(No Model.)

C. H. HARKINS.

SIPHON VALVE FOR WATER CLOSETS.

No. 397,359. Patented Feb. 5, 1889.

Fig. I.

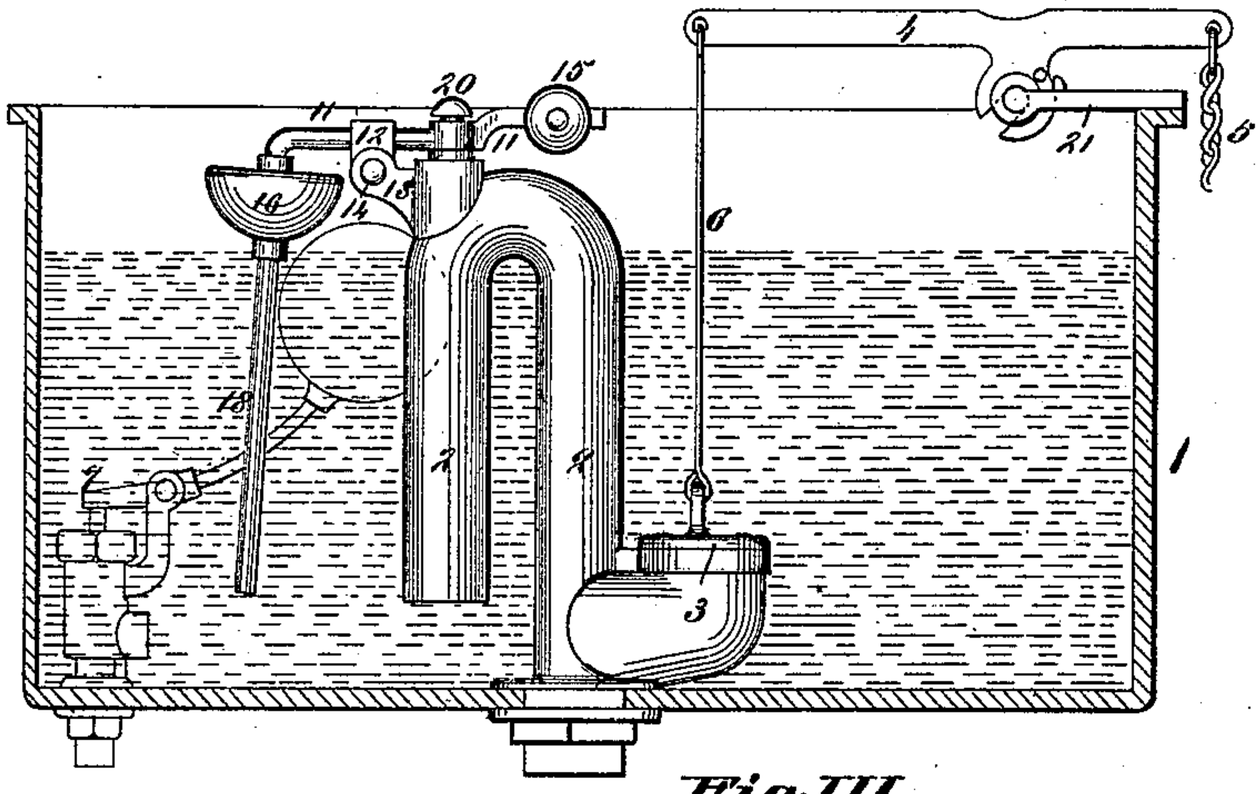


Fig. II.

