Sept. 22, 1959

W. F. WAGNER

2,904,795

FLUSH TANK BALL VALVE GUIDE

Filed Jan. 14, 1958

Fig. 2.

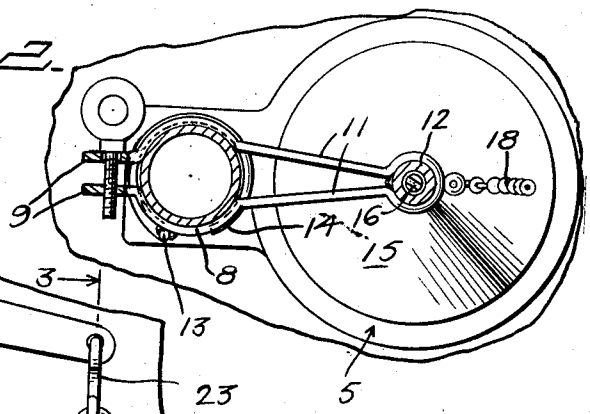
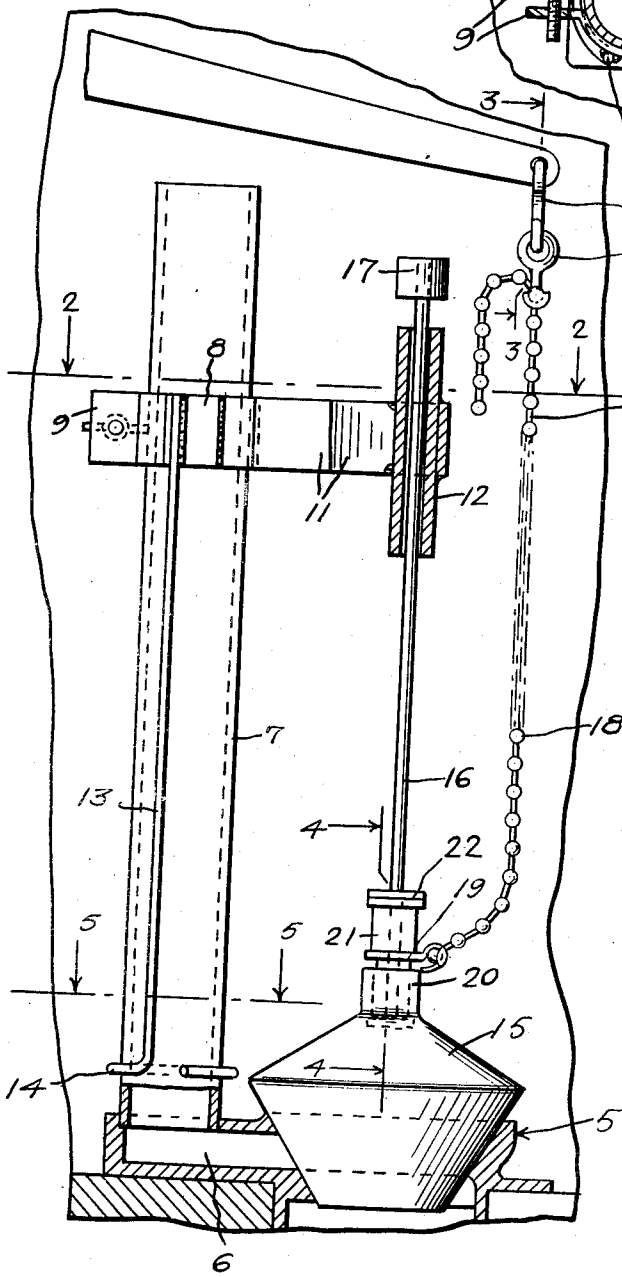


Fig. 1.



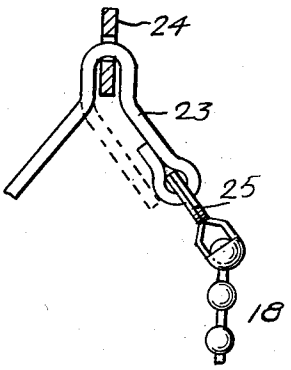
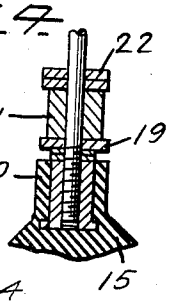


Fig. 3.

Fig. 4.



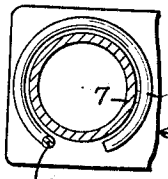


Fig. 5.

W. F. Wagner
INVENTOR

BY C. A. Snow & Co.
ATTORNEYS.

United States Patent Office 2,904,795 Patented Sept. 22, 1959

2,904,795

FLUSH TANK BALL VALVE GUIDE

William F. Wagner, Pittsburgh, Pa.

Application January 14, 1958, Serial No. 708,869

2 Claims. (Cl. 4—57)

This invention relates to flush tanks, and more particularly to means for guiding the float valve of a flush tank to its seat, to insure the true seating of the valve.

An important object of the invention is to provide a guide tube for guiding the valve rod in a true vertical movement, eliminating any possibility of the valve hanging on the upper edge of the valve seat to defeat the purpose of the valve in closing the valve.

Another object of the invention is to provide a flush tank valve which is operated by a flexible chain connected between the operating lever of the flush tank and the float valve thereof, eliminating the use of the usual rigid lifting rod of the conventional flush tank float operating mechanism, which frequently binds within its bearing under the lateral pressure directed thereto by a lifting lever.

A still further object of the invention is to provide a flush tank valve operating mechanism which may be readily installed without the use of tools.

