L. THIEM.

AUTOMATIC CISTERN CLEANER.

APPLICATION FILED NOV. 8, 1909.

969,997. Patented Sept. 13, 1910.

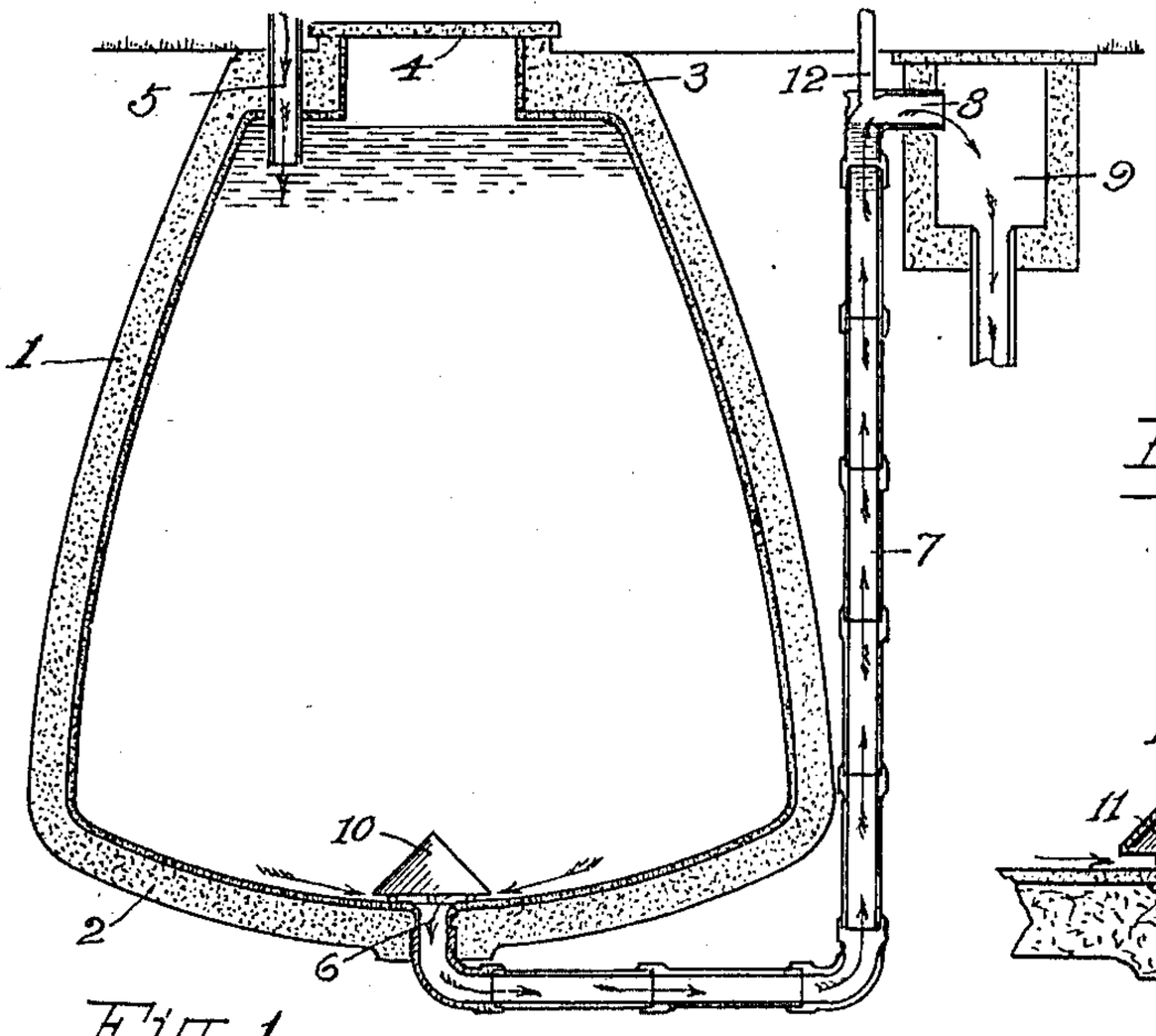

Fig. 1

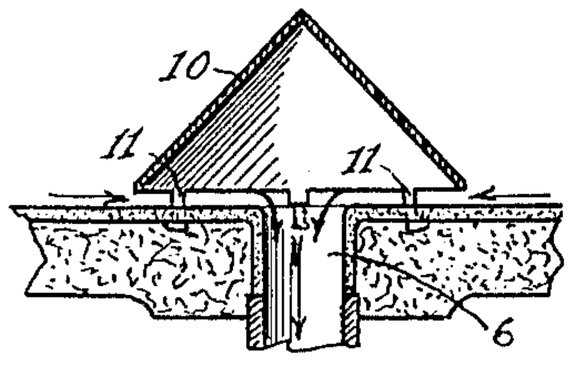

Fig. 2

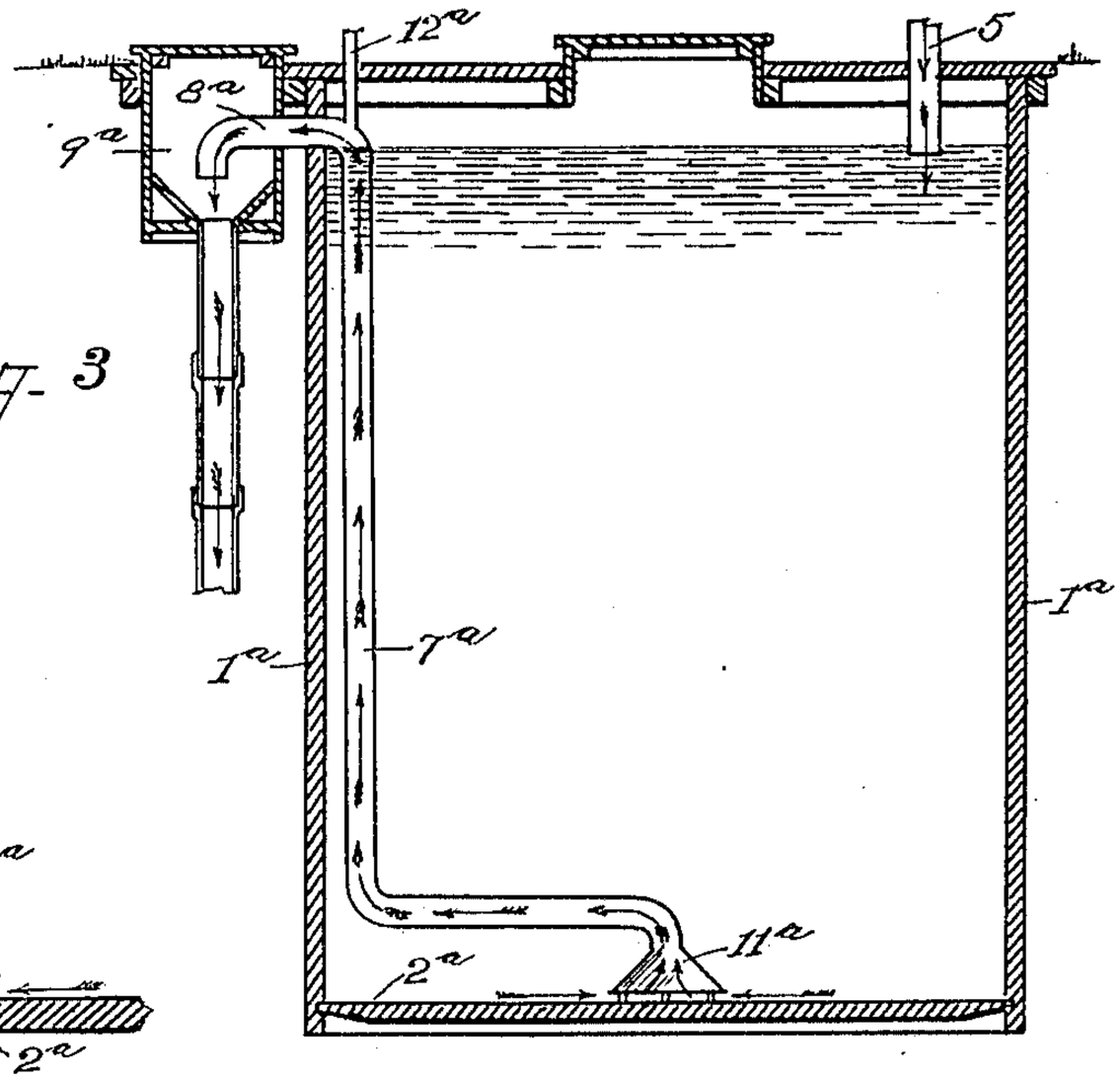

Fig. 3

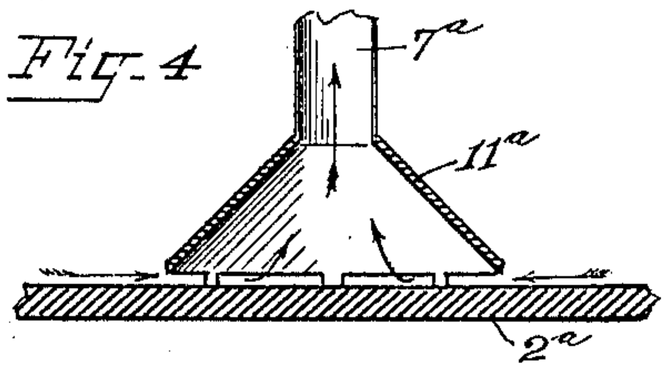

Fig. 4

Witnesses—
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UNITED STATES PATENT OFFICE.

LOUIS THIEM, OF TOLEDO, OHIO.

AUTOMATIC CISTERN-CLEANER.

969,997. Specification of Letters Patent. Patented Sept. 13, 1910.

Application filed November 8, 1909. Serial No. 526,739.

To all whom it may concern:

Be it known that I, LOUIS THIEM, a citizen of the United States, residing at Toledo, in the county of Lucas and State of Ohio, have invented a new and useful Improvement in Automatic Cistern-Cleaners, of which the following is a specification.

My invention relates to a cistern cleaner and has for its object to provide a cistern with improved means whereby the water and sediment at the bottom of the cistern will be automatically carried off through the overflow pipe and the fresh rain water retained in the cistern, when the cistern becomes filled to the level of the waste pipe or above by rain water from the supplying roof, and whereby sediment is prevented from accumulating at the bottom of the cistern, and the water from becoming stale and offensive.

