B. S. HODGKINS.

FLUSH TANK CONTROL.

APPLICATION FILED NOV. 30, 1910.

990,132. **Patented Apr. 18, 1911.**

Fig. 1.

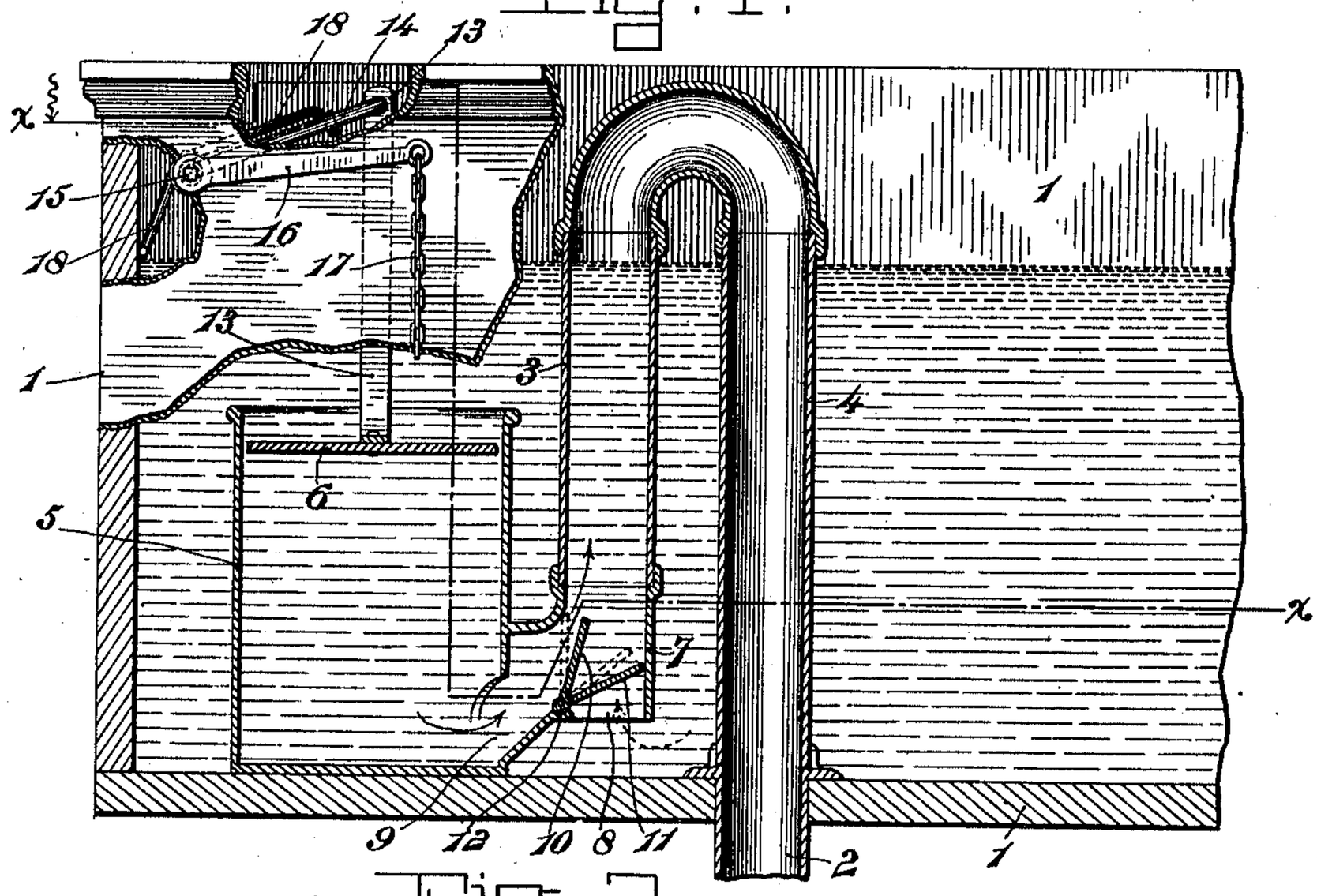
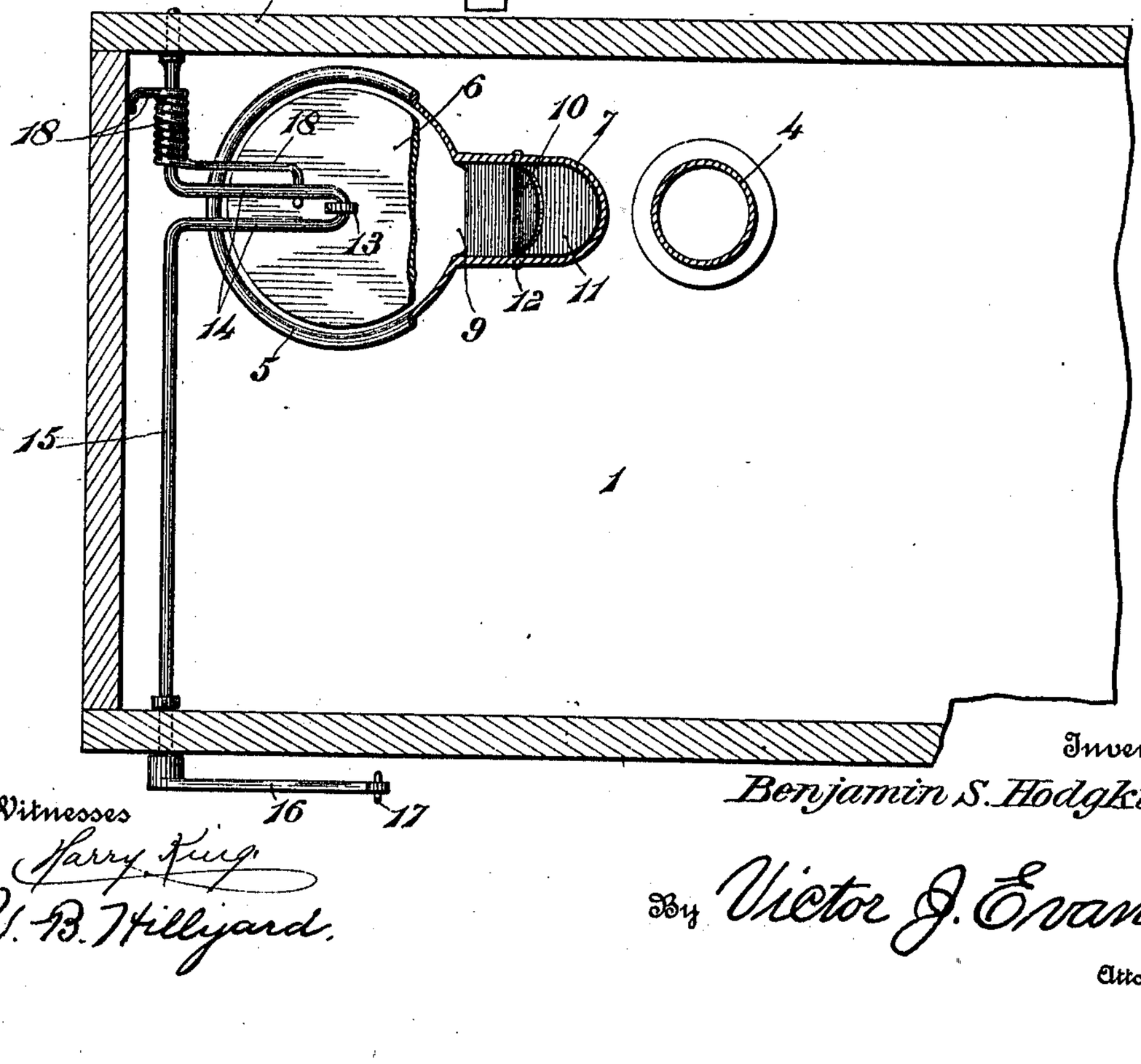


