

No. 897,116.

PATENTED AUG. 25, 1908.

W. H. LUDEWIG.
FLUSHING VALVE.

APPLICATION FILED MAR. 29, 1907.

2 SHEETS—SHEET 1.

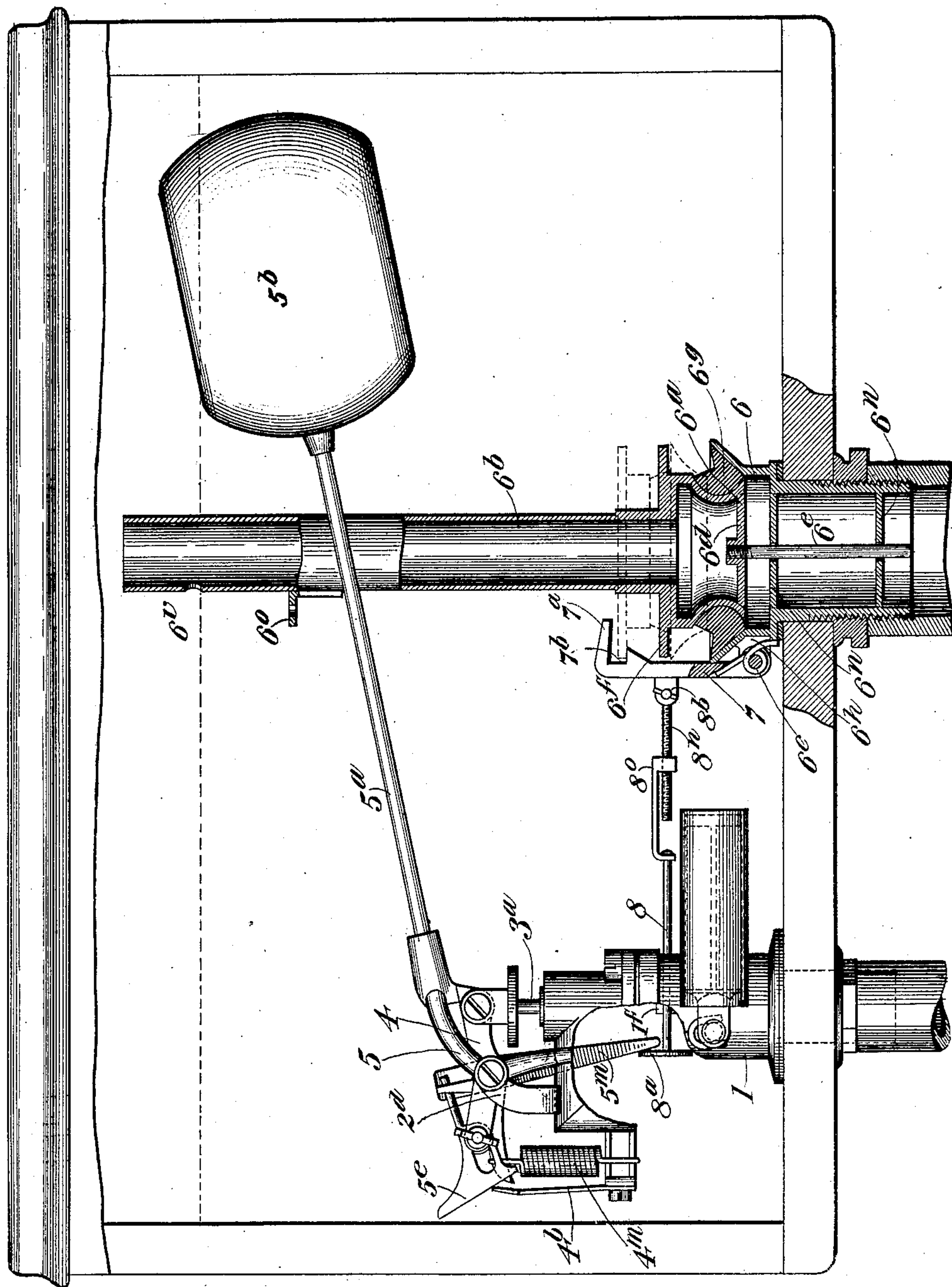


Fig. 1.

WITNESSES

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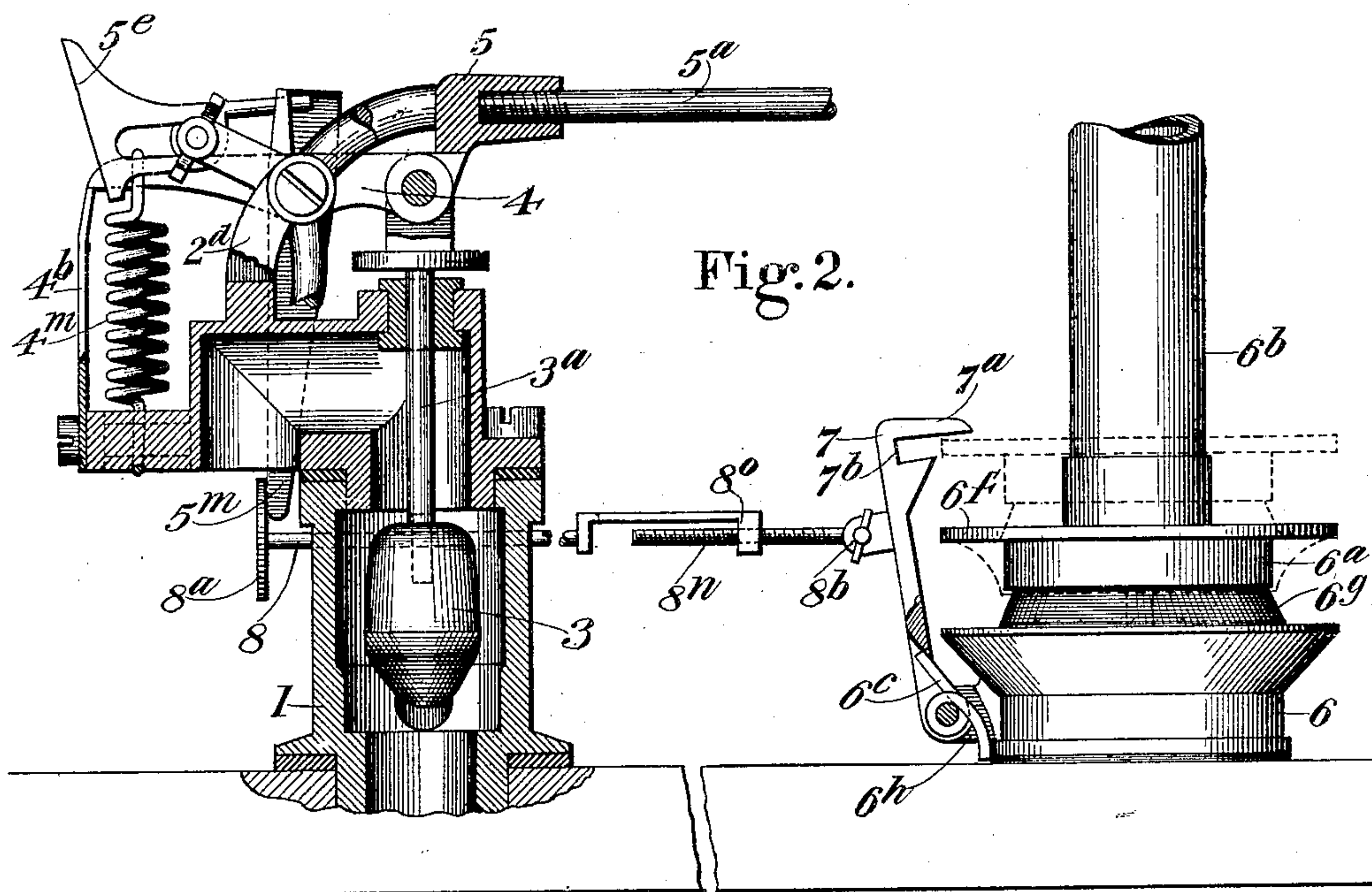


Fig. 2.

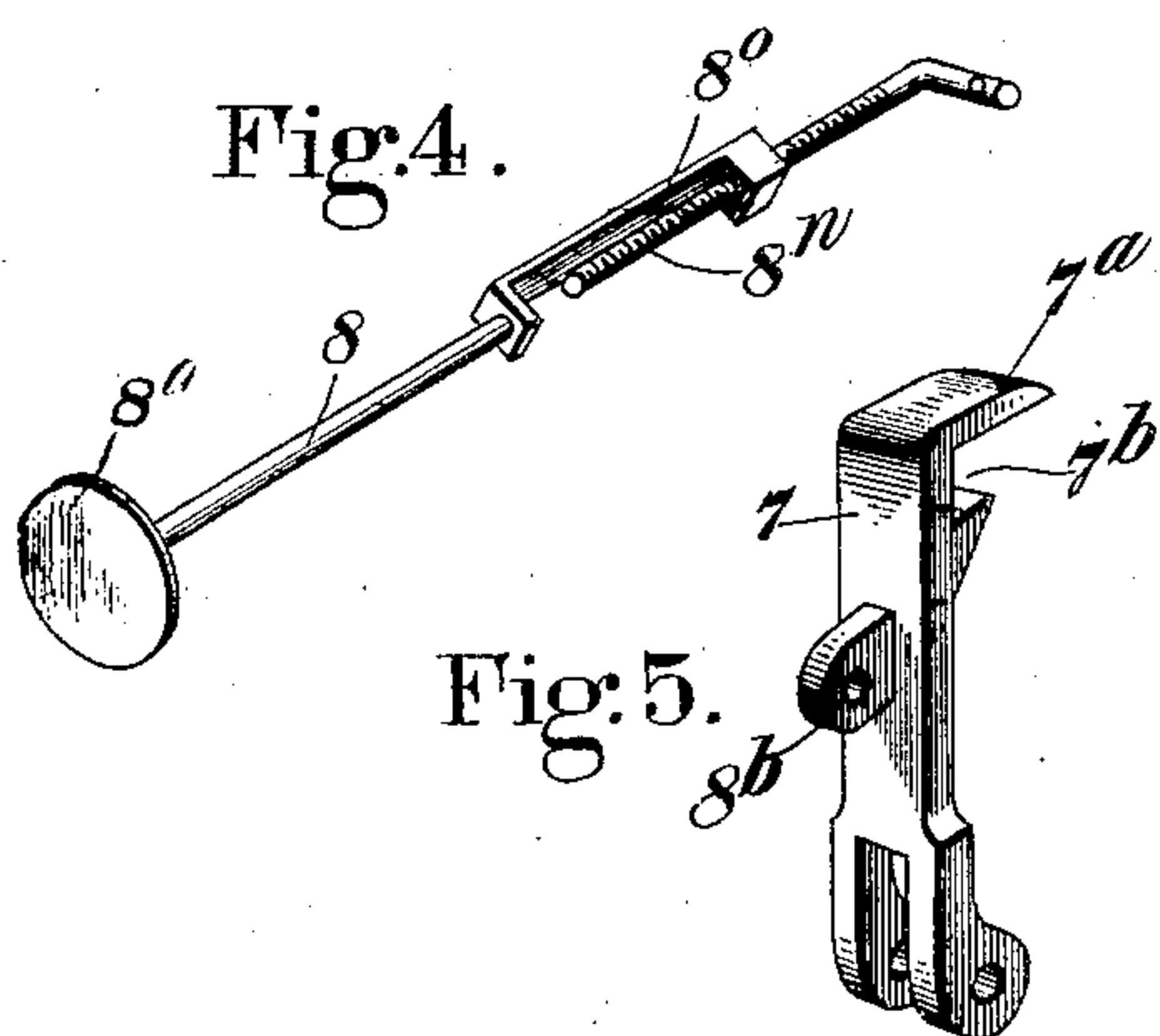


Fig. 4.

Fig. 5.

