

No. 827,549.

PATENTED JULY 31, 1906.

P. S. MAURITZEN.  
FLOAT MECHANISM.

APPLICATION FILED APR. 22, 1905.

2 SHEETS—SHEET 1.

Fig. 1

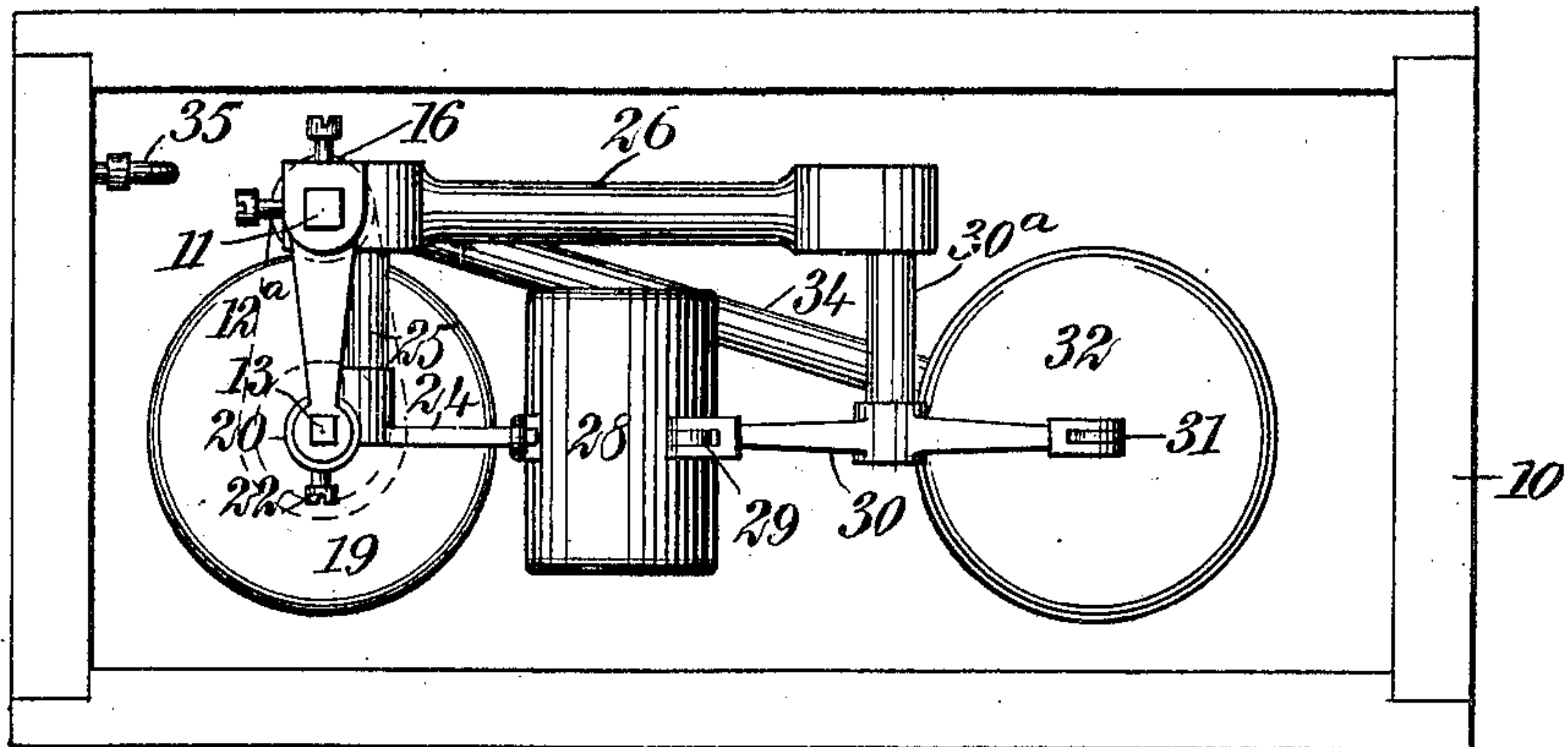
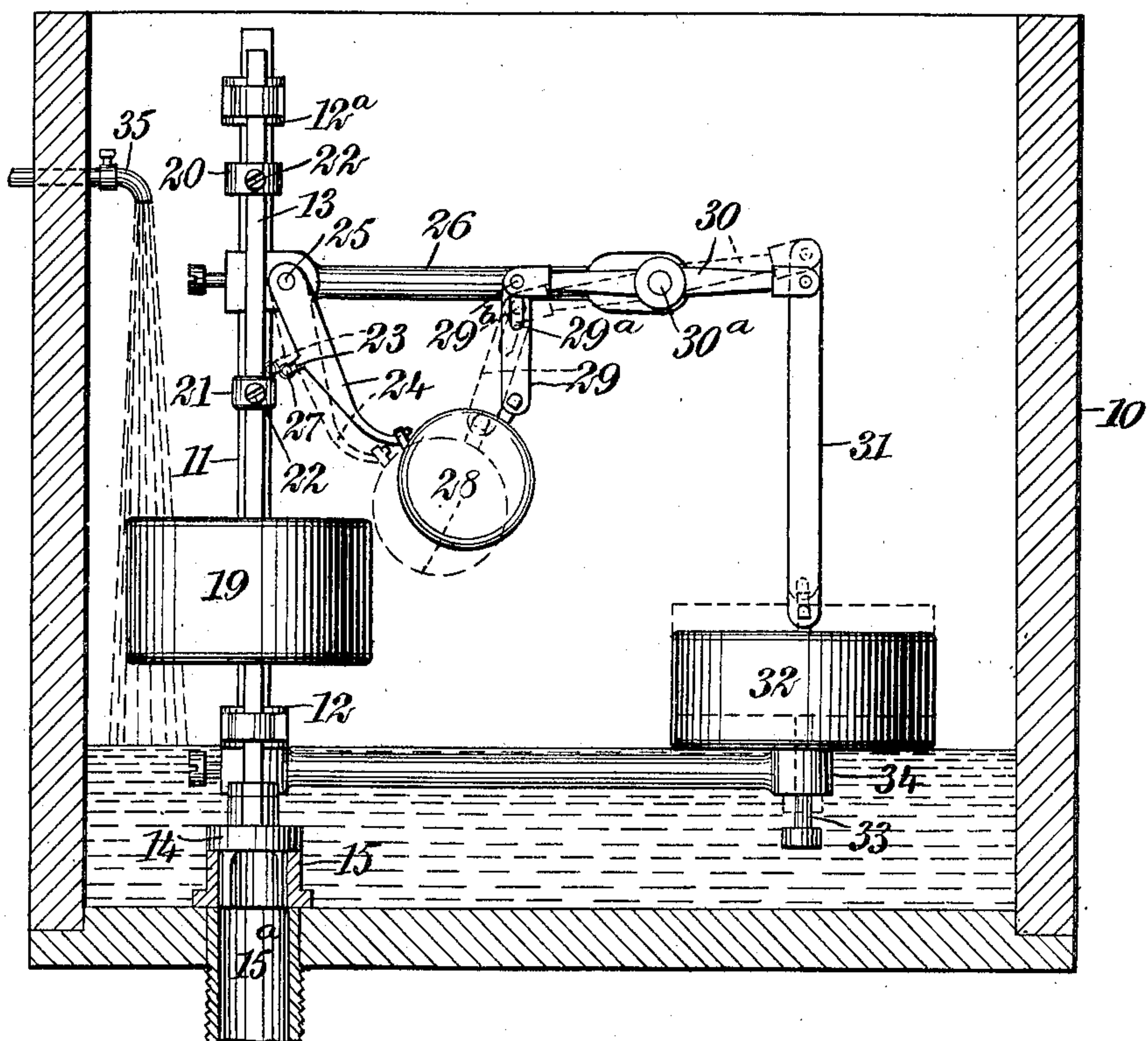


Fig. 2



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Fig. 3

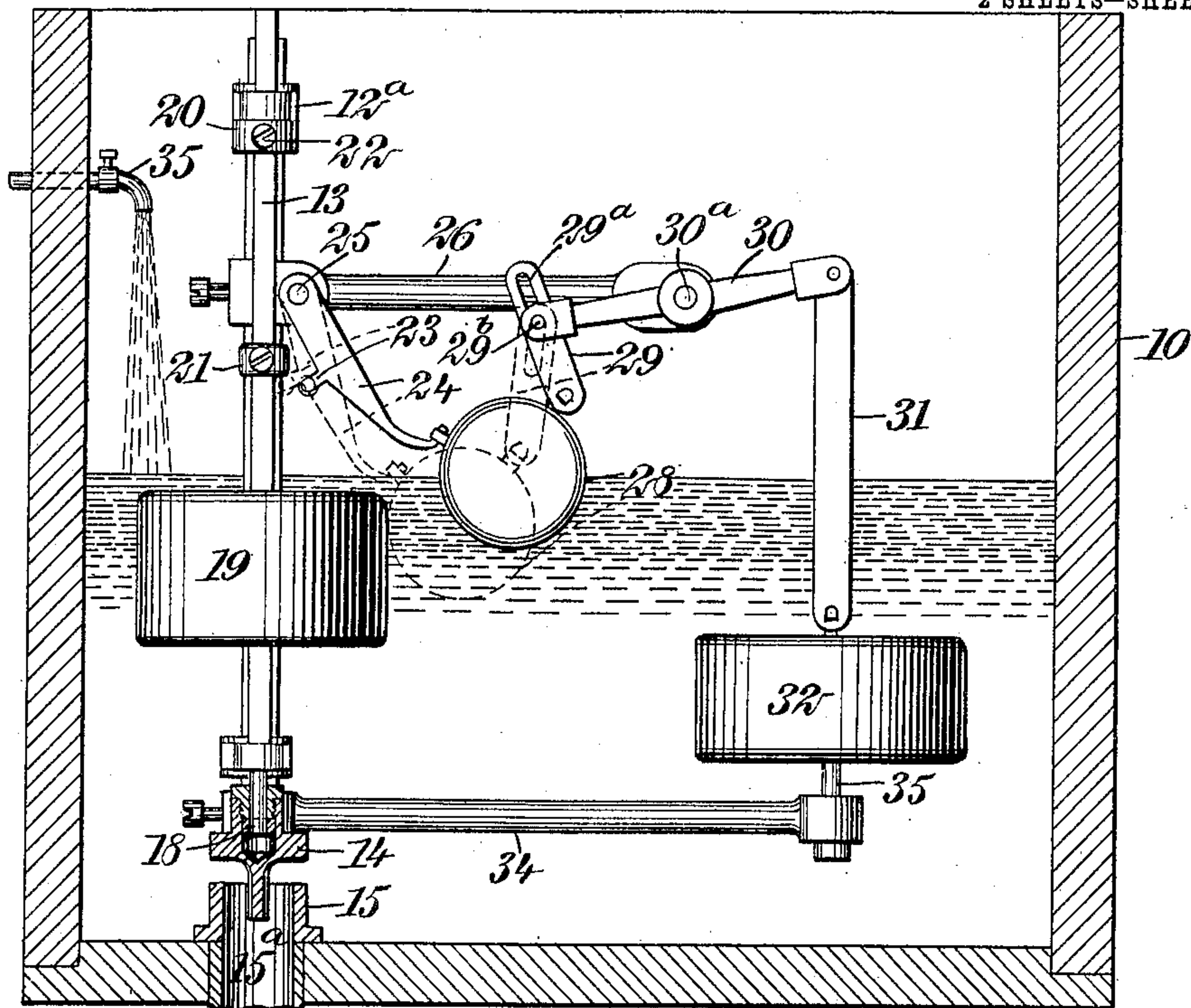
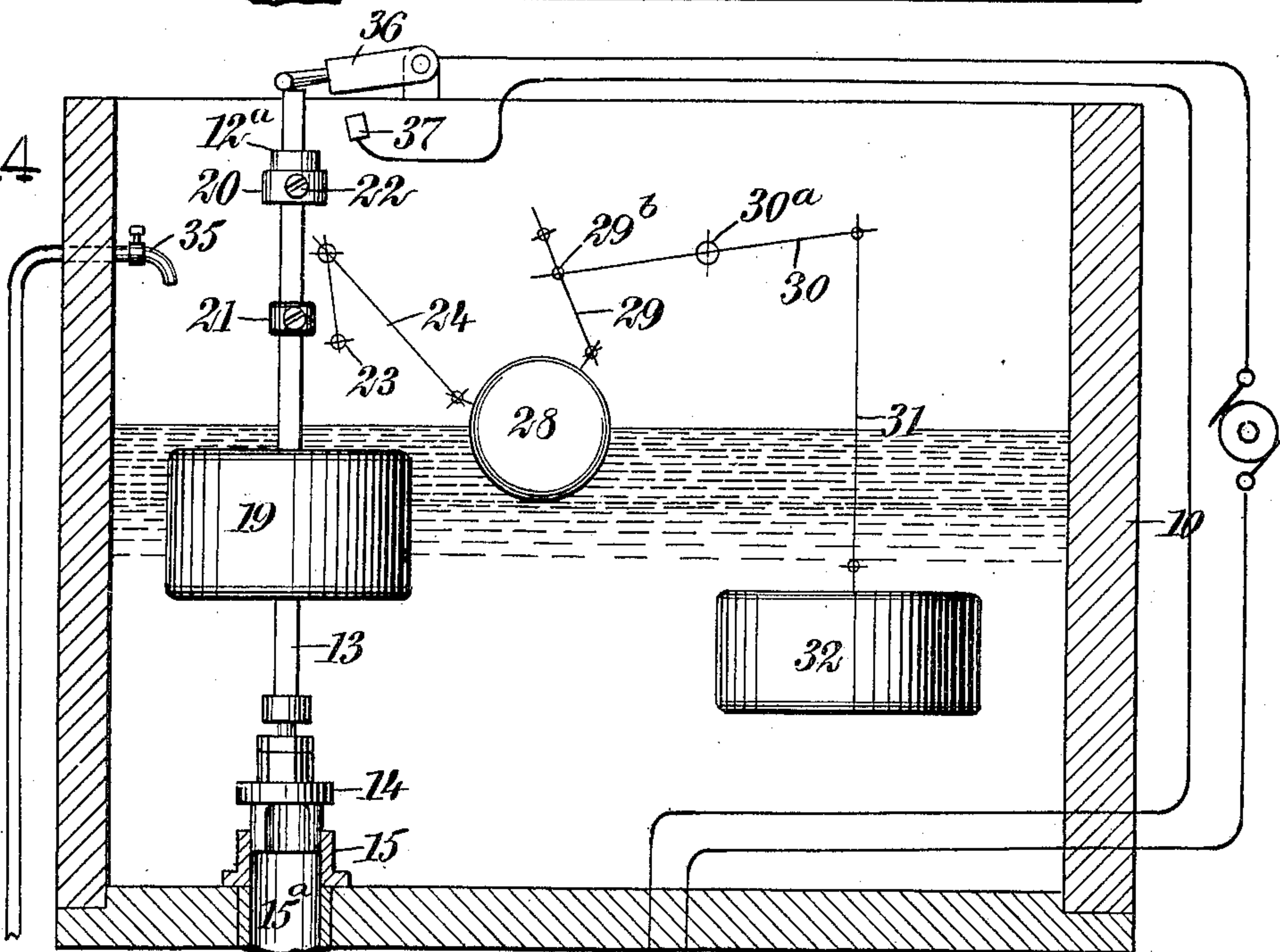