With the foregoing and other objects in view which will appear as the description proceeds, the invention consists of certain novel details of construction and combinations of parts, hereinafter more fully described and pointed out in the claims, it being understood that changes may be made in the construction and arrangement of parts without departing from the spirit of the invention as claimed.

Referring to the drawing:

Figure 1 is a side elevational view of a flush tank float valve operating mechanism, constructed in accordance with the invention.

Fig. 2 is a sectional view taken substantially along line 2—2 of Fig. 1 as viewed in the direction indicated by the arrows.

Fig. 3 is a detail view of the clip used in securing the chain to the operating lever of the flush tank valve.

Fig. 4 is a sectional view taken substantially along line 4—4 of Fig. 1 as viewed in the direction indicated by the arrows.

Fig. 5 is a sectional view taken substantially along line 5—5 of Fig. 1 as viewed in the direction indicated by the arrows.

Referring to the drawing in detail, the flush tank float valve seat is indicated generally by the reference character 5 and is provided with the usual passageway 6 through which overflow from the tank passes, as through the overflow pipe 7, which has its lower end secured to the valve seat fixture, as better shown by Fig. 1 of the drawing.

The unit constituting the subject matter of the present invention, comprises a clamp 8 which is in the form of a split band with laterally extended ears 9 formed with aligning openings to receive the wing bolt 10 for securing the clamp to the overflow pipe.

Connected with the clamp 8, is a bearing supporting arm 11 in which the tubular bearing 12 is secured, the tubular bearing being of a length to extend substantial

distances beyond the upper and lower edges of the bearing supporting arm 11.

A rod 13 is secured at its upper end to the clamp 8, and is of a length to extend to a point adjacent to the float valve seat 5, as better shown by Fig. 1 of the drawing, the lower end of the rod 13 being formed into a horizontal split loop 14, which loop is of a diameter to fit over the overflow pipe 7 in such a way as to yieldingly grip the overflow pipe, holding the clamp and bearing supporting arm 11 in their positions of vertical adjustment when installing the ball guide.

A float valve 15 is secured to the lower end of the guide rod 16, which guide rod operates through the tubular bearing 12, the guide rod 16 being provided with a head 17, secured thereto, which head provides means for effecting downward pressure on said rod 16 to manually seat the valve 15 if for any reason the toilet bowl overflows, or effect rotation of said guide rod 16 to secure the threaded lower end of said guide rod 16 in the threaded bore of valve 15.

The operating chain is indicated by the reference character 18, and has its lower end connected to the apertured plate 19 that is positioned on the rod 16 in contact with the upwardly extended neck 20 of the valve 15, the plate 19 being held in place by means of the collar 21 that is secured to the rod 16.

Cushioning discs 22 are provided on the rod 16 and rest on the upper end of the collar 21, and these cushioning discs are designed to contact the lower end of the tubular bearing 12, in the event that the operating chain 18 is moved to a position to the limit of its upward movement.

The reference character 23 indicates a hook, which is constructed of semi-rigid material capable of being bent to a permanent position shown in dotted lines in Fig. 3 of the drawing, the hook 23 being passed through an opening in the end of the operating lever 24 connecting the chain 18 to the operating lever.

The hook 23 is connected to the chain 18 by means of the removable link 25, one arm of the hook 23 being shown as extended through the link 25 and clamped to the link 25.

From the foregoing, it will be seen that due to the construction shown and described, I have provided a flush tank valve unit which may be readily and easily installed in the conventional flush tank, without the use of tools.

It will also be seen that due to this construction, a chain is employed for unseating the usual float valve of the flush tank, eliminating the use of the usual rigid rod which frequently becomes wedged within its bearing to defeat the purpose of the valve in seating to allow the flush tank to fill.

Having thus described the invention what is claimed is:

1. A valve mounting fixture for use in a flush tank having a valve seat and an overflow pipe, said fixture embodying a rod having an integral right angled split loop formed at the lower end thereof adapted to fit over said overflow pipe in gripping relation therewith, a split yieldable band secured to the other end of said rod adapted to surround said overflow pipe, clamping means for securing said band to said overflow pipe to hold said rod in an upright position in contact with said overflow pipe, throughout the length of said rod, a laterally extended arm integral with said split band and formed with a split circular loop in which an elongated tubular bearing is mounted, and a valve rod movable through said bearing, having a valve at its lower end.

2. A flush tank having a valve seat, an overflow pipe and an operating lever having an opening in one end in combination with a valve mounting fixture embody-

ing a rod having an integral right angled split loop formed at the lower end thereof adapted to fit over said overflow pipe in gripping relation therewith, a split band of yieldable material secured to the upper end of said rod adapted to surround said overflow pipe, clamping means adjustably securing said band to said overflow pipe to hold said rod in an upright position in contact with said overflow pipe, throughout the length of said rod, a horizontally extended bearing support arm integral with said split band and formed with a split circular loop in which an elongated tubular bearing is secured, a valve rod slidable through said band, having a float valve on its lower end, a chain having one end connected with said float valve, and a hook attached

to the other end of said chain, one end of said hook passing through an opening in said operating lever for effecting vertical movement of said float valve, releasing water in said tank through said valve seat.

References Cited in the file of this patent

UNITED STATES PATENTS

1,576,299	Behrer	Mar. 9, 1926
2,083,955	Lancellotte	June 15, 1937
2,460,114	Zern	Jan. 25, 1949
2,603,793	Schuh	July 22, 1952
2,835,900	Gleason	May 27, 1958