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1,613,848

PASSENGER CAR WASTE TRANSFER APPARATUS

Filed April 28, 1925

2 Sheets-Sheet 1

FIG. 1.

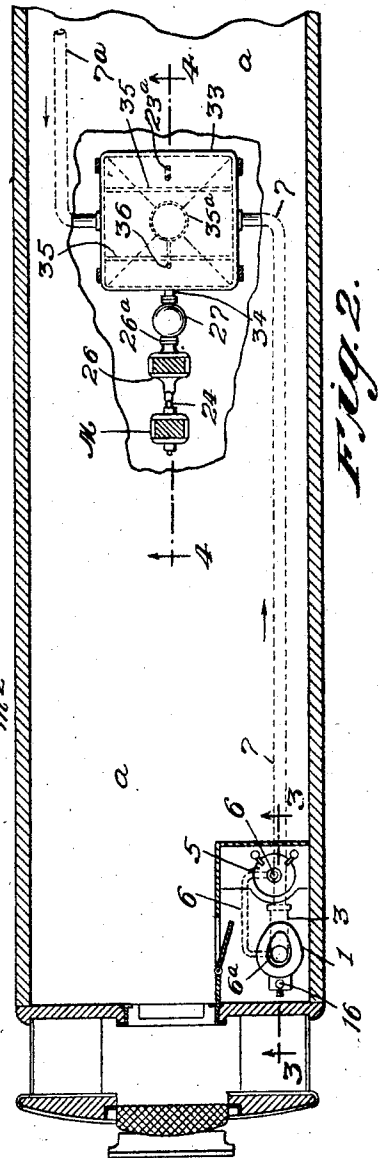
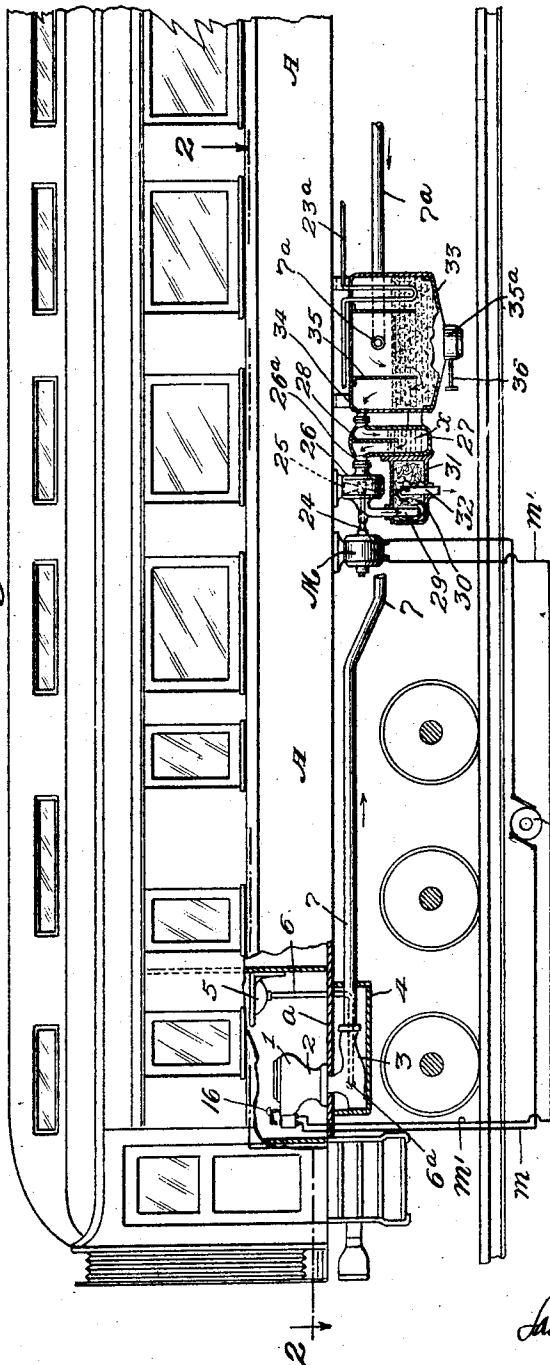


FIG. 2.

