

Aug. 11, 1942.

W. V. HEARE

2,292,689

LOW TANK SILENCER

Filed Aug. 4, 1941

Fig. 1.

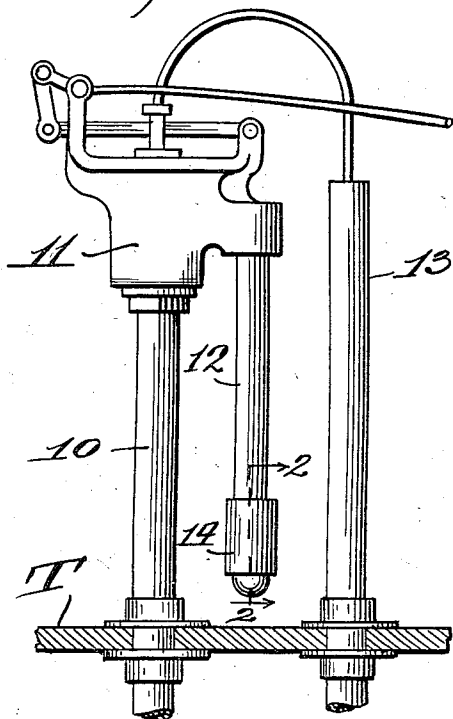


Fig. 2.

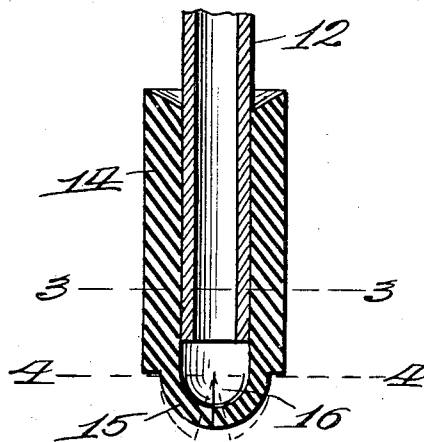


Fig. 3. Fig. 4.

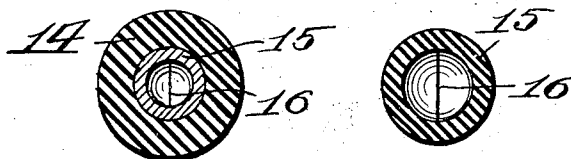


Fig. 5. Fig. 6.

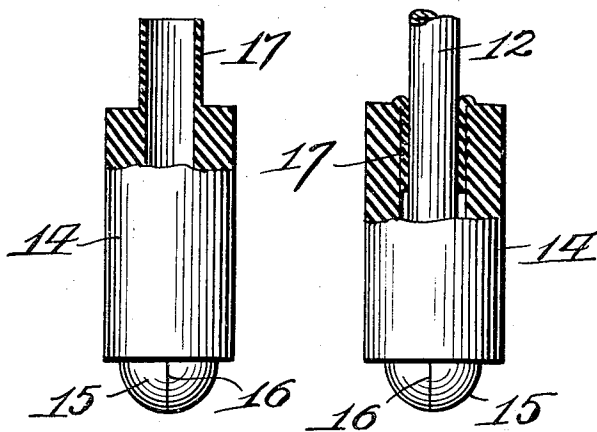
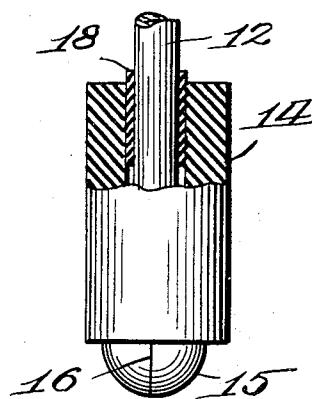


Fig. 7.



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UNITED STATES PATENT OFFICE

2,292,689

LOW TANK SILENCER

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Application August 4, 1941, Serial No. 405,333

3 Claims. (Cl. 181—33)

My invention relates generally to low toilet tank flushing apparatus and more particularly to a silencer that is applied to the discharge end of the hush-tube that delivers the water from the ballcock valve into the tank, and the principal objects of my invention are to provide a relatively simple, practical and inexpensive silencing device that is capable of being easily and quickly applied to the hush-tube without the use of tools, and which device is highly effective in silencing the flow of water from the hush-tube into the tank. Further objects of my invention are to provide a silencer of the character referred to that is entirely automatic in action which functions properly at all ordinary pressures and which normally maintains a certain degree of tension on the ballcock of the flushing apparatus with which it is associated.

With the foregoing and other objects in view, my invention consists in certain novel features of construction and arrangement of parts that will be hereafter more fully described, and claimed, and illustrated in the accompanying drawing in which

Fig. 1 is a side elevational view of the greater portion of a conventional ballcock flushing apparatus used in low toilet tanks and showing my improved silencer applied to the discharge end of the hush-tube.

Fig. 2 is an enlarged vertical section taken on the line 2—2 of Fig. 1.

Fig. 3 is a horizontal section taken on the line 3—3 of Fig. 2.

Fig. 4 is a horizontal section taken on the line 4—4 of Fig. 2.

