June 27, 1950 P. DYSART 2,512,924

POSITIONING STOP FOR TOILET FLUSH VALVE ARMS

Filed Dec. 27, 1948

FIG. 1

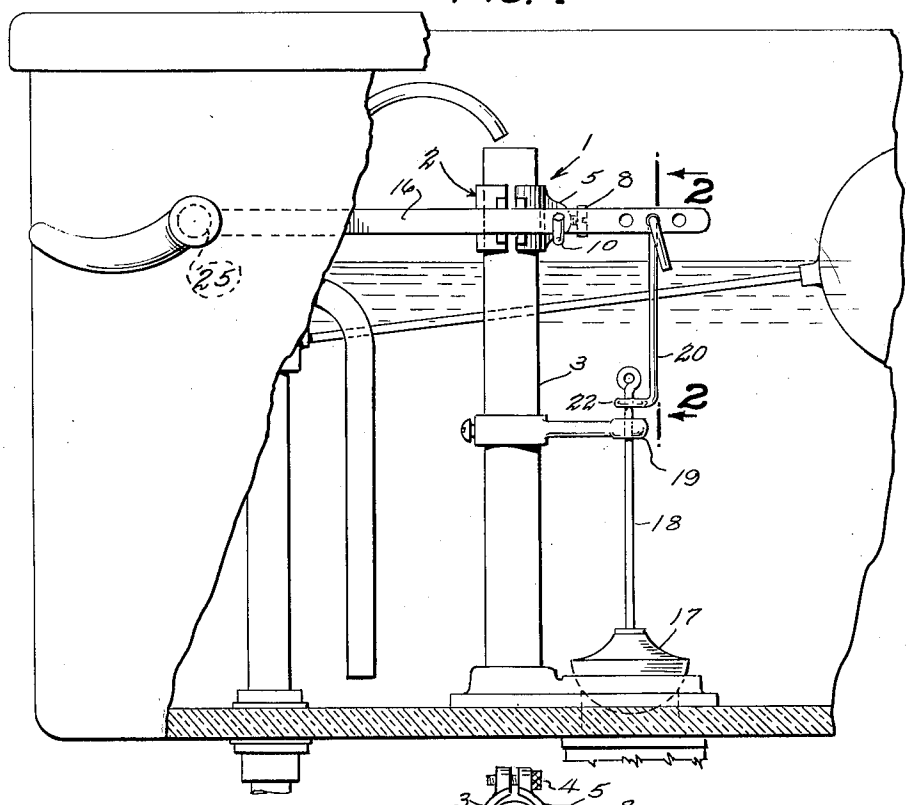


FIG. 5.

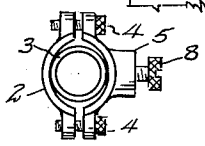


FIG. 3.

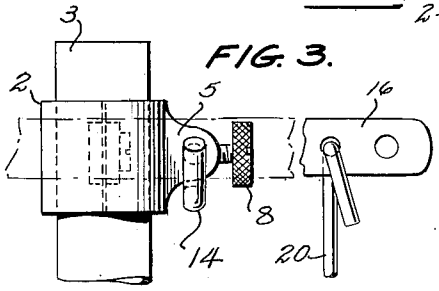


FIG. 2.

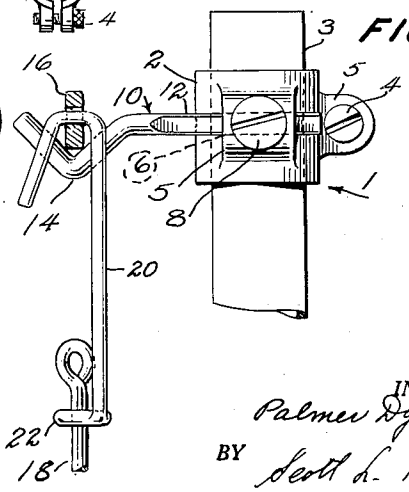
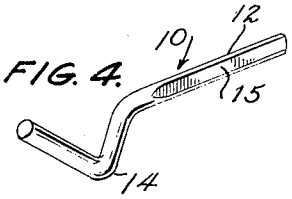


FIG. 4.



INVENTOR.
Palmer Dysart
BY Scott L. Norvel
ATTORNEY.

Patented June 27, 1950 2,512,924

UNITED STATES PATENT OFFICE

2,512,924

POSITIONING STOP FOR TOILET FLUSH VALVE ARMS

Palmer Dysart, Phoenix, Ariz.

Application December 27, 1948, Serial No. 67,446

2 Claims. (Cl. 4—57)

1

This invention pertains to positioning stops for toilet flush valve trip arms.

Heretofore a great deal of trouble has been caused by the failure of toilet flush valves to seat properly. The stem on which the valves are guided and supported has a tendency to bind or cramp in the guide, attached to the vent and overflow pipe, with the result that the valve bulb either hangs up above the seat, or drops on the edge of the seat.

I have found that the principal cause of this binding is that the ring on the wire link connecting the flushing arm drops down and rests on the top of the guide. This ring becomes canted and brings side pressure against the stem which throws it out of vertical alinement in the guide and thus causes the binding or cramping.

One of the objects of my invention is to provide a stop for the valve trip arm which may be attached to the vent and overflow pipe and will hold the outer end of this arm in a position above the guide so the link wire will not rest on the guide, but will remain suspended above it when the trip lever-arm is in released position.