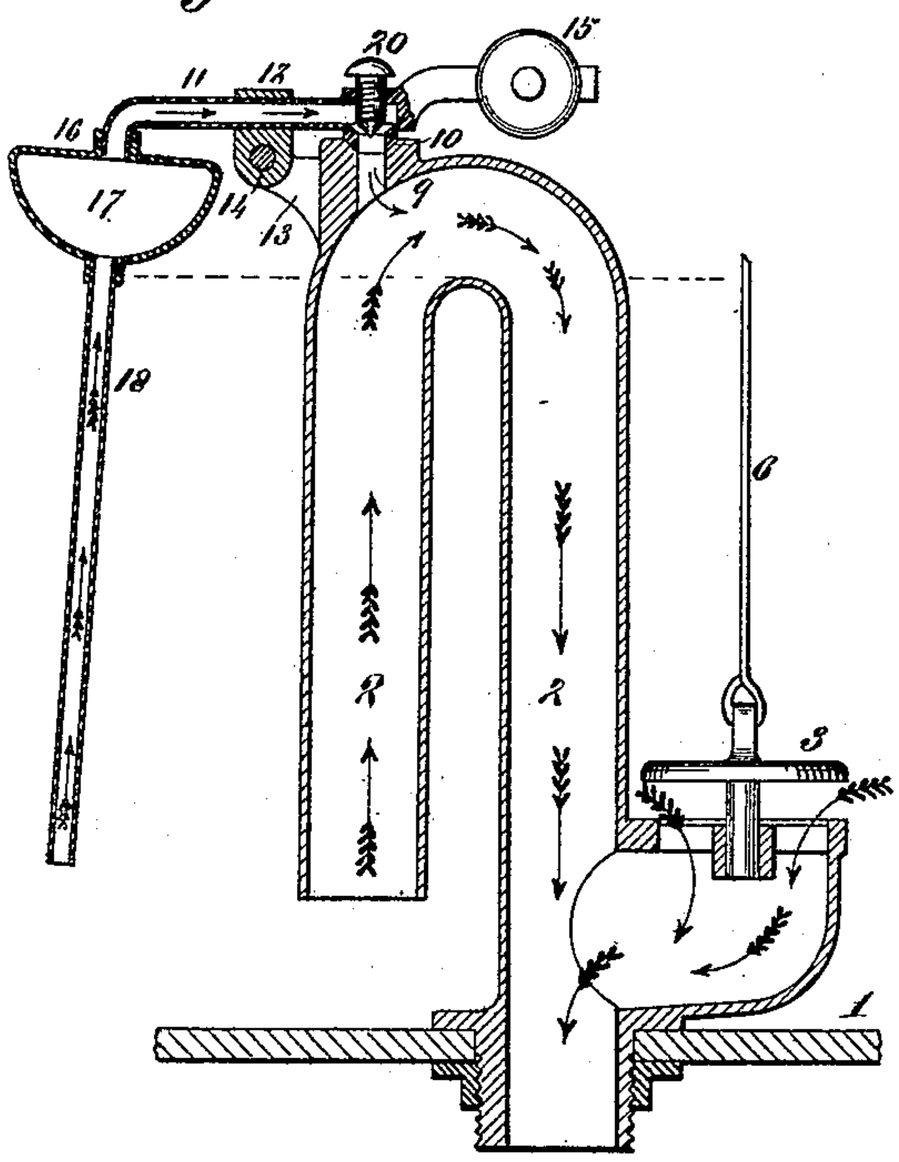
