(No Model.)

# J. BUDDE.

## SUPPLY VALVE FOR WATER CLOSETS.

No. 442,419. Patented Dec. 9, 1890.

Fig. 1.

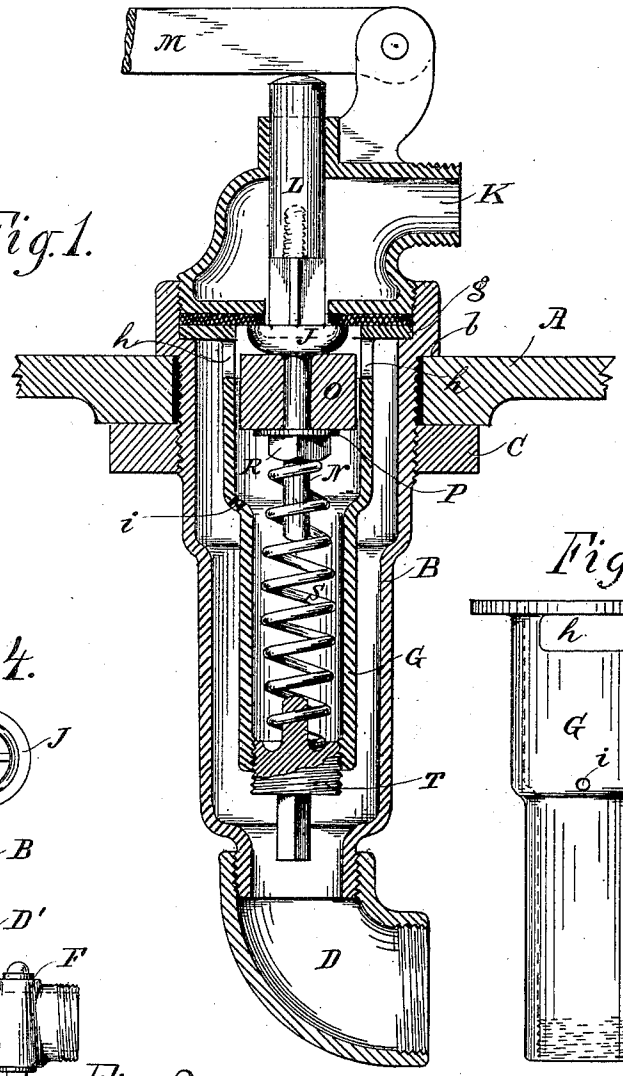
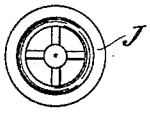



Fig. 3.




Fig. 4.



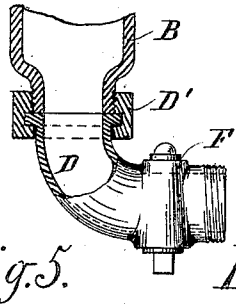
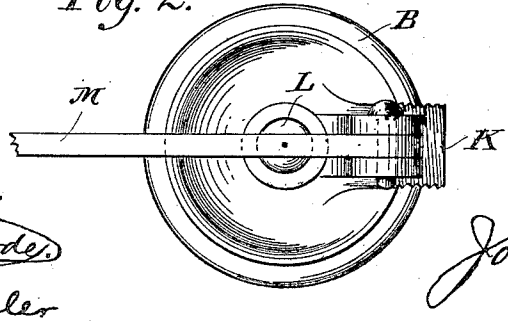




Fig. 5.

Fig. 2.




Witnesses.
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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

# UNITED STATES PATENT OFFICE.

JOSEPH BUDDÉ, OF SAN FRANCISCO, CALIFORNIA.

## SUPPLY-VALVE FOR WATER-CLOSETS.

SPECIFICATION forming part of Letters Patent No. 442,419, dated December 9, 1890.

Application filed January 20, 1890. Serial No. 337,540. (No model.)

*To all whom it may concern:*

Be it known that I, JOSEPH BUDDE, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented certain new and useful Improvements in Supply-Valves for Water-Closets; and I do hereby declare the following to be a full, clear, and exact description of said invention, such as will enable others skilled in the art to which it most nearly appertains to make, use, and practice the same.

My invention relates to an automatic supply-valve by means of which the flow of water is regulated according to the pressure of water acting against it.

My improved valve is especially adapted for regulating the flow of water from a main to water-closet bowls; but it can be applied in any connection where a uniform quantity of water is to be supplied under pressure.

In a water-closet my improved valve may be operated by a lever and float bearing upon its stem, as usual; but when it is used in other relations it may be operated by other means.

The main object of my invention is to insure the working of supply-valves regardless of shortcomings in their fitting, and provide means by which such valves may be regulated, so as to quicken or delay their return to their seat in inverse proportion to the water-pressure.

A further object of my improvements is to divide the stream of water and cause it to lose part of its force before it reaches the summit of the valve-casing, and thus reduce the hammering to which the supply-pipes are subjected.

