Nov. 8, 1932. J. FREED 1,887,295

SILENCER FOR WATER CLOSET TANKS

Filed July 2, 1928

Fig. 1.

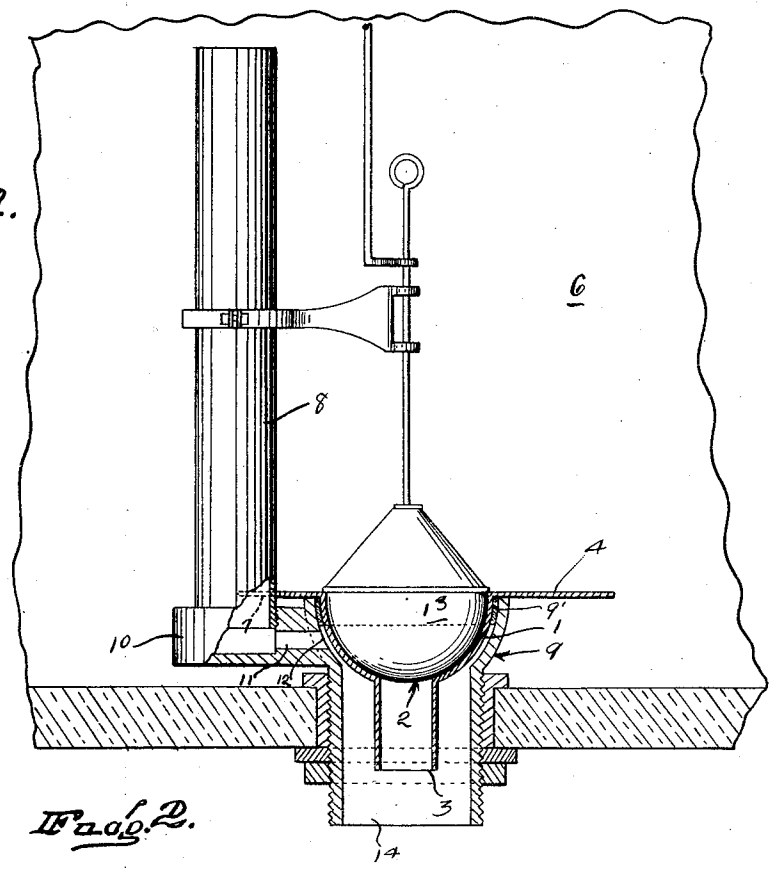


Fig. 2.

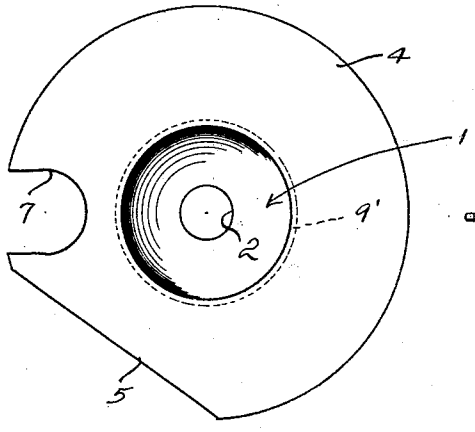
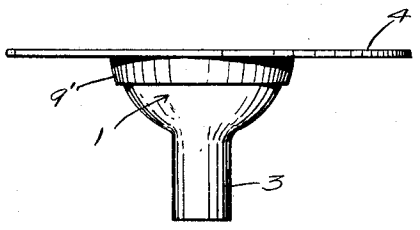


Fig. 3.



INVENTOR
JOSEPH FREED
BY
ATTORNEY

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UNITED STATES PATENT OFFICE

JOSEPH FREED, OF SAN FRANCISCO, CALIFORNIA

SILENCER FOR WATER-CLOSET TANKS

Application filed July 2, 1928. Serial No. 289,646.

This invention resides in the provision of a simple and inexpensive attachment for water-closet tanks, which attachment will effectively silence the objectionable noises that often occur upon draining the tank.

An object of the invention is to provide a silencer of the character described that may be quickly and easily attached to the ball valve seats of standard types of water closet tanks, without necessitating any changes in the construction of the seats or tanks.

A further object is to provide a silencer of the character described which is made in one piece and is small, compact and capable of being properly installed without employment of a plumber or other skilled workman.

A still further object is to provide a device of the character described which will generally improve the operation of a water closet in that it insures a proper seating of the drain valve of the tank as well as prevents objectionable noises which often are attendant upon the draining and filling of the tank.

