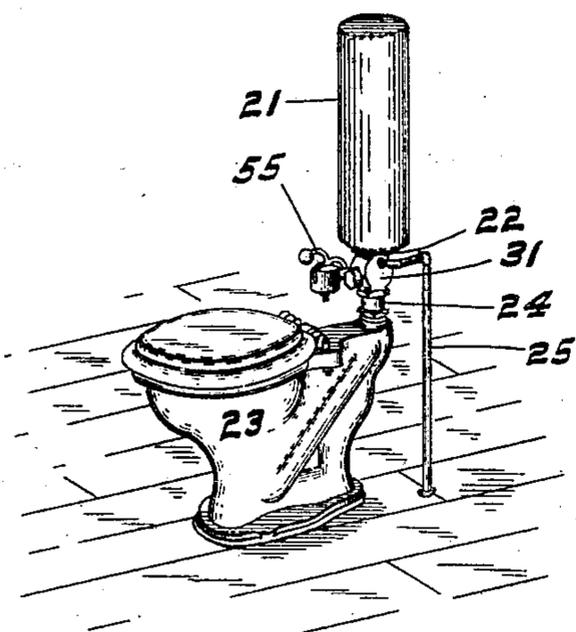


C. A. WULF.  
 FLUSHING APPARATUS.  
 APPLICATION FILED DEC. 26, 1907.

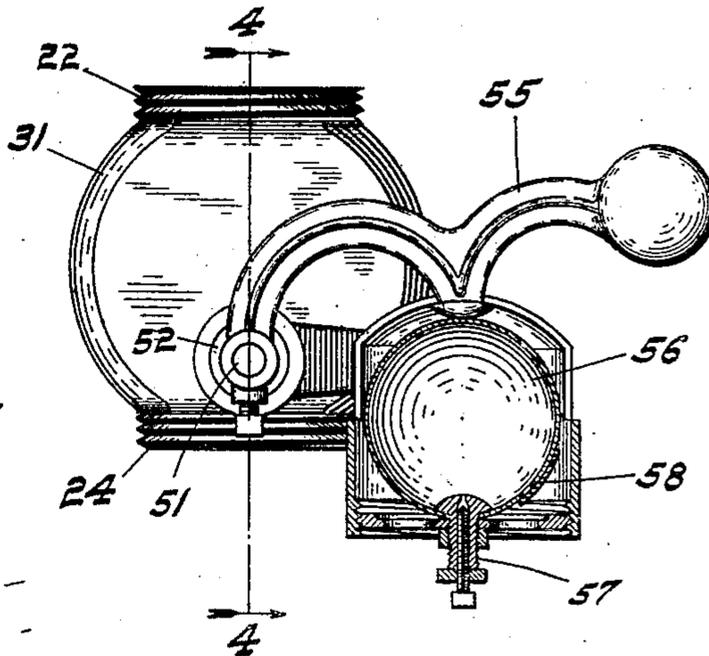
931,546.

Patented Aug. 17, 1909.