Fig. 5 is a side elevational view with parts in section of a modified form of the silencer.

Fig. 6 is an elevational view, partly in section, and showing the modified form of the silencer in position on the hush-tube.

Fig. 7 is a side elevational view, partly in section, and showing a further modified form of the silencer.

Referring to numerals to the accompanying drawing which illustrate a preferred embodiment of my invention, 10 designates the inlet or supply tube that passes upwardly through the bottom of a low toilet tank T, the upper end of said supply tube being connected to the ballcock valve housing 11 and leading from said housing downwardly within the tank is the usual hush-tube 12. The numeral 13 designates the tank refill tube. The silencer contemplated by my invention comprises a substantially tubular body 14 preferably formed of rubber, or composition of which rubber is the

principal ingredient, and the lower end of this body is closed by a substantially hemi-spherical cup-shaped member 15.

The internal diameter of the tubular body 14 is such that it will fit snugly between the lower end of the hush-tube 12 when applied thereto and due to the friction between the tubular body and the hush-tube the silencer will retain its position upon the tube at all times. The thickness of the cup-shaped member 15 at the lower end of the body of the silencer is considerably less than that of the wall of the tubular member 14, and thus said cup-shaped member has a relatively greater degree of flexibility than the main body of the silencer.

Formed in the cup-shaped member 15 is a diametrically disposed slit 16 which during the flushing function provides an opening for the discharge of water from the hush-tube into the tank. Under normal conditions, the slit 16 is closed due to the internal stresses of the rubber or material from which the silencer is constructed and under such normal conditions, a certain lower degree of pressure is maintained on the ballcock of the flushing apparatus.

When the tank is flushed, the ballcock fill opens in the usual manner and water under pressure enters pipe 10, and after passing through the ballcock housing 11 flows downwardly through the hush-tube 12. The pressure of this water acts on the bilateral portions of the cup-shaped member 15 to spread the lower portions thereof apart as illustrated in dotted lines in Fig. 2, and thus the slit 16 becomes an opening of substantial size to permit the discharge of water into the tank so as to refill same.

As the ballcock closes and the pressure of water from supply pipe 10 diminishes, the bilateral parts of the member 15 return to their normal positions thereby closing the slit 16, and cutting off further discharge of water into the tank. Inasmuch as the silencer device, and particularly the cup-shaped portion 15 having the slit that functions to provide a discharge opening is formed of rubber, it automatically flexes under the pressure of the water discharging through the hush-tube and thereby acts to counteract and silence the noise incident to the discharge of water from the hush-pipe into the tank thus accomplishing the desired results.

The construction disclosed also serves as an anti-siphoning construction in that if conditions are such that pressure in the water supply becomes abnormally low so that there might be a tendency to siphon water out of the flush tank

through the hush tube 12 inasmuch as the sides of the slit 16 are normally closed or in engagement, the construction acts somewhat as a check valve preventing such siphoning action from taking place.

In order that the silencer may be applied to hushtubes that are slightly smaller in diameter than the standard sizes, the upper end of the tubular body of the silencer may be provided with an upwardly projecting tubular member 17 having a very thin wall, and the internal diameter thereof being the same as the internal diameter of the tubular body 14. When this form of silencer is applied to the hushtube, the tubular member 17 in upstanding position is positioned upon the hushtube and as the body 14 of the silencer is moved upward to its proper position on the hushtube, the tubular member 17 will turn inwardly and thence downwardly so as to occupy a position between the hushtube and the upper portion of the body 14 as seen in Fig. 6.

Thus the tubular member having a thin wall provides a spacer and packing between the upper portion of the body of the silencer and the hushtube. In the modified construction illustrated in Fig. 7, a separately formed tubular member 18 of rubber or analogous material and having a thin wall is first applied to the hushtube and the silencer is then positioned upon said tube with its upper portion surrounding the tube 18 so that the latter functions as a combined spacer and packing. Thus it will be seen that I have provided a low flushing tank silencer that is relatively simple in construction, inexpensive to man-

ufacture, and very effective in performing the functions for which it is intended. It will be understood that minor changes in the size, form and construction of my improved silencer may be made and substituted for those herein shown and described without departing from the spirit of my invention, the scope of which is set forth in the appended claims.

I claim as my invention:

1. A silencer for hush tubes of flush tanks and the like comprising an elastic sleeve adapted to be telescoped over the end of a hush tube, said sleeve having an end closure for one end thereof in which is formed a normally closed slit adapted to be forced open by the pressure of water issuing from the hush tube.
2. A silencer for hush tubes of flush tanks and the like comprising an elastic sleeve adapted to be telescoped over the end of a hush tube, said sleeve having a hemispherically shaped end closure for one end thereof in which is formed a normally closed diametrical slit adapted to be forced open by the water issuing from the hush tube.
3. A silencer for hush tubes of flush tanks and the like comprising an elastic sleeve adapted to be telescoped over the end of a hush tube, said sleeve having a hemispherically shaped end closure in which is formed a diametrical slit, the sides of which are adapted to be spread by water issuing from the hush tube, the walls of the end closure being thinner than the walls of the sleeve.

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