

(No Model.)

2 Sheets—Sheet 1.

A. L. WHITE.
WATER ELEVATOR.

No. 467,072.

Patented Jan. 12, 1892.

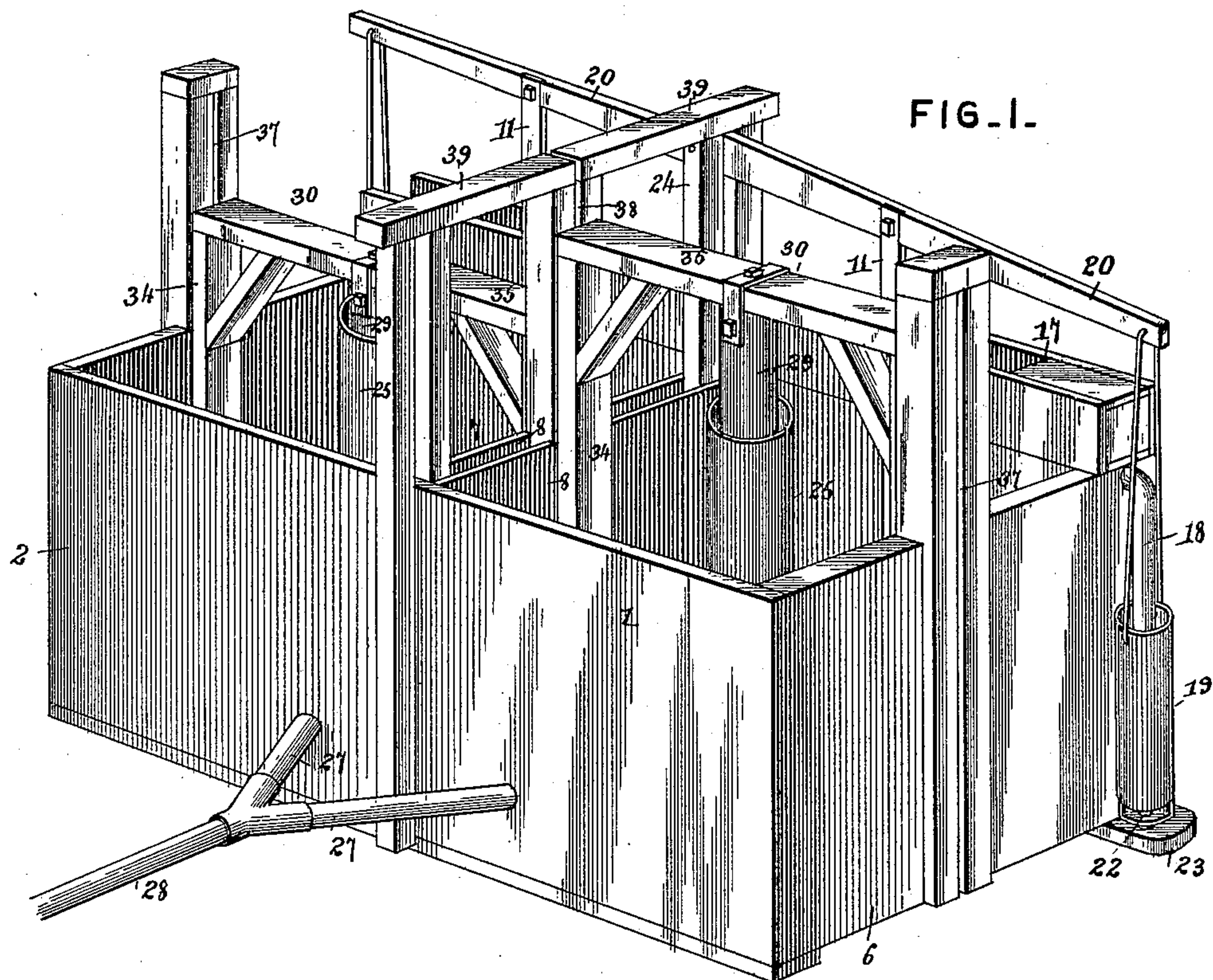
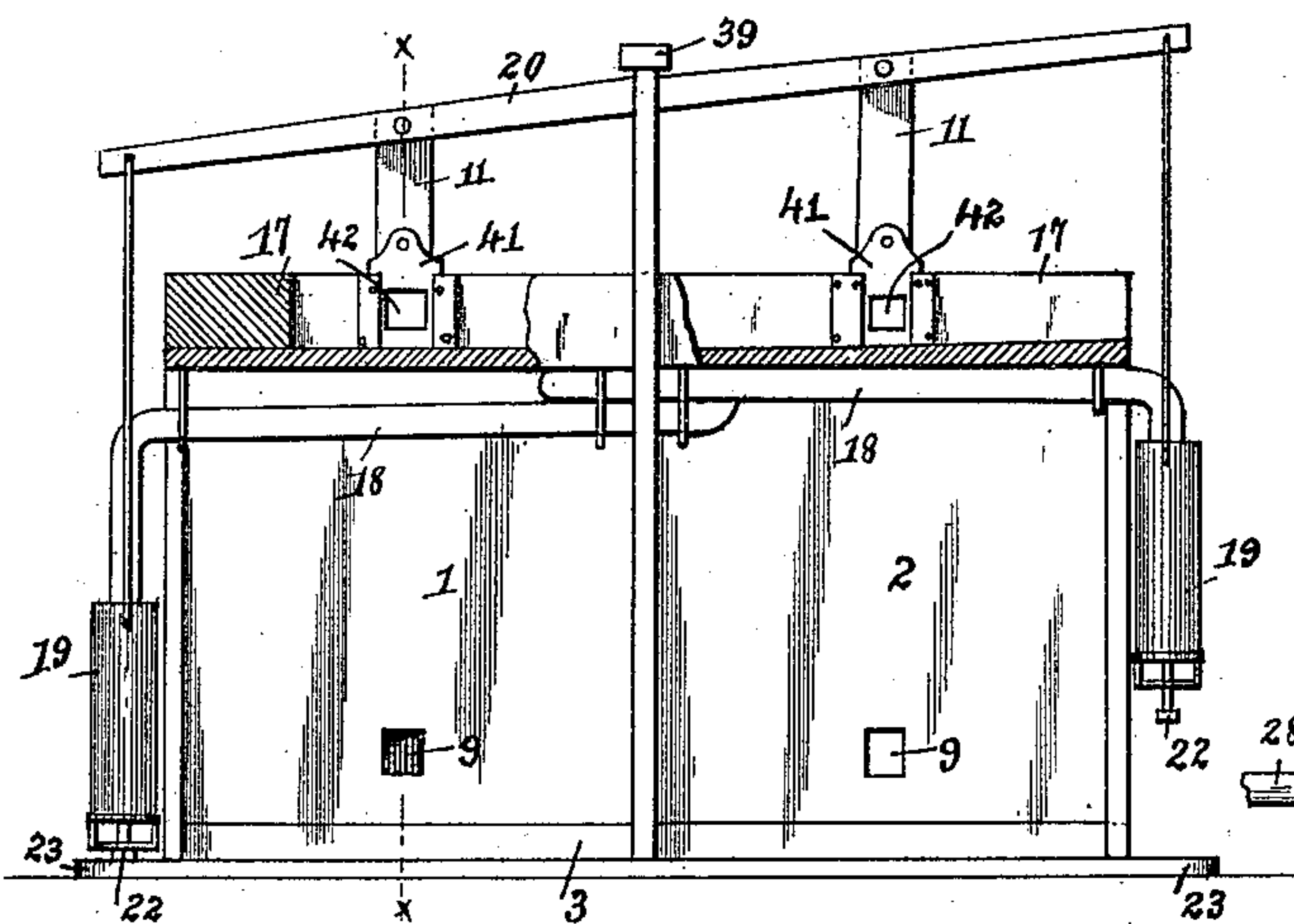


FIG. 2.



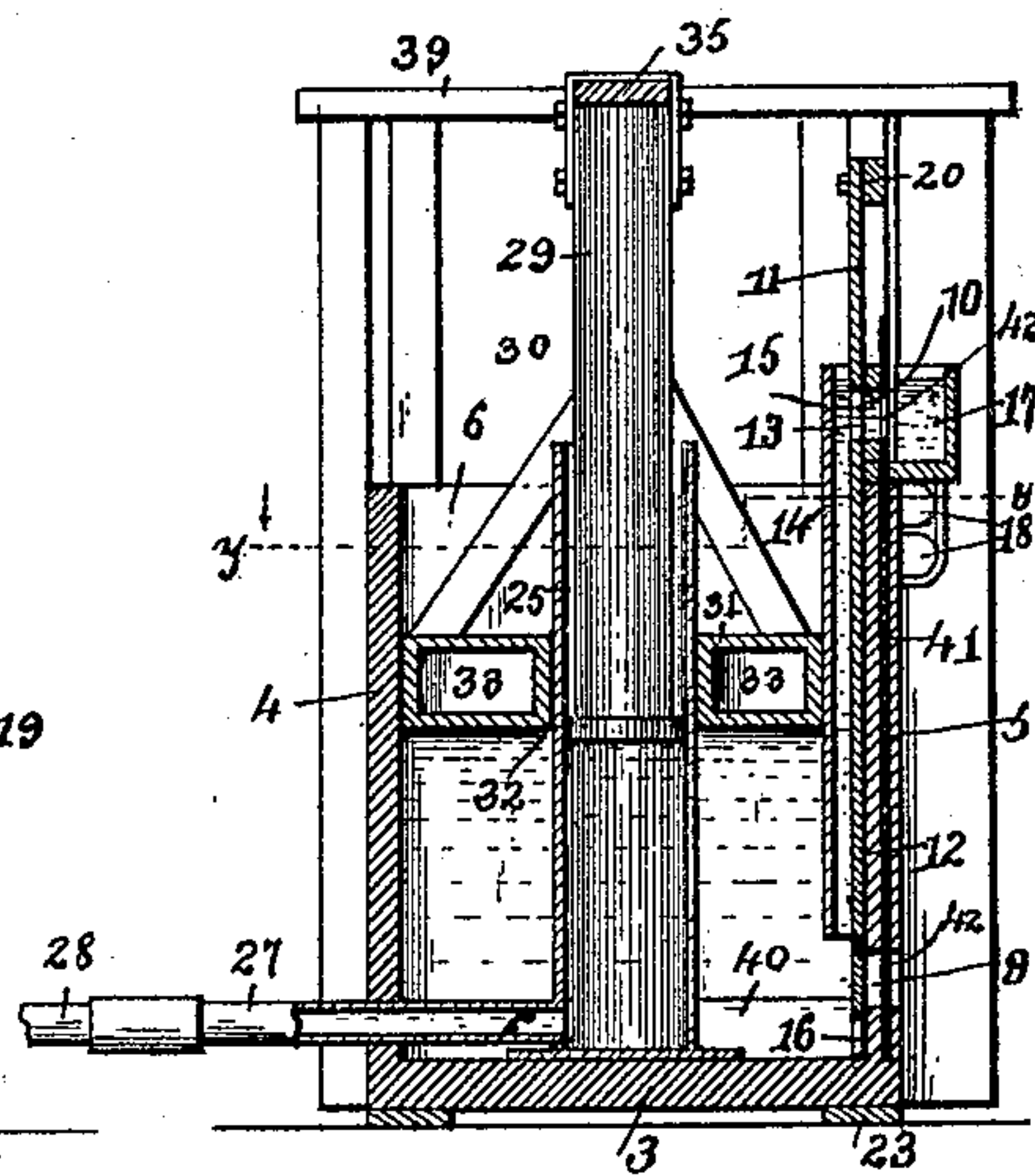
Witnesses

Jas. K. McLaughlin
N. F. Riley

By his Attorneys,

Alfred L. White
C. A. Snow & Co.

FIG. 3.