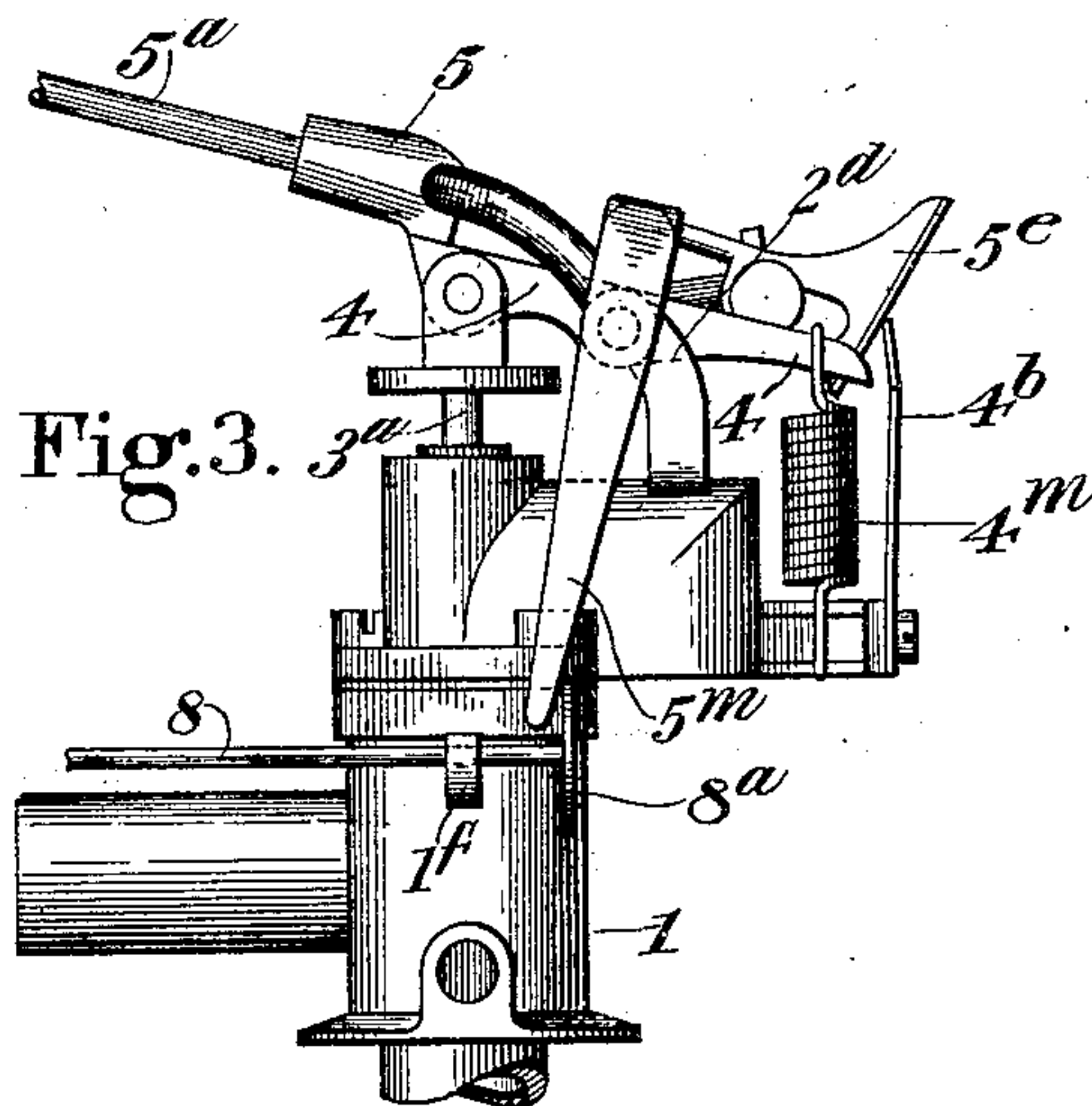


Fig. 3.

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UNITED STATES PATENT OFFICE.

WILLIAM H. LUDEWIG, OF ROCK ISLAND, ILLINOIS.

FLUSHING-VALVE.

No. 897,116.

Specification of Letters Patent.

Patented Aug. 25, 1908.

Application filed March 29, 1907. Serial No. 365,271.

To all whom it may concern:

Be it known that I, WILLIAM H. LUDEWIG, of Rock Island, in the county of Rock Island and State of Illinois, have invented certain new and useful Improvements in Flushing-Valves; and I hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form part of this specification.