A further object is to provide an apparatus of the kind adapted also to the application of a pump for removing the sediment and foul water in the bottom of the cistern when the rainfall is insufficient to automatically operate the apparatus.

I accomplish these objects by the construction and combination of parts as hereinafter described and illustrated in the drawings, in which—

Figure 1 is a vertical and diametric section of a cement or brick cistern equipped in accordance with my invention, and Fig. 2 is an enlarged vertical section of the receiver for the overflow pipe and a broken away portion of the bottom. Fig. 3 is a similar section of a wooden cistern equipped with my invention in slightly modified form. Fig. 4 is an enlarged vertical section of the conical receiver of the overflow pipe shown in Fig. 3 and a broken away portion of the bottom.

In the drawings 1 designates the cistern wall, 2 the concave bottom and 3 the neck of the cistern. The neck is provided with a cover 4 and with the down spout connection 5. Central of the bottom 2 is an orifice 6 into which is cemented an overflow pipe 7, which is extended therefrom outward beyond the circumference of the cistern wall 1, and then upward to near the level of the lower portion of the neck 2, where it is provided with a branch 8 which extends horizontally into a catch basin 9, connected to a sewer (not shown). Preferably the pipe 7 is composed of sections of impervious drain tile cemented together, as shown in Fig. 1, but a continuous metal pipe may be used instead. Over the orifice 6 in the bottom 2 is preferably provided a receiver cone 10, having a base diameter greater than the orifice 6. The base is provided with legs 11 which support the base of the receiver cone a suitable distance above the bottom and the legs are preferably partly embedded in the cement to hold the cone centrally over the orifice 6, the space between the base of the cone and the bottom forming an inlet for water from the cistern to the overflow pipe 7. The pipe 7 is provided with the pipe 12, which extends in line therewith above the branch 8 to or above the level of the top of the cistern and is open at the top. The extension 12 prevents the pipe 7 and the branch 8 from operating as a siphon when a current is once established therein.

