J. WERNER,

FLUSHING OF BOWLS OF WATER CLOSETS.

APPLICATION FILED JAN. 29, 1919.

1,318,518.

Patented Oct. 14, 1919.

3 SHEETS—SHEET 1.

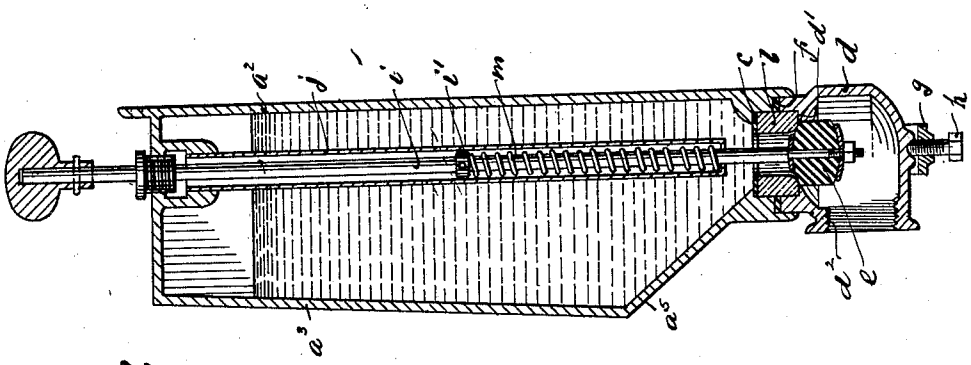


Fig. 2.

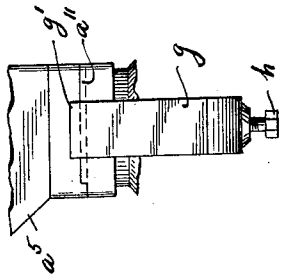


Fig. 1a.

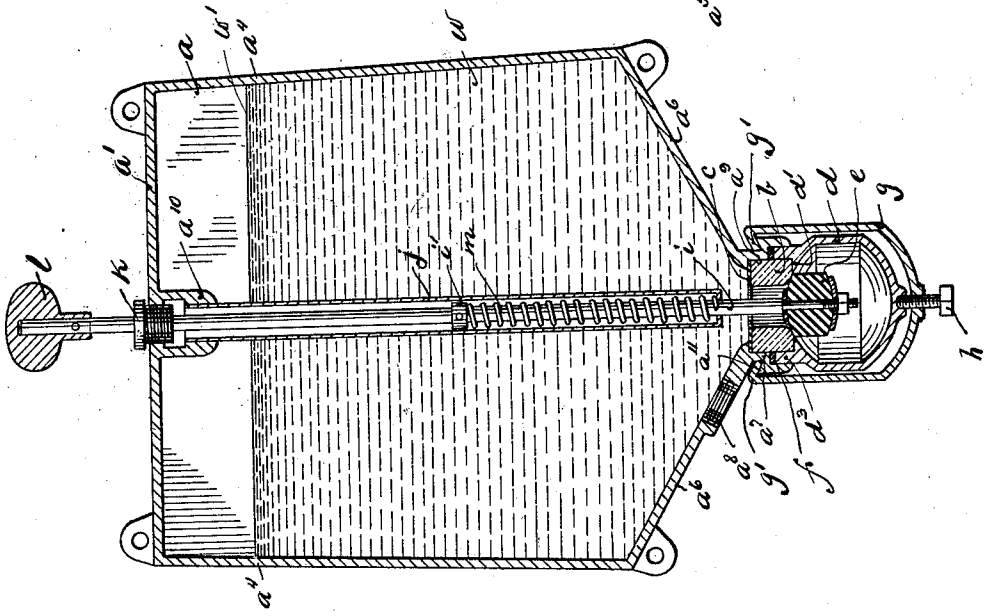


Fig. 1.

