

J. L. FRUIN.
FLUSHING TANK.
APPLICATION FILED APR. 13, 1909.

1,005,189.

Patented Oct. 10, 1911.

2 SHEETS—SHEET 1.

Fig. 1.

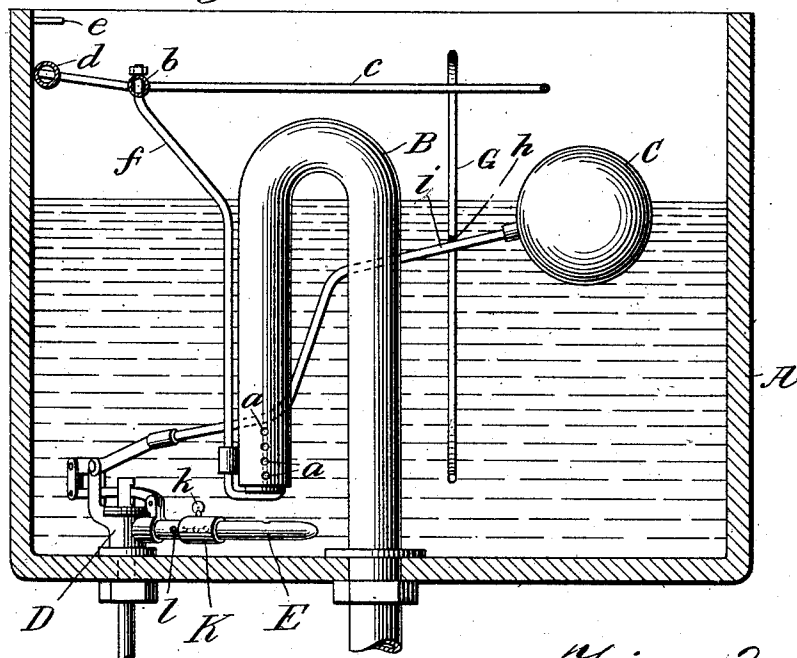


Fig. 2.

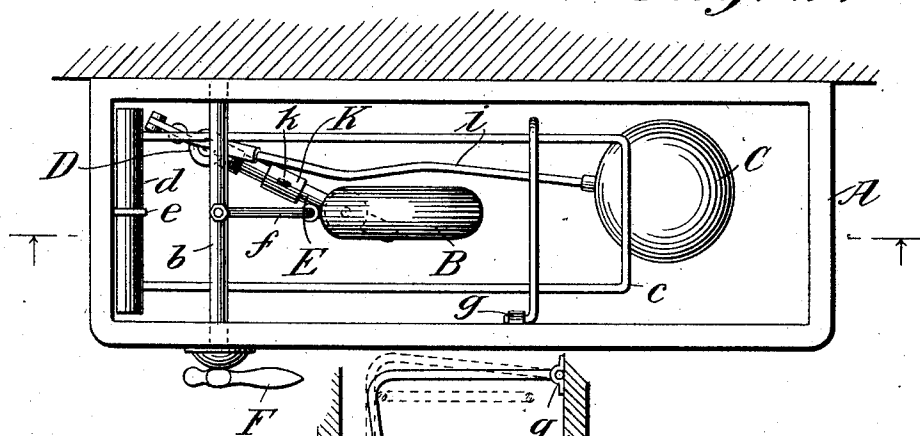
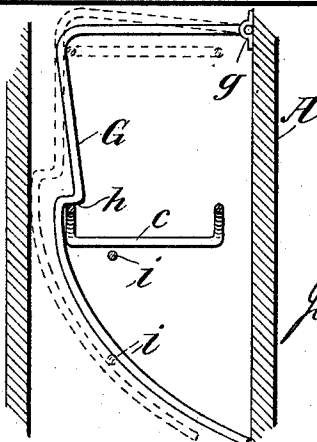


Fig. 5.



WITNESSES

John L. Fruin
Helen G. Murphy

John L. Fruin INVENTOR

BY *W. P. Pette Jr*
his ATTORNEYS

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2 SHEETS—SHEET 2.

Fig. 3.