This invention is an improvement in flushing valves for tanks of water-closets and the like, and its principal object is to provide a novel mechanism for controlling the flushing valve whereby it is held open when unseated by the ordinary pull lever or a seat mechanism and will be closed by the descent of the float in the tank.

Further objects are to provide means for replenishing the water seal in case it should be syphoned out during the flushing operation. Also to make the parts strong, compact and durable, and to render the operative parts easily detachable and replaceable in case repairs are necessary.

Subordinate features of the invention are the accessibility of parts, the easy adjustment thereof, and the capability of removal of the parts from the tank without taking it down.

A practical form of the invention is illustrated in the accompanying drawings which I will describe in detail, and refer to the claims appended to the specification for summaries of the features and combinations of parts for which protection is desired.

In said drawings—Figure 1 is a side elevation of the mechanism within the tank, the latter being shown in section, and the parts being shown in position with float raised and the water inlet valve and the flushing valve closed. Fig. 2 is an enlarged sectional view showing the inlet valve in open position. Fig. 3 is a detail side view showing the flushing valve tripping mechanism. Figs. 4 and 5 are details.

The tank may be of any preferred form or construction; to the bottom thereof is attached the inlet valve 1 which is preferably constructed as shown in my application Serial No. 360,545 filed March 4, 1907, or my Patent No. 846,221 dated March 5, 1907.

The supply or inlet valve 3 is secured to the lower end of a stem 3^a, the upper end of which is pivotally connected to one end of a rocking lever 4 pivoted on arms 2^d on the

valve casing. A spring catch 4^b is arranged to engage the outer end of lever 4 when the valve is fully opened and hold the valve open until the catch 4^b is disengaged from the lever. A spring 4^m is arranged to close the valve when catch 4^b is disengaged from lever 4. A lever 5 is pivoted on the casing and embraces lever 4 without interfering therewith. The rod 5^a is attached to lever 5 and float 5^b is attached to free end of rod 5^a so that lever 5 will be oscillated by the rise and fall of the float. To lever 5 is attached a trip-plate 5^e which, when the float rises to the proper level, will engage catch 4^b and disengage it from lever 4 thereby permitting spring 4^m to close the inlet valve 3. When the float descends lever 5 engages lever 4 and forces the valve stem downwardly thereby opening valve 3, which will be locked in open position by the spring catch 4^b and held open until the spring catch is disengaged upon the rise of the float. Thus the inlet valve 3 will be opened and closed quickly and will remain open until the float reaches the proper level; the parts described being constructed and operating as described more particularly in my application Serial No. 360,545 aforesaid.

The flushing outlet tube or flush valve 6 is closable by a flushing valve 6^a which has a hollow overflow tube or stem or stand-pipe 6^b provided with a bridge 6^d to which is attached a rod 6^e by which the flushing valve is guided in its vertical movements, the rod 6^e passing through bridge pieces 6ⁿ in the outlet tube 6 as shown. The hollow stem 6^b forms an overflow stand-pipe when the flush-valve is closed. The flush-valve may be unseated by any of the ordinary pull-devices, not shown in the drawings, but which may be connected to the ear 6^o on pipe 6^b. The flushing valve normally closes, by gravity, in the direction of the flow of water.

The flushing valve is provided with a flange 6^f above the rubber packing-ring 6^g, and this flange is adapted to be engaged by a hook-catch 7 pivoted to ears 6^h on the outlet-tube 6 and projecting above the flange 6^f, and having a finger 7^a on its upper end adapted to arrest the upward opening movement of valve 6^a, and a notch 7^b, adapted to engage the flange 6^f and hold the flush-valve open when it is raised, the catch 7 being pressed inward to engage the flange 6^f by a spring 6^c, as shown.

The catch 7 is automatically disengaged from the flushing-valve upon the descent of

the float 5^b by means of a finger 5^m on lever 5, which depends beside the casing, and adjacent to a disk 8^a on a rod 8, which is pivotally connected to the catch 7 as at 8^b, and its rear end is guided in a lug 1^f on the valve-casing, and said disk can be adjusted to such position that when the float descends sufficiently, finger 5^m contacts disk 8^a on rod 8 and forces the rod backward, disengaging catch 7 from flange 6^f and allowing the flushing-valve to close.