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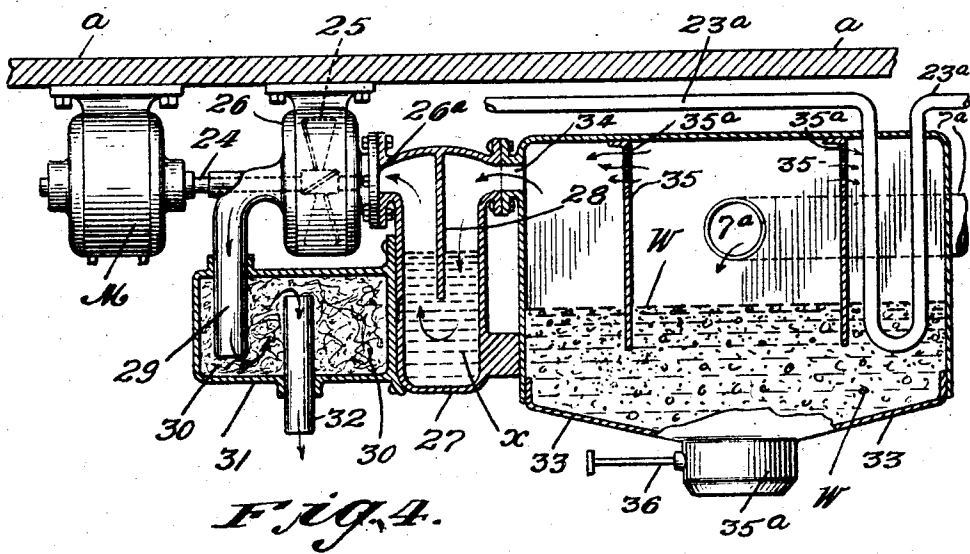
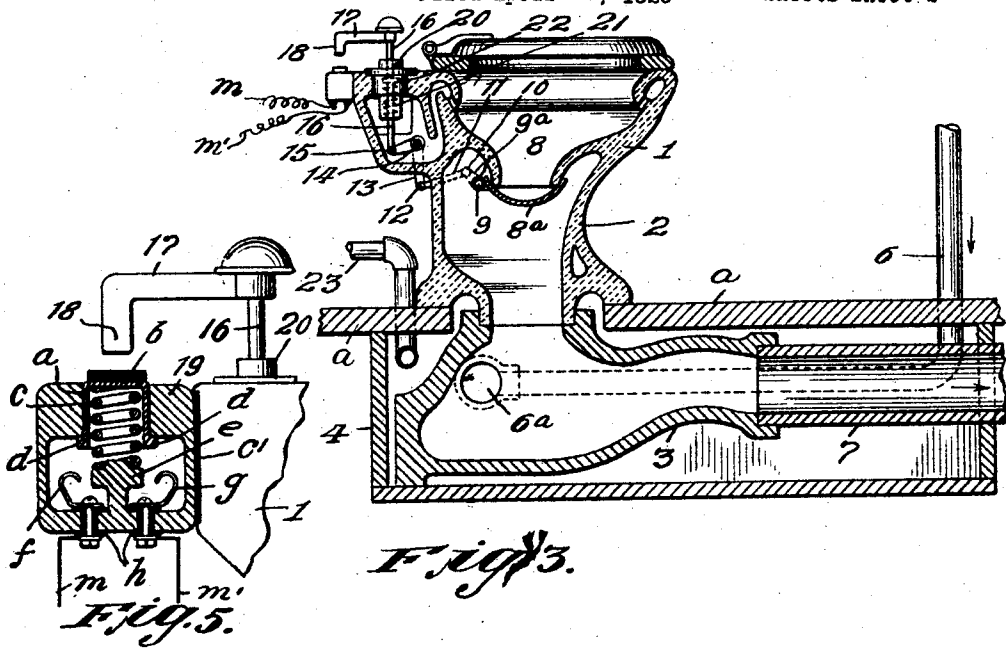
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PASSENGER CAR WASTE TRANSFER APPARATUS

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2 Sheets-Sheet 2



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Patented Jan. 11, 1927.

UNITED STATES PATENT OFFICE.

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PASSENGER-CAR WASTE-TRANSFER APPARATUS.

Application filed April 28, 1925. