into the upper portion of the chamber *b*, where they are guided gradually but rapidly to the center by the spiral wings or plates D, and the water, consequently, rises in the main pipe A.

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

1. In the main pipe of a steam water-elevator, the water-chamber *b*, in combination with the double convex diaphragm C, provided with the curved guide-plates D on its upper surface, the spiral jets *a* arranged to give a centrifugal movement to the water, and the steam-chamber H enveloped with brimstone or other non-conducting substance, as specified.

2. The steam water-elevator herein described, wherein the elevation of the water is effected by the centrifugal movement thereof, produced by the action of jets of steam in a water-chamber, *b*, substantially as specified.

In testimony that I claim the above, I have hereunto subscribed my name in the presence of two witnesses.

CHAS. ROGERS.

Witnesses:

A. M. STEVENSON,

PHILIP ITTAL.