

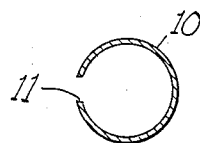
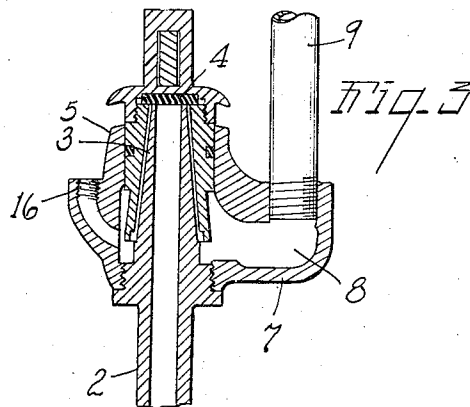
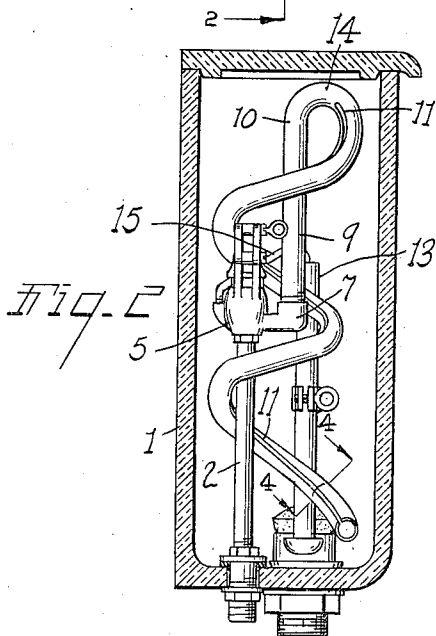
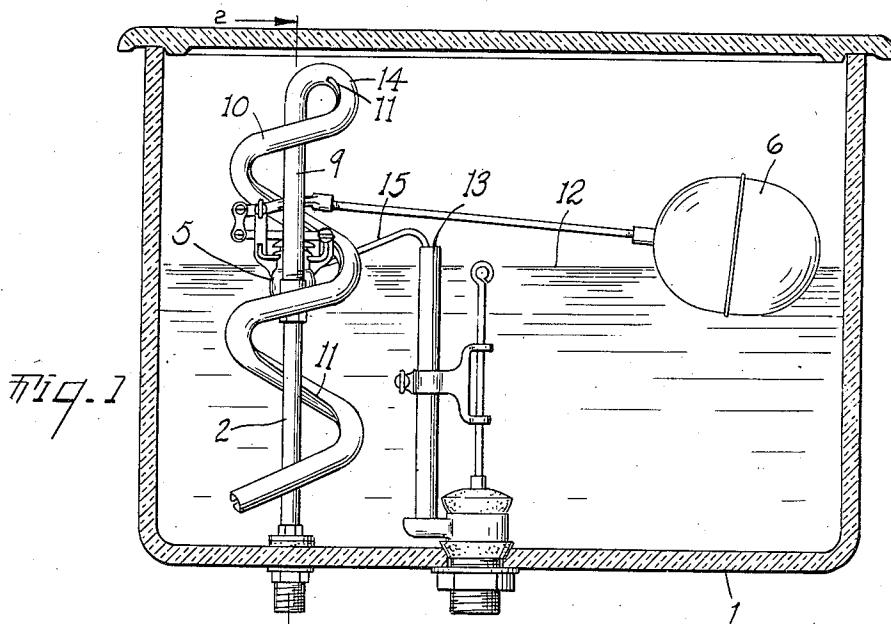
Feb. 14, 1939.

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2,146,794

BALL COCK

Filed Aug. 13, 1938



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2,146,794

BALL COCK

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Application August 13, 1938, Serial No. 224,680

10 Claims. (Cl. 137—104)

The main object of this invention is to provide a ball cock or valve assembly for flushing tanks which effectively overcomes the possibility of back-siphonage of water from the tank into the supply system.

A further object is to provide a structure accomplishing this result which, while efficient, is very quiet in operation, is simple and economical in its parts, and is not likely to become clogged or defective in use.

Further objects pertaining to details and economies of the invention will definitely appear from the description to follow. The invention is defined in the claims.

A structure which embodies the features of the invention is clearly illustrated in the accompanying drawing in which:

Fig. 1 is a side elevation of my improved assembly arranged in operative relation within a flushing tank, the tank being shown in section.

Fig. 2 is an elevation of the assembly looking from the left of Fig. 1, the tank being sectioned on line 2—2 of Fig. 1.

Fig. 3 is a fragmentary vertical section through the valve casing and valve.

Fig. 4 is a detail section on line 4—4 of Fig. 2.

In the embodiment of the invention illustrated in the accompanying drawing 1 represents a flushing tank and 2 the supply pipe or riser within the tank which is connected to a suitable water supply. This is mounted, as is customary, upon the bottom of the tank. The supply pipe in the embodiment illustrated terminates in an externally conical tip portion 3, the end of which constitutes a seat for the valve 4 which is reciprocatingly mounted in the valve casing 5 mounted on the pipe 2.

