

924,345.

A. C. GORDON.
BALL COCK.
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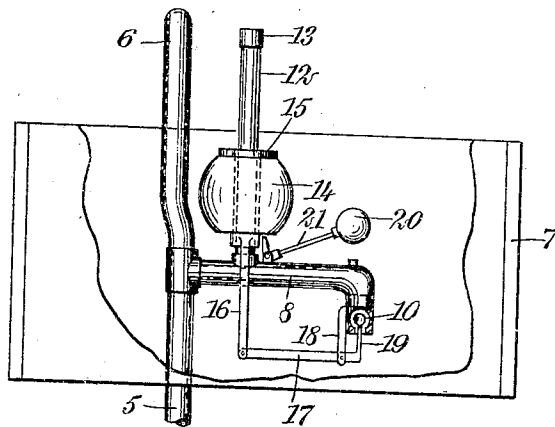


Fig. 1.

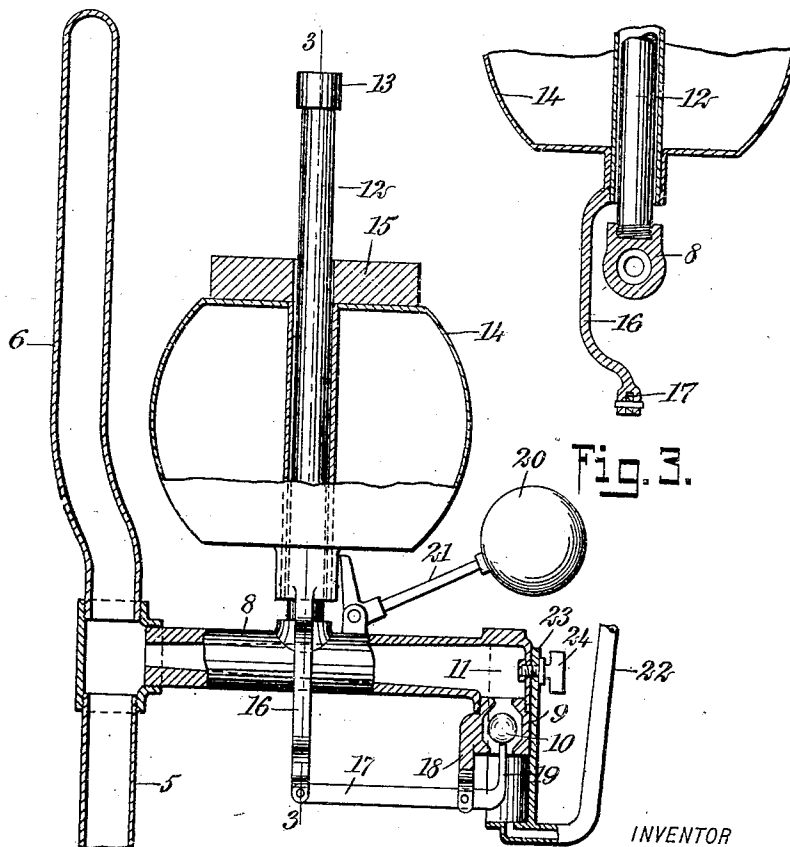


Fig. 3.

Fig. 2.

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BALL-COCK.

No. 924,345.

Specification of Letters Patent.

Patented June 8, 1909.

Application filed April 1, 1908. Serial No. 424,484.

To all whom it may concern:

Be it known that I, AL C. GORDON, a citizen of the United States, and a resident of Glens Falls, in the county of Warren and State of New York, have invented new and useful Improvements in Ball-Cocks, of which the following is a full, clear, and exact description.

This invention is an improved ball cock for flush tanks, and has for objects, among others, to provide a device of this character which is of simple construction, requiring no packing, easily installed and difficult to become deranged or disordered, and which will further fill the tank quickly without splashing, and operate to instantly cut off and turn on the water without vibration or noise. These objects I accomplish by a novel arrangement and construction of parts as hereinafter described in detail and claimed.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a side elevation of a ball cock embodying my invention, showing it located within the flush tank, the latter being broken out at the side to more clearly show the construction; Fig. 2 is a side elevation of the ball cock on an enlarged scale, and partly in central vertical section; and Fig. 3 is a central vertical section through the lower end of the float and adjacent parts on the line 3—3 of Fig. 2.

In carrying out my invention, I provide the usual supply pipe 5, with a substantially vertically arranged extension 6, which is closed at its upper end and forms an air chamber operating to prevent pounding and trembling of the pipe when the flow of water in the tank 7 is suddenly stopped.

