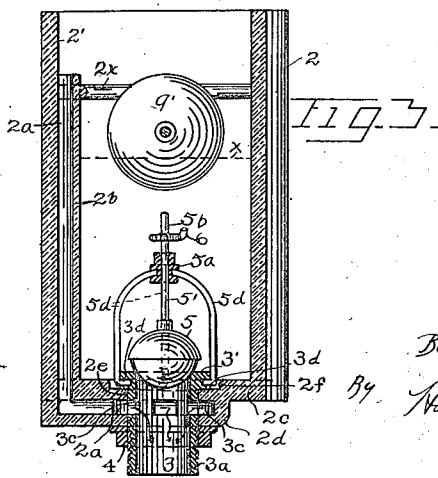
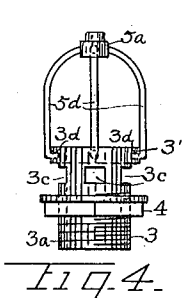
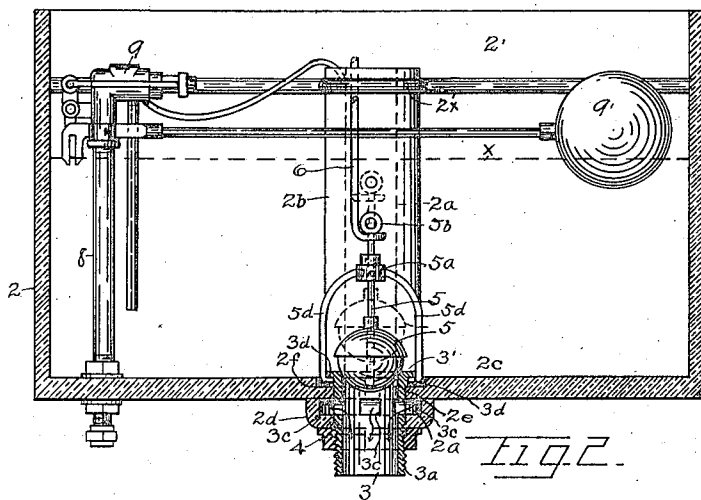
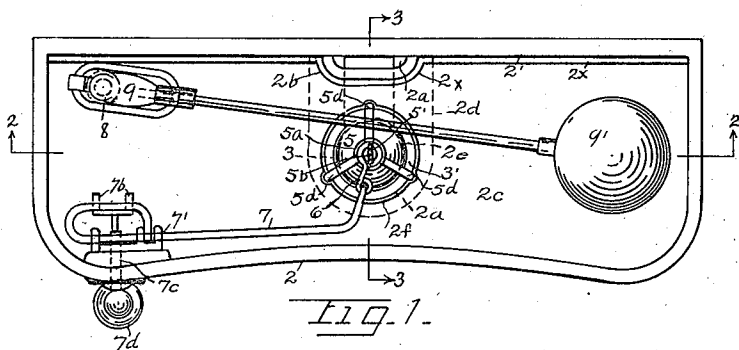


B. O. TILDEN.
 FLUSH TANK.
 APPLICATION FILED NOV. 25, 1921.

1,429,304.

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FLUSH TANK.

Application filed November 25, 1921. Serial No. 517,696.

To all whom it may concern:

Be it known that I, BERT O. TILDEN, a citizen of the United States, residing at Trenton, in the county of Mercer and State of New Jersey, have invented certain new and useful Improvements in Flush Tanks, of which the following is a specification.

This invention relates to improvements in flush tanks, designed for use in connection with water closets, and the like, and has for its particular object to provide a vitreous tank that includes an integrally formed overflow passage which extends partway across two walls of the tank. A further object is to provide a novel outlet fitting which is apertured to receive the overflow, and also serves as a seat for the flush valve. And a further object is to provide a novel and simple cage which is rigidly supported by the outlet fitting, and which surrounds and guides and protects the valve.

I attain these objects by the means set forth in the detailed description which follows and as illustrated by the accompanying drawing, in which—

Figure 1 is a top plan view of a vitreous flush tank to which my improvement is applied. Fig. 2 is a central vertical section taken on line 2—2 of Fig. 1. Fig. 3 is a transverse section taken on line 3—3 of Fig. 1. And Fig. 4 is a detached elevational view of the outlet fitting and the valve cage.

In the drawing, 2 represents the body of the flush tank, which is preferably made of china, or other vitreous substance, in one part. The rear wall 2' is provided on its inner surface with a vertically arranged overflow passage 2^a, which is formed by the molding or casting integrally thereon of a hollow substantially semi-cylindrical vitreous rib or wall 2^b. The passage 2^a continues downwardly through the bottom 2^c, and then extends forwardly horizontally parallel to the bottom, by means of a depending hollow boss 2^d, which is also formed integrally with the body. The bottom 2^c has an outlet opening 2^e, and the boss 2^d which extends partway across the bottom is provided with a substantially circular hollow terminal, which is disposed concentric to the opening 2^e. The outlet proper for the flushing water consists of a metal tube or bushing 3, that is disposed in the opening 2^e, and whose upper end is provided with a rela-