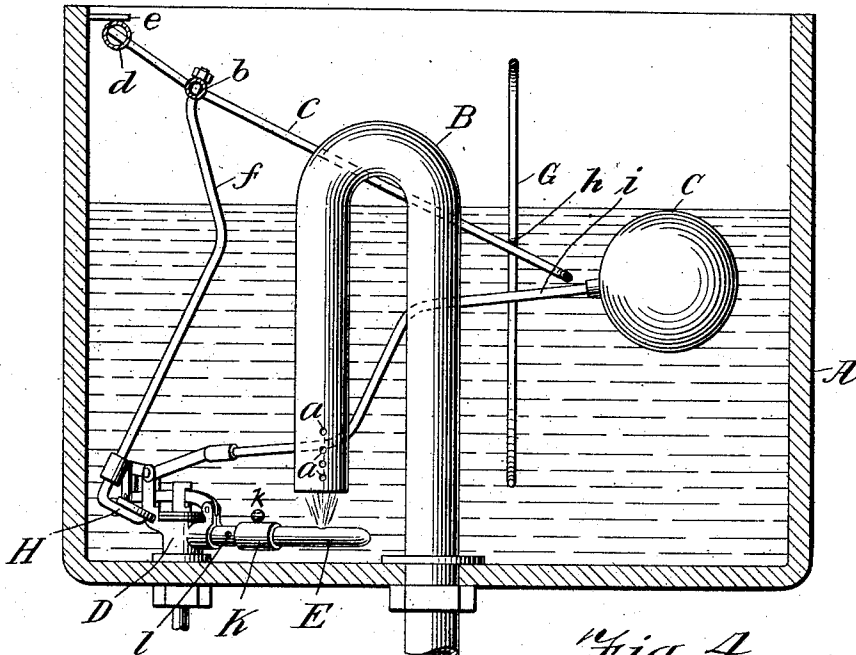
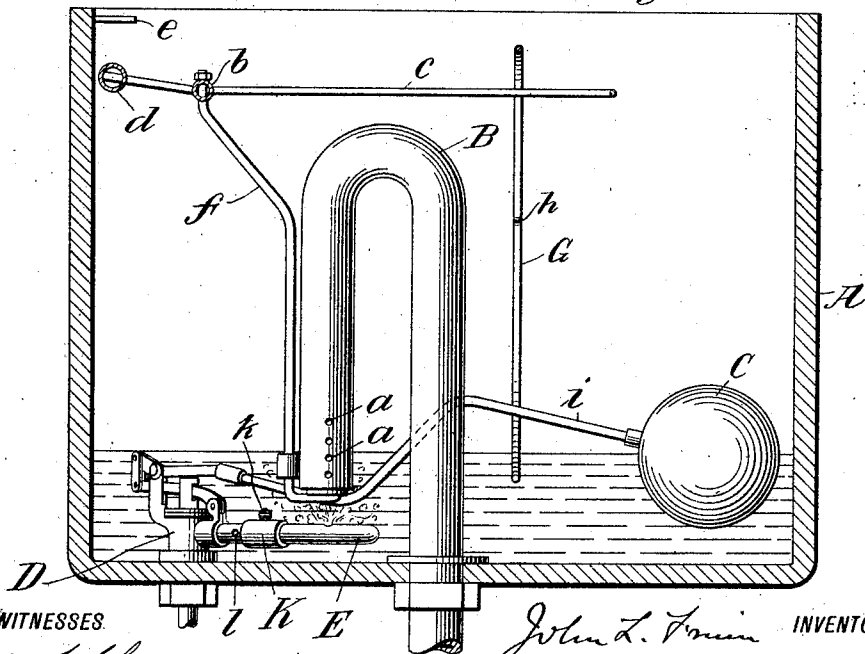


Fig. 4.



WITNESSES

John L. Fruin
John L. Fruin

John L. Fruin INVENTOR

BY *Dr. P. P. Press*
 ATTORNEY

UNITED STATES PATENT OFFICE.

JOHN L. FRUIN, OF NEW YORK, N. Y.

FLUSHING-TANK.

1,005,189.

Specification of Letters Patent.

Patented Oct. 10, 1911.

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To all whom it may concern:

Be it known that I, JOHN L. FRUIN, a citizen of the United States of America, and a resident of Brooklyn borough, New York city, and State of New York, have invented certain new and useful Improvements in Flushing-Tanks, of which the following is a specification.

My invention relates to that class of flushing tanks which is known as a siphon jet tank, and the object of my invention is to provide such a tank with a suitable and effective cut off or deflector which, at the proper time, deflects the siphon jet away from the mouth of the siphon.

As is well known, in flushing tanks of this class, siphonic action is started by the aid of an inlet jet which enters the mouth of the shorter leg of the siphon. The water is then drawn off through the discharge pipe until the siphon breaks when the flow ceases and the tank begins to refill. I have found that where the inlet pressure is considerable the siphon continues running and is apt to start automatically, leading to great waste of water and making the tank noisy. To avoid these difficulties and to insure the effective breaking of the siphon when the tank has about emptied itself, and to insure the refilling of the tank to the proper height, I have devised a deflector or cut-off which normally intervenes between the inlet jet and the mouth of the siphon but is moved away and kept out of the path of the inlet jet when the siphon starts and until the siphon breaks, when said deflector automatically returns to its normal position and allows the tank to refill without danger of further siphonic action. It is important to have the cut off or deflector automatically locked and released at the proper time otherwise anyone in using the tank would have to stand by until the siphon broke.

One form of my invention is shown in the accompanying drawing in which—

Figure 1 is a longitudinal section showing the tank full but not in action. Fig. 2 is a top view. Fig. 3 is a longitudinal section showing the ball float depressed and the siphon starting. Fig. 4 is a similar view showing the siphon broken and the tank beginning to refill. Fig. 5 is a detail showing the locking device.

