

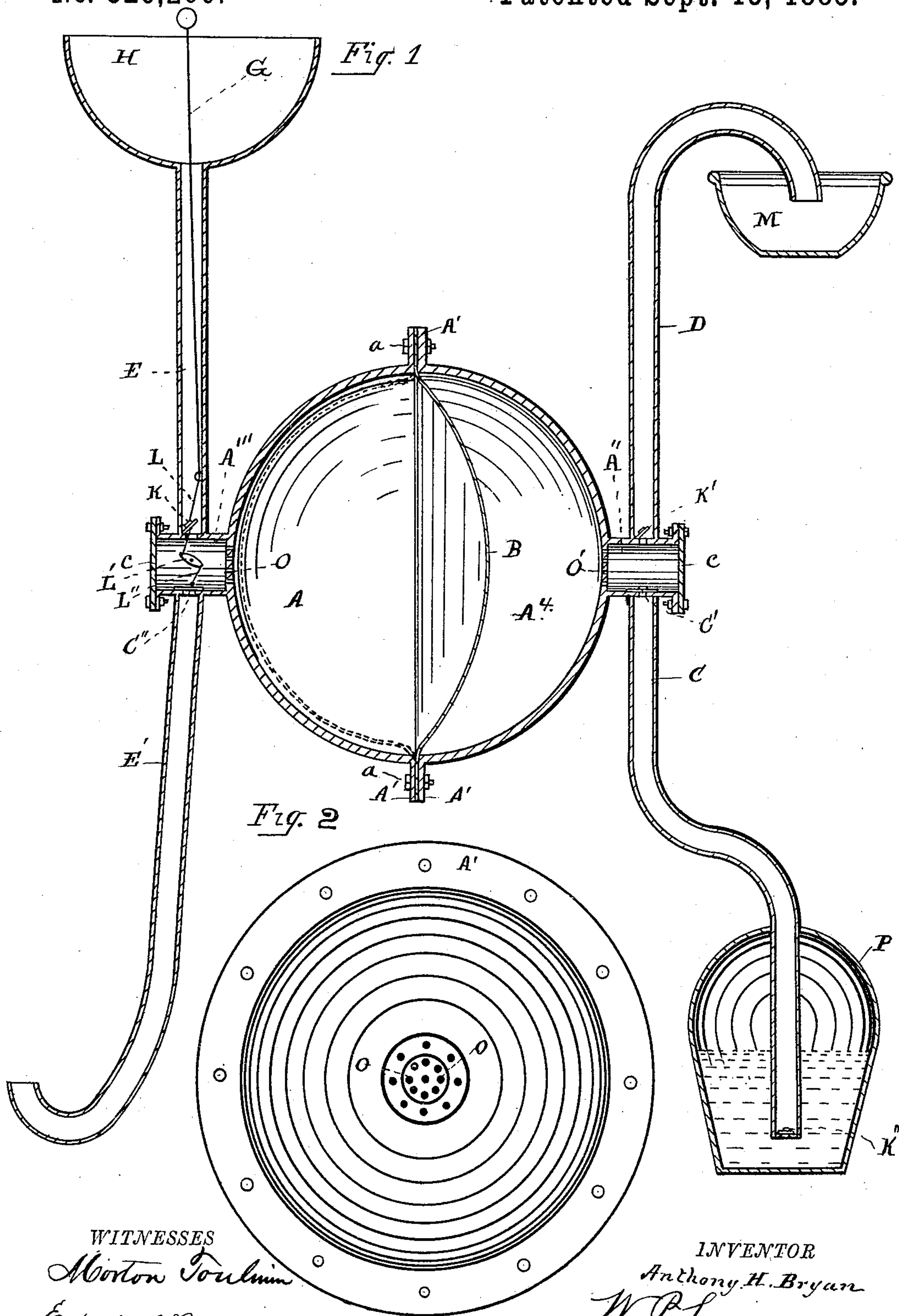
(No Model.)

A. H. BRYAN.

AUTOMATIC PUMP AND WATER ELEVATOR.

No. 326,266.

Patented Sept. 15, 1885.



WITNESSES

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ANTHONY H. BRYAN, OF EVANSVILLE, INDIANA.

AUTOMATIC PUMP AND WATER-ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 326,266, dated September 15, 1885.

Application filed May 27, 1884. (No model.)

To all whom it may concern:

Be it known that I, ANTHONY H. BRYAN, a citizen of the United States, residing at Evansville, in the county of Vanderburg and State of Indiana, have invented certain new and useful Improvements in Automatic Pumps or Water-Elevators, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to improvements in water-elevators, and has for its object to elevate water from a cistern or reservoir by the descent of waste water. This object is attained by the devices illustrated in the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a sectional view. Fig. 2 is a side elevation of one of the hemispheres, the cover of the chamber being removed.