Another advantage of the device of this invention is that it may be installed without the use of screws, clamps or other fastening means, it being held in place by frictional fit with the valve seat of the tank.

With the above mentioned and other objects in view, the invention consists in the novel construction and combination of parts hereinafter described, illustrated in the accompanying drawings, and set forth in the claims hereto appended, it being understood that various changes in the form, proportion, size and minor details of construction within the scope of the claims may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

Referring to the drawing:

Fig. 1 represents a fragmentary sectional view of a part of a water-closet tank showing in cross section the device of my invention as it would appear when installed.

Fig. 2 represents a top plan view of the attachment for my invention.

Fig. 3 represents a side elevation of the attachment.

The preferred embodiment of my invention as illustrated in detail in the accompanying drawing comprises a one piece fitting formed of copper or other suitable material and shaped to form a semi-spherical valve seat 1, having a central opening 2 extending from which is a tubular discharge spout 3. A lateral annular flange 4 extends from the upper edge or periphery of the seat 1. One side of this flange is cut away to provide a straight edge 5 adapted to lie close to or engage an adjacent wall of the water-closet tank 6. A notch 7 is provided in the flange 4 and receives the vent and overflow tube 8 of the tank to assist in holding the attachment of my invention in place.

The seat portion 1 of my device is concavo-convex and the convex side is adapted to extend into the standard semispherical valve seat 9 on the bottom of the tank. A rubber gasket 9′ is fixed to the seat 1 just beneath the flange 4 and has a tight fit with the upper part of the valve seat 9. The seat 1 is of less diameter than the valve seat proper and there is therefore provided an annular space between the two seats and beneath the gasket, which latter forms a tight joint between the two seat members. The flange 4 rests on the upper edge of the tank valve seat 9 and provides for stability of the attachment.

The seat 9, as is customary in the art, has a lateral extension 10 in which is formed a vent passage 11 opening at 12 in the face of the seat 9, and also into the lower end of the tube 8. This provides for escape of air trapped in the drain passages below the valve seat 9 of the tank. Frequently this ball valve 13 will close this opening 12 and prevent escape of air and an objectionable sucking noise is produced as the air escapes around the ball valve. This escape of air around the valve also tends to unseat the valve.

With my attachment the valve 13 seats in the attachment seat 1 which is spaced circumferentially from the seat proper beneath the gasket, and the air is therefore permitted to escape as intended through the passage 11 and vent tube 8, and does not unseat the valve, nor make an objectionable noise.

The flange 4 acts as a baffle for the currents of water forming above the valve seat when the valve is lifted, and by breaking of these

currents, the noises which usually attend the draining of the water through the valve seat are effectively silenced or prevented. This is also aided by the tubular discharge spout 3 which is of considerably less diameter than the tubular extension 14 of the seat, into which extension said spout extends. The frictional grip of the gasket 9′ and the interfit of the flange 4 with parts of the tank, provide for a secure anchorage of the attachment in place without use of extraneous fastening means.

I claim:

1. The combination with a water-closet tank having a valve seat support therein, a ball valve, a semi-spherical valve seat on said support to accommodate the valve, and an overflow pipe in the tank, said support having a side opening therein below the valve seat communicating with the overflow pipe, said valve seat overlying said opening, and the support having a central discharge aperture; a silencer comprising an annular spacer element interposed between the valve support and the valve seat to space the latter from the former and from the said side opening; and a central discharge conduit extended from the valve seat into said discharge aperture in spaced relation to the walls of said aperture and below the level of the said side opening; of a plate on the intake end of the valve seat extended outwardly therefrom substantially in parallelism with the bottom of the tank, said plate forming an outwardly extended flange on the top of the valve seat and having a notch therein adapted to receive an upstanding element of the water-closet tank to direct the outflow of water from the tank above the level of the top of the valve seat.

2. A silencer for a water-closet tank, the overflow pipe of which has a side opening adjacent to the usual flush valve seat, said silencer comprising a semi-spherical, concavo-convex ball valve seat adapted to extend into said usual valve seat; and an outwardly extending baffle flange on the upper edge of the second valve seat being disposed in substantially parallel spaced relation above the bottom of the tank to limit the water flow above said valve seat.

In testimony whereof, I have hereunto set my hand at San Francisco, California, this 17th day of May, 1928.

JOSEPH FREED.