No. 840,388.

PATENTED JAN. 1, 1907.

J. H. SIMMS.

VALVE.

APPLICATION FILED JUNE 6, 1906.

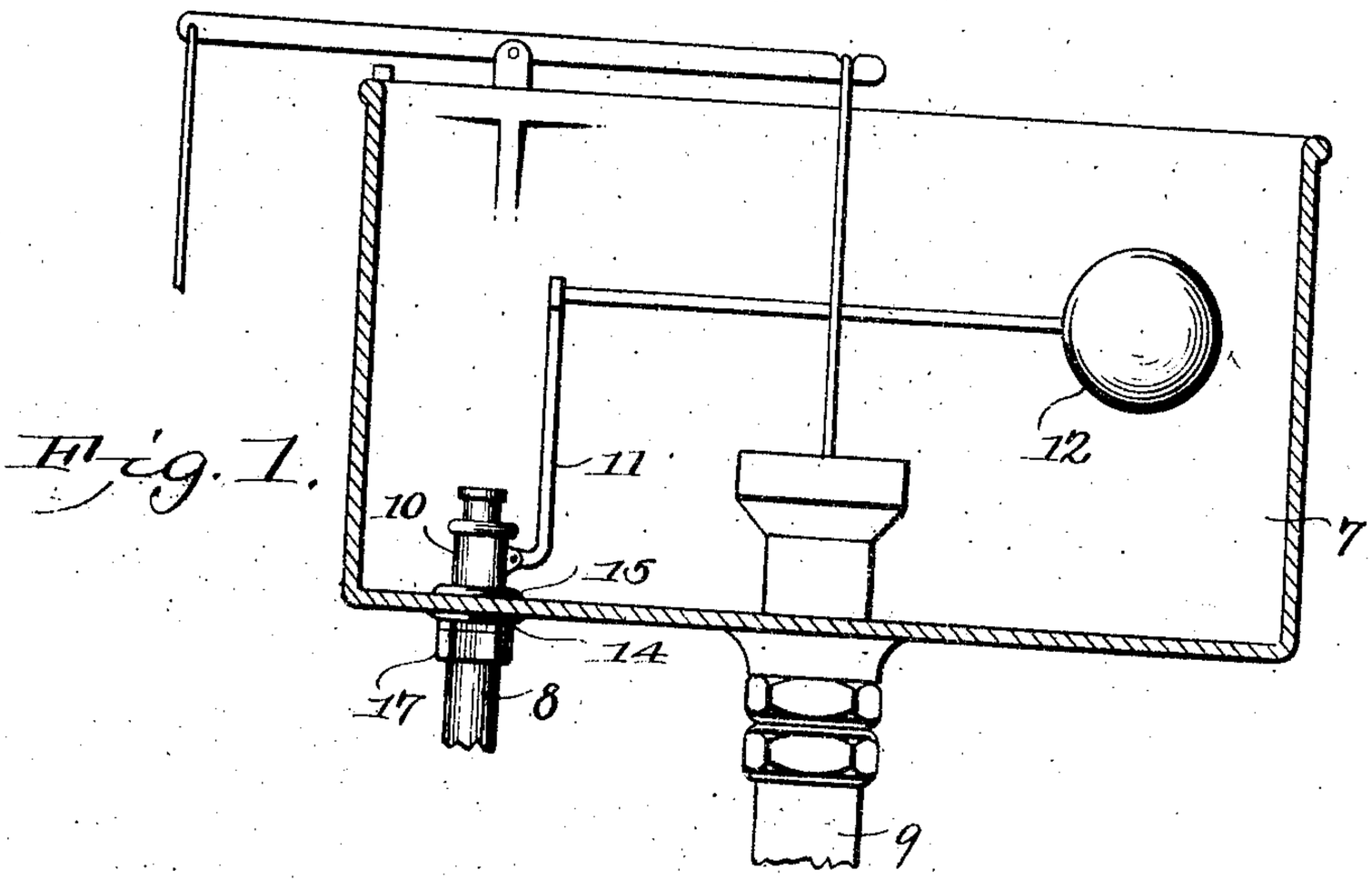

Fig. 1.