Preferably the rod 8 is made in two sections. One of these carrying the disk 8^a and the other being pivoted to the catch 7. These sections are connected by a thread and nut, one section having its end threaded as at 8ⁿ and the other having an internally threaded buckle-nut 8^o engaging the part 8ⁿ. By this construction the disk 8^b can be adjusted toward or from the catch, and the time at which the disk will be engaged by finger 5^m and the flushing-valve closed, can be regulated. Furthermore this construction enables the adjustment to be readily made while the parts are in position in the tank.

Operation: When the tank is full the inlet-valve is closed, the float being at such a height that the tripping-device 5^e holds the spring-catch 4^b out of engagement with lever 4, and consequently the valve 3 remains closed. Now if the flushing-valve be raised, (by any ordinary means) it is caught and held open by catch 7 until the float drops to the point at which finger 5^m engages the disk 8^a on rod 8 and causes the rod to pull catch 7 away from and release the flushing-valve, which closes by gravity; simultaneously therewith, or nearly so, the weight of the float is transmitted to the valve-stem 3^a through lever 5 and the valve 3 is suddenly opened, allowing water to enter the tank; the valve 3 is held open by catch 4^b until the float again rises sufficiently to cause tripping device 5^e to disengage catch 4^b from lever 4 whereupon the inlet-valve is quickly closed. Upon again raising the flushing-valve the cycle of operations is repeated.

The height of water maintained in the tank is regulable by adjusting the tripping-plate so as to engage catch 4^b earlier or later in the upward movement of the float.

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

1. In a flushing tank, the combination of an outlet valve, a catch adapted to engage and hold the valve in open position, an adjustable rod connected with said catch, a disk on the outer or free end of said rod, and a float actuated lever adapted to engage the disk and cause the rod to withdraw the catch from the valve when the float descends.

2. In a flushing tank, the combination of an outlet tube, an outlet valve, a spring-controlled catch adapted to engage and hold the

valve in open position, an adjustable rod connected with said catch and composed of two members, one member having a threaded portion engaging an internally threaded lug on the other member, a disk on the outer or free end of said rod, and a float actuated lever adapted to engage the disk and cause the rod to withdraw the catch from the valve when the float descends.

3. In a flushing tank, the combination of an outlet tube, an outlet valve, a spring-controlled catch adapted to engage the valve when opened and hold it in open position, a rod connected with said catch and composed of two members having a threaded connection, and float actuated means adapted to cause said rod to withdraw the catch from the valve when the float descends.

4. In combination, an outlet tube having a valve seat on its upper end, a vertically movable outlet valve fitted on said seat and having a projecting flange, an overflow tube connected to said valve, a spring actuated catch pivoted to the upper end of said tube and adapted to engage the edge of the flange when the valve is raised and hold the valve in open position, a rod connected at one end with said catch, a float, a float lever and means operated by said lever adapted to engage the other end of said rod when the float descends and cause it to pull the catch away from the valve.

5. In combination, an inlet-valve, a float and a float lever and connections for operating said valve; with a vertically movable flushing-valve, a spring-actuated catch pivoted beside said valve and adapted to engage the flushing valve and hold it open, a rod pivotally connected at one end to said catch and extending toward the inlet valve, a device on the other end of said rod and a finger on the float-lever adapted to engage the device on said rod and cause it to pull the catch away from the flushing-valve when the float descends.

6. The combination of a tank, an outlet pipe, an overflow-tube, an outlet-valve on one end of said tube adapted to close the outlet pipe; with a catch pivoted to the upper end of said pipe and adapted to engage and hold the flushing-valve in open position, an inlet-valve, a float lever and float controlling said inlet-valve, a rod connected to said catch and extending to the inlet valve, a disk on said rod and a finger on the float lever adapted to engage said disk when the float descends and cause the rod to disengage the catch from the outlet valve.

In testimony that I claim the foregoing as my own, I affix my signature in presence of two witnesses.

WILLIAM H. LUDEWIG.

Witnesses:

ROBT. R. REYNOLDS,
BESSIE G. WEEDA.