Same letters indicate similar parts in the different figures.

A is the body of the tank, of usual construction.

B is a siphon outlet, the longer leg of which passes through the bottom of the tank where a water-tight joint is made by suitable washers or jam nuts. Near the end of the shorter leg of the siphon several holes *a a* are provided to aid in the effective breaking of the siphon.

C is the ball float and D, the inlet valve of ordinary and usual construction, the depression of the ball float opening the inlet valve, which closes when the ball float is raised by the incoming water to a pre-determined height which is preferably such that the water level is slightly below the overflow point of the siphon. The forcible and sudden depression of the ball float will, under ordinary conditions, raise this level sufficiently to start the siphon, but this action will be quickened and made more effective by the simultaneous opening of the inlet valve D, which directs the jet upwardly from the jet pipe E directly into the mouth of the siphon as shown in Fig. 3. The forcible depression of this ball float and consequent opening of the inlet valve is brought about by turning the handle F by hand or by means of a cord or chain not shown. This handle is mounted on the shaft *b* journaled in the framework of the tank and carrying the bail *c*. This bail as well as the handle are ordinarily held in the position shown in Figs. 1 and 2 by a counterbalance *d* but when depressed into the position shown in Fig. 3 the counterbalance comes against the stop *e* while the outer end of the bail is locked by the locking device G. The shaft *b* also carries a deflector arm *f* at the lower end of which is the cut off or deflector H of suitable size and shape to cover or shield the lower end of the short leg of the siphon as shown in Figs. 1 and 4 and to deflect the water of the inlet jet, if still flowing, as shown in Fig. 4. This is the normal condition of the deflector but when the bail is depressed as shown in Fig. 3 the deflector H is carried and held away from the inlet jet as long as the bail remains locked.

The locking device G may be of any convenient and suitable shape and secured to any fixed point as *g*. It should be provided with a notch or jog under which the bail *c* may be caught as shown in Fig. 5. The stem *i* of the ball float is preferably bent,

somewhat as shown, so that just before the ball reaches its lowest position as shown in Fig. 4 the stem comes against the locking device G and pushes it aside into the position shown in dotted lines in Fig. 5 thus releasing the bail and permitting the counterweight *d* to bring back the deflector into its normal position and intercept the jet as shown in Fig. 4.

10 The operation of my improved flushing tank is briefly as follows:—The tank being full as shown in Fig. 1 and a flush being desired the handle F is turned so as to press the ball float and bail into the position 15 shown in Fig. 3; the stem of the ball float being in the downward path of the bail. This depression causes the siphon to begin action and carries the deflector H away from the mouth of the siphon. Simultaneously 20 the inlet valve opens and a jet of water is projected up the shorter leg of the siphon. The water originally in the tank, as well as the water entering from the jet is carried down by the siphon to flush the closet until 25 the siphon breaks by uncovering some of the holes in the lower end of the short leg of the siphon as shown in Fig. 4. During all this flow the bail has been locked by the locking device G. When the siphon begins to break 30 the ball float pushes the locking device aside thus releasing the bail which is at once lifted by the counterweight and at the same time the deflector snaps back into the position shown in Fig. 4 and intercepts the inlet jet, 35 the water from which now is turned into the body of the tank instead of up the siphon. The tank now is gradually filled until the ball float reaches the position shown in Fig. 1 when it closes the inlet valve.

40 To guard against too high a pressure of the incoming water I provide the inlet pipe

E with a compensating jacket K, which can be adjusted by the thumb saw *k* to cover or uncover a number of perforations *l* in said pipe as occasion requires. Thus when the 45 water is turned on by opening the inlet valve, the excess pressure is exhausted through the perforations which are left uncovered by the jacket. For ordinary pressures however the jacket is allowed to cover 50 all the holes.

I claim:—

1. A siphon jet flushing tank having a suitable frame-work and provided with a cut-off deflector normally lying between the 55 inlet jet and the mouth of the siphon, a deflector-arm on which said deflector is mounted and fixed to a shaft mounted in the frame work of the tank and a handle for turning said shaft whereby said deflector is 60 removed from and returned to said normal position as occasion requires.

2. A siphon jet flushing tank provided with a self locking deflector normally interposed between the inlet jet and the mouth 65 of the siphon, a deflector-arm and means for operating the same, to remove said deflector from between the inlet jet, and the mouth of the siphon and an automatic releasing device whereby said deflector is unlocked and 70 allowed to return to its normal position upon the breaking of the siphonic action.

3. A siphon jet flushing tank provided with a perforated inlet pipe and a compensating jacket adjustable thereon whereby the 75 pressure of the jet may be regulated by covering or uncovering the perforations in said pipe.

JOHN L. FRUIN.

Witnesses:

MICHAEL FARRELL,
W. P. PREBLE, Jr.