The cone 10 prevents the formation of a direct downward swirl of the water to the orifice 6 such as otherwise would be formed, admits the water freely, and with but little friction, to the overflow pipe 7, tends to produce a radial underflow inward along the bottom into the receiver come, whereby sediment on the bottom is carried by the underflow into the cone, and creates a whirling or churning of the water within the cone that keeps the sediment thoroughly mixed with the water, whereby it is carried out with the waste water through the pipe 7. Thus equipped when the cistern becomes filled to the level of the branch 8 of the overflow pipe by flow of water from the down spout 5, the water at the bottom of the cistern will be forced upward in the pipe 7 until it flows out of the branch 8 into the catch basin 9, and as long as the water continues to flow into the cistern from the down spout 5, the water will continue to flow out of the bottom of the cistern through the opening 6 and the overflow pipes 7, carrying away any sediment on the bottom, and as often as there is rain fall sufficient to more than fill the cistern there will be automatically established a flow of water from the bottom of the cistern through the overflow pipe 7 and the branch 8 to the catch basin. Thus equipped where the capacity of the cistern and the demand thereon is properly proportioned to the area of the supplying roof, and the latter is kept free from falling leaves and the like the average yearly rain fall will automatically maintain the water in the cistern fresh and clear.

When the rain fall is insufficient to establish an artificial flow from the bottom of the cistern, by inserting one end of a hose pipe down through the air vent pipe 12 and into the pipe 7 below the level of the water in the cistern, and attaching a pump to the hose pipe at the opposite end, the less pure water at the bottom of the cistern may be pumped out without any tendency to mix it with the purer water at the top.

In Fig. 2 is shown a wooden cistern equipped with an overflow pipe 7^a, which in such class of cisterns is preferably extended downward in the cistern from a waste section 8^a extending through the upper wall of the cistern into the catch basin 9^a, the upper end of the pipe 7 being provided with an extension 12^a and the lower end with a receiver cone 11^a having legs at intervals around its bottom by which it is raised a suitable distance from and supported on the bottom 2 of the cistern casing 1^a. Otherwise than as described the construction and operation of the device for the wooden cistern is the same as hereinbefore described.

What I claim to be new is—

1. The combination with a cistern, having a down spout adapted to supply water to the cistern, of an overflow pipe adapted to receive water and sediment from the bottom of the cistern and having a portion extending upward in direct line from near the level of the bottom to the level of the top of the cistern, said upwardly extending portion being open at the top and having a discharge branch extending horizontally therefrom at a desired upper level for water in the cistern, adapted to discharge the water received by the overflow pipe when the level of the water in the cistern is at or above the level of the branch, a conical receiver for the overflow pipe adapted to admit water and sediment to the pipe, said receiver having an open base of greater diameter than the overflow pipe and being supported by the base on and above the cistern bottom, said base forming with the bottom, openings between the base and the bottom adapted to admit water radially to the receiver along the bottom.

2. The combination with a cistern provided with a down spout, and having a concave bottom and an outlet central through the bottom, of an overflow pipe connected to the outlet and extending outward below the bottom and upward in direct line outside the cistern to or above the level of the top of the cistern, and having a branch below the upper end of the pipe at a desired upper level for water in the cistern, the outlet, the top end, and the free end of the discharge branch being open, and a conical receiver for the outlet, said receiver being closed at the top and having an open base of greater diameter than the outlet, said base being provided at intervals with and mounted by supports on and slightly above the bottom, and concentrically above the outlet.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses, this 29th day of October, 1909.

LOUIS THIEM.

In presence of—

MARK WINCHESTER,

M. S. SMITH.