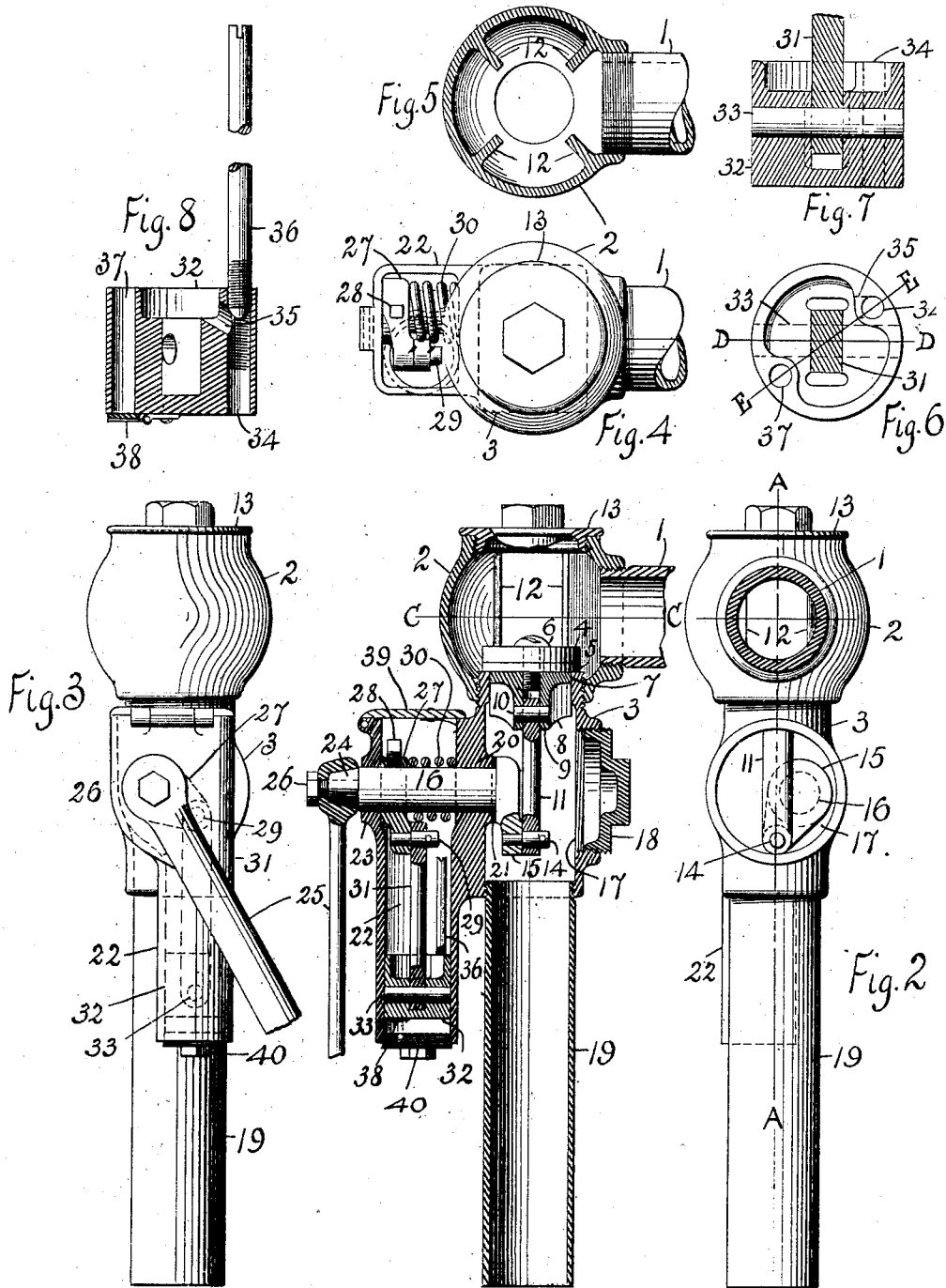


J. H. BELL.  
FLUSHING VALVE.  
APPLICATION FILED JUNE 16, 1905.



Witnesses  
*Elizabeth Finley*  
*Mary Finley*

Fig. 1

Inventor:  
 John H. Bell.  
 By *R. L. Wright*  
 Atty.

# UNITED STATES PATENT OFFICE.

JOHN H. BELL, OF HADDONFIELD, NEW JERSEY.

## FLUSHING-VALVE.

No. 832,834.

Specification of Letters Patent.

Patented Oct. 9, 1906.

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*To all whom it may concern:*

Be it known that I, JOHN H. BELL, a citizen of the United States, residing at Haddonfield, in the county of Camden and State of New Jersey, have invented certain new and useful Improvements in Flushing-Valves, of which the following is a specification.

This invention relates to flushing-valves, and has for its object the securing of a sufficient flow of water for a perfect flush and the prevention of the water-hammer and the chattering of the valve by a retarding movement regulated by a piston disposed in an independent chamber charged with oil and distinct and separate from the water-valve chamber.