The float 6 is operatively connected to the valve but as these operating connections form no part of this invention they are not further described.

The valve casing is provided with a lateral discharge arm 7 having a passage 8 therein. Water is discharged from this passage 8 through the delivery pipe or conduit which comprises the upright or riser section 9, this section being imperforate, and the downwardly directed spiral section 10, the lower end of which is adjacent the bottom of the tank, as illustrated. This spiral delivery section has a longitudinal slot 11 on its inner side, the upper end of the slot being well above the normal level of the water indicated at 12 and well above the top of the overflow pipe 13. The spiral section is joined to the vertical section by the curved portion 14 so that water

issuing or delivered through the upright imperforate section is directed downwardly into the spiral section and the centrifugal force of the discharged water holds it against the outer wall of the spiral section preventing its issue through the slot. At the same time air is free to enter through the slot throughout the entire length of the spiral section.

With this arrangement of parts it is impossible for any vacuum that may occur in the supply system to draw water from the tank, and this is true even though the system may be subject to alternate pressures and vacuum while the inlet valve is open.

The refill tube 15 is connected to the valve casing at 16. The venting opening 11 of the discharge conduit 10 is of such character that it is practically impossible for it to become clogged.

A further advantage of the structure is that it is quiet in operation and hissing noise is reduced to a minimum as the discharge conduit has no restriction therein but is open for free flow of water therethrough from the valve casing.

I have illustrated and described my improvements in an embodiment which I have found highly satisfactory. I have not attempted to illustrate or describe certain modifications or adaptations to other forms of ball cocks as I believe this disclosure will enable those skilled in the art to embody or adapt my invention as may be desired.

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

1. In a valve assembly for flushing tanks, the combination with a supply pipe, of an inlet valve operatively associated therewith, a valve casing mounted on the supply pipe and having a valve chamber provided with a lateral delivery passage, and a delivery pipe communicating with said passage and having an upright imperforate section terminating in a spiral depending section embracing the valve casing and the supply pipe and having a longitudinal slot extending from said upright portion and disposed on the inner side of the spiral whereby the centrifugal force of the discharged water acts to prevent the discharged water issuing through the slot.

2. In a valve assembly for flushing tanks, the combination with a supply pipe and an overflow pipe, of an inlet valve therefor mounted on said supply pipe, a delivery pipe communicating with said valve and comprising an imperforate riser section extending substantially above the top of the overflow pipe and a downwardly di-

rected spiral section embracing the supply pipe and the inlet valve and having a longitudinal slot in its inner side, the upper end of the slot being substantially above the upper end of the overflow pipe.

3. In a valve assembly for flushing tanks, the combination with a supply pipe and an overflow pipe, of an inlet valve therefor mounted on said supply pipe, a delivery pipe communicating with said valve and comprising an imperforate riser section extending substantially above the top of the overflow pipe and a downwardly directed spiral section embracing the supply pipe and having a longitudinal slot in its inner side, the upper end of the slot being substantially above the upper end of the overflow pipe.

4. In a valve assembly for flushing tanks, the combination with a supply pipe, of an inlet valve operatively associated therewith, and a delivery pipe for said inlet valve having an upright imperforate section terminating in a spiral depending section having a longitudinal slot extending from said upright portion and disposed on the inner side of the spiral whereby the centrifugal force of the discharged water acts to prevent the water issuing through the slot.

5. In a valve assembly for flushing tanks, the combination with a supply pipe and an overflow pipe, of an inlet valve, a delivery pipe communicating with said inlet valve and comprising an imperforate riser section extending substantially above the top of the overflow pipe and a downwardly directed spiral section having a longitudinal slot in its inner side, the upper end of the slot being substantially above the upper end of the overflow pipe.

6. In a valve assembly for flushing tanks, the

combination with a supply pipe, of an inlet valve, and a downwardly directed delivery conduit for said valve embracing the valve and the supply pipe and having a longitudinal slot on the inner side of the spiral whereby the centrifugal force of the discharged water acts to prevent the water issuing through the slot and air may be admitted thereto, the upper end of the slot being substantially above the valve.

7. In a valve assembly for flushing tanks, the combination with an inlet valve, of a downwardly directed spiral delivery conduit for said valve having a longitudinal slot in its inner side, the upper end of the slot being substantially above the valve.

8. In a valve assembly for flushing tanks, the combination with a supply pipe and an overflow pipe, of an inlet valve controlling the delivery from said supply pipe, and a downwardly directed spiral delivery conduit for said valve having a longitudinal slot in its inner side, the upper end of the slot being substantially above the upper end of the overflow pipe.

9. In a valve assembly for flushing tanks, the combination of an inlet valve, and a downwardly directed delivery conduit for said valve having a longitudinal slot on the inner side of the spiral whereby the centrifugal force of the discharged water acts to prevent the water issuing through the slot and air may be admitted thereto.

10. In a valve assembly for flushing tanks, the combination with an inlet valve, of a downwardly directed spiral delivery conduit for said valve having a longitudinal slot in its inner side, the upper end of the slot being above the high water level of the tank.

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