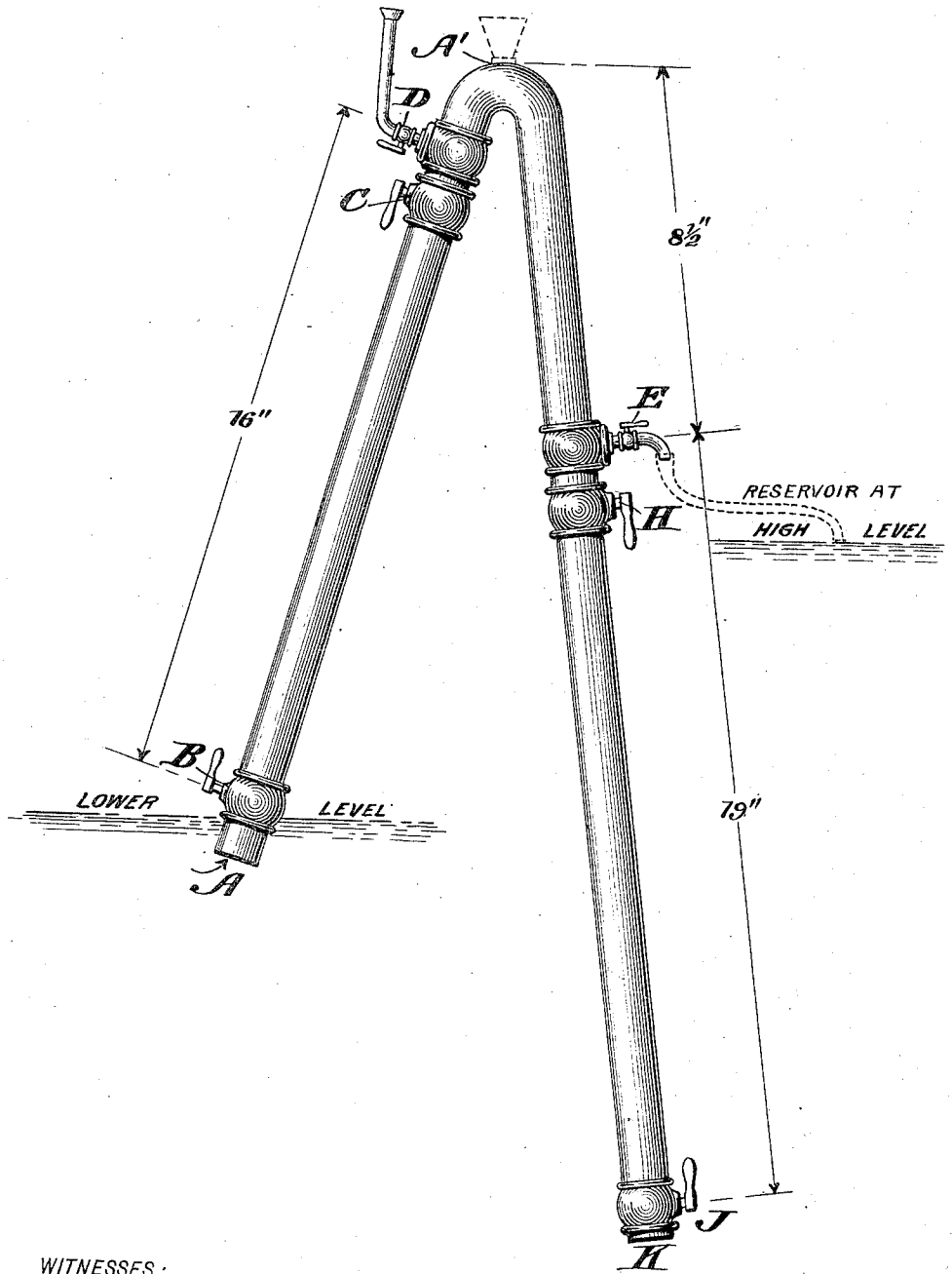
No. 649,313. Patented May 8, 1900.

W. S. JEWELL.

SIPHON WATER ELEVATOR.

(Application filed Oct. 7, 1899.)

(No Model.)



WITNESSES:

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UNITED STATES PATENT OFFICE.

WALTER S. JEWELL, OF OAKLAND, CALIFORNIA.

SIPHON WATER-ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 649,313, dated May 8, 1900.

Application filed October 7, 1899. Serial No. 732,882. (No model.)

To all whom it may concern:

Be it known that I, WALTER SIMPSON JEWELL, of Oakland, in the county of Alameda and State of California, have invented a new and useful Improvement in Siphon Water-Elevators, of which the following is a specification.

My invention is in the nature of a water-elevator operating on the principle of the siphon and arranged to take water from a given level and to raise a portion of it to a higher level with no other aid than the usual fall or difference in level between the entrance and exit points of the siphon; and it consists in the construction and arrangement of a siphon designed to operate as described for the various purposes of raising water, as will be hereinafter fully described with reference to the drawing, in which the figure is a side elevation.

