J. F. DOYLE, Jr.

FLUSHING APPARATUS FOR WATER CLOSETS.

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1,292,444. Patented Jan. 28, 1919.

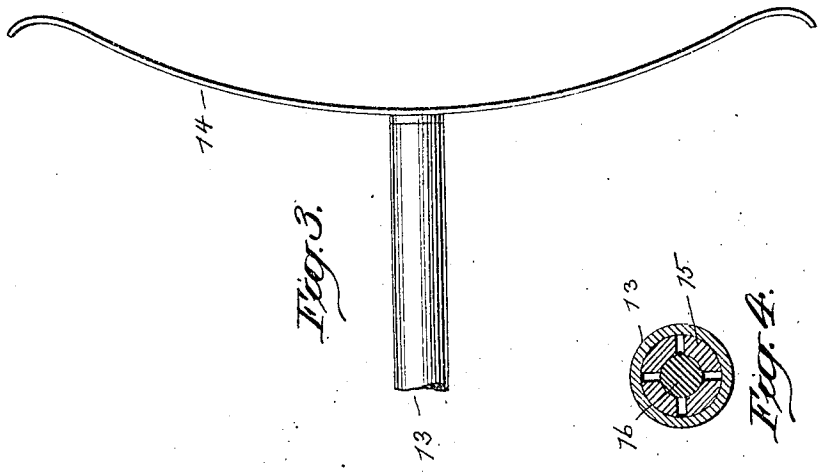


Fig. 3.

Fig. 4.

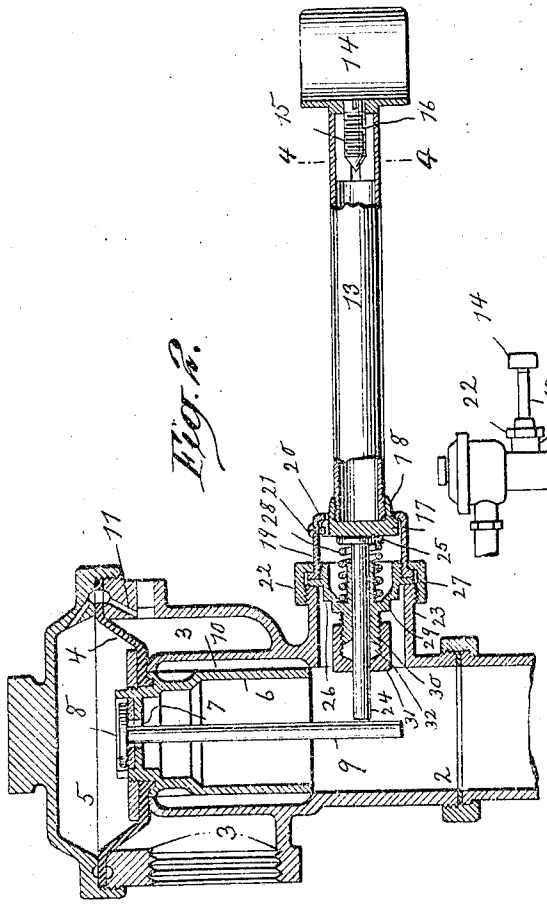


Fig. 2.

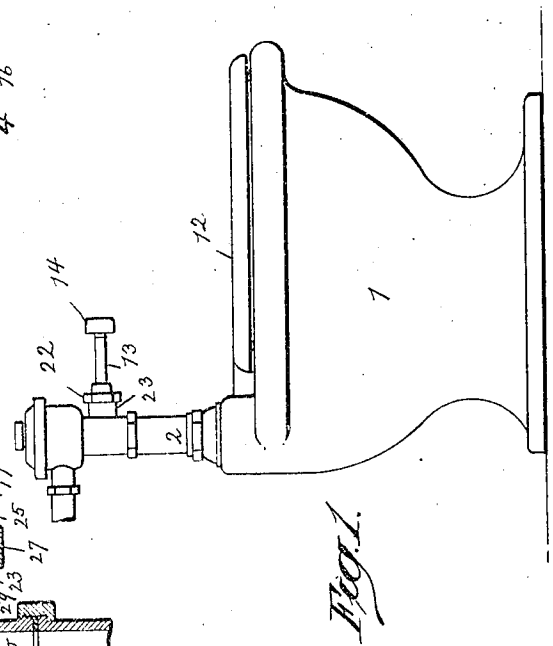


Fig. 1.

