Dec. 30, 1924. 1,520,863

W. U. GRIFFITHS

VALVE OPERATING MEANS FOR FLUSH TANKS

Filed July 20, 1921

Fig. 1.

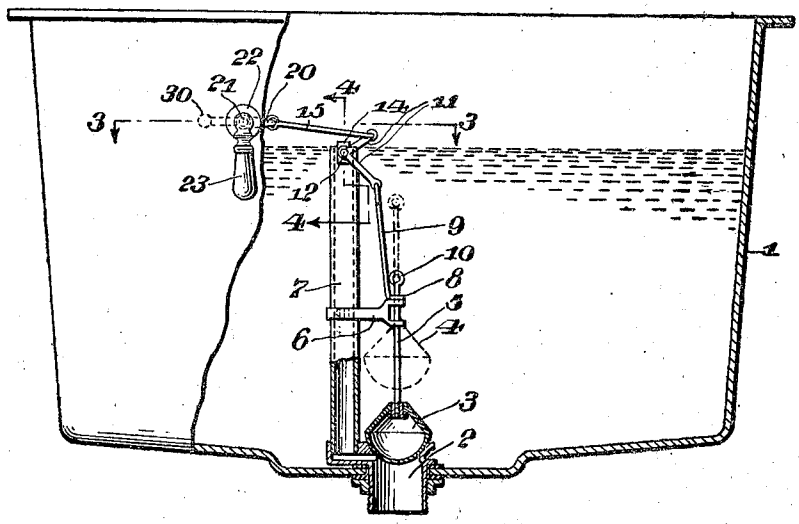


Fig. 2.

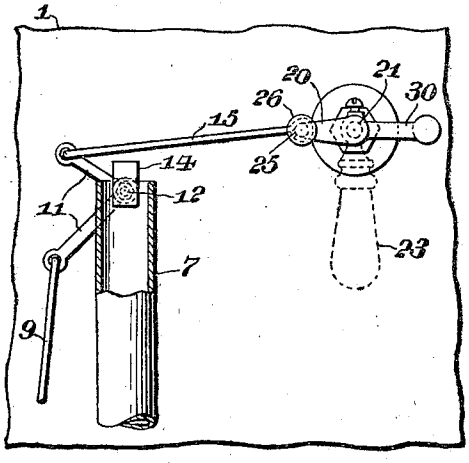


Fig. 3.

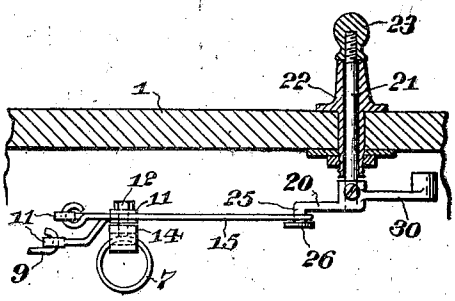


Fig. 4.

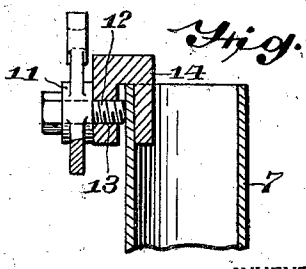
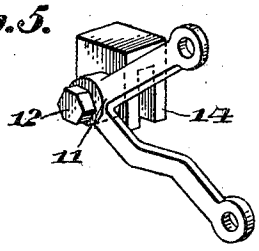


Fig. 5.



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UNITED STATES PATENT OFFICE.

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VALVE-OPERATING MEANS FOR FLUSH TANKS.

Application filed July 20, 1921. Serial No. 486,213.

To all whom it may concern:

Be it known that I, WILLIAM U. GRIFFITHS, a citizen of the United States, and a resident of Llanwellyn, in the county of Delaware and State of Pennsylvania, have invented an Improvement in Valve-Operating Means for Flush Tanks, of which the following is a specification.

My invention relates to means for operating valves for flush tanks for water closets and the like to open and close the outlet port of such tank for flushing a water closet bowl or other like structure, and it has for its general object to provide a simple, economical and efficient structure.

A further object is to provide valve operating mechanism having means whereby said mechanism may be secured readily in place ready for operation.

A further object is to provide means whereby the parts of said mechanism are adapted to be held normally in certain predetermined positions as desired.

To these and other ends my invention comprehends the embodiment of means as illustrated in the accompanying drawing forming a part of this specification and in which—

Fig. 1 is a view partly in vertical section and partly in side elevation of a flush tank provided with valve operating mechnism embodying my invention, the said mechanism being shown in side elevation;

Fig. 2 is a view showing the upper portion of said mechanism in side elevation and looking in the opposite direction from that in which Fig. 1 is taken;

Fig. 3 is a horizontal sectional view taken on the line 3—3 of Fig. 1;

Fig. 4 is a vertical sectional view taken on the line 4—4 of Fig. 1; and

Fig. 5 is a perspective view showing somewhat more clearly a detail of construction.