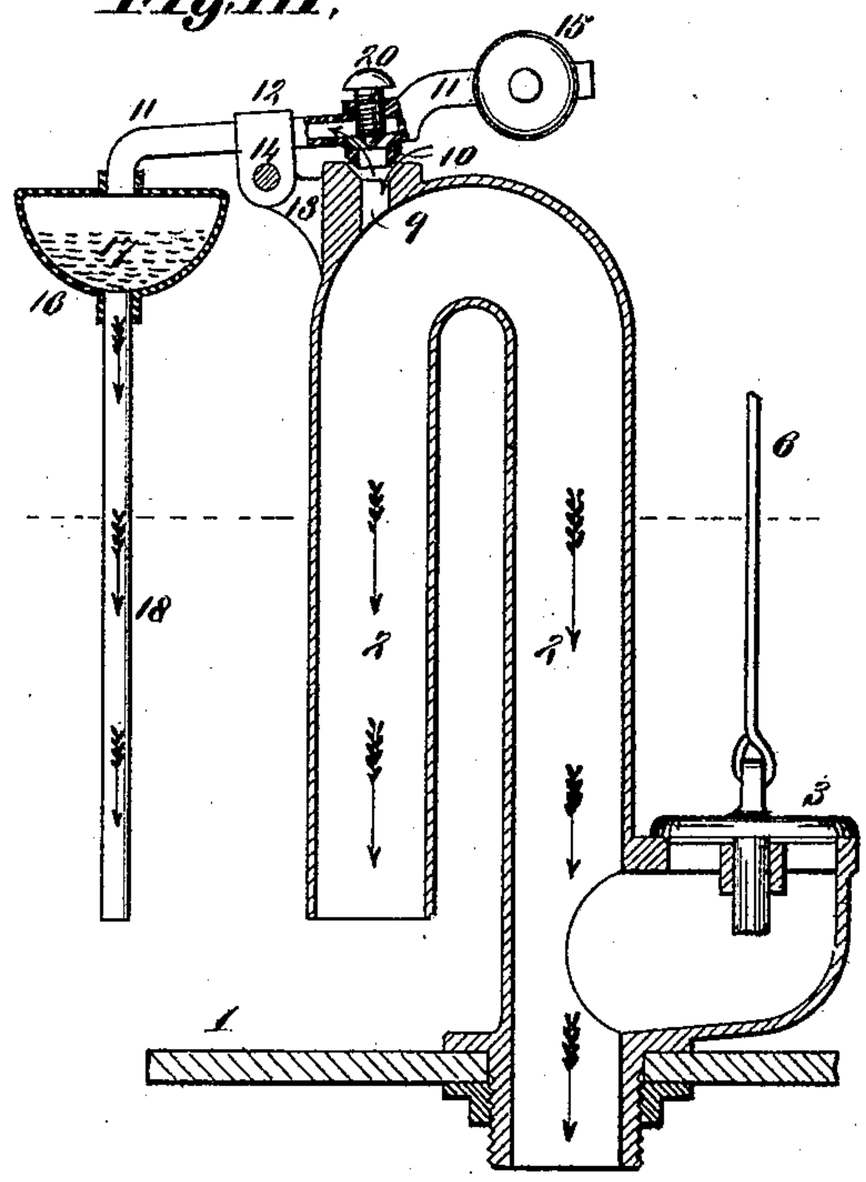


