

S. F. FAIRBANK.
 FLUSH VALVE.
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1,135,003.

Patented Apr. 13, 1915.

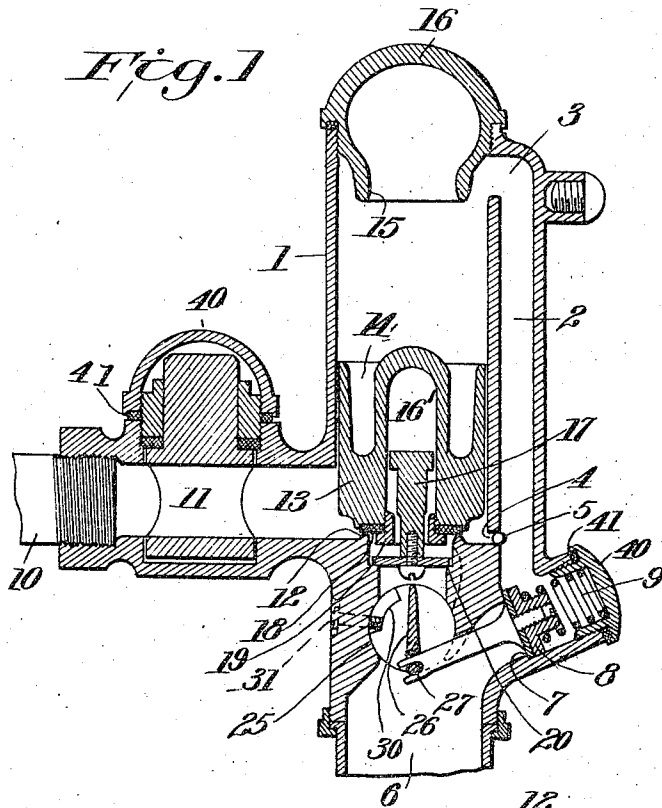


Fig. 2.

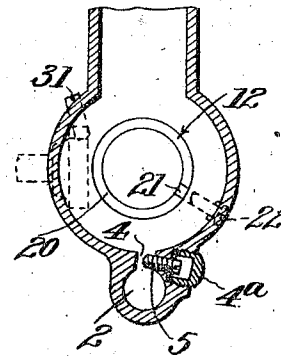


Fig. 3.

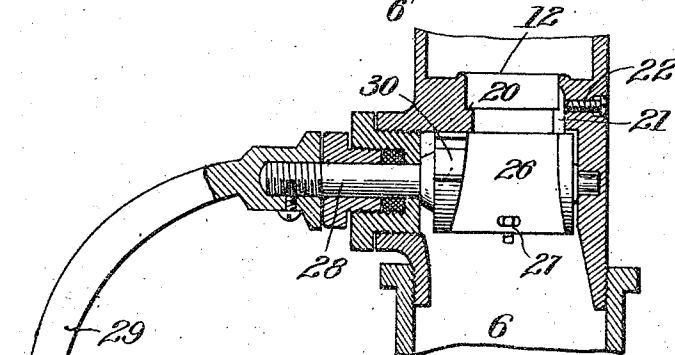
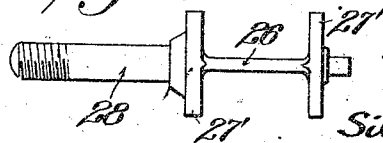


Fig. 4.



Witnesses

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FLUSH-VALVE.

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To all whom it may concern:

Be it known that I, SILAS F. FAIRBANK, a citizen of the United States, residing at Ogden, Utah, have invented certain new and useful Improvements in Flush-Valves, of which the following is a specification.

My invention relates to a simplified and improved construction of automatic, delayed-closing flush valves. The characteristics and advantages of the invention will be pointed out hereafter in connection with a detailed description of the accompanying drawing, which illustrates one exemplifying embodiment of the invention.

It is to be understood that the invention is capable of embodiment in different forms.