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FLUSHING APPARATUS FOR WATER-CLOSETS.

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To all whom it may concern:

Be it known that I, JOHN F. DOYLE, Jr., a citizen of the United States, and a resident of Garden City, in the county of Nassau and State of New York, have invented certain new and useful Improvements in Flushing Apparatus for Water-Closets, of which the following is a specification.

This invention relates to a flushing apparatus for water closets, by means of which the occupant is enabled to flush the closet by slightly leaning backward. By this movement, his back will be brought into engagement with a transversely extending arm or pusher which is located directly above the seat, and is adapted to operate a plunger which controls the admission of the flushing water. The plunger is capable, preferably, of a tilting as well as of a rectilinear movement, so that pressure applied to any part of the arm, will cause the flushing mechanism to operate. By my invention, which is particularly applicable to high pressure flushing devices, the operator is enabled to actuate the same, in a most simple manner, while remaining seated and without enduring any discomforting pressure.

In the accompanying drawing:

Figure 1 is a side elevation of a flushing apparatus embodying my invention;

Fig. 2, a longitudinal section, with the bowl omitted;

Fig. 3, a plan of the pusher, and

Fig. 4, a section on line 4—4 Fig. 2.

Into the back of the water closet bowl 1, enters the flushing pipe 2, which is controlled by a valve of suitable construction, not constituting part of the present invention. The drawing shows by way of example, a valve of the "Sloan" type in which a water inlet chamber 3 of the valve casing, is separated by a diaphragm 4, from a pressure chamber 5. The diaphragm 4 is connected at its inner end to a main valve or piston 6, having a port 7, upon which is seated an auxiliary valve 8, having a depending stem 9. When the latter is tilted, valve 8 is opened, to relieve chamber 5 and thus cause the pressure in chamber 3 to force up diaphragm 4, together with piston 6. The flushing water will thus be free to flow from chamber 3, into an annular passage 10, formed between the latter and the piston, from whence it enters the flushing pipe 2. When the valve stem 9 is again righted, valve 8 will close, and water will reënter chamber 5 from chamber 3, by means of a by pass 11, so that the piston is lowered and all the parts are returned to their normal position.

In order to operate the valve the following construction has been devised:

Above the closet seat 12, there extends partly over the same from front to rear, a horizontally disposed plunger 13, the rear end of which is operatively connected to the flushing mechanism, in manner hereinafter referred to. The forward end of the plunger carries a curved arm or pusher 14 located directly above seat 12 and extending transversely across the same, the pusher being of such a configuration, as to fit snugly across the back of the occupant. The correlation of the parts is preferably such, that the pusher is located at such a height above the seat, as to grip the "small" of the occupant's back, and that it is set back so far from the front of the bowl as to occupy substantially a common vertical plane with the inner edge of the seat rim, at the back thereof. Thus as the occupant assumes an erect or slightly backwardly tilting position, he will exert a pressure against the pusher, which will cause the plunger to be retracted.

In order to rigidly connect the pusher to the plunger, the former is shown to be provided with a stud 15, which is slitted longitudinally to form a plurality of expansible jaws. A machine screw 16, tapped axially through the pusher into the stud between said jaws serves to deflect the latter outwardly, so that they are brought into frictional engagement with the inner wall of the plunger.