By employing a separate and non-communicating chamber for the retarding-piston I am enabled to use oil for its operation, and thereby avoid the trouble from sediment, dirt, and foreign substances incident to the retarding means when located in the water-chamber and operative by water, while by using a lubricating fluid in a separate retarding-chamber the parts are always free to work, never become clogged, corroded, or congealed, and the timing means when once adjusted is automatic and requires no further attention.

The invention is illustrated in the accompanying drawings, in which similar characters of reference indicate similar parts throughout the views, and in which—

Figure 1 is a section as to most parts on line A A, Fig. 2. Fig. 2 is a side elevation. Fig. 3 is a side elevation opposite to Fig. 2. Fig. 4 is a top view. Fig. 5 is a section on line C C, Fig. 1. Fig. 6 is a top view of the timing or regulating piston. Fig. 7 is a section on line D D, Fig. 6. Fig. 8 is a section on line E E, Fig. 6.

The inflowing-water pipe 1 is secured to an inlet-chamber 2, screw-threaded to a water-valve chamber 3, so that chamber 2 may be turned to receive pipe 1 from any direction. The water-valve comprises a top plate or disk 4 and a soft or leather disk 5 in chamber 2 and mounted upon the top of chamber 3, which are joined by a screw 6 to a lower part having an upper plate 7, guiding-wings 8, freely fitting within chamber 3, and lugs 9, having a pin 10 to connect the valve to rod 11. Within chamber 2 are wings 12 to guide disk 4 and so placed as not to obstruct the inflow through pipe 1. An opening is provided at the top of chamber 2, through which

the valve may be passed without breaking the pipe-joint, and it is closed by a screw-cap 13. Rod 11 is secured by a pin 14 to a crank 15 on shaft 16, the shaft being set to one side of the center line A, (see Fig. 2,) with pin 14 on line A when the water-valve is closed. This arrangement and positions insure an easy and quick opening of the valve and the positive closing of the valve by the crank, as the crank never reaches dead-center or ultimate movement, and the chattering of the valve is prevented. An opening 17, through which the crank may be inserted or removed, is closed by a screw-cover 18, and a delivery-pipe 19 is secured to the lower part of the chamber 3. Crank-shaft 16 has a bearing 20 and a packing-washer 21 to prevent any water, sediment, or dirt being carried from chamber 3 into the oil-chamber 22. A bearing 23 is provided for the outer end of shaft 16, beyond which the shaft has a tapered rectangular shape 24, over which fits the hub of lever or handle 25, secured by screw 26. Within the oil-chamber on shaft 16 is a crank 27, set so as to equally divide its movement above and below the center of the shaft and having a set-screw 28 to secure its position and a pin 29. Between crank 27 and bearing 20 a spiral spring 30 is placed over shaft 16 to hold crank 15 snugly against washer 21. Attached to pin 29 is a rod 31, downwardly passing and carrying a piston 32, to which the rod is secured by a pin 33. At one side of the pin there is a passage 34 through the piston and screw-threaded with a branch passage 35 therefrom for the free passage of oil above the piston to chamber 22, while into passage 34 there is screwed an adjusting-rod 36, which is the means to limit the flow of oil through passages 34 35 from the space in chamber 22 below the piston to the space above the piston to insure an adequate flow of water for flushing, as well as to prevent a too sudden closing of the water-valve, which would produce a water-hammer. There is another passage 37 through the piston opposite passages 34 35, with a valve 38 at the bottom of the piston, and through this passage 37 the oil freely flows as the water-valve opens and the piston moves up, and the passage is closed by valve 38 as the piston moves down, at which time the flow is through passages 34 35, limited by the adjusting-rod 36 according to its position in obstructing passage 35. Oil-chamber 22 has a top cover 39 and a bottom cover 40.

By employing a separate chamber for the timing devices all possibilities are eliminated of trouble from any foreign substances carried by the water, and by employing oil as the resistant liquid the timing devices are always lubricated and work freely without danger from sediment, clogging by dirt or foreign substances, or corrosion of the parts.

I claim—

1. In a flushing-valve, the combination of two adjoining chambers, one for a water-passage and the other for a piston; an inlet-chamber above the water-chamber and a valve for the water-chamber consisting of a disk partly metallic and partly non-metallic joined to a lower part having guiding-wings within the water-chamber and a connection to a rod whereby the valve is operated, guiding-wings in the inlet-chamber for the valve; connections from the water-valve to the

separate chamber, and its piston; means to operate the valve and its connections.

2. In a flushing-valve, a water-chamber and a separate piston-chamber, an inlet-chamber adjustably mounted on the water-chamber, a disk valve for the water-chamber and guides therefor in the inlet-chamber and in the water-chamber, a piston in the separate chamber having an unobstructed passage therethrough in one direction and a restricted passage therethrough in an opposite direction, with means to control such restriction in degree and coöperative connections between the piston and valve aforesaid.

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

JOHN H. BELL

Witnesses:

R. C. WRIGHT,  
WILLIAM C. STOEVER.