Inventor

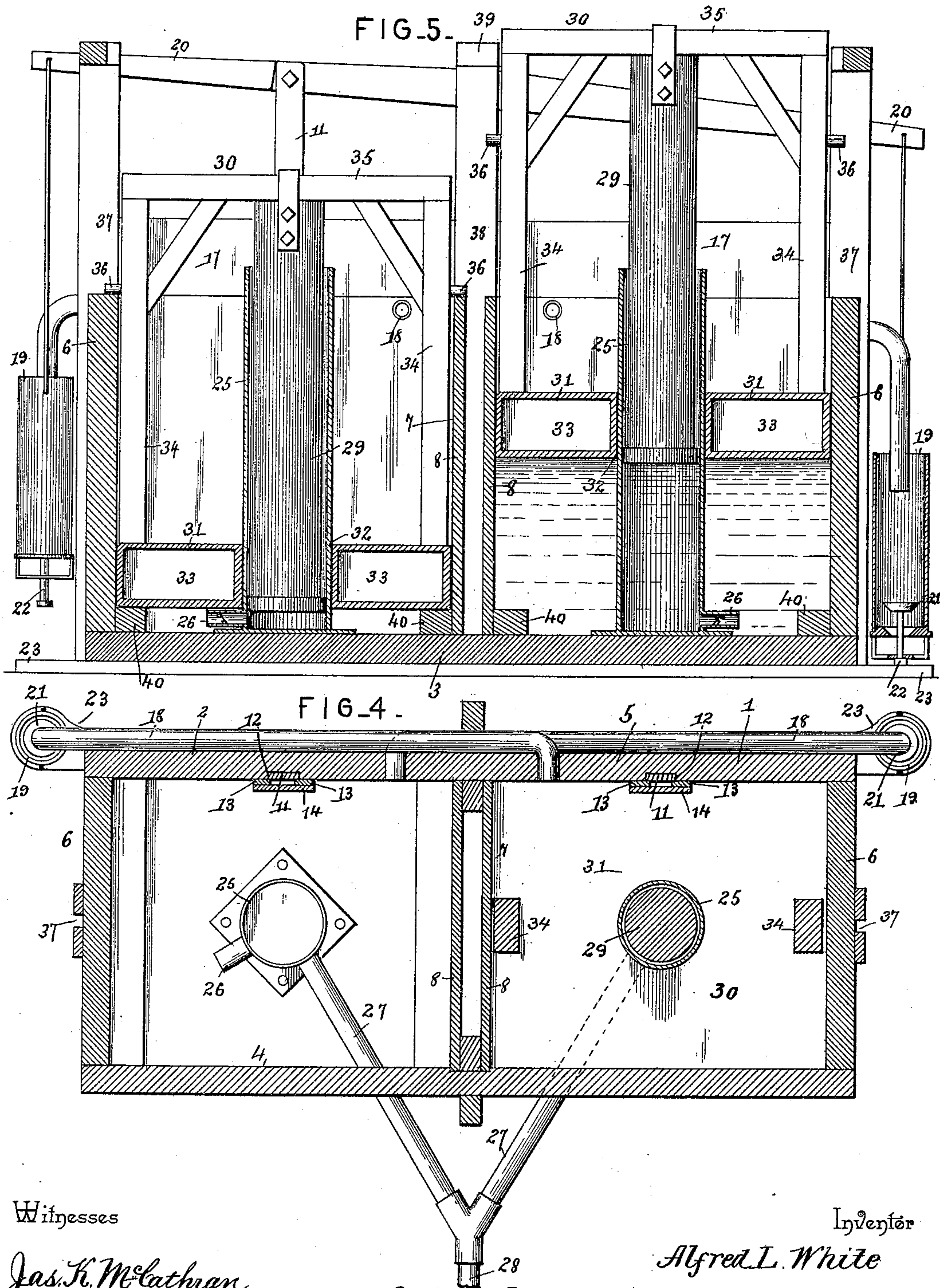
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2 Sheets—Sheet 2.

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UNITED STATES PATENT OFFICE.

ALFRED LINCOLN WHITE, OF SUISUN, CALIFORNIA.

WATER-ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 467,072, dated January 12, 1892.

Application filed May 13, 1891. Serial No. 392,580. (No model.)

To all whom it may concern:

Be it known that I, ALFRED LINCOLN WHITE, a citizen of the United States, residing at Suisun, in the county of Solano and State of California, have invented a new and useful Water-Elevator, of which the following is a specification.

The invention relates to improvements in water-elevators.

10 The object of the present invention is to provide effective means whereby water can be elevated to a great height and be distributed to the upper stories of buildings and the like and which will be automatic in its operation
15 as long as the supply holds out.

The invention consists in the construction and novel combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed
20 out in the claims hereto appended.

In the drawings, Figure 1 is a perspective view of tanks provided with apparatus constructed in accordance with this invention. Fig. 2 is a side elevation of the same. Fig. 3
25 is a vertical sectional view on line *x x* of Fig. 2. Fig. 4 is a horizontal sectional view on line *y y* of Fig. 3, one of the floats being removed. Fig. 5 is a central vertical longitudinal sectional view.

30 Referring to the accompanying drawings, 1 and 2 designate rectangular tanks arranged adjacent to each other and composed of a bottom 3, vertical side walls 4 and 5, end walls 6, and a transverse partition 7, which consists
35 of vertical sections 8, forming a space between them. The sides 5 of the tanks are provided with outlet-openings 9 and inlet-openings 10, the openings of each tank being alternately opened and closed by vertically-sliding gates
40 11, arranged on the inner faces of the sides 5 in suitable ways 12. The ways 12 are formed by recessing the sides and securing strips 13 at the edges of the recesses, and the strips project over the recesses and have boards 14 se-
45 cured to their outer faces, whereby passages for water are formed, and the passages conduct water from the inlet-openings, which are arranged at the tops of the sides, to the bottom of the tanks. The vertically-sliding gates
50 11 are provided near their upper ends with openings 15 and at their lower ends with recesses 16, which are arranged to register al-

ternately with the inlet-openings 10 and the outlet-openings 9, whereby when the inlet 10 is open the outlet will be closed. 55