Fig. 4



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# UNITED STATES PATENT OFFICE.

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## FLOAT MECHANISM.

No. 827,549.

Specification of Letters Patent.

Patented July 31, 1906.

Application filed April 22, 1905. Serial No. 256,907.

*To all whom it may concern:*

Be it known that I, PETER S. MAURITZEN, a citizen of the United States, and a resident of the city of New York, Port Richmond, borough of Richmond, in the county of Richmond and State of New York, have invented a new and Improved Float Mechanism, of which the following is a full, clear, and exact description.

My invention relates to float mechanism adapted for use in connection with intermittent flushing apparatus and with pumps or siphons for periodically emptying catch or drainage basins. Its principal objects are to provide a simple and effective mechanism of this character.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a top plan view of one embodiment of my invention. Fig. 2 is a vertical longitudinal section through the tank, the valve also being in section. Fig. 3 is a similar view showing another position of the elements; and Fig. 4 is also a sectional elevation in which a portion of the elements are shown diagrammatically and illustrating another application of the invention.

10 designates a tank, basin, or other receptacle in which is supported a vertical standard 11, having fixed upon it separated guide-arms 12 12<sup>a</sup>, through which may move a rod 13. At the lower end of this rod is mounted a valve 14, which may coöperate with a seat furnished by a flange 15, rising above an opening 15<sup>a</sup> in the bottom of the tank and conveniently formed as a part of a member 16, which may also serve as a base upon which to support the standard 11. The valve is preferably movable upon the rod for a purpose which will be hereinafter stated, it containing a chamber between the upper and lower sides of which a head or enlargement 18 may travel. Fixed upon the rod just above the lower guide-arm 12 is a float 19, and above it are projections, here shown as in the form of collars 28 and 21, adjustably fixed upon the rod by means of set-screws 22. The collar 20 by its contact with the arm 12<sup>a</sup> may serve to limit the upward movement of the float and valve, while with the collar 21 coöperates a projection 23 from an arm 24, pivoted upon a stud 25, extending from a bracket 26, carried by the standard. The lower side of the collar 21 is shown as having

