A. C. CLARKE.

SEWAGE SYSTEM FOR RAILWAY CARS AND THE LIKE.

APPLICATION FILED DEC. 24, 1912.

1,155,550.

Patented Oct. 5, 1915.

2 SHEETS—SHEET 1.

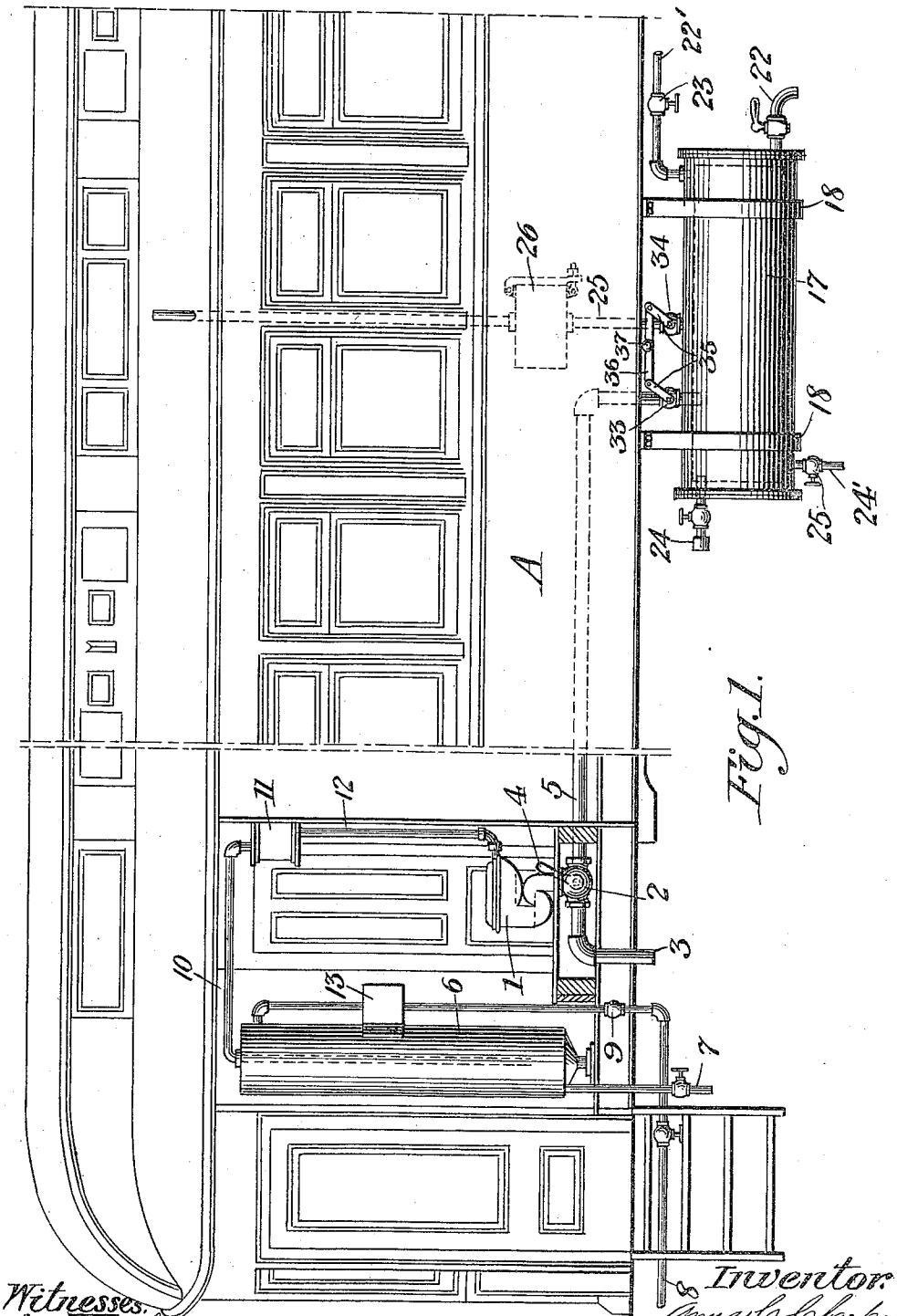


Fig. 1.