It consists of a peculiar valve shell or casing distinct from and inserted into the ordinary valve-casing of supply-pipes, and of certain other details of construction which I will now proceed to describe.

Referring to the accompanying drawings, forming part of this specification, Figure 1 is a sectional elevation of the whole device; Fig. 2, a top view showing the float-lever resting upon the valve-spindle; Fig. 3, an elevation of the inner valve-casing; Fig. 4, a plan of the valve and lower section of the valve-spindle; and Fig. 5, an elevation, partly in section, of the pipe-connections and stop-cock.

The same letters of reference indicate the same parts in all the views.

Letter A represents the bottom of a water-closet, and B the ordinary valve-casing secured thereto by means of a flange *b*, projecting outwardly from its top, and a jam-nut engaging a screw-thread on its periphery.

D is the coupling which unites the casing B with the supply-pipes. This coupling may be connected with the valve-casing in different ways, the simplest of which is shown at Fig. 1; but I prefer the construction illustrated in Fig. 5, though both may be used with advantage. The connection represented in Fig. 1 is made by plain screw-threads, whereas that shown at Fig. 5 is effected by a sleeve D′, the upper end of which engages a screw-thread on B, while its lower end engages an outward flange on D, so as to form a swivel-joint.

Into the coupling D, I fit a stop-cock F for the purpose of cutting off the water when applying or overhauling my apparatus. This is not represented in Fig. 1, because it is not an indispensable feature of my invention; but it is nevertheless a valuable improvement, which should always be applied to the supply-pipes of water-closets.

Within the ordinary valve-casing B, I place an inner valve-casing G, composed of a cylindrical shell or pipe conforming in shape with that of B. This shell is held up by a flange *g*, jutting out of its upper end and resting against a shoulder in the casing B. Openings *h h* are cut into the sides of G under the flange *g*, in order to allow the water from the pipes to reach the valve, while a suitable aperture *i* is provided further below for the escape of the water contained in the inner valve-casing when forced down by the valve. The valve J is placed within the upper end of the shell G and seated upon a piece of leather or other suitable packing laid in between the flange *g* and the inlet K, through which the water is fed to the water-closet. The valve-spindle L is passed through K and brought up to the lever M, which is operated through the medium of the usual water-closet float. The lower section of this spindle has

longitudinal grooves cut into it, (see Fig. 4,) so as to let the water pass freely from the shell G to the inlet K. From the bottom of the valve hangs a pin N, upon which is slid a cylindrical block of rubber O, adapted to fit snugly into the enlarged end of the casing G. This rubber block is held up to the under side of the valve, and its expansion is regulated by means of a washer P and nut R engaging the lower end of the pin N. Upon this pin, below the nut R, I place a spring S, which has its bearing on a studded screw-plug T, adapted to engage a screw-thread in the lower end of the shell G.

It is apparent from the above description that it matters little whether or not the spring which returns the valve to its seat has been accurately fitted, (which is seldom the case,) as it can be readily compressed, if too weak, or relaxed, if too strong, by the judicious use of my studded screw-plug. It will be noticed, also, that if there be an excess of water-pressure, the return of the valve to its seat may be graduated so as to deaden the usual shock by simply compressing the rubber block and relieving the spring. It will be seen that when the rubber block is thus compressed the circumference or periphery thereof will be forced against the sides of the inner casing G. In this manner the length of the spring is increased and its tension correspondingly decreased, which, in connection with the friction caused by the rubber bearing against the sides of the casing, will to a great extent retard the return of the valve. If, on the other hand, the pressure be weak, the return of the valve may be quickened and its closer adherence to its seat secured by relaxing the rubber and increasing the tension of the spring. It is manifest, furthermore, that while my construction provides for the free flow of the water into the water-closet it reduces the force of the stream by dividing it at the bottom of the inner valve-casing, and thereby materially helps to prevent the hammering of the pipes.

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

1. In a water-closet, the combination, with an outer casing, of an inner valve-casing provided at its upper end with diametrically-opposite openings, and also provided with a lower aperture, a valve and valve-spindle, a pin depending from the under side of the valve, a cylindrical rubber plug upon said pin, a washer and nut for regulating the tension of the rubber, and a spring interposed between the nut and the lower end of the inner casing, substantially as set forth.

2. In a water-closet, the combination of a casing provided at its upper end with an annular flange adapted to rest upon the water-closet bottom, a jam-nut engaging threads upon said casing and bearing against the under side of the water-closet bottom, an inner valve-casing provided at its upper end with an annular flange adapted to engage an interior annular shoulder of the outer casing, and also provided with diametrically-opposite openings and with a lower opening, an inlet-pipe, a packing disposed between the inlet and the flange of the inner casing, a valve placed within the upper end of the inner casing, and a valve-stem extending therefrom through a perforation in the inlet-pipe, substantially as set forth.

In witness whereof I have hereunto affixed my signature in the presence of two witnesses.

JOSEPH BUDDE.

Witnesses:
A. H. STE MARIE,
F. N. BIGELOW.