Figure 1 is a vertical section. Fig. 2 is a horizontal section just above the main valve seat. Fig. 3 is an enlarged vertical section through the main valve and adjacent parts, in a plane at right angles to Fig. 1, and Fig. 4 is a detail of the wing valve or flush valve.

Reference character 1 designates a main cylinder having a separate parallel water passage 2 communicating with the cylinder near the top by means of port 3 and at the bottom by port 4. The opening of port 4 is regulated by a screw 5. Passage 2 continues past port 4 and communicates with outlet of flush pipe 6 through a valve seat 7, which is normally closed by a valve 8, which may be called for identification a "release valve." This is held to its seat by a spring 9. Water enters from the supply pipe 10 through a regulating valve 11 which is adjusted in accordance with local conditions of pressure and flow.

At the bottom of main cylinder 1 is main valve-seat 12, with which main valve 13 co-operates. This main valve has on top an annular recess 14, which co-operates with the downwardly-extending flange 15 of cap 16. The main valve also has a central recess 16', in which is loosely mounted refill valve 17. The main valve washer 18 is secured to the bottom of the main valve by a tubular nut 19, and this nut at the same time serves as a stud to engage the head or refill valve 17 and limit its downward movement. The refill valve co-operates with a refill valve seat 20 slightly below the main seat. Just below the main valve seat and extending past the refill valve seat, is a channel or by-pass 21 for refill purposes, as will be explained. The effective opening of this

passage is controlled by a screw 22. Below the refill valve, in a transverse cylindrical bore 25, is a valve which may be identified as a flush valve or shutter valve 26. The thin central part of this valve normally stands vertical, as shown in Fig. 1, and is provided with a member 27 engaging the stem of release valve 8. Shutter valve 26 has annular heads 27' and a stem 28, to which the flush handle 29 is secured. One of the heads is provided with an arc-shaped notch 30, about an eighth of its circumference and in this engages the end of stop screw 31.

To flush, handle 29 is pulled, rotating shutter-valve 26 left-handed, as seen in Fig. 1. The shutter-valve thus closes the main outlet and at the same time release valve is opened. Pressure is thus relieved above main valve 13, which rises to the top, and is cushioned and stopped by air contained in cap 16 compressed by means of the water seal afforded by flange 15 entering annular recess 14 of the main valve. A body of water is thus placed under the main valve and when the handle is released, shutter-valve 26 returns to vertical position and this body of water is discharged through the flush pipe 6 until the main valve 13 can descend by reason of supplying of water above it through port 4 and passage 2.

When the main valve was raised, refill valve 17 dropped and as the main valve again approaches its seat, refill valve 17 first seats and cuts off the main flow and refilling is then accomplished by water lying below the main valve passing through by-pass 21. Finally, the main valve seats and overflow is cut off after refilling has been accomplished. Coöperation of the refill valve with the main valve also insures easy seating of the latter.

Suitable caps 40 and washers 41 are provided to cover the stem of valve 11 and the spring of release valve 8 and adjusting screw 5.

I claim:—

1. In a flush valve, the combination of a body having a main valve cylinder and a by-pass communicating with said cylinder at top and bottom, a main valve freely movable in said cylinder and having an annular top recess, an air-dome in the top of the cylinder and a flange adjacent thereto to co-operate with the recess in said valve, a main valve seat at the bottom of the cylinder, a

shutter valve below said seat, a release valve at the bottom of said by-pass and a connection between said shutter valve and said release valve.

- 5 2. In a flush valve, the combination of a body having a main valve cylinder and a by-pass communicating with said cylinder at top and bottom, a main valve freely movable in said cylinder and having an annular top
10 recess, an air-dome in the top of the cylinder and a flange adjacent thereto to cooperate with the recess in said valve, a main valve seat at the bottom of the cylinder, a

shutter valve at the bottom of said by-pass and a connection between said shutter valve 15 and said release valve, the main valve being provided with a bottom central recess, a refill valve below the main valve mounted in said bottom recess, and a refill valve seat between said main valve seat and said shutter 20 valve.

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Witnesses:

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