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2 SHEETS—SHEET 2.

Fig. 2.

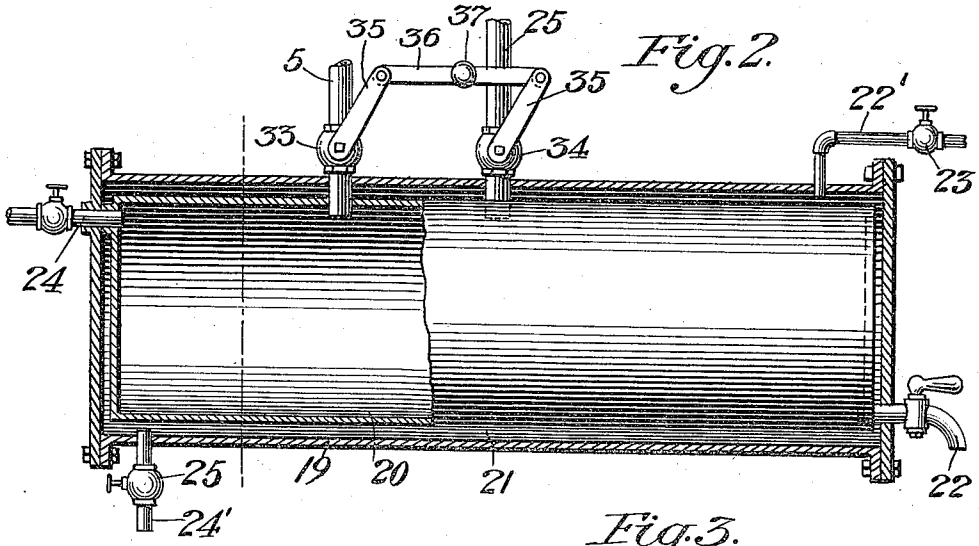


Fig. 3.

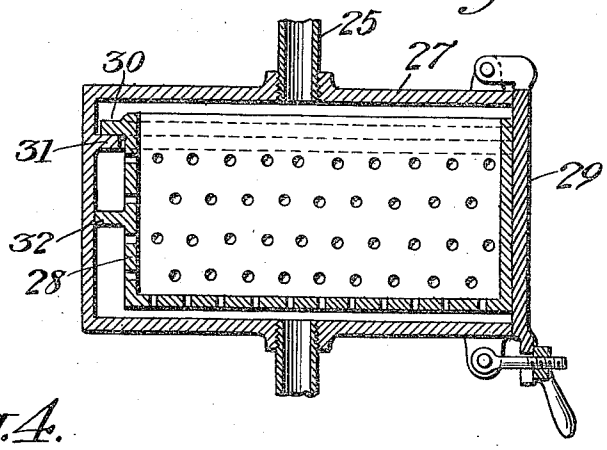


Fig. 4.

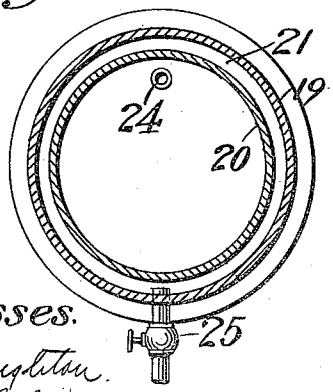
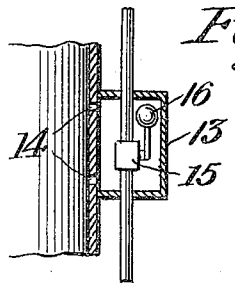


Fig. 5.



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UNITED STATES PATENT OFFICE.

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SEWAGE SYSTEM FOR RAILWAY-CARS AND THE LIKE.

1,155,550. Specification of Letters Patent. Patented Oct. 5, 1915.

Application filed December 24, 1912. Serial No. 738,409.