Upon the rear end of plunger 13, is mounted rigidly, a head 17, having a rounded shoulder 18, that encircles the end of the plunger. Head 17, is encompassed by a socket 19 having a flange 20 that extends at about right angles over shoulder 18. The rounded shoulder in conjunction with the encompassing flanged socket, forms substantially a ball and socket joint, which permits not only an axial but also a tilting movement of the plunger within the socket. A set screw 21 passing through the socket and engaging a longitudinal slot of head 17, prevents an axial rotation of plunger 13, and consequently a displacement of pusher 14, out of the horizontal.

Socket 19 is connected rigidly by a threaded coupling 22 to a correspondingly threaded spud 23 extending forward from flushing pipe 2.

Through spud 23 and socket 18, extends axially, a pin or slidable member 24, the forward end whereof is headed as at 25 to engage head 17, while its rear end operatively engages valve stem 9, so as to tilt or otherwise displace the same. Pin 24, is centered within a cap 26 threaded to socket 19 and having a circumferential flange 27 which is confined between the contiguous edges of said socket and the spud 23. Within cap 26 is seated a helical spring 28, that encompasses pin 24 and bears with one of its ends against head 25 while its other end bears against cap 26. The latter is bored for the passage of pin 24, and is provided with a squared shoulder 29, by means of which it may be screwed into position. From the rear of cap 26, there extends a tubular threaded butt 30 carrying a nut 31, between which and the end of the butt, a washer 32 is interposed. This washer is apertured for the accommodation of pin 24 that passes likewise through the butt and nut.

If the occupant of the seat desires to flush the closet, he leans back slightly to retract plunger 13 by means of pusher 14 and against action of spring 28. The plunger will thus retract pin 24 in a corresponding manner, and the latter will by displacing valve 8, through its stem 9, cause the flushing water to be admitted to the bowl. When the occupant rises or again bends forward, pin 24 as well as plunger 13 will be projected forward by spring 28, and in this way, stem 9 is relieved, so that the parts return to their normal position and the flow of the water is cut off.

It will be seen that by the construction described, the closet may be flushed in a most simple manner, and without causing the occupant to be subjected to any unpleasant pressure or strain. Owing to the universal connection between plunger and valve casing, even a sidewise thrust against pusher 14, will cause the device to function properly, and any binding is effectively prevented. Finally, the parts may be readily assembled and separated for the purposes of inspection, adjustment or repair.

I claim:

1. A flushing apparatus comprising a bowl, a seat, a raised arm extending transversely over the seat near the back thereof, a spring-controlled plunger connected to the arm, a flushing pipe, a universal connection between said plunger and pipe, and flushing means operably connected to the plunger.

2. A flushing apparatus comprising a bowl, a seat, a raised arm extending transversely over the seat near the back thereof, a spring-controlled plunger connected to the arm, a rounded head on the plunger, a flushing pipe having a spud, a flanged socket engaging the rounded head, a coupling connecting said socket to said spud, and flushing means operable by the plunger.

3. A flushing apparatus comprising a bowl a seat, a raised arm extending transversely over the seat near the back thereof, a plunger connected to the arm, a rounded head on the plunger, a flushing pipe having a spud, a flanged socket engaging the rounded head, a coupling connecting said socket to said spud, a cap engaging the socket, a pin passing through said cap and engaged by the plunger, a spring engaging said pin and cap, and flushing means operable by the pin.

4. A flushing apparatus comprising a bowl, a seat, a raised arm extending transversely over the seat near the back thereof, a plunger connected to the arm, a rounded head on the plunger, a flushing pipe having a spud, a flanged socket engaging the rounded head, a coupling connecting said socket to said spud, a cap having a threaded butt and engaging the socket, a pin passing through said cap and butt, said pin engaging the plunger, a spring engaging said pin and cap, a nut threaded on the butt, a washer interposed between said butt and nut, and flushing means operable by the pin.

JOHN F. DOYLE, JR.

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