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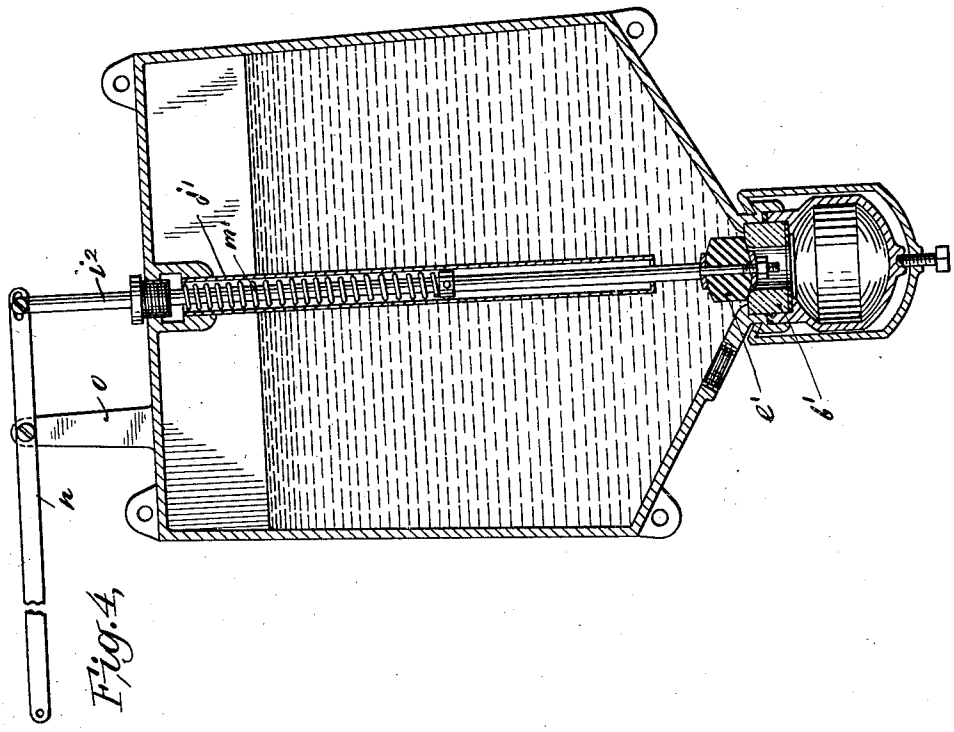


Fig. 4.

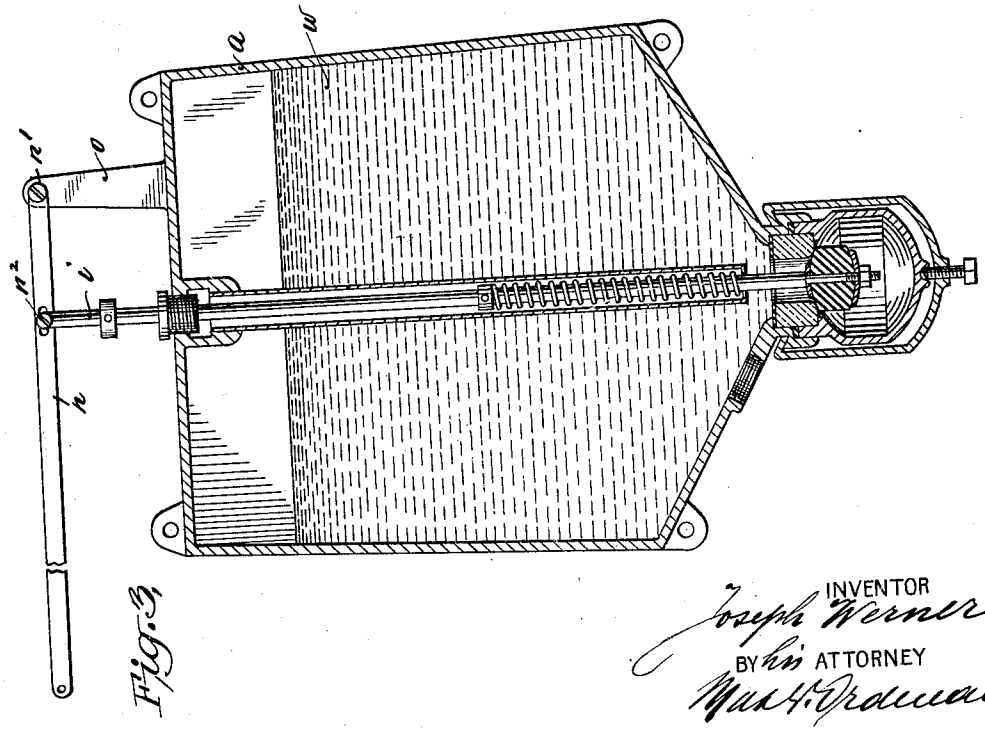


Fig. 3.

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3 SHEETS—SHEET 3.

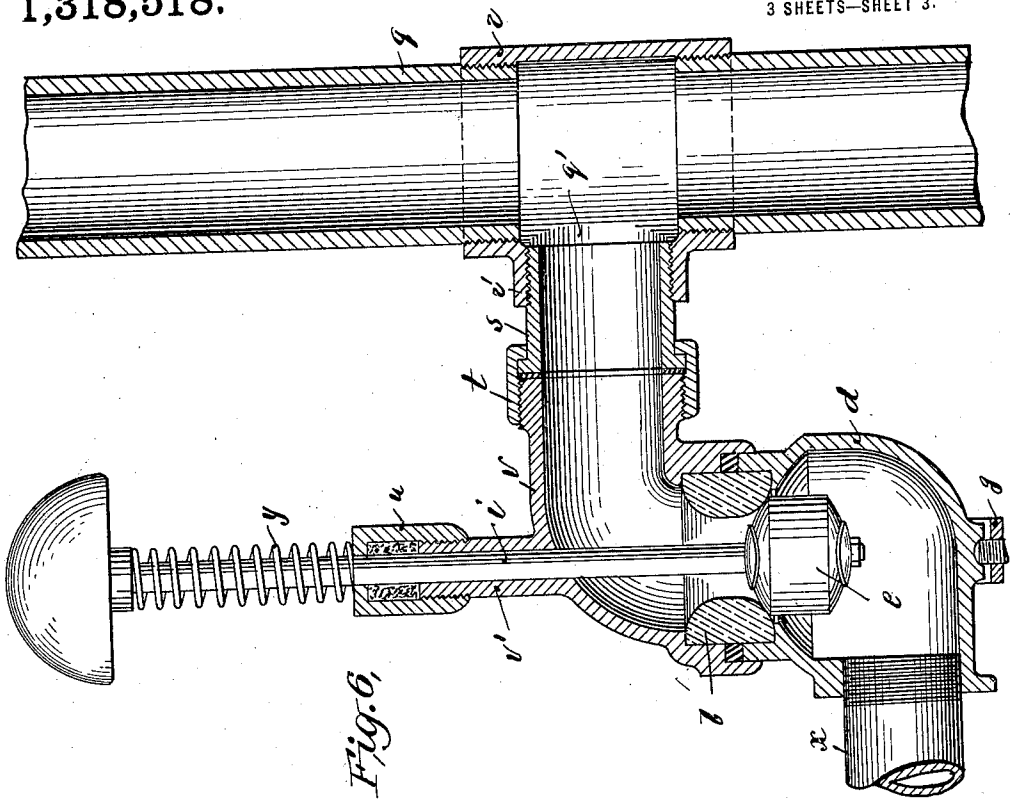


Fig. 6.

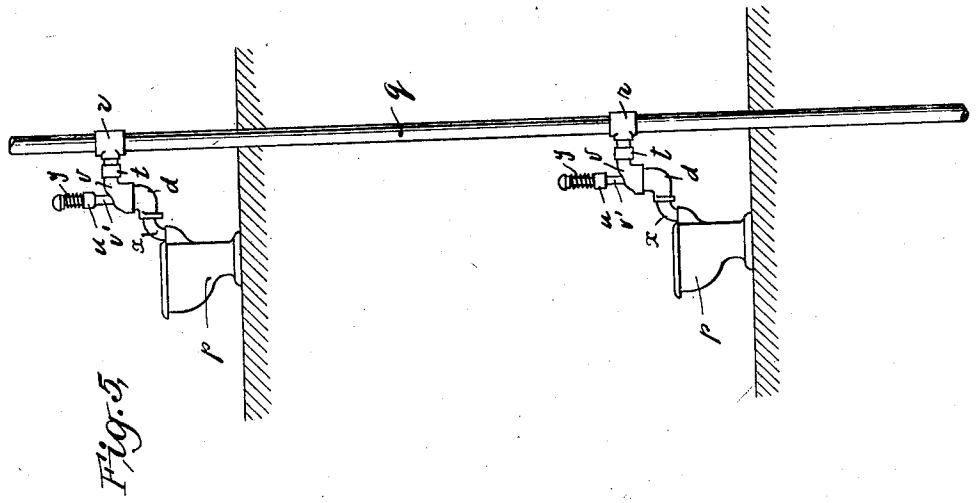


Fig. 5.

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UNITED STATES PATENT OFFICE.

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FLUSHING OF BOWLS OF WATER-CLOSETS.

1,318,518. Specification of Letters Patent. Patented Oct. 14, 1919.

Application filed January 29, 1919. Serial No. 273,836.

