

(No Model.)

G. W. DAVIS.
FLUSHING TANK.

No. 470,782.

Patented Mar. 15, 1892.

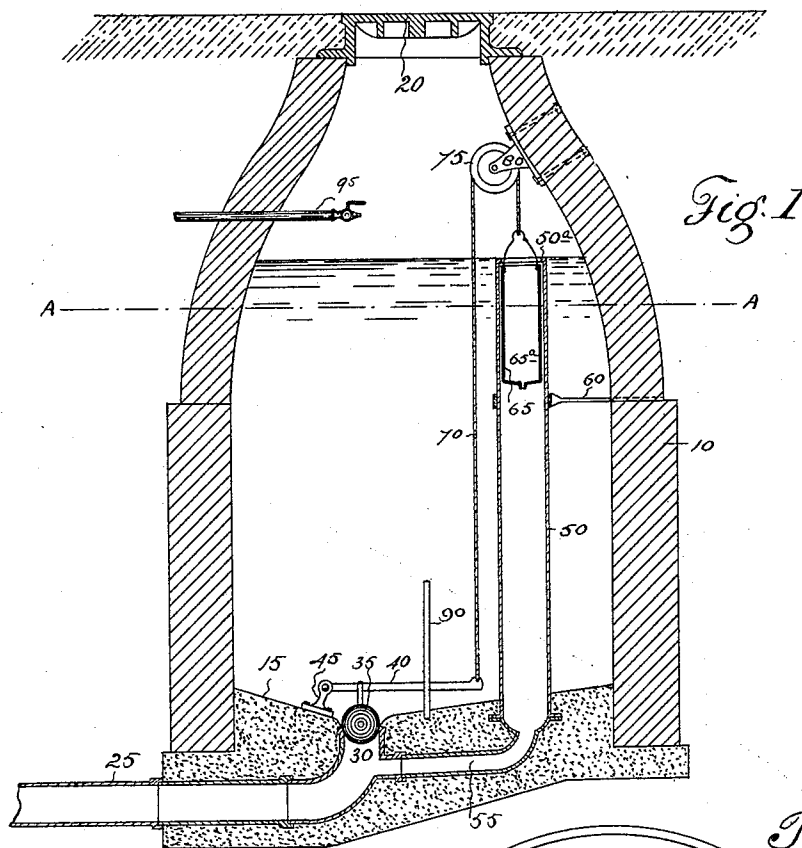


Fig. 1

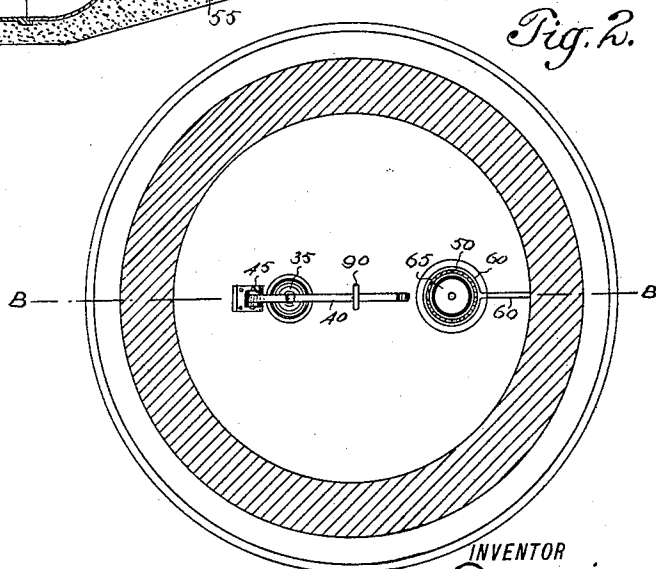


Fig. 2.

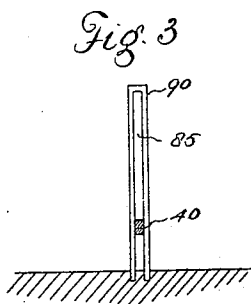


Fig. 3

WITNESSES:

G. J. Rolland
Wm. A. Cornell

INVENTOR

George W. Davis

BY

A. J. O'Brien

ATTORNEY.

UNITED STATES PATENT OFFICE.

GEORGE W. DAVIS, OF DENVER, COLORADO.

FLUSHING-TANK.

SPECIFICATION forming part of Letters Patent No. 470,782, dated March 15, 1892.

Application filed May 19, 1891. Serial No. 393,340. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. DAVIS, a citizen of the United States of America, residing at Denver, in the county of Arapahoe and State of Colorado, have invented certain new and useful Improvements in Sewer Flush-Tanks; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in flushers for sewers and other drains.

My improved apparatus is entirely automatic in its operation, and if continually supplied with water will flush the pipe or drain at regular intervals, depending on the amount of water fed to the tank during a stated time. If the water-supply is increased, the flushing periods will occur more often, while if this supply is diminished the intervals between these periods will be of longer duration. In any event the apparatus works automatically and accurately, whether the water is fed to the tank slowly or rapidly.

My improved device is also of simple and economical construction, thoroughly practicable, reliable, and durable in use. It consists of but few parts and those not easily disarranged or injured. Hence the cost for repairs in maintaining my improved flusher in operative condition is reduced to a minimum.

The apparatus will be fully understood by reference to the accompanying drawings, in which is illustrated an embodiment of my invention.

