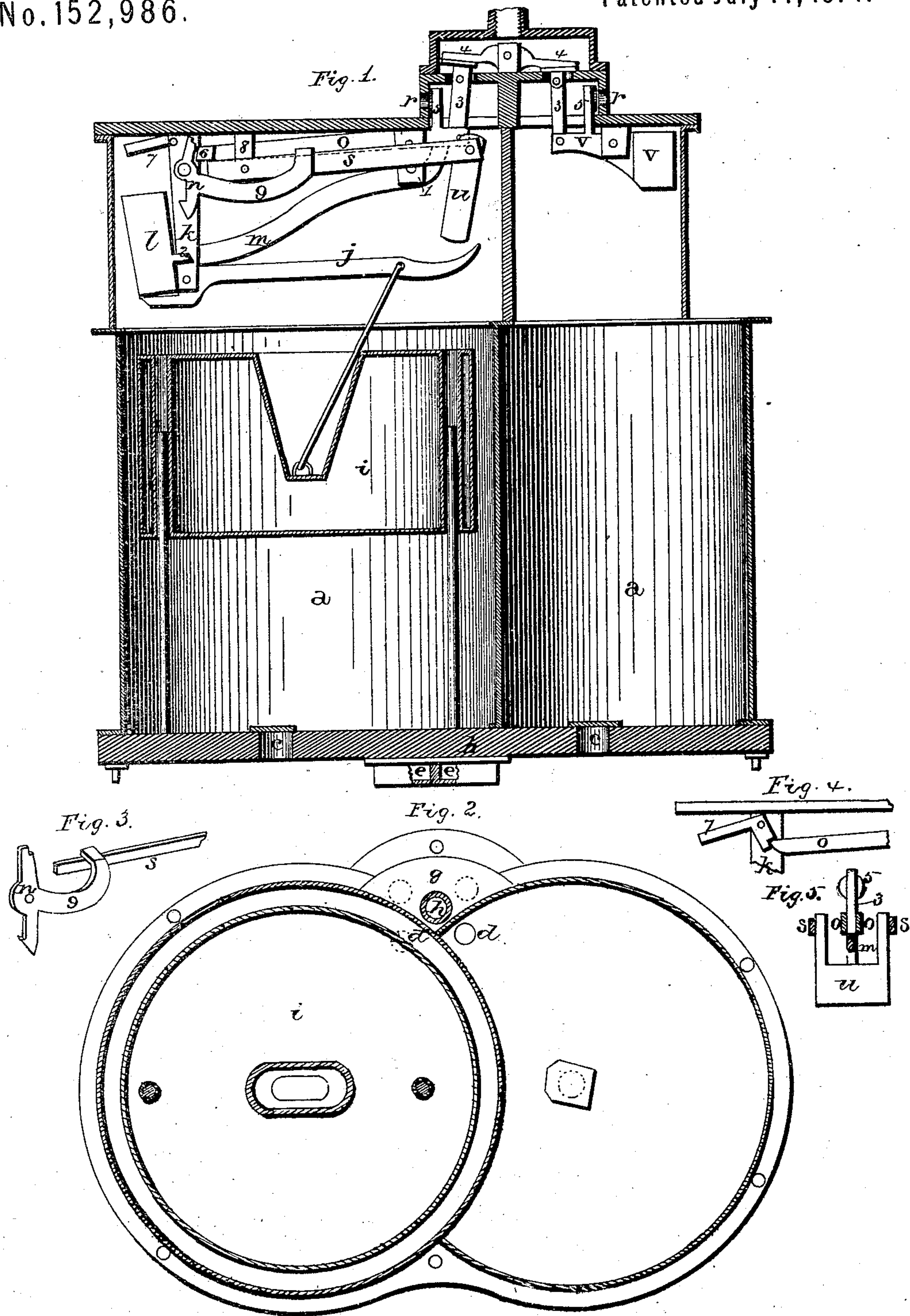


E. EVANS.  
Water-Elevators.

No. 152,986.

Patented July 14, 1874.



WITNESSES,  
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INVENTOR,  
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per  
F. A. Lehmann, Atty



# UNITED STATES PATENT OFFICE.

ELIJAH EVANS, OF SPARTA, OHIO.

## IMPROVEMENT IN WATER-ELEVATORS.

Specification forming part of Letters Patent No. **152,986**, dated July 14, 1874; application filed June 30, 1874.

*To all whom it may concern:*

Be it known that I, ELIJAH EVANS, of Sparta, in the county of Morrow and State of Ohio, have invented certain new and useful Improvements in Water-Elevator; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in water-elevators; and it consists in the arrangement and combination of devices which will be more fully described hereafter, whereby the valves are alternately opened and closed, so as to change the pressure of air from one cylinder to the other, and to allow the air in the cylinder from which the water has just been forced to escape upward through the water of the well or cistern, so as to purify it.

The accompanying drawings represent my invention.

*a* represents two cylinders of suitable shape and size, which are secured to the base *b*, through which are made the valved openings *c* for the admission of water to the cylinders. Through this base are also made two other openings, *d*, through which the water escapes from the cylinders into the two chambers *e*, from whence it is forced upward into the chamber *g* on up through the delivery-pipe *h*, the openings between the two chambers being covered by upwardly-opening valves to prevent the return of the water.

In one of the cylinders is placed a float, *i*, which is attached by means of a connecting-rod to the lever *j*, which is pivoted near one end to the hangers *k*. The end of the lever, outside of the hanger, catches under the weight *l*, secured to the end of the lever *m*, which is pivoted near one end to the hangers *1*, the weight being provided with a projection, *2*, on one side, for engaging with the catch *n*. The short end of this lever *m* presses upward against the under side of the lever *o*, which is also pivoted to the hangers *1*, and which has attached to its end a rod, *3*, for opening upward the air-valve *4*, and has formed upon it the arm or projection *5*, having a disk of rubber or other material secured to

its outer side, so as to close the escape-hole *r* for the air. The rod *3* and projection *5* are arranged, that, while the rod is holding the valve *4* open for the admission of air to drive the water out of the cylinder, the projection closes the escape-hole *r*, and when the rod draws the valve shut the projection opens the escape-hole, and lets the compressed air in the cylinder escape. To one side of this lever *o* is formed a projection, *6*, which catches over the upper end of the catch *n*, so as to hold the lever in such a position as to close the air-valve, and open the escape-hole. Pivoted between the hangers *k* is a lever, *7*, the short inner end of which catches over the top end of the lever *o*, and holds it down, so that the rod *3* is propped in position while holding the valve open. Pivoted between the hangers *8* is the lever *s*, the shorter end of which, bearing against the under side of the lever *o*, raises it upward, while to the longer end is pivoted the weight *u*, against the lower end of which the lever *j* strikes as it is being raised upward by the float. Extending backward from the catch *n* is a lever, *9*, the end of which is bent so as to catch over the top of the lever *s*, so that as the lever *s* is being raised upward the lever *9* draws the catch from under both the levers *m* and *o*, when the weights *l u* instantly drop, and cause the valves to shut the inflowing air from one cylinder, and turn it into the other.

In the opposite cylinder from the one in which the float is placed, there is pivoted simply a weighted lever, *v*, having attached to its end a rod, *3*, and a projection, *5*, as in the other cylinder. As the water raises the float upward the lever *j* raises the lever *s* upward, until the lever *9* draws the catch from under both of the levers *m o*, when their weights cause them to drop, and in dropping they close the valve *4* of the opposite cylinder, and turn the compressed air into the cylinder in which the float is placed. As the air passes into the now filled cylinder it forces the water out, and as the water is driven out the float fall until it draws the lever *j* down far enough for it to raise the weight *l* up until it strikes against the end of the lever *7*, which instantly releases the lever *n*, when the weight *u* falls, forcing upward the outer end

of the lever *n*, which opens the valve of one cylinder, and shuts that of the other. As these cylinders are placed under the water, as soon as the escape-valves open the compressed air escapes from the cylinder, which has just had the water forced out into the water of the well or cistern, and thus purifies the water.

In many wells and cisterns where the water is not very pure, and where it cannot be purified in any other manner, by placing one of my devices in them, and having the air constantly forced upward through the water, the water becomes fresh and sweet.

Having thus described my invention, I claim—

1. The combination of the cylinders *a*, float *i*, levers *j m o s* 7, weights *l u*, catch *n*, lever 9, rod 3, projection 5, and valve 4, substantially as specified.

2. The lever *o*, provided with the rod 3 for opening the air-valve, and the projection 5 for closing the exhaust *r*, substantially as shown.

In testimony that I claim the foregoing I have hereunto set my hand this 30th day of June, 1874.

ELIJAH EVANS.

Witnesses:

F. A. LEHMANN,  
FRANK CLAUDY.