To all whom it may concern:

Be it known that I, JOSEPH WERNER, a citizen of Hungary, residing at Perth Amboy, in the county of Middlesex and State of New Jersey, have invented certain new and useful Improvements in Flushing of Bowls of Water-Closets, of which the following is a specification.

The present invention relates to water or flush tanks for flushing the bowls of closets or the like and has for its object to provide a construction whereby the flushing will be rendered more effective.

With the hitherto known flush tanks the supply of water into the tank is regulated by valves and it has been found that not only do the valves very frequently get out of order, but the full force necessary for a thorough flushing of the bowls is rarely obtained.

The object of my invention is to remedy this drawback by providing a hermetically closed flush tank into which the water is supplied by pressure directly from the water supply without any valves, and whereby the flushing will be effected with the full force of the pressure of the water supply.

My invention will be fully understood by reference to the accompanying drawings in which similar characters denote corresponding parts and in which Figure 1 is a vertical section of one embodiment of my new tank; Fig. 1^a is a detail; Fig. 2 is a vertical section at a right angle to that of Fig. 1; Figs. 3 and 4 are vertical sections similar to Fig. 1 of two other modifications; Fig. 5 is an elevation of a series of bowls connected through a common pipe controlled from a single tank of my novel construction and Fig. 6 is an enlarged vertical section of the valve controlled connection leading into the common pipe for a series of bowls.

Referring specifically to the drawing and first particularly to Figs. 1 and 2, a denotes the water tank which may be made of galvanized iron or the like. This tank has a hermetically closed top a' which may be an integral part of the tank as shown. At its rear the tank has a vertically extending straight and smooth wall a^2 with means for its attachment to the wall in a building. The front and side walls a^3 and a^4 respectively are somewhat downwardly and outwardly slanting as shown. The bottom in front and at the sides is slanting inwardly as at a^5 and a^6 and then bends downwardly as at a^7 to form a socket for a part of a valve as will be hereinafter described. In one of the side portions of the bottom a threaded hole a^8 is provided for the attachment of a pipe leading from the pressure supply (not shown), which is in open communication with the interior of the tank a. The downwardly extending portion of the bottom is formed with an annular groove a^9 to form a socket for a seat b made of glass or other suitable hard material. The upper face of the seat b may carry a washer c of any suitable material. At its lower face the seat is supported by an annular shoulder d' of an open topped casing d in which the valve e of any suitable material is arranged and which has a threaded nozzle d^2 in which is adapted to screw a pipe communicating with the bowl (not shown). Projecting above and around the shoulder d' of the casing d is a sleeve-like extension d^3 which is adapted to engage around the glass seat b and between the upper edge of which and the lower edge of the bottom of the socket a^9 a suitable packing f may be inserted. The casing is tightened in position by a frame g made in form of a yoke of metal or the like which is curved or folded upon itself and is formed at its top with hook shaped edges g' adapted to engage projections a^{11} formed on the side faces of the downwardly projecting part of the bottom of the tank. This yoke carries a set screw h which is adapted to screw against and engage a grooved portion of the bottom of the casing d and by whose adjustment the latter may be tightened in position.

The valve e is suitably fixed to the lower end of a vertical rod i which extends centrally through a tubular sleeve j extending through the tank from an open topped socket a^{10} projecting inwardly from the cover a' of the tank. A threaded cap k screwed into the open top of said socket serves as a guide for the upper end of the rod i.

In the construction shown in Figs. 1 and 2 the upper outwardly projecting end of the rod i carries a knob l for the manipulation thereof and of the valve e.

A spring m arranged in the sleeve j and fastened at its upper end to a part i' of the

rod i and its lower end to the bottom of the sleeve j actuates the rod and consequently the valve body e, so as to normally hold the latter tightly closed against its seat b.

The operation of the tank is as follows:

Water is supplied with full pressure into the tank from the proper source through the opening a^3. The tank being hermetically closed, the water w will rise therein to a certain level w' compressing the air contained in the tank.

When the rod i is depressed the valve body e will be moved away from its seat b and the water with the full pressure of the water supply will rush through the opened bottom into the casing d and thence through the nozzle d^2 (not shown) into the bowl and effectively flush the latter. The unobstructed flow of the water from the water supply will tend to maintain or quickly restore the water level w' in the tank.

The valve d, e being easily accessible from the outside enables the parts when out of order to be quickly repaired.