In the drawing, A to A′ is the short leg of the siphon, and A′ to K the long leg. At the lower end of the short leg there is a water-inlet valve or gate B, and near the top of this short leg, just below the bend, there is a water valve or gate C and also an air-inlet valve D, whose outer end extends a little above the apex of siphon. In the long leg of the siphon there are also three valves. The valve E is the water-outlet to the high level to which the water is to be raised. This valve is located a little above the middle of the long leg, and immediately below it is a water valve or gate H, while at the extreme lower end of the long leg is another water valve or gate J.

The operation of this siphon elevator is as follows: The lower end of the short leg is immersed in the water to be raised, and both legs of the siphon are filled with water in any suitable way. To do this, valves B, J, and E are closed and H, C, and D opened, and water is filled in through a hose connecting with the air-valve D, or valves B, C, H, and J are opened and E and D closed, and a suction is applied to the lower leg at K to fill the siphon. Once filled, the water commences to flow out the lower end K of the siphon in the usual way. When flowing freely, I simultaneously close the valves B, C, H, and J and at the same time open the air-inlet D and water-outlet E, and the water in the long leg of the siphon between the points A′ and E passes out from gravity to the higher water-level, the air following in through valve D behind the water and filling the space in the siphon from A′ to E. As soon as the water is out of the section of pipe from A′ to E the following changes are simultaneously made: Valves D and E are closed and B C H J are opened. The result is that the pull of the water in the long leg between H and J causes the air from A′ to E to follow it, and in spite of the elasticity of the air water is lifted in the short leg from A to C until it passes over and completely fills both legs of the siphon again. In the operations already conducted by me the proportions employed were as follows: from B to D, sixteen inches; from the apex A′ of siphon to outlet E, eight and one-half inches, and from E to J nineteen inches.

In the operation of my siphon water-elevator it will be understood that it does not raise all the water that passes through it, but only a portion of the same—approximately about one-third. If desired, a filling-cap may be arranged at the apex A′, as shown in dotted lines.

As to the uses of this siphon I would state that it could be applied in large cities either on the seaboard or near rivers, where there is always a plentiful supply of water, and in such places its use would be as a pump to raise water to a reservoir, whence it could be used for flushing sewers, sprinkling streets, augmenting the fire-department's water-supply, &c. Again, in various forms of irrigation it would pump up almost any desired amount of water to nearly any desired height, for it would be limited only by the sizes and number of siphons and reservoirs. I say "number," because of course any siphon is limited in action to about thirty feet in height by atmospheric pressure; but with a new reservoir to pump from each time the limit is reached there is, in fact, practically no limit to its power, and these intermediate reservoirs need not be so very large. There is no reason why the siphon should not be as large as a tunnel—say twenty feet in diameter—for it could be made almost automatic in action, having all stop-cocks and valves connected by electric wires, so that pressure on a button would open and close them all at once, and thus little attention would be required and very little labor.

I am aware that a siphon-pump has heretofore been devised in which the movement of the water in the long leg is made to act by its momentum and pressure like a hydraulic ram from the automatic opening and closing of valves, and I make no claim to such arrangement.

My invention is distinctive in the fact that it does not employ the elements of pressure and momentum, but rather the principles of suction and gravity, there never being in the long leg any increased pressure, but only suction and gravity, and this suction acts through a body of air to raise water in the short leg.

With reference to the valves of the siphon they may be constructed in any desired form. As shown, they are rotary valves; but it is to be understood that slide-valves may also be employed, the form of the valve having no special novelty. The valves may be simultaneously operated by hand, or they may be geared to operate by machinery. The valve at B may be a self-closing valve, such as a ball-valve, for instance.

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

1. A siphon water-elevator having the upper section of its long leg provided with valves at its inlet and outlet portions, whereby said upper section may be alternately filled with water and air, and whereby also the water is alternately discharged from the upper end of the long leg, and the pull of the water in the long leg is made to raise water in the short leg through the tension of said body of air substantially as described.

2. A siphon water-elevator having at or near the top of its bend a controllable air-inlet, and having in its long leg at a level between the upper and lower ends of the short leg, a controllable water-outlet to permit water to pass out of the upper end of the long leg, and a cut-off valve beside the same to hold water in the lower part of the long leg while water is passing out the upper section as described.

3. A siphon water-elevator having at or near the top of its bend a controllable air-inlet and a valve closing the upper end of the short leg, the long leg of the siphon having at a level between the upper and lower ends of the short leg a controllable water-discharge to the high level, and a cut-off valve beside it to hold the water in the lower end of the long leg substantially as and for the purpose described.

4. A siphon water-elevator having six valves, viz; a water-valve at the lower end of the short leg, a water-valve at the lower end of the long leg, a water-gate valve and an air-valve near the apex or upper bend, and an outlet-valve and a water-gate at an intermediate portion of the long leg substantially as and for the purpose described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WALTER S. JEWELL.

Witnesses:
JOSEPH LANCASTER,
W. F. KROLL.