To all whom it may concern:

Be it known that I, ANNA C. CLARKE, a citizen of the United States, residing at Scranton, in the county of Lackawanna and State of Pennsylvania, have invented certain new and useful Improvements in Sewage Systems for Railway-Cars and the like; and I do hereby 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.

The present invention relates to sewage systems for railway cars and the like and has for its object to provide a system of the type disclosed in my co-pending application, Ser. No. 724,059, filed October 5, 1912, and comprising the various changes and modifications that will hereinafter appear.

In the system disclosed in the application referred to, a removable receiving tank is employed and a discharge of the contents of the tank necessitates a bodily removal of the tank from the car.

The present invention aims to provide a tank of such construction that its contents may be discharged without removing the tank. One form of a non-removable tank adapted to be discharged of its contents *in situ* is disclosed in another co-pending application, Ser. No. 738,408.

The invention further aims to provide other improvements over the system disclosed in the first mentioned application, such as means for cutting off the supply of compressed air to the water reservoir when the water therein reaches a predetermined level, and a novel form of disinfecting box to be used in combination with the receiving tank.

The invention is illustrated in the accompanying drawings, in which,

Figure 1 is a side elevation of a car with certain parts broken away showing a sewage system of the general type heretofore disclosed by me, but provided with the various modifications referred to. Fig. 2 is a vertical section of the receiving tank. Fig. 3 is a vertical section of the disinfecting box employed. Fig. 4 is a cross-section of the receiving tank taken on the line 4—4 of Fig. 2. Fig. 5 is a sectional view of the automatic mechanism employed to control the supply of compressed air to the water reservoir.

Throughout these several views, like reference characters refer to corresponding parts.

Referring to the drawings, A indicates the body of a standard passenger car provided with the usual toilet accessories, of which 1 indicates the closet bowl to the discharge end of which is attached a fitting provided with a three-way valve 2, one side of which connects with a sewage pipe 5 running toward the middle of the car and adapted to be attached at its free end to the inlet of the improved sewage receiving tank. The other side of the three-way valve is connected with a pipe 3, provided with an open discharge to direct the sewage out of the car and on to or adjacent the right of way. The said three-way valve 2 is provided with a suitable handle 4, which is preferably extended to a point outside of the toilet compartment, so as to be accessible to the proper person on the car or train to operate the valve to direct the sewage either into the receiving tank or to the open discharge on to the right of way.

It will be understood that the invention is not limited in its application to sewage from a closet bowl, but may also be applied to the disposal of waste from basins, sinks, lavatories and other accessories of like nature common to railway cars of the usual type.

A suitable storage tank 6 for flushing water is mounted at any convenient location in the vicinity of the toilet compartment and is adapted to be connected with an external water supply by means of a suitable valved pipe 7. The upper part of the tank is provided with an outlet pipe 10, which extends downward into the body of the tank to a point near the bottom thereof and is connected at its other end with the usual inlet valve of a flush tank 11, which latter is connected by flush pipe 12 with the bowl 1. In order to supply the necessary pressure to force the water from tank 6 into the flush tank 11 and to maintain an equal pressure of water at all times, the tank 6 is preferably connected by a valved pipe 8 with the air pressure system of the train brakes, proper regulation of the air entering the tank being effected by a pressure regulator 9 located in pipe 8 adjacent the bottom of the tank 6.

The system so far described corresponds to that disclosed by me in another applica-

tion, Serial No. 738,408, filed December 24, 1912.

Interposed in the length of the compressed air pipe 8 and at a predetermined point with respect to the reservoir 6 is an auxiliary casing 13, shown in detail in Fig. 5. The interior of the casing communicates with the interior of the reservoir 6 by means of suitable openings 14 in the wall of said reservoir.

At a point on the compressed air pipe 8 and in the casing 13, is a suitable controlling valve 15 which is operated by a float 16. When the level of the water in the reservoir gets sufficiently low to lower the float 16, the compressed air is automatically cut off so that when the water in the reservoir is exhausted, the compressed air from the train pipe will not be permitted to escape through the flushing mechanism.