Connected with the discharge pipe 5 at the base of the extension 6 is a nozzle 8, which is substantially horizontally disposed when the ball cock is applied, and is constructed with a conical bore with the small end thereof arranged adjacent to the supply pipe; this construction preventing the flow of the water into the tank with such force as to cause it to spatter and make a hissing or rushing noise. The enlarged and discharge end of the nozzle is downwardly directed and is provided with a valve chamber 9, having a contracted inlet and outlet serving to confine a ball valve 10. Directly over the chamber 9 the nozzle 8 carries a supplementary air chamber 11, which

takes up the impetus of the water rushing through the nozzle 8 as the valve 10 closes, and thus prevents vibration or noise in this portion of the pipe.

Fixed to the nozzle at a point intermediate its length, and substantially vertically arranged, is a guide 12, preferably in the nature of a pipe, and having a cap 13 closing its upper end, serving as a stop for a float 14 which is slidably carried on the guide. The float 14 is preferably in the form of a hollow body having a central opening and a weight 15 on its upper end, through which the guide 12 passes, the said weight operating to hold the float stationary when the ball valve 10 is raised from its seat, until the water has reached a proper height in the tank. The lower end of the float is constructed with a depending arm 16, which is off-set as shown in Fig. 3 to clear the nozzle 8, and connects with the outer end of a lever 17. The lever 17 is fulcrumed on a hanging support 18 formed as a part of the nozzle 8, and is provided at its inner end with an upwardly-directed finger 19 located directly under the ball 10 and adapted to engage the same and raise it from its seat when the float 14 drops to the position shown in Figs. 1 and 2. In order that the raising of the ball valve from its seat may be impulsive and not gradual, I provide a second and smaller float 20, carried at the outer end of a bell crank lever 21, which is pivotally supported at the junction of its arms adjacent to the lower end of the guide-tube 12. The inner arm of this lever serves as a stop, for engaging under the float 14 as the water sinks in the tank, and retains the said float until the water sinks below the float 20, when the latter drops, disengaging the lever from the float 14 which, in turn, drops and instantly lifts the valve.

In Fig. 2 I have shown an attachment for the ball cock, when the same is used in connection with a depressed tank or a siphon jet bowl, which consists of a pipe 22 leading from a semi-tubular member 23, detachably connected to the side of the discharge end of the nozzle as by a screw 24. In this relation the water, when the valve is opened, is forced into the pipe with sufficient force to start the latter running.

While the preferred construction of my improved ball cock is as hereinbefore described and shown in the accompanying drawings, I nevertheless regard the precise embodiment as immaterial, and consider myself entitled

to such modifications as fall within the scope of the annexed claims.

Having thus described my invention, I claim as new and desire to secure by Letters

5 Patent:

1. In a device of the character described, a supply pipe having an extension providing an air chamber, a nozzle connected with said pipe at the base of said extension, a ball 10 valve confined within the discharge end of the nozzle, a guide carried on the nozzle, a float slidable on the guide having a depending arm, and a lever fulcrumed on the nozzle and connected with said arm, having an up- 15 wardly-turned finger for engaging said ball valve and lifting it from its seat when the float descends on the guide.

2. In a device of the character described, a supply pipe having an extension providing 20 an air chamber, a nozzle connected to the supply pipe at the base of said extension, a valve confined within the discharge end of the nozzle, means for automatically operating said valve, and an air chamber carried by 25 the nozzle above the valve for the purpose described.

3. In a device of the character described, a supply pipe, a nozzle connected therewith, having a valve confined within the discharge 30 end thereof, an air chamber carried by the nozzle above said valve, and float-controlled means carried by the nozzle for automatically opening said valve.

4. In a device of the character described, a 35 supply pipe having an extension providing an air chamber, a nozzle connecting with said pipe below said extension, having a conical bore with the small end thereof arranged adjacent to the supply pipe, a valve chamber 40 formed at the discharge end of the nozzle, a

ball valve confined within the chamber, an air chamber carried by the nozzle upon said valve chamber, a guide rigidly attached to the nozzle, a weighted float slidable on said guide, having a depending arm, and a lever 45 fulcrumed on said nozzle and connected with said arm, having an upwardly-directed finger adapted to raise the valve from its seat when the float drops.

5. The combination of a nozzle having a 50 guide arranged thereon, a valve at the discharge end of the nozzle, a float slidable on the guide, having means for lifting the valve, and a second float having means for engaging under and arresting the movement of the 55 first-mentioned float prior to the raising of the valve.

6. The combination of a tank, a water supply pipe leading thereto, having a controlling 60 valve, a float having means for raising the valve when the water in the tank sinks below a predetermined level, and float-controlled means for arresting the float before said level is reached and thereafter releasing the float 65 after a further sinking of the level of the water in the tank.

7. The combination of a nozzle having a controlling valve, a float having means for 70 raising the valve from its seat, and a pipe leading from a point in alinement with the discharge end of the nozzle and detachably connected therewith.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

AI CLAUD GORDON.

Witnesses:

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M. C. BROWN.