Referring to the drawing:—1 designates a flush tank of a water closet apparatus and 2 a port or opening which is adapted to be closed and opened by means of a valve 3. Owing to its buoyancy when this valve is once lifted from its seat it is retained by the water in the tank in an elevated position, as indicated by dotted lines at 4, until the water is discharged from the tank. The valve is provided with a rod or stem 5 which extends upwardly through guiding openings in the outer end of the bracket 6 which is secured to the over-flow pipe 7. The upper end of the rod or stem 5 extends through an eyelet or opening 8 in the lower end of a connecting link 9. The upper end of the said rod or stem is prevented from becoming disconnected from the lower end of the link 9 by means of a bend constituting an enlargement 10. The upper end of the link 9 is connected with the lower end of one of the arms of a bell crank lever 11 pivoted upon a pivot bolt 12 the inner end of which is screw threaded and in engagement with the screw threaded opening 13 in one side of a member 14 which is substantially of U-shape in cross section. This member is adapted to ride upon the upper edge of a portion of the over-flow pipe 7, as is indicated in the several figures of the drawing, particularly Figs. 2 and 4. The inner end of the pivot bolt 12 presses against the outer side of the upper end of the said pipe, the said member 14 being thereby detachably retained in position. A link 15 is connected at one end to the outer upper end of the upper arm of the bell crank lever 11. The other end of said lever is pivotally connected to the outer end of a crank arm 20 detachably secured upon the inner end of a shaft 21 revolubly supported in a bearing 22 secured within an opening in one of the sides of the flush tank 1. For the purpose of rotating the shaft 21 I have provided the usual handle 23. The outer end of the link 15 is in engagement with a portion 25 which extends at right angles to the main or body part of the crank arm 20 and is retained thereon by means of a head 26.

For the purpose of retaining the handle 23 in a substantially vertical position with the crank arm 20 and the link 15 in substantial alinement, I have provided an extension 30 which extends horizontally in alinement with the crank arm 20 and serves as a counter-balance weight with respect thereto and with respect to portions of the mechanism for operating the valve.

When it is desired to open the valve for the purpose of permitting water to flow from the flush tank through the port or outlet 2, the handle 23 is rotated which causes rotation of the shaft 21 and of the crank arm 20. Such rotation causes pivotal movement of

the bell crank 11 upon the pivot bolt 12. Pivotal movement of the bell crank lever 11 toward the left, having reference to Fig. 1 of the drawing, causes an upward movement of the connecting link 9. The eyelet portion 8 thereof contacts with the enlargement 10 at the upper end of the rod or stem 5 and lifts the valve 3 from its seat. As soon as the valve has been lifted it moves upwardly of its own accord into the dotted line position shown in Fig. 4 due to its buoyancy and remains in such position until the water in the tank has been discharged therefrom.

It will be seen that I have provided a construction comprising a number of simple parts which may be cheaply constructed and which may be easily and readily assembled and placed in position when once constructed.

Water may be supplied to the tank in any known manner.

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

1. In mechanism for opening the valve of a flush tank for water closet apparatus, the combination of an over-flow pipe, a two-armed lever, a fulcrum for said lever, an inverted U-shaped device adapted to ride upon the edge of a portion of the upper end of the said over-flow pipe, the said fulcrum having screw threaded connection with the said device and being adapted to clamp and hold the said device in position upon the upper end of the said pipe, a shaft having a crank arm projecting laterally from the inner end portion thereof, a connecting link between the said crank arm and the outer end of one of the arms of said two-armed lever, a depending handle having connection with the said shaft and being adapted to cause rotary movements of the said shaft, and connections between the other arm of said two-armed lever and the said valve whereby actuation of the said crank arm causes rotation of the said two-armed lever and actuation of the said valve, substantially as described.

2. In combination, a flush tank having an outlet port and an over-flow pipe, a valve for controlling said port, an inverted U-shaped member supported upon the upper end of said pipe with one of its legs on the inside of the same and the other on the outside thereof, a binding screw for clamping said member to said pipe, a lever pivotally mounted upon said binding screw, means for actuating said lever, and connecting means between said lever and the said valve.

In testimony that I claim the foregoing as my invention, I have hereunto signed my name this 7th day of July, A. D. 1921.

WILLIAM U. GRIFFITHS.