L. THIEM.

AUTOMATIC CISTERN CLEANING APPARATUS.

APPLICATION FILED SEPT. 17, 1910.

989,827. Patented Apr. 18, 1911.

Fig. 1.

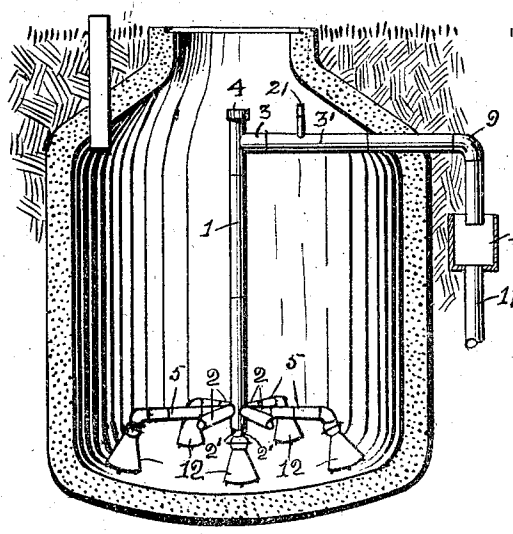


Fig. 2.

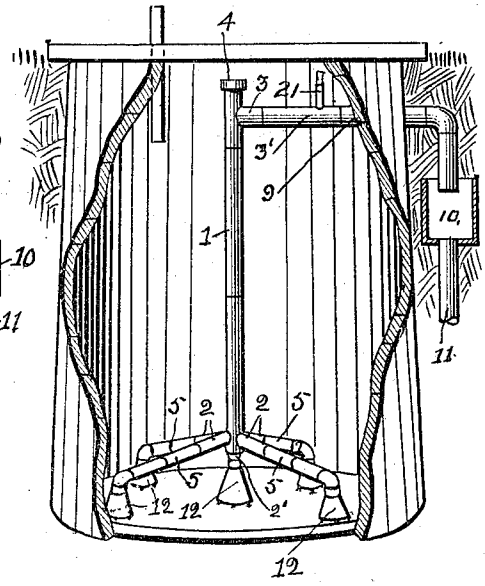


Fig. 3.

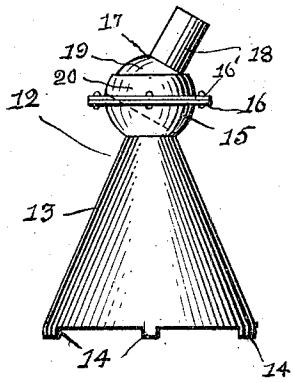


Fig. 5.

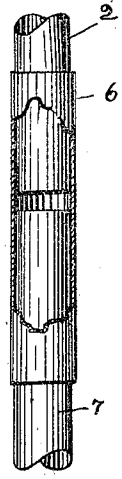
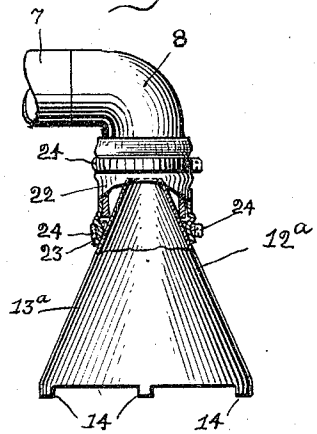


Fig. 4.



WITNESSES

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AUTOMATIC CISTERN-CLEANING APPARATUS.

989,827. Specification of Letters Patent. Patented Apr. 18, 1911.

Application filed September 17, 1910. Serial No. 582,462.

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-Cleaning Apparatus, of which the following is a specification.

My invention relates to an automatic cistern cleaner.

In Patent No. 969,997 I have shown and described an automatic cistern cleaner, whereby the excess flow of fresh rain water into a cistern is utilized to discharge through the waste pipe, impure water and sediment from the bottom of a cistern.

In the application of my patented cleaner to cisterns of large capacity or having flat bottoms I have found that a single central receiver for the discharge pipe, unless the volume of the discharge is large, is insufficient to carry off the sediment deposited on the outer portion of the bottom.

My present invention has for its object to provide an improved cleaner for cisterns of large capacity, and those having flat bottoms, whereby the sediment will be removed from the outer portions of the bottom simultaneously with its removal from the center portion. 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 view, showing my improved cleaner applied to a cistern having a concave bottom. Fig. 2 is a similar view showing its application to a cistern having a flat bottom. Fig. 3 is an enlarged detail view of a receiver having a ball and socket joint and adapted to be connected to the lower end of the main pipe or the elbow of a branch pipe. Fig. 4 is an enlarged detail view of a modified form of flexible joint connecting a receiver to the elbow of a branch pipe, and Fig. 5 is a top view of an enlarged broken away portion of an extensible branch discharge pipe with the sleeve broken through.

In the drawings 1 designates the main discharge pipe, having radiating from its lower end portion the branch connections 2 and having its lower end portion provided with a reducer connection 2′, and also having its upper end portion provided with the discharge connection 3 and its open upper end provided with a closure cap 4. To each branch connection 2 is connected a branch discharge pipe 5, comprising a coupling sleeve 6 adapted to telescopically receive at one end a branch connection 2, and having a pipe section 7 telescoped in the opposite end, and an elbow 8 mounted on the outer end of the section 7. The discharge connection 3 is connected by the section 3′ to the waste pipe 9 of the cistern, which extends through the cistern wall and downward into the catch basin 10, which is connected by the pipe 11 to a sewer (not shown).

The main pipe 1 and its discharge connection 3 is of capacity equal to the combined capacity of the branches 2 and its lower end reducer connection 2′.