Fig. III.



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UNITED STATES PATENT OFFICE.

CHARLES H. HARKINS, OF ST. LOUIS, MISSOURI.

SIPHON-VALVE FOR WATER-CLOSETS.

SPECIFICATION forming part of Letters Patent No. 397,359, dated February 5, 1889.

Application filed September 17, 1888. Serial No. 285,835. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. HARKINS, of the city of St. Louis, in the State of Missouri, have invented a certain new and useful Improvement in Siphon-Valves for Water-Closets, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, and in which—

Figure I is a vertical section through the tank, showing the other parts in elevation. Fig. II is an enlarged vertical section of the siphon and the siphon-breaking mechanism, showing the valve closed; and Fig. III is a similar view showing the valve opened.

My invention relates to a device for breaking the siphon after a desired flow of water; and my invention consists in features of novelty hereinafter fully described, and pointed out in the claims.

Referring to the drawings, 1 represents the water-tank; 2, the siphon arranged within the tank; 3, the main valve of the siphon; 4, the lever for operating the valve; 5, the chain, and 6 the rod or wire connecting the lever to the valve 3.

7 represents the supply-valve of the tank, constructed as usual.

The upper portion of the siphon has a perforation or port, 9, forming an air-passage, over which seats the valve 10 on a lever, 11, preferably pivoted at 14 by means of a block or clip, 12, to an arm, 13, on the siphon, Fig. II. From the valve 10 toward the pivot and beyond this pivot the lever is made hollow, as shown in Fig. II. Back of the valve 10 the lever is preferably solid, and is provided with an adjustable counterbalance-weight, 15. Connected to the lever forward of the pivot is a bowl, 16, forming a water-chamber, 17, and extending downwardly from this bowl into the tank is a pipe, 18. The bowl 16 might of course be a mere enlargement of the pipe 18; but I have shown it of a separate piece with the parts secured together.

The normal position of the parts is that shown in Fig. II, the weight 15 holding the valve 10 closed.

When the valve 3 is opened, the siphon is started, as usual, and the water passes in the direction indicated by the arrows in Fig. II. The water, continuing to flow through the siphon, sucks or draws the air from the chamber 17, as shown by the featherless arrows in Fig. II, the valve 10 being made hollow, as shown, to permit this passage of the air. As the air is thus taken from the chamber 17 the water passes upward through the pipe 18, as shown by the arrows in Fig. II, and fills or partially fills the chamber 17. The weight of the chamber is thus increased, and as soon as it exceeds the weight of the counter-balance 15 the lever 11 will rock on its pivot 14 from the position shown in Fig. II to the position shown in Fig. III, and the valve 10 will be opened, thus breaking the siphon. As soon as the siphon is broken the water will commence running out of the chamber 17, as shown by the arrows in Fig. III, seeking its level in the tank, and as soon as the weight in the chamber becomes less than that of the counter-balance 15 the valve will close again, and the device is again ready for action.

For the purpose of regulating the amount of the flow of water through the siphon, I arrange a valve, 20, in the lever 11, preferably just over the opening in the valve 10, this valve consisting, preferably, of a screw with a conical point seated in the opening of the valve 10; and it will be seen that by raising or lowering this valve the opening through the valve 10 will be increased or diminished, thus regulating the passage of the air from the chamber 17, and accordingly regulating the time that it takes to exhaust this air and allow the chamber to become heavy enough to overbalance the weight 15. In this manner I produce a very cheap and effectual mechanism for breaking the siphon and regulating the flow of the wash.

I claim as my invention—

1. The combination, with the tank for water, of a siphon having an air-passage leading thereinto, a movable chamber communicating with the water in said tank and with said siphon, and a valve for controlling said air-passage connected to said movable chamber, substantially as set forth.

2. In combination with a water-tank and a siphon having a port, a valve controlling said port, and a chamber having communication with the siphon and with the water in the

tank and connected to said valve, whereby the action of the siphon exhausts the air from said chamber, and the latter is loaded with water to operate said valve, substantially as and for the purposes set forth.

3. The combination of the tank, the siphon having a port, a pivoted valve controlling said port, a chamber having communication with said siphon and connected to said valve for operating it, and a pipe connected to the chamber and extending into the tank, substantially as and for the purposes set forth.

4. The combination of a tank, a siphon having a perforation, a valve controlling the perforation of the siphon, a hollow pivoted lever to which the valve is secured, a chamber on the lever, and a pipe secured to the chamber and extending into the tank, substantially as set forth.

5. The combination of a tank, a siphon having a perforation, a valve controlling the perforation of the siphon, a weighted pivoted lever to which the valve is secured, a chamber communicating with said siphon secured to the lever, and a pipe secured to said chamber, substantially as and for the purpose set forth.

6. The combination, with a tank, of a siphon having a perforation, a hollow valve controlling the perforation of the siphon, a hollow pivoted and weighted lever, a chamber communicating with the hollow lever, a pipe communicating with the chamber and extending into the tank, and a regulating-valve, all substantially as and for the purpose set forth.

CHAS. H. HARKINS.

In presence of—
BENJN. A. KNIGHT,
EDW. S. KNIGHT.