In Fig. 3 the same tank is shown equipped with a modified means for operating the valve. Instead of the knob l a lever n is provided which is fulcrumed at n' in a bracket o and at a point n^2 is connected to the upper end of the rod i.

In Fig. 4 the valve body e' works in the tank and rests on top of the glass seat b'. The spring m' is shown applied to the upper portion of the rod i^2 having one of its ends attached to the top of the sleeve j'.

In Fig. 5 a system or series of bowls p are shown, arranged on different levels, as on different floors of a building. q denotes a common pressure water pipe leading from the usual water supply (not shown). Tanks for the bowls are entirely dispensed with. Instead each bowl has a valve controlled pipe connection leading into the common pipe q.

In the present example (Fig. 6) the construction of the connection and that of the valve is as follows:

The pipe q has for each bowl an opening q'. A sleeve shaped fitting r is screwed around each perforated portion of the pipe q. This fitting has a threaded mouth portion r' to coincide with the opening. A pipe section s is screwed into said mouth and is adapted to be removably joined to a second pipe section v by a suitable coupling t. The second pipe section is in form of an ordinary valve to the lower or mouth portion of which is secured the valve casing d by the yoke or member g substantially as in the aforedescribed modifications. The valve body e is shown here to coöperate with the lower face of the glass seat b. The valve rod i extends through an upper tubular projection i' of the pipe section v. u denotes a packing sleeve and y a spring actuating the rod. x is the pipe screwing into the casing d and leading therefrom into the bowl p.

It will be seen that by omitting the tanks and by utilizing the water pressure of the water supply, the flushing of the bowls on different floors will be rendered very effective and greatly simplified.

Since various other modifications may be made by those skilled in the art without departing from the principle of my invention I do not wish to restrict myself to the details of the construction shown and described.

What I claim and desire to secure by Letters Patent is:

1. A flush tank for bowls of water closets, consisting of a hermetically closed water receptacle having a downwardly slanting bottom formed with an inlet and lateral projections, a casing adapted to be connected to the bowl and communicating with said bottom, means adapted to engage said lateral projections for clamping said casing to the bottom of the tank and a valve controlling the communication between said tank and said casing.

2. A flush tank for bowls of water closets, consisting of a hermetically closed receptacle capable of receiving the water under full pressure directly from the water supply and having an opening in its bottom and lateral projections, a valve seat borne in said opening, a valve body, a casing capable of connection to the bowl and communicating with said bottom, means adapted to engage said lateral projections for clamping said casing to said bottom and means for operating said valve body.

3. A flush tank for bowls of water closets, consisting of a hermetically closed receptacle having an inlet opening and a discharge opening in its bottom, a valve for closing said discharge opening, said valve comprising a valve seat loosely borne in the bottom of the tank, a manually operated valve body coöperating with said valve seat, a casing inclosing said valve body and supporting said valve seat, said casing having a discharge opening capable of connection to a bowl, and a clamping member for clamping said casing to the bottom of the tank.

4. A flush tank for bowls of water closets, consisting of a hermetically closed receptacle having an inlet and a discharge opening in its bottom, the discharge opening being formed with an annular groove, a valve seat loosely mounted in said annular groove, a valve coöperating with said valve seat, a casing inclosing said valve body and supporting said seat, said casing having a discharge opening capable of connection to a bowl and a clamping member adapted for clamping the said casing to the bottom of the tank.

5. A flush tank for bowls of water closets, consisting of a hermetically closed receptacle having a downwardly and inwardly slanting bottom having an inlet opening in one of the slanting walls of said bottom, and an outer extension formed with a discharge opening, said outer extension being formed on its outside with lateral projections, a valve seat loosely borne inside of said extension, a manually operated valve body cooperating said valve seat, a casing having a discharge opening adapted for connection to a bowl and inclosing said valve body, said casing having inner projections to support said valve seat, and a clamping member adapted to engage said lateral projections of the outer extension and to engage around the casing to hold the latter and the seat tightly against the bottom of the tank.

6. A flush tank for bowls of water closets, consisting of a hermetically closed receptacle having an inlet and a discharge opening in its bottom, a valve for controlling the discharge, a sleeve extending from the top of the tank toward the discharge opening and substantially throughout the length of the tank, a manually operated and spring actuated rod extending through said sleeve and carrying said valve, a casing inclosing said valve and capable of connection to and communication with a bowl and a clamping member for removably and tightly connecting said casing to the bottom of the tank.

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

JOSEPH WERNER.

Witnesses:
ROBERT R. VELIE,
MAX D. ORDMANN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."