The letters A A⁴ indicate two hemispheres having flanges A', and two chambers, A'' A'''. The interior of the sphere is separated into two parts by means of a diaphragm, B, the outer edges of which extend between the flanges A' and form a packing both air and water tight. This diaphragm is composed of elastic flexible water-proof material—such as india-rubber—and is secured between the flanges A' by means of the bolts a, which also serve the purpose to hold the two hemispheres together. The short pipes (or chambers) A'' A''' have each a cap, c c', secured thereto in any suitable manner. They are also provided with suitable openings for the introduction of the pipes C D E E', as well as valves C'' C' K K', and form chambers which cover the perforations O O' in the hemispheres A A⁴.

G is a rod extending through the pipe E, which is connected at the top with a basin or reservoir for waste-water H. The lower end of this rod is connected to the valve K, and serves the purpose to open this valve by pulling the rod in an upward direction. Attached to the top of the valve K is a short link, L, which engages with a pivoted lever, L', one end of which is connected to the valve C'' by the link L''. This arrangement of the different parts causes the valve C'' to remain open whenever the valve K is closed, and when the valve K is opened (by means of the rod G) the waste water from the reservoir H will flow down the pipe E into the chamber A''', thence through the perfora-

tions O into the interior of the hemisphere A until it becomes filled, and presses the diaphragm B to its utmost extent in the direction of the hemisphere A⁴, whereby the contents, pure water, of the latter is forced through the perforations O' into the chamber A'', thence upwardly through the valve K' and pipe D into the basin or receiver M. When the valve K is closed, the waste water in the hemisphere A passes through the perforations O, into the chamber A''' through the valve C''; thence into the pipe E'; thence out through the exit N into a sewer or other receptacle.

The action of the water flowing from the hemisphere A into and out of the pipe E' is to create a vacuum and draw the diaphragm B in the direction of the chamber A'', and thereby draw water from the cistern P up through the pipe C into the hemisphere A⁴, the return of which to the cistern A is prevented by the valves C' and K''; and when the valve K is opened the valve C is closed, and the waste water from the reservoir H then flows through pipe E into the hemisphere A, whereby the diaphragm is forced in the direction of the chamber A'', which forces the water contained therein up the pipe D into the basin M. The diaphragm is in no sense a motor, but simply serves to keep waste water and clean water separate. The waste water, in descending through one pipe into the neck of one hemisphere, will pass through holes drilled through the floor of the neck (which is also the central portion of the floor of the hemisphere) into the hemisphere, and exert its pressure against the rubber diaphragm, and force the diaphragm to float across the whole sphere, and finally to line the wall of the opposite hemisphere, while the clean water which was occupying the whole sphere is forced up the pipe parallel with the waste-water pipe, and pours out at its upper extremity, which is not quite so high as where the waste water descends from. The instrument being filled with waste water, the upper valve on the waste-water side is allowed to drop onto the valve-seat, and the lower valve of the same neck or hemisphere is lifted, when all the waste water runs out into a sewer or other outlet lower than the cistern, thus forming a vacuum which will be filled with clear water by atmospheric pressure on the siphon principle, from the cistern. There is a valve

in the neck on the clean-water side which rises to admit the water from the cistern at the top of the pipe leading up from the cistern, which drops or closes when the waste water
 5 has run out. Immediately above this valve is a check-valve at the foot or lower extremity of the clean-water pipe, which rises and allows the clean water to ascend whenever the waste-water pressure is turned on, and which will
 10 drop again when everything is at rest, or when the waste water is running out. In reversing the valves on the waste-water side the lower valve is always made to close before the upper one is lifted off the valve-seat, and the upper
 15 valve is made to close before the lower valve is raised from its resting-place. It is my intention to apply for another patent upon the method.

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

1. In a water-elevator, the combination of an elevated waste-water reservoir, of descending waste-water pipes leading into and from a

chamber attached to a hemisphere having suitable openings for the flow of water, of a diaphragm attached thereto, with suitable valves located within said chamber, and means for opening and closing the same, as described, and for the purposes set forth. 25

2. In a water-elevator, the waste-water reservoir H, the pipe E, the rod G, the chamber A''', the valves K and C', link L, lever L', link L'', and pipe E', with the hemisphere A, provided with diaphragm B, as shown and described, and for the purposes set forth. 30 35

3. In a water-elevator, hemispheres A A', having diaphragm B and chambers A'' A''', in combination with elevator-pipes C D and descending pipes E E', as shown and described, and for the purposes set forth. 40

In testimony whereof I affix my signature in presence of two witnesses.

ANTHONY H. BRYAN.

Witnesses:

J. A. MCCOY,
 W. W. IRELAND.