The point at which the float mechanism is located is so chosen that when the compressed air supply is cut off, the remaining water in the reservoir 8 will be under sufficient pressure until it is all exhausted to properly supply the flushing tank. Obviously, when the reservoir 6 is refilled, the reverse operations take place and the supply of compressed air is turned on.

Rigidly and permanently secured to the car frame or body is the receiving tank designated generally by the numeral 17. It may be secured to the car in any suitable manner, such as by the brackets 18. The tank 17 is constructed of an outer casing 19 and an inner casing 20 to leave an annular space 21 for the circulation of steam which is preferably admitted to the outer casing through an inlet pipe 22′ provided with a suitable controlling valve 23. A drain pipe 24′ also provided with a valve 25 is employed to drain off the water of condensation which might collect in the annular space 21. One end of the tank is provided with a valved outlet or faucet 22 through which the contents of the tank may be discharged. Means is provided at the opposite end of the tank for forcing the contents through the outlet 22 and thoroughly cleansing the tank. In the present instance, this means takes the form of a valved connection 24 to which a hose or other source of water supply can be attached to furnish a flushing medium under pressure to the tank.

A vent pipe 25 communicates with the interior of the tank and runs through the wall of the car to a point above the roof thereof. Interposed at a suitable point in the length of the vent pipe is a disinfectant box 26, preferably constructed as follows. A casing 27 (see Fig. 3) is provided in which a perforated receptacle 28 is adapted to be contained.

The casing 27 is provided with a hinged closure 29 which, when open, permits the box or receptacle 28 to be laterally slid into position. A flange 30, provided on the box 28, slides over a flange 31 on the casing 27 so as to form a joint which prevents the gases from passing around the box instead of through the perforations therein. A projection 32 is employed to space the inner box and permit the closure 29 to close tight against the adjacent end of said box. The perforated receptacle is filled with any suitable disinfecting powder and when the same needs replenishing, the closure 29 is opened, the box 28 easily removed, filled and replaced in a simple manner.

Obviously, when pressure is admitted to the receiving tank 17, the communication between the tank and the sewage pipe 5 and vent pipe 25 must be cut off. For this purpose, the valves 33 and 34 are provided in the sewage pipe 5 and vent pipe 25 respectively. Inasmuch as it will always be necessary to have both of these valves either open or closed, a common actuating means is preferably employed. It consists of the actuating arms 35 pivotally connected by the link 36. A handle 37 may be provided on the link to facilitate the operation thereof. It is obvious that a longitudinal movement of the link in either direction will either open or close both valves as the case might be.

The operation of the construction will be obvious from the foregoing description. When it is desired to discharge the contents of the receiving tank, the valves 33 and 34 in the sewage and vent pipes, respectively, are closed, the outlet 22 is opened and a flushing medium such as water admitted under pressure through the connection 24.

Steam supplied by the pipe 22′ serves to heat the contents of the tank in cold weather to prevent the same from freezing.

What I claim is:—

1. A sewage system for cars and the like comprising a bowl, a receiving tank into which said bowl discharges, an open discharge, means to direct the sewage into said tank or through said open discharge, means independent of said first-named means to cut off communication between said bowl and said tank, an outlet in said tank, and means to admit a flushing medium to said tank to force the contents through said outlet.

2. A sewage system for cars and the like comprising a bowl, a receiving casing into which said bowl discharges, an open discharge, means to direct the sewage into said tank or through said open discharge, means independent of said first-named means to cut off communication between said bowl and casing, an outlet in said casing, means to admit a flushing medium to said casing to force the contents through said outlet, and means to heat said casing.

3. A sewage system for cars and the like

comprising a bowl, a receiving tank into which said bowl discharges, an open discharge, means to direct the sewage into said tank or through said open discharge, a vent pipe communicating with said tank, a discharge outlet in said tank, means to admit a flushing medium to said tank, and means independent of said first-named means to cut off communication between the tank and the bowl, and means to cut off communication between the tank and vent pipe.

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

ANNA C. CLARKE.

Witnesses:
A. C. WILDT,
F. A. SWEDAM.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."