The tanks are supplied with water by means of a trough 17, which is arranged at the tops of the sides 5 and communicates with the inlets 10. When the water in the tanks rises to the top, it passes out through overflow-pipes 60 18, which have their inner ends communicating with the tanks and each of which extends along the tops of the sides 5 to the outer end of the tank opposite that with which it communicates. The overflow-pipes 65 18 empty into buckets 19, which are suspended from the ends of a walking-beam 20 and are provided in their bottoms with inwardly-opening valves 21, provided with depending stems 22, arranged to engage extensions 23 of 70 the bottom to open the valves. The walking-beam is centrally pivoted to a frame 24, and the upper end of the gates 11 are attached to the walking-beam on opposite sides of the pivotal point, whereby when one tank be- 75 comes full the overflow will fill the bucket at the outer end of the other tank and will lower the adjacent end of the walking-beam, which will raise the gate 11 of the full tank and close the inlet and open the outlet and lower 80 the gate of the empty tank and open the inlet and close the outlet. By this arrangement one tank is always being filled while the other tank is emptying, and it will be seen that the operation is automatic as long as 85 there is a supply of water. Each tank is provided with a vertical cylinder 25, which has its upper end open and its lower end closed, and the latter is provided with an inlet-pipe 26 and communicates with an outlet-pipe 27, 90 which leads to a distributing-pipe 28, and the inlet-pipe 26 is provided with an inwardly-opening valve to prevent the escape of water through the inlet-pipe after having once entered the cylinder, and the outlet-pipe is pro- 95 vided with an outwardly-opening valve to prevent the return of water. In the cylinder 25 is arranged a plunger 29, which is connected by a frame 30 with a float 31, and the latter has a central opening 32 to receive the 100 cylinder and extends around the same and is provided with an air-chamber 33. The float 31 by being provided with an air-chamber is exceedingly buoyant and is weighted to its

utmost floating capacity, and as the water rises in the tank the float is carried upward, which raises the plunger and fills the cylinder 25. As the water of the tank escapes and empties through the outlet, the weighted float and plunger fall and sufficient pressure is exerted on the water within the cylinder to raise the water sufficiently to distribute it to upper stories of high buildings. The float-frame consists of uprights 34, rising from the float, and a cross-bar 35, secured intermediate its ends to the top of the plunger and having its ends secured to the upper ends of the uprights, and projecting from the outer sides of the uprights are pins 36, which are arranged in ways 37 and 38. The ways 37 are formed by vertical posts secured to the ends 6 and connected at their top by blocks, and the ways 38 are formed by the adjacent posts of frames 24 and 39.

It will be seen that the water-elevator is automatic in its operation and will continue as long as there is a supply and is capable of raising water to a great height.

Cross-bars 40 are secured to the bottoms of the tanks and are adapted to support the floats when the tanks are empty and prevent them coming in contact with the inlet and outlet pipes.

The water-elevator may be found useful for mining purposes in places where it is necessary to go a considerable distance for water, and the invention may also be found advantageous for irrigating land.

In order to regulate the supply and discharge of water and to enable one tank to empty in the time the other is being filled, the tanks are provided with adjustable gates 41, which are provided with openings 42 and are arranged in suitable ways and are adapted to increase and diminish the inlet and outlet openings of the tanks.

What I claim is—

1. The combination of the tanks provided at their bottoms with outlets and at their tops

with inlets, the trough arranged at the tops of the tanks and communicating with the tops of the inlets, the vertically-sliding gates arranged in ways and provided near their upper ends with openings and at their lower ends with recesses adapted to register alternately with the inlets and outlets, the walking-beam connected to and operating the gates, the buckets provided with valves and suspended from the walking-beam, and the supply-pipes emptying into buckets, substantially as described.

2. The combination of the tanks having inlets and outlets and provided at their outer ends with posts forming ways 37, the frames 24 and 39, arranged at the inner ends of the tanks and forming ways 38, the vertically-sliding gates, the walking-beam pivotally mounted in the frame 24 and connected to and operating the sliding gates, the buckets provided with valves and suspended from the walking-beam and arranged to receive the overflow, the cylinders, the plungers arranged in the cylinders, the floats, and the frames connecting the cylinders and the floats and provided with projecting pins arranged in the ways 37 and 38, substantially as described.

3. The combination of the tanks provided with inlet and outlet openings, the gates arranged to open and close the openings of the tanks alternately, means for operating the gates to open the inlet of one tank and close the outlet thereof and close the inlet and open the outlet of the other tank alternately, and the adjustable gates 41, arranged to vary the size of the inlet and outlet openings, substantially as and for the purpose described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

ALFRED LINCOLN WHITE.

Witnesses:

J. COHN,
E. E. LONG.