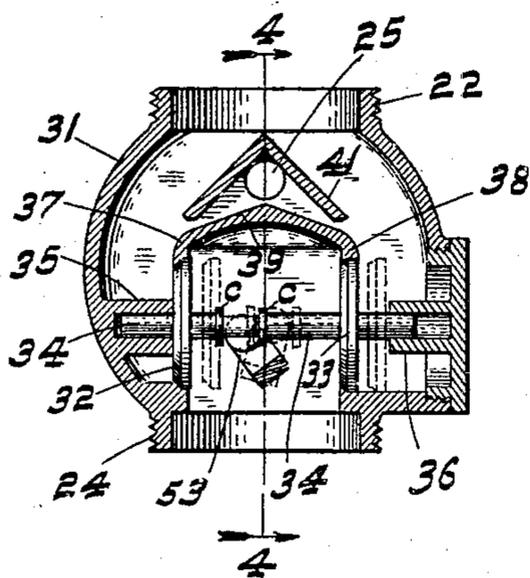
*Fig. 1.*



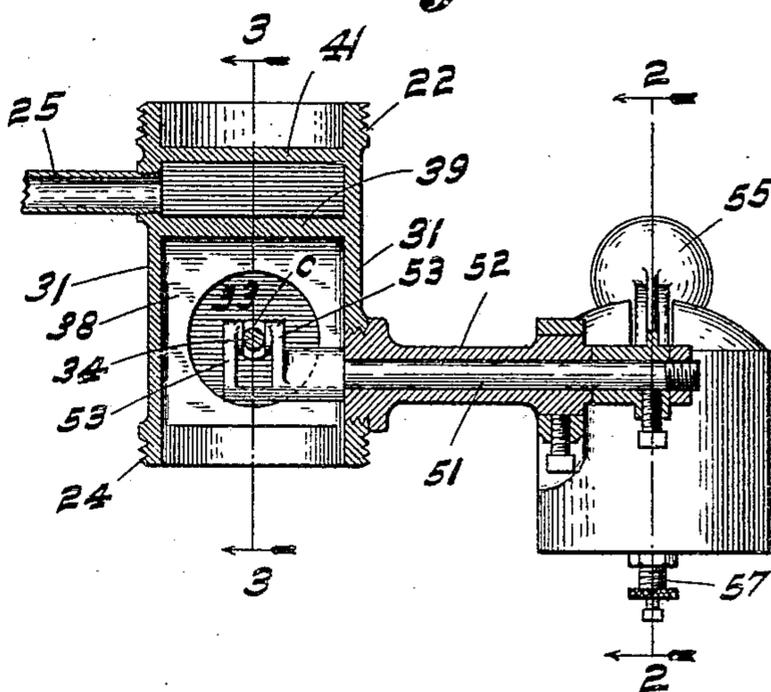
*Fig. 2.*



*Fig. 3.*



*Fig. 4.*



Witnesses  
 Frank A. Fable,  
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Inventor  
 Charles A. Wulf,  
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# UNITED STATES PATENT OFFICE.

CHARLES A. WULF, OF INDIANAPOLIS, INDIANA.

## FLUSHING APPARATUS.

No. 931,546.

Specification of Letters Patent.

Patented Aug. 17, 1909.

Application filed December 26, 1907. Serial No. 408,132.

To all whom it may concern:

Be it known that I, CHARLES A. WULF, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented certain new and useful Improvements in Flushing Apparatus, of which the following is a specification.

This invention relates to that class of flushing attachments for water closets and the like, wherein a tank is provided for reinforcing or supplementing the supply of water which comes through the pipes from the water supply system.

It principally consists in means for controlling and directing the flow, as will be hereinafter more particularly described and claimed.

Referring to the accompanying drawings, which are made a part hereof, and on which similar reference characters indicate similar parts, Figure 1 is a perspective view of a water closet equipped with a flushing apparatus embodying my present invention; Fig. 2 a sectional view through the valve controller at the point indicated by the dotted line 2 2 in Fig. 4, showing the remainder of the valve structure in elevation; Fig. 3 a transverse sectional view through the valve structure at the point indicated by the dotted line 3 3 in Fig. 4, and Fig. 4 a vertical sectional view at the point indicated by the dotted line 4 4 in Figs. 2 and 3.

The tank 21 is or may be an air tight tank of any desired form or construction. It is secured to the inlet side of the valve casing at neck 22. The article to be flushed may be an ordinary water closet 23 or any similar device needing to be flushed, and is connected to the opposite side of the valve casing by a neck or pipe 24. Water is supplied to this apparatus by means of a supply pipe 25 leading from any suitable source of water supply, as an ordinary city water system. This supply pipe leads into and is connected to the valve casing, as shown in Fig. 1.

The valve casing 31 is interposed between the flushing tank and the article to be flushed. It contains a suitable balanced valve. This valve, in the form shown, consists of two valve members 32 and 33, connected by a bar or stem 34, the ends of which are suitably mounted in bearings at 35 and 36 formed in or secured on adjacent walls of the valve structure. The closed and open

positions of the valves are indicated by the full and dotted lines, respectively, in Fig. 3 of the drawing. These two valves or valve members have appropriate seats in the internal walls 37 and 38; and said walls and a roof-like wall 39 connecting them form means by which (when the valves are closed) the valve structure is divided into separate chambers, the outer chamber of which communicates with the flushing tank, and the inner chamber of which communicates with the article to be flushed. The outer chamber is further divided by means of a roof-shaped wall 41 between which and the wall 39 the supply pipe 25 enters. The lower edges of this roof-shaped wall 41 are slightly apart from the upper side of the wall 39 below it, leaving narrow but comparatively long discharge orifices through which the supply of water coming in through said supply pipe will be discharged. The direction of this discharge being downwardly, it will have a pulling effect upon the water in the flushing tank, the operation being similar to that of an injector, and causing a more rapid flow of the water from the flushing tank than would otherwise be the case.

The valve, in operation, is caused to be operated in a certain predetermined time by means of the timing controller shown in Fig. 2. This will not be further described in this application, as it is very similar in construction and operation to the flushing valve controller shown and described in my former patent No. 831,694, dated September 25, 1906. The connection, however, is of a different character. A rock-shaft 51 (see especially Fig. 4) is mounted in a bearing 52 carried by valve casing 31, and arms 53 on said rock-shaft pass between collars *c* on valve stem 34. This rock-shaft, as it is rocked, is thus adapted to actuate the valves—opening said valves as the handle 55 is pressed down manually, and closing the same as said handle rises under the action of elastic bulb or timing device 56 controlled by valves 57 and 58, as in my former patent above referred to.

In operation, the valve being closed, water flows in through the supply pipe 25, and thence through the outer chamber in the valve structure to the flushing tank 21, filling said tank until the air therein is so compressed as to overcome the water pressure in the system with which the supply pipe is

connected. When the flushing valve is opened, the water in the tank flows from the tank, through the valve chambers, to the article to be flushed, the combined force of gravity of the water and of the compressed air in the flushing tank causing said water to emerge with considerable force. This force is augmented somewhat, or reinforced, by the incoming water through the supply pipe, which also, as before stated, in the arrangement set forth, has the effect of pulling upon the supply of water emerging from the tank. This continues until the water in the tank is nearly exhausted, when the body of water "breaks" admitting a fresh supply of air to the tank from below, thus compensating for the loss of air which always takes place in such operations, and maintaining at all times a sufficient amount of air in the tank to insure efficient operation and preventing the tank from becoming "water-bound", as it is called. It will be observed that the diameter of the supply pipe is very much less than that of the openings through the flushing valve; and consequently, so long as the main valves are open, after the charge of water from the flushing tank has been discharged, the incoming supply from the supply pipe will freely run off through the discharge openings, and will not begin to form a new charge in the flushing tank. This enables the apparatus to efficiently refill or seal the bowl of the article being flushed, after the flushing operation is completed (by which, due to the siphoning action common to such apparatus, said bowl is commonly emptied), and before the flushing tank is newly filled from said supply pipe. It also

leaves an abundant opening for the ingress of the necessary supply of fresh air to the flushing tank which has been described. 40

Having thus fully described my said invention, what I claim as new, and hope to secure by Letters Patent, is:—

The combination, with a tight flushing tank and the article to be flushed, of a flushing valve structure comprising a suitable casing having communication with the tank at one end and the article at the other, a partition formed within said valve structure separating the tank connection from the article connection, said partition having a pair of valve seats formed therein to produce a pair of communications between the tank connection and the article connection, a pair of connected valves mounted in said seats in position to be acted upon by pressure from the tank in opposite directions to balance the valve, means for manually shifting said valves away from their seats, means for yieldingly urging said valves to seated position, a water supply inlet leading into the valve structure, a V-shaped partition formed between the tank connection and the valve seats and between said tank connection and the water inlet, substantially as and for the purpose set forth. 45 50 55 60 65

In witness whereof, I, have hereunto set my hand and seal at Indianapolis, Indiana, this seventeenth day of December, A. D. one thousand nine hundred and seven. 70

CHARLES A. WULF. [L. S.]

Witnesses:

CHESTER BRADFORD,  
THOMAS W. McMEANS.