J. J. MEYER.

SUPPLY VALVE.

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1,072,971.

Patented Sept. 9, 1913.

Fig. 1.

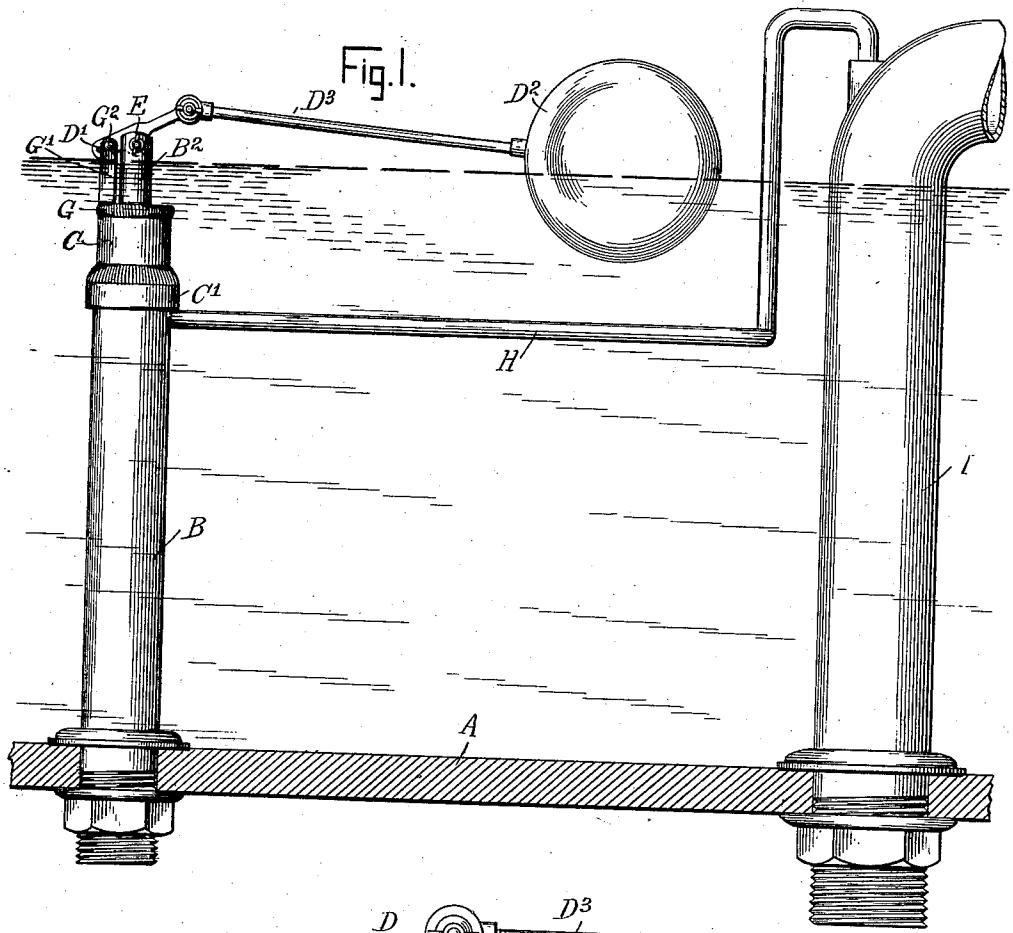


Fig. 2.