Another object is to provide a stop, for the purposes above mentioned having a split collar which may be clamped onto the vent-overflow pipe of a toilet tank and a tangential stop arm attached thereto which can be varied in its extent.

Another object is to provide a stop for toilet flush valve trip arms of the kind described which has a split attaching collar adapted to be secured to vent overflow pipes of varying size and a tangentially extending stop arm, having a V-shaped centering cradle at its outer end secured in a lug on said collar so that its length may be varied in order to position the cradle in a predetermined position beneath said valve trip arm.

Still another object is to provide a toilet tank vent-overflow pipe with a removably attached stop, which can be secured at desired vertical positions along its length, having a horizontally extending stop arm provided with a V cradle to hold the outer portion of the valve trip arm in a predetermined extended position so the link connecting it to the valve stem will not bind on the stem or contact the stem guide.

Other objects will appear hereinafter.

I attain the foregoing objects by means of the devices and construction illustrated in the accompanying drawing in which—

Figure 1 is a sectional elevation of a toilet flush tank showing the front of the stop installed on the vent-overflow pipe;

2

Figure 2 is a side elevation of the stop drawn on a somewhat enlarged scale, installed on a vent-overflow pipe, as viewed from line 2—2, Figure 1;

Figure 3 is a front view of the stop drawn on the same scale;

Figure 4, a perspective view of the stop arm; and

Figure 5, a plan view of the collar shown in Figure 1.

Similar numerals refer to similar parts in the several views.

The stop 1 consists primarily of a split collar 2 which may be clampably attached to vent-overflow pipe 3 by screws 4. The inner gripping surfaces of the clamp are made with their inner faces curved to correspond to the section of the largest vent overflow pipe commonly used. Smaller pipes however can be conveniently gripped by contacting the central portions only of these curved surfaces. The collar may have two parts as shown in Figures 1 and 5 or may be made with only one slot as shown in Figures 2 and 3.

On one side of the collar a lug 5 is formed which is drilled with a tangentially extending hole 6. A set screw 8 is threaded into this lug and extends radially relative to the center of the collar.

A stop arm 10 has a shank 12 adapted to slide freely into hole 6 at its inner end and a V-shaped stop cradle 14 at its outer end. The shank may be flattened at 15 to form an adequate surface to contact the inner tip of set screw 8 and prevent the arm from turning in hole 6. All of the screws are made with knurled and slotted heads, so that they may be tightened either with the fingers or by the use od a screw driver.

In use, cradle 14 is adapted to receive, position and support flush valve trip arm 16 in the position shown in Figure 1. This shows the flush valve 17 in closed position, with its stem 18 in guide 19 and with the upper end of the wire connecting link 20, hooked through a hole in the outer end of arm 16 while the eye 22 at the lower end of the link is supported above and not contacting guide 19. The collar 2 of stop 1 is positioned along vent pipe 3 so that the stop cradle maintains the eye at the bottom of the link in this elevated position when the trip arm 16 is in released position. Since the link swings free from arm 16 the eye 22 is not cramped on valve stem 18 and does not become canted by resting on the top of guide 19 and supporting the weight of arm 16.

Figure 2 shows how the stop arm 10 extends outward from the collar lug 5 so that the V

cradle 14 is at the most advantageous position to prevent binding of the stem 18 in guide 19 during flushing and while the valve closes as the water in the tank flushes out. In adjusting the flushing arm 16 for best results it is always bent to or from the axis of the valve stem so that the link draws the stem upward and releases it without cramping. When this position is ascertained the stop arm is adjusted accordingly to receive and position the arm at the correct lateral position. The sloping sides of the V cradle make this lateral position definite and compensate for any looseness or play that may develop in the flush arm bearing 25.

I realize that heretofore stops have been made as a part of bearing 25 and attempts were made to accurately position the arm 16 by this means. However, due to the lack of mechanical advantage these stops became quickly worn or displaced from their original position and therefore were not satisfactory. Further, with stops, such as these, it was impossible to control the lateral position of the outer end of the arm, and misalinement of the link was always possible even though the stop was effective.

Having now fully described my invention and explained its use, I wish to be limited only by the following claims.

I claim:

1. A stop for toilet flush valve trip arms comprising, in combination, a two part cylindrical collar, threaded means for clampably attaching said collar at a desired position along the length of a toilet flush tank vent and overflow pipe; a lug formed on said collar having a substantially tangentially extending hole formed therein; a stop bar having a V rest at its outer end for said trip arm and a shank along its inner portion; and a screw in said lug adapted to removably secure the shank of said stop bar in said lug.

2. Mechanism for stopping and positioning a toilet flush tank valve trip arm to prevent the link wire thereon from causing the flush valve stem to bind in the stem guide comprising, in combination, a toilet tank vertical overflow pipe, a collar adapted to be secured at a predetermined position along its length, a lug formed on the periphery of said collar having a substantially tangential stop bar receiving hole; a stop bar having a V shaped cradle at its outer end serving as a rest for said trip arm, and a shank at its inner end and threaded means for securing the shank of said stop bar in the tangential hole in said lug at a predetermined distance along said shank.

PALMER DYSART.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
713,832	Bailey	Nov. 18, 1902
1,177,963	Peterson	Apr. 4, 1916
2,098,687	Kinsfather	Nov. 9, 1937