Fig. 2.



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FLUSH-TANK CONTROL.

990,132. Specification of Letters Patent. Patented Apr. 18, 1911.

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To all whom it may concern:

Be it known that I, BENJAMIN S. HODGKINS, a citizen of the United States, residing at Lewiston, in the county of Androscoggin and State of Maine, have invented new and useful Improvements in Flush-Tank Control, of which the following is a specification.

The present invention provides a mechanism for controlling the outflow of water from a tank used in connection with lavatories and toilets for flushing bowls and other parts to be cleansed, the purpose being to provide a mechanism which is comparatively silent in operation, free from complex parts and so arranged as to prevent a leaky joint between the flush pipe and the tank.

The invention consists of the novel features, details of construction and combination of parts, which hereinafter will be more particularly set forth, illustrated in the accompanying drawing, and pointed out in the appended claims.

Referring to the drawing, forming a part of the application, Figure 1 is a vertical central section of part of a flush tank and flush controlling mechanism embodying the invention. Fig. 2 is a top plan view of the parts illustrated in Fig. 1, the siphon and valve being in horizontal section on the line *x*—*x* of Fig. 1.

Corresponding and like parts are referred to in the following description, and indicated in all the views of the drawing, by the same reference characters.

The numeral 1 designates a flush tank such as is commonly used in connection with closet bowls and the like in lavatories and toilets. A flush pipe 2 connects with the bottom of the tank and extends to the bowl or other part to be flushed. Within the tank is arranged a siphon embodying a short leg 3 and a long leg 4, the latter connecting with the flush pipe 2. A cylinder 5 or like part is arranged within the tank and a plunger 6 is adapted to operate therein, said plunger being sufficiently loose within the cylinder to admit of water passing between the outer edges of the plunger and the walls of the cylinder. A casing 7 connects the lower end of the short leg 3 of the siphon with the lower portion of the cylinder 5 and has an opening 8 in its lower end. A flap valve is adapted to control the opening 8 and an opening 9, the latter affording communication between the cylinder and the casing. The flap valve comprises two wings or members 10 and 11 which are upwardly diverged and pivoted at 12. The wing or member 11 is adapted to control the opening 8, whereas the wing or member 10 controls the opening 9. Both openings 8 and 9 are not closed at the same time. When the valve is moved so as to close the opening 9 water may pass freely from the tank 1 into the short leg of the siphon through the opening 8 and when the opening 8 is closed water may pass from the cylinder 5 into the siphon upon quickly depressing the plunger 6 so as to prime or start the siphon when it is required to flush the bowl or other part.

A stem 13 is connected at its lower end with the plunger 6 and projects upwardly and is attached at its upper end to an arm 14 of a shaft 15, which is journaled in opposite sides of the tank 1. One end of the shaft 15 projects beyond a side of the tank and has an arm 16 to which a chain 17 or other part is connected. A spring 18 of helical form is mounted upon the shaft 15 and has oppositely extending arms one of which engages with a part of the tank and the other with the crank 14 so as to hold the plunger 6 elevated. Upon pulling upon the chain or like part 17 the shaft 15 is turned and the plunger 6 depressed, thereby increasing the tension of the spring 18 and upon releasing the part 17 the plunger 6 is elevated by the action of the spring 18, as will be readily understood. As the plunger 6 moves downwardly in the cylinder 5 the water contained in said cylinder below the plunger is forced into the siphon so as to fill and start the same, the water continuing to flow from the tank through the siphon and flush pipe to the part to be flushed, the flow ceasing only when the level of the water in the tank uncovers the lower end of the valve casing 7. When the plunger 6 is moved downwardly the flap valve shifts automatically to cover the opening 8 and to uncover the opening 9 and when the plunger moves upwardly the valve is shifted by the combined action of the upflow of the water from the tank into the casing 7 through the opening 8 and the suction created upon the member 10 by the upward movement of the plunger 6. The plunger 6 necessarily moves upwardly at a comparatively slow rate of speed because of the small space formed between the outer edge of the plunger and the inner walls of the cylinder. When the plun-

ger is operated by a quick pull upon the part 17 all or nearly all the water is forced from the lower portion of the cylinder 5 into the siphon since but very little water escapes through the space formed between the plunger and inner walls of the cylinder.

From the foregoing description, taken in connection with the accompanying drawing, the advantages of the construction and of the method of operation will be readily apparent to those skilled in the art to which the invention appertains, and while I have described the principle of operation of the invention, together with the device which I now consider to be the embodiment thereof, I desire to have it understood that the device shown is merely illustrative, and that such changes may be made when desired as are within the scope of the claims appended hereto.

Having thus described the invention what is claimed as new, is:—

1. In a flush tank having a flush pipe, a siphon arranged within the tank and having its long leg connected with the flush pipe, a cylinder, a casing connecting the cylinder with the short leg of the siphon and having two openings, the one leading into the flush tank and the other leading into the cylinder, a flap valve comprising diverged members arranged to alternately close the openings of said casing and automatically actuated by the flow of water through said casing, a plunger arranged to operate in the cylinder and having a small space for the passage of water thereby, means for depressing the plunger to prime and start the siphon, and means for automatically returning the plunger to normal position.

2. In combination a flush tank, a flush pipe connected therewith, a siphon located within the flush tank and having its long leg connected with the flush pipe, a cylinder, a casing connecting the lower portion of the cylinder with the lower end of the short leg of the siphon and having two openings for establishing communication between the siphon and the cylinder and flush tank, a pivoted flap valve comprising diverged wings arranged to alternately close the openings of said casing and automatically operated by the flow of water through said casing, a plunger loosely fitting the cylinder and arranged to operate therein, a shaft mounted upon the flush tank and having an end extending beyond a side thereof and provided with an arm, said shaft having a second arm which is connected with the stem of the plunger, a pull device connected with the outer arm of the shaft, and a spring for holding the plunger elevated and returning the same to normal position when released after being operated.

In testimony whereof I affix my signature in presence of two witnesses.

BENJAMIN S. HODGKINS.

Witnesses:
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LILLIAN H. READE.