a rounded edge, and the projection 23 may have rotatable upon it a roll 27, contacting with this rounded surface. Secured upon the outer extremity of the arm 24 is a float 28, operating between limits somewhat higher than those of the float 19. At the upper side of the float 28 is articulated a link 29, having at its opposite extremity a longitudinal slot 29<sup>a</sup>, through which may move a pin 29<sup>b</sup>, carried by a lever 30, fulcrumed upon a stud 30<sup>a</sup>. At the outer end of this lever is pivoted a link 31, having at its lower end a float 32. From the under side of this float depends a guide-rod 33, movable through an opening in a bracket 34, extending from the standard 11. The float 32 occupies horizontal planes below those intersecting the float 19. Delivering to the tank is a pipe 35, through which liquid may be more or less steadily supplied.

Assuming that the mechanism illustrated in Figs. 1 to 3 of the drawings is to be used for some such purpose as intermittent flushing and the liquid in the tank being at its lowest level, the relation of the elements will be as shown in full lines in Fig. 2. As a fresh supply flows in through the pipe 35 the rise of its level first affects the float 32, its upward movement operating, through the lever-and-link system, to lower the float 28 until the projection 23 lies just above the collar 21, as is shown in dotted lines in Fig. 2. As the liquid continues to rise it passes the float 19, which is locked by the arm projection and reaching the float 28 raises it, moving the projection to one side of the collar and leaving the float 19 and its rod free to rise until the collar 20 contacts with the arm 12<sup>a</sup>, which occurs abruptly, opening the valve, the elements now occupying the positions indicated in full lines in Fig. 3. The flushing-flow now occurs through the tank-opening, and the float 28 being first affected its projection is lowered beneath the collar 21 to temporarily lock the rod in its raised position. (See the dotted lines in Fig. 3.) The outflow continues until the float 32 falls with it. The weight of this member is sufficient to counterbalance that of the float 28 and its connected parts. Therefore these are raised, withdrawing the arm and projection from beneath the collar and leaving the rod free to fall, resulting in the closing of the valve. The operation is now automatically repeated, as has just been described. If the valve were rigid upon the rod and the position of the collar 21



somewhat lower than the correct one, the valve might be opened by the action of the liquid upon the float 19 before the float 28 was reached, this rendering the contents of the tank free to escape and the lock ineffective. With the rod capable of movement through the valve the latter is held closed until it is certain that the collar will be caught by the projection before the valve is raised from its seat by the action of the float 19.

In Fig. 4 I have illustrated another application of my invention, in which the tank is filled by some suitable pump connected with the supply-pipe and operated, for example, by an electric motor, the supply of current to which is controlled by a switch 36. The movable element of this switch is shown as connected to the upper extremity of the rod 13, it being so related to its contact device 37 that when the float 19 is in its highest position, the liquid being at its maximum height, the circuit will be broken and the motor and pump at rest. At this time the valve is open. Then as the liquid is discharged and the level falls the float 28 first descends, bringing the locking projection of its arm beneath the collar 21, holding the valve open. This lock is maintained and the flow through the valve continues until the lower level has reached the float 32, which will descend and withdrawing the projection from beneath the collar of the rod allow the float 19 to fall, seating the valve and closing the discharge-opening. This operates the switch to throw the motor into circuit, thus supplying liquid to fill the tank. As the liquid rises the upper thrust upon the float 32 will cause the float 28 to descend and lock the valve-rod by the contact of the arm

projection with the upper side of the collar 21. This lock holds until the float 28 is raised, which releases the lock and allows the valve-rod to rise abruptly to effectively break the switch-circuit. The valve is now open for the succeeding flow.

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

1. The combination with a tank having an outlet, of a valve for said outlet, a rod on which the valve is mounted, a standard in the tank, with which said rod has sliding connection, a float on the rod, a projection on the rod, an arm pivoted to the standard and having a part for engaging with said projection, a float on the arm, a bracket extended from the standard, a lever on the bracket, a link connection between one end of said lever and the arm-float, and a float suspended from the other end of the lever.

2. The combination with a tank, of a rod movable therein and having a projection, a liquid-controlling device associated therewith, a float carried by the rod, an arm cooperating with the projection, a float carried by the arm, a lever, a link connecting one extremity of the lever with the arm-float, a link depending from the opposite extremity of the lever, and a float connected with the last-named link.

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

PETER S. MAURITZEN

Witnesses:

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