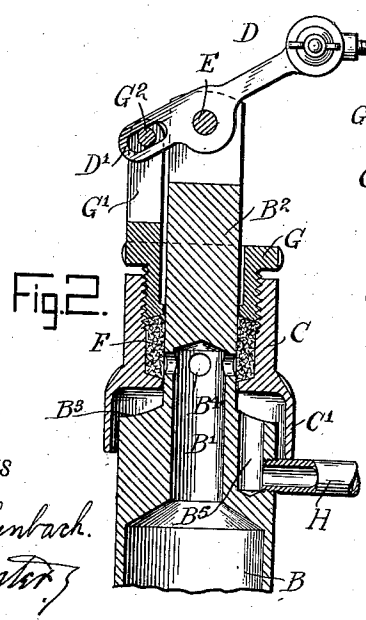
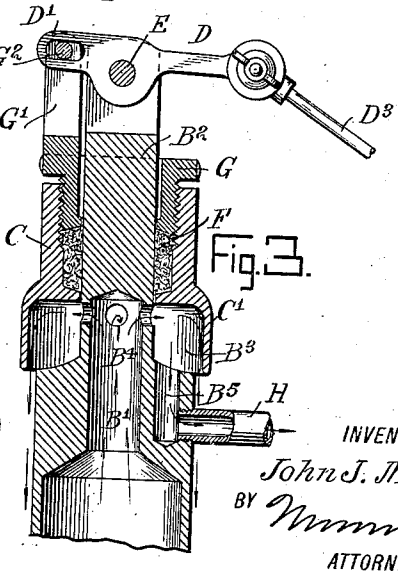


Fig. 3.



WITNESSES

C. K. Reichenbach.

Rud. J. Koster.

INVENTOR

John J. Meyer

BY Munn & Co

ATTORNEYS

COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JOHN J. MEYER, OF YONKERS, NEW YORK.

SUPPLY-VALVE.

1,072,971. Specification of Letters Patent. Patented Sept. 9, 1913.

Application filed February 27, 1913. Serial No. 750,999.

To all whom it may concern:

Be it known that I, JOHN J. MEYER, a citizen of the United States, and a resident of Yonkers, in the county of Westchester and State of New York, have invented a new and Improved Supply-Valve, of which the following is a full, clear, and exact description.

The invention relates to water supply valves such as are used in flushing tanks and the like, and its object is to provide a new and improved supply valve arranged to prevent leakage and waste of water, to respond quickly to the action of the float, to insure a free working of the valve irrespective of the fluid pressure, to reduce the friction of the working parts to a minimum, to prevent the water pressure from influencing the working of the float, to allow of tightening the valve by hand without disassembling the parts, and to furnish water for refilling the bowl connected with and supplied with water from the flushing tank.

In order to accomplish the desired result use is made of a supply pipe having a closed end and an outlet port below the closed end, a float lever fulcrumed on the said closed end and a valve mounted to slide up and down externally on the said supply pipe below the said float lever connection, the said valve controlling the said port and the said valve being connected with the said float lever.

A practical embodiment of the invention is represented in the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a side elevation of the supply valve applied to a flushing tank shown in section; Fig. 2 is an enlarged sectional side elevation of the supply valve in closed position; and Fig. 3 is a similar view of the same showing the supply valve in open position.

To the bottom of a flushing tank A is secured a supply or stand pipe B connected with a suitable source of water supply and terminating at its upper end in a reduced portion or stem having a hollow portion B′ and an upper solid portion B^2, as plainly indicated in Figs. 2 and 3. The stem forms with the supply pipe B an annular shoulder B^3 and the hollow portion B′ is provided at or near its upper end with one or more sidewise laterally-extending ports B^4 controlled by a valve C mounted to slide up and down on the stem and controlled by a float lever D fulcrumed on a pivot E held on the upper solid stem portion B^2 of the supply pipe B. The valve C is provided with an internally-arranged packing F adapted to open and close the ports B^4, that is, when the valve C is in lowermost position as shown in Fig. 2 the ports B^4 are closed by the packing F, and when the valve C is lifted the packing F moves out of engagement with the ports B^4 so that the latter are opened, as indicated in Fig. 3. The valve C screws on a stuffing box G for tightening the packing F whenever it is desired to do so, so that leakage of water past the stuffing box is prevented at the time the packing F covers and closes the ports B^4. The stuffing box G is provided with an upwardly-extending arm G′ carrying a transverse pin G^2 engaging a slot D′ in the float lever D so that the usual swinging motion given to the float lever D, on the float D^2 moving up and down with the change of the water level in the tank A, causes a down and up sliding movement of the valve C.

It is understood that when the float D^2 moves downward the valve C is raised from the closed position shown in Fig. 2 into the open position shown in Fig. 3 to allow water to pass from the supply pipe B by way of the ports B^4 into the tank A to fill the same, and when the float D^2 rises the valve C is moved downward back into closed position as shown in Fig. 2. It will also be noticed that the stuffing box G is held against turning owing to its connection by the arm G′ with the float lever D, and in order to tighten the packing F it is necessary to screw up the valve C on the stuffing box G, which can be done by hand, the parts being knurled for this purpose.

When the valve C is screwed up it is necessary to readjust the float lever D, which for this purpose is provided with the usual adjustable section D^3 to move the valve C and its stuffing box G downward to cause the packing F to cover the ports B^4 at the time the valve C is in lowermost closed position.

The valve C is provided at its lower end with a bell-shaped extension C′ somewhat larger than the diameter of the shoulder B^3,

as shown in Fig. 3, and hence water passing through the ports B^4 passes into the bell-shaped extension C′ and is directed by the latter in a downward direction and onto the outer surface of the supply pipe B to fill the tank A.

It is understood that by causing the water to flow down along the outer surface of the supply pipe B all splashing is prevented, and hence the flow of water into the tank is practically noiseless.

The upper end of the supply pipe B is provided with a channel B^5 leading to the shoulder B^3 and connecting with a refilling tube H connected with a delivery pipe I connected with the bowl of the water closet so as to refill the said bowl after it is flushed.

It will be noticed that when the valve C moves upward into open position and the water passes into the bell-shaped extension C′ then some of the water under pressure passes into the channel B^5 and through the pipe H into the delivery pipe I to refill the bowl with water. By arranging the bell-shaped extension C′ relative to the shoulder B^3, as shown and described, sufficient water pressure is had for forcing the water through the pipe H into the delivery pipe I. It will further be noticed that by the arrangement described, the pressure of the water in the stand or supply pipe B does not affect the free working of the valve C and float lever D, so that the valve responds very quickly to the action of the float. By discharging the water into the tank in the manner described, the water pressure does not influence the working of the float, and as no fixed casing is used the valve C can be adjusted without turning off the water pressure. The packing F is not liable to be cut or injured on moving the valve up and down owing to the water pressure in the stem at the ports B^4 being outward against the packing.

In case it is necessary to tighten the packing F it is only necessary to give a few turns to the valve C to screw the same up by hand on the stuffing box G with a view to tighten the packing F. On doing so another portion of the packing F is presented to the outlet ports B^4 as the packing turns with the valve. When repairs have to be made it is only necessary for the operator to remove the pivot pin E to permit of lifting the valve C off the stem of the supply pipe, to permit of taking the valve apart for repairs or other purposes.

The supply valve shown and described is very simple and durable in construction and composed of comparatively few parts, not liable easily to get out of order.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. A supply valve of the class described, comprising a supply pipe terminating at its upper end in a fixed stem, the lower portion of which is hollow and provided with lateral ports leading to the peripheral face of the stem, a lever pivoted on the upper end of the said stem, a valve mounted to slide up and down on the said stem and provided with an interior annular packing surrounding the said stem and adapted to cover the said ports at the time the valve is in lowermost position, a stuffing box surrounding the said stem and on which screws the said valve to tighten the packing on the stem and to present other faces of the packing to the said ports on screwing up the valve, and an arm fixed on the said stuffing box and pivotally connected with the said lever to move the valve up or down on imparting a swinging movement to the said lever.

2. A supply valve of the class described, comprising a supply pipe terminating at its upper end in a fixed stem, the lower portion of which is hollow and provided with lateral ports leading to the peripheral face of the stem, a lever pivoted on the upper end of the said stem, a valve mounted to slide up and down on the said stem and provided with an interior annular packing surrounding the said stem and adapted to cover the said ports at the time the valve is in lowermost position, the said valve having a depending bell and the said stem forming with the said supply pipe an annular shoulder over which is adapted to pass the said bell to direct the water downward along the outer surface of the said supply pipe, a stuffing box surrounding the said stem and on which screws the said valve to tighten the packing on the stem and to present other faces of the packing to the said ports on screwing up the valve, and an arm fixed on the said stuffing box and pivotally connected with the said lever to move the valve up or down on imparting a swinging movement to the said lever.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN J. MEYER.

Witnesses:
THEO. G. HOSTER,
PHILIP D. ROLLHAUS.

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