Each branch 2 and the reducer 2′ of the main pipe 1 is preferably provided with a receiver 12, which (as is more clearly shown in Fig. 3), comprises the cone 13 having its open base rim provided at regular intervals with projecting feet 14; and having its upper end provided with a hemispherical cup enlargement 15 having the annular rim flange 16; the section 17, having the end portion 18 of a diameter to telescopically connect with the free end portion of an elbow 8 or the reducer 2′ of the main pipe, and the hemispherically enlarged portion 19; and the hemispherical segment 20 provided with an annular rim flange 16′ adapted to couple the section 17 to the cup 15 and form therewith a ball and socket joint. Thus constructed, the main pipe 1 with a receiver 12 connected to its lower end is first inserted into the top portion of the cistern; after which the branches 5 with receivers 12 attached thereto, are then mounted on the connections 2 and adjusted thereon by the sleeves 6 to extend the receivers the desired radial distance from the main pipe, and with the receivers extended downward from the elbows 8. If the cistern bottom be flat and level the receiver at the lower end of the main pipe is inserted into the lower end of the main pipe the full length of the end portion 18 of the section

17. If it be concave the end portion is inserted a less distance according as the concave surface requires. Thus adjusted and equipped the main pipe is lowered in the cistern until the receivers rest on their feet 14 on the bottom. The receivers 12 being provided with a ball and socket joint, it is manifest that when any one or less than the whole number of feet 14 of a receiver engages the bottom, the weight of the main pipe and its branches will automatically adjust each and all of the receivers to rest on all their feet, whether the bottom be concave or flat, and so resting, they form uniform spaces between the rims of the receivers and the bottom, adapted to admit water radially to the receivers from along the bottom. The instalment of the cleaner in the cistern is completed by connecting the section 3′ to the connection 3 and the waste pipe 9.

To prevent siphonic action of the cleaner, the section 3′ is preferably provided with an air inlet pipe 21 which extends a sufficient distance above the section to prevent water and sediment from being discharged therefrom. By so placing the air vent and providing the upper end of the main pipe with a closure cap 4. the necessity of extending the pipe upward into the neck or opening to the cistern, where it would obstruct entrance into the cistern, is avoided, while by removing the cap 4 and attaching to the top an extension, (not shown), access to the main pipe for the introduction of a sucker rod having a bucket valve attached thereto is provided, whereby, if desired in times of insufficient rain fall, the sediment can be mechanically discharged.

While the receivers are preferably provided with a ball and socket joint, it is manifest that they may be provided with flexible joints other than a ball and socket, without departure from the principle of my construction, and that for flat bottom cisterns the receivers may be made rigid; and in Fig. 4 is shown a modified form of receiver 12^a (that may be used instead of receiver 12), having a flexible joint coupling 22 comprising a flexible hose section coupled to a cone 13^a having a grooved retaining band 23 secured thereto at a suitable distance from its base to which one end portion of the hose section is secured by an outer clamp band 24 which is secured around the base and the inner band 23 in a manner to compress the hose into the groove of the inner band. The receiver is coupled to the elbow of a branch by a clamp band 24 around the upper end portion of the hose section after the free end of the elbow has been inserted into the section. A joint thus constructed is adapted to permit the automatic adjustment of the receiver cone 13^a to rest on its feet 14 on the bottom of the cistern, in like manner as described for the ball and socket joint. I therefore do not limit myself in the construction of my cleaner to the use of receivers having a ball and socket joint.

What I claim to be new is—

1. In an automatic cistern cleaner of the character described, the combination with the waste pipe of a cistern, of a main discharge pipe connected to the waste pipe and extending from the waste pipe to near the bottom of the cistern, a plurality of extensible branch pipes radially connected to the lower portion of the main pipe, and a plurality of receivers, one for each branch pipe and the main pipe, said receivers having enlarged rim bases provided with a plurality of feet adapted to support the main pipe and its branches above the bottom of the cistern and form openings to admit water and sediment radially to the receivers along the bottom.

2. In an automatic cistern cleaner of the character described, the combination with the waste pipe of a cistern, of a main discharge pipe extending the waste pipe to near the bottom of the cistern and having a plurality of extensible branch pipes radiating from the lower end portion, a plurality of supporting receivers, one for each branch pipe and for the lower end of the main pipe, each receiver comprising a conical lower section, having its base rim provided with a plurality of projecting feet and an upper section pivotally coupled to the lower section and adapted to couple the receiver to a branch or the main pipe, substantially as set forth.

3. In an automatic cistern cleaner of the character described, the combination with the waste pipe of a cistern, of a discharge connected to and extending from the waste pipe to near the bottom of the cistern, and comprising a main pipe, a plurality of extensible branch pipes radiating from the main pipe, and a plurality of universally jointed receivers one coupled to each branch and the main pipe, each receiver having an open flared base rim provided with a plurality of supporting feet, and said receivers together forming a supporting base for the discharge adapted to individual automatic adjustment to the bottoms of a cistern, substantially as set forth.

4. In an automatic cistern cleaner of the kind described, the combination with the waste pipe of a cistern, of a main discharge pipe extending centrally downward to near the bottom of the cistern from near the top opening of the cistern, said discharge pipe having a branch pipe connected to the waste pipe at its upper end portion, and a plurality of extensible receiving branch pipes radiating from its lower end portion, the main pipe and each receiving branch

pipe being provided with an enlarged supporting and receiving section together adapted to support the main pipe and its receiving branches on and slightly above the bottom of the cistern, the top end of said main pipe being open and provided with a detachable closure cap, and said branch connection to the waste pipe being provided with an open air vent pipe, substantially as set forth.

In witness whereof I have hereunto set my hand this 14th day of September, 1910.

LOUIS THIEM.

In presence of—
WM. J. FRITSCHE,
M. S. SMITH.