tively heavy annular flange 3', which seats in a shallow circular recess 2^f of larger diameter than the bottom opening 2^e. The lower end 3^a of the bushing extends some distance below the boss 2^d, and is threaded externally to receive a nut 4, by means of which the outlet fitting, the flush valve, and related parts are rigidly clamped in place as shown in Figs. 2 and 3. The open top end of the bushing 3 comprises the seat for the usual hollow float flush-valve 5, and below said seat the body of the said bushing is provided with a number of circumferential openings 3^c which are preferably equally spaced and communicate with the annular chamber 2^a of the boss 2^d. The apertures 3^c afford convenient means for the quick and free escape of the overflowing water which descends through the passage 2^a. By this construction and arrangement of the parts, I obviate the usual overflow openings in the bottoms of the flush tanks, and also eliminate the metal overflow pipes of common usage and perform all of the functions of the said parts, by the novel and simple integrally formed passage 2^a. The valve 5 is fitted with an upwardly extending stem 5' which passes loosely through and is guided by an elevated part 5^a, the upper end of said stem being formed into a loop 5^b. The guide 5^a is supported in the line of the vertical axis of the valve and its seat, by a cage-like structure comprising a plurality of bowed or arched wires or legs 5^d, which encloses and prevents the valve from wandering laterally away from the seat. The top ends of the members 5^d are inserted into radial sockets in the periphery of the guide 5^a, while their lower ends are bent inwardly at right angles and are inserted into similar radial sockets 3^d, which are formed in the periphery of the flange 3'. The members 5^d are preferably permanently secured at opposite ends by any suitable means so that the cage and the bushing may be handled as one part when applied to and removed from the tank. The valve stem 5' is connected by a link 6 to one end of a rocking lever 7, the opposite end of said lever being pivoted in a metal bracket 7' mounted on the inner front wall of the tank. The lever 7 is rocked for unseating the valve 5 (see dotted lines Figs. 2 and 3), by means of a forked member 7^b carried by a shaft 7^c which is journalled in the front

wall of the tank. The shaft 7^c is rocked by a handle 7^d which is disposed outside of the tank, in the usual manner. The supply of the flushing water is admitted to the tank 2 through a pipe 8, which extends upwardly inside the tank to a point above the normal level of the water (see dotted line *x* in Fig. 2), and whose upper end is fitted with a ball-cock 9, the said cock being controlled by the usual spherical float 9', whose rising and falling movements corresponding to the varying levels of the water in the tank, effects the closing and the opening of said cock, in a well known manner. Ball-cocks of the class are usually adjustable, and may be set for effecting the filling of the tank to different definite levels. For this purpose the overflow part 2^b and the rear wall 2' are preferably provided with a horizontal rib 2^x, for indicating the highest level to which the tank may be safely filled without causing unnecessary waste of the water through the overflow passage 2^a.

The present improvement is particularly applicable to china flush tanks, and its chief value resides in the novel, simple and integral overflow feature, in combination with the apertured outlet bushing which serves as the seat for the valve, and the novel cage including the axially arranged guide which effects the positive registering and seating of the valve after each flushing operation.

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

1. A flush tank having a flushing opening in its bottom, said opening being surrounded by an annular recess and by the annular terminal of an overflow passage which discharges into the said opening, one arm of said overflow passage extending rearwardly beneath the bottom of the tank and another arm of said passage extending upwardly between integral portions of the rear wall of the tank to a point above the normal level of the flushing water, a bushing disposed in said flushing opening having an annular flange adapted to be seated in said recess, and having radial apertures facing the said annular terminal, the periphery of said flange being provided with radial sockets, a flush valve adapted to be seated in the open top of said bushing, and a cage inclosing said valve, said cage having a plurality of arched members whose lower ends enter said radial sockets, the top of said cage com-

prising a guide for operatively supporting the stem of the valve.

2. A vitrified flush tank having a flushing opening in its bottom and an annular recess surrounding said opening, the inner face of the rear wall being provided with an integral hollow vertical flat rib containing an overflow flat and wide passage which extends through the bottom, and the bottom of the tank being formed with an external transverse hollow flat rib through which the overflowing water is carried forwardly towards the flushing opening, one terminal of said external rib comprising an annular chamber which communicates with the flushing opening, a bushing disposed in the flushing opening concentric to said annular chamber and having radial openings for draining said chamber, a valve adapted to be seated in the open top end of said bushing, a wire cage rigidly secured to and rising from the top end of said bushing adapted to guide the valve when opened and closed in the line of the vertical axis of said bushing, and means for unseating the valve.

3. A flush tank having a flushing opening in its bottom the top of the opening comprising an annular recess, a rib formed integrally with and depending from said bottom and having an annular chamber arranged concentric to the flushing opening, the said rib extending laterally to the rear wall of the tank, a hollow rib formed integrally and disposed vertically on the inner face of said rear wall, the opening in said rib communicating with the opening in the bottom rib for the passage of overflowing water from the tank into the flushing opening, a bushing disposed concentrically in the flushing opening having an annular flange adapted to be seated in the annular recess, said bushing having a plurality of radial openings for draining said annular chamber and having a plurality of radial sockets in its annular flange, a valve adapted to be seated in the top end of said bushing and having an upwardly extending stem, and a cage inclosing said valve, the bottom of said cage engaging said radial sockets and retained therein by the surrounding wall of said annular recess, the top of said cage comprising a guide member through which the stem of the valve plays vertically during the opening and closing of the valve.

In testimony whereof I affix my signature.

BERT O. TILDEN.