In the drawings, Figure 1 is a vertical longitudinal section taken on the line B B, Fig. 2, which is a horizontal cross-section taken on the line A A, Fig. 1. Fig. 3 is an upright slotted bar in which the valve-lever moves and by which its upward movement is limited.

In the views, wherein similar reference characters designate corresponding parts of the mechanism, let the numeral 10 designate a tank or reservoir, the sides of which are composed of brick or other suitable material. The bottom 15 is preferably constructed of the

best quality of concrete. The tank tapers toward the top, where its chamber is smallest. The top of the tank is closed by a cast-iron cover 20. This tank is embedded in the earth above the sewer or drain-pipe 25, which communicates with the interior of the tank through an opening 30 in its bottom. This opening is closed by a suitable valve 35, which is preferably spherical, hollow, and constructed of metal. This valve is connected with a suitable lever 40, having a fulcrum 45 made fast to the bottom of the tank. It will be observed that lever 40 is of the second class. It is pivoted to the fulcrum at one extremity, the power is applied at the opposite extremity, while the valve forming the weight is intermediately located. Suitably supported within the tank is a stand-pipe 50, open at the top, having its lower extremity embedded in the bottom of the tank, and provided with an outlet or waste pipe 55, leading to the main pipe 25. The upper portion of the pipe is supported by a suitable stay 60, surrounding the pipe and made fast to the wall of the tank. This pipe is provided at its top with an interiorly-projecting lip or flange 50^a. Supported within this stand-pipe is a bucket 65, which corresponds with the shape of the pipe in cross-section, but is made slightly smaller than the pipe, so as to permit freedom of movement therein. The lip at the top of the pipe prevents the water from passing between the bucket and the pipe. This bucket is provided with a small hole 65^a in its bottom and is normally supported within its pipe by a rope 70, which passes up over a pulley 75 and then downward to lever 40. One extremity of this rope, which is preferably made of galvanized wire, is attached to the top of the bucket, while the opposite extremity is connected with the free extremity of lever 40. Pulley 75 is provided with a suitable support 80, made fast to the tank, the pulley being pivoted to its support. Lever 40 passes through the opening 85, formed in a slotted vertical guide-bar 90, the foot of which is embedded in the bottom of the tank, while its slot is closed at the top.

The tank is provided with a suitable inlet-pipe 95, which supplies the necessary water for flushing purposes.

Before the water in the tank reaches the

top of the stand-pipe and passes into the bucket the parts are in the relative position shown in Fig. 1, the gravity of the valve and bucket being so regulated that when the bucket is empty the valve will remain closed, supporting the bucket at the top of the pipe. This valve being hollow, it may be provided with shot for the purpose of nicely regulating its gravity.

From the foregoing description the operation of the mechanism will be readily understood. The water passing from the supply-pipe into the tank accumulates until it overflows the stand-pipe, when it passes into the bucket, increasing its gravity sufficiently to overcome the weight of the valve, together with the pressure of the water thereon. Hence the bucket descends and opens the valve, when the water in the tank passes out into the pipe and flushes the same. As soon as the water ceases to enter the bucket its level begins to fall, since the water passes through the small opening in the bottom, which opening is so regulated that as soon as the water passes out of the tank the bucket is also empty and the valve again closed. The water now begins to accumulate again in the tank and the operation of my improved apparatus, as just described, is repeated.

It may be well to state that all the metal parts exposed to the water should preferably be galvanized to prevent corroding.

Having thus described my invention, what I claim is—

1. The combination, with a reservoir or tank provided with an opening communicating with the drain-pipe, of a valve adapted to close said opening, a water-supply for the tank, a stand-pipe located within the tank and open at the top, a bucket located and adapted to move within said stand-pipe, and mechanism connecting the bucket and valve, whereby as the water rises in the tank and overflows the stand-pipe it enters the bucket, which, descending, opens the valve and allows

the water in the tank to escape into the drain-pipe, substantially as described.

2. The combination, with a liquid-containing reservoir or tank provided with an opening in the bottom communicating with the drain-pipe, of a valve adapted to close said opening, a lever connected with the valve, a stand-pipe open at the top, a bucket located and adapted to move within said stand-pipe, a rope connected with the bucket at one extremity and with the valve-supporting lever at the opposite extremity, and a support for the rope, whereby as the liquid rises and overflows the stand-pipe it passes into the bucket and increases its gravity sufficiently to cause the bucket to descend and open the valve, substantially as described.

3. A liquid-containing reservoir or tank provided with an opening at the bottom communicating with the drain-pipe, a lever of the second class located above said opening, a valve adapted to close the opening and connected with the lever, a stand-pipe, a bucket located and free to move therein, a roller or pulley secured above the stand-pipe, and a rope passing over the pulley and connecting the lever with the bucket, substantially as described.

4. A liquid-containing reservoir or tank provided with an opening, a valve adapted to close said opening, a lever to which said valve is attached, a stand-pipe, and a bucket located therein and connected with the lever, whereby as the water rises and overflows the stand-pipe it enters the bucket, causes it to descend, and opens the valve, the bucket being provided with a suitable outlet permitting the water to escape and the valve to return to its seat, substantially as described.

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

GEORGE W. DAVIS.

Witnesses:

WM. MCCONNELL,
G. J. ROLLANDET.