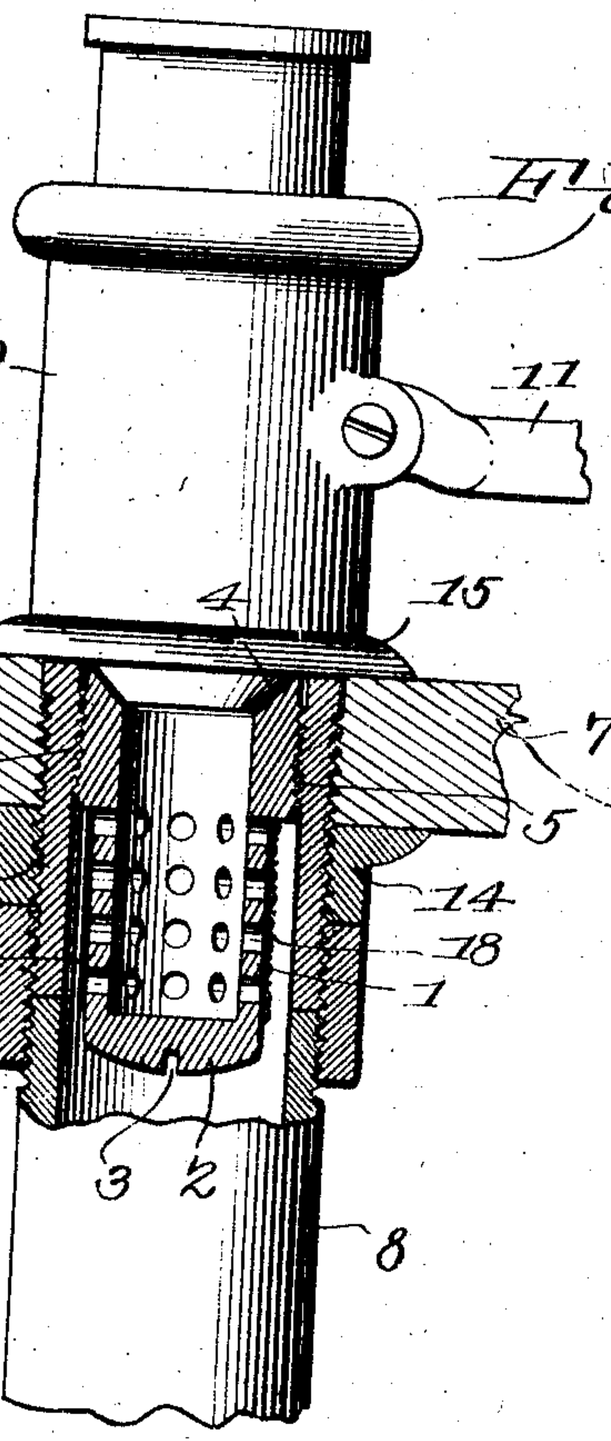

Fig. 2.

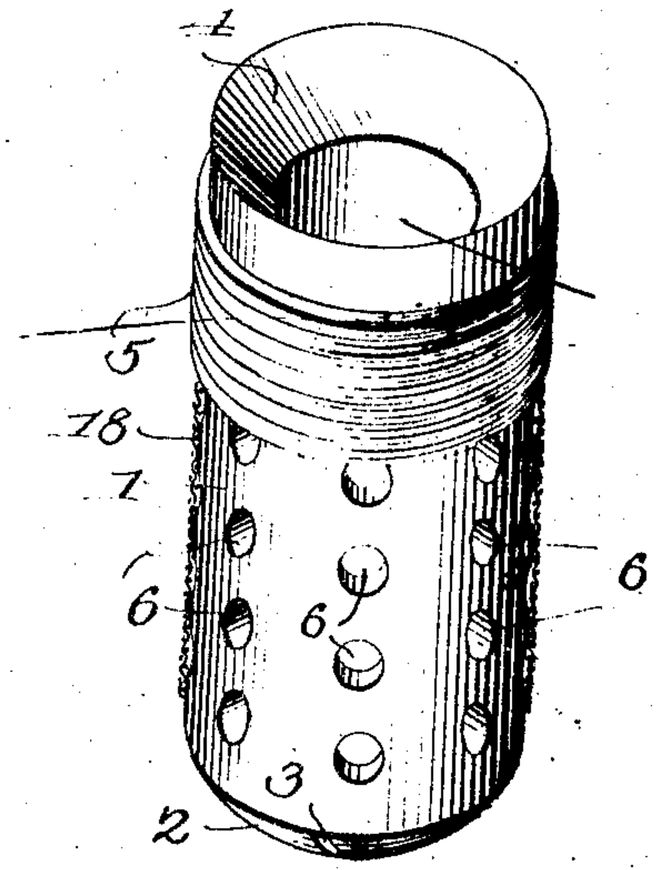

Fig. 3.

Witnesses

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UNITED STATES PATENT OFFICE.

JAMES H. SIMMS, OF MOBILE, ALABAMA.

VALVE.

No. 840,388. Specification of Letters Patent. Patented Jan. 1, 1907.

Application filed June 5, 1905. Serial No. 263,832.

To all whom it may concern:

Be it known that I, JAMES H. SIMMS, a citizen of the United States, residing at Mobile, in the county of Mobile and State of Alabama, have invented a new and useful Valve, of which the following is a specification.

This invention relates to valves, and in particular to supply-valves of closet-cisterns, and has for its object to provide a novel and useful arrangement of valve-seat whereby the latter may be removed and replaced without removing the entire valve-casing from the tank.

It is furthermore designed to enable the convenient assemblage of the valve-seat with the valve-case from the under side of the tank or cistern when the water-supply pipe is disconnected therefrom without in any manner interfering with the other portions of the flushing apparatus.

With these and other objects in view the present invention consists in the combination and arrangement of parts as will be hereinafter more fully described, shown in the accompanying drawings, and particularly pointed out in the appended claim, it being understood that changes in the form, proportion, size, and minor details may be made within the scope of the claim without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings, Figure 1 is a sectional view taken through the closet-cistern having a conventional form of flushing mechanism to illustrate the general location of the present invention. Fig. 2 is an enlarged elevation of the supply-valve with parts broken away to disclose the removable valve-seat of the present invention. Fig. 3 is an enlarged detail perspective view of the improved valve-seat.

Like characters of reference designate corresponding parts in each and every figure of the drawings.

The valve-seat of the present invention consists of a hollow cylindrical member 1, (shown in detail in Fig. 3 of the drawings,) the bottom 2 of the cylinder being closed and provided with a screw-driver seat or groove 3. The upper open end of the cylindrical member constitutes the valve-seat proper and is preferably beveled or tapered inwardly, as at 4. Adjacent the upper end of the cylinder the exterior of the latter is threaded, as at 5, and below this threaded portion the cylinder is externally reduced and provided with substantially radial openings or perforations 6.

To illustrate the application of the present valve-seat, there has been shown in Fig. 1 of the drawings a flushing-tank 7, having an inlet-pipe 8 and an outlet or flushing pipe 9, the inlet-pipe being controlled by a valve including a casing 10, upon which is fulcrumed a valve-controlling lever 11, carrying a float 12 in the usual or any preferred manner. Upon reference to Fig. 2 of the drawings it will be noted that the valve-casing 10 has a tubular shank portion 13, which pierces the bottom of the tank and is externally threaded for the reception of a nut 14 to clamp the bottom of the tank between the nut and the annular flange 15 upon the bottom of the valve-case, whereby the latter is rigidly connected to the bottom of the tank. The interior of the tubular shank 13 is provided with a threaded portion 16, and the improved valve-seat of the present invention is inserted upwardly through the open lower end of the tubular shank 13 and the externally-threaded portion 5 of the seat engaged with the internally-threaded portion 16 of the shank, whereby the valve-seat may be very conveniently fitted in place. After the valve-seat has thus been fitted in place the supply-pipe 8 is connected to the lower end of the tubular shank 13 by any suitable form of coupling member 17, whereupon the apparatus is in operable condition.

In practice water rising through the supply-pipe 8 passes into the annular space between the reduced lower portion of the cylindrical seat member and the tubular shank 13 of the valve-case, from which it passes inwardly through the opening 6 into the interior of the valve-seat member and thence upwardly into the casing and out through the exit thereof. It will here be explained that it is proposed to employ a screen-covering for the openings or perforations 16, so as to exclude sand and the like from the interior of the tubular valve member, and thereby to prevent undue wear of the valve-seat.

When it becomes necessary to replace the valve-seat, the coupling 17 is disengaged from the tubular shank 13 and the supply-pipe 8 moved to one side of the tank sufficiently to enable the introduction of a screw-driver into the open lower end of the tank for engagement with the screw-driver seat 3 in the bottom of the valve-seat member,

whereupon the latter may be unscrewed and a new valve-seat member fitted in place, both of which operations may be performed without dismantling or in any manner interfering with the valve-case and any of the other parts of the flushing mechanism. Moreover, the valve-case arrangement shown in the accompanying drawings is a conventional form now commonly in use, from which it will be understood that the device of the present invention has been particularly designed for application to supply-valves now in common use without requiring any material alteration therein beyond threading the interior of the tubular shanks thereof. It will here be noted that the valve-seat member may be adjusted endwise within the tubular shank of the case 10 to enable the proper engagement of the valve with the seat, this being a particularly advantageous feature when the valve or the seat has become worn, although it is of course useful in the original fitting of the seat member to the case.

While the valve-seat 4 has been shown concaved, it may also be flat or convex, as may be desired.

It is proposed to have the perforations 6 in the member 1 screened, so as to exclude sand and other sediment from passing into and collecting within said member, this feature being carried out by means of a sheet of wire-gauze or the like 18, snugly embracing the perforate portion of the member 1 and secured thereto in any suitable manner—for instance, by being soldered thereto.

Having fully described the invention, what is claimed is—

A valve comprising a case open at one end and having an internally-threaded portion, said case being of uniform internal diameter, a tubular valve-seat member having its inner end open and constituting the valve-seat proper, said inner end portion being externally threaded and adjustably engaging the threaded portion of the case, the remaining portion of the valve-seat being reduced and of uniform diameter to form an annular space therearound, said reduced portion being provided with one or more perforations, the upper end of the valve-seat member being closed and provided with a screw-driver seat accessible through the open end of the case, the adjustment of said valve-seat member being constantly unobstructed, and a tubular screen surrounding the reduced portion of the valve-seat member and having its internal diameter substantially equal to the external diameter of said portion.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

JAMES H. SIMMS.

Witnesses:
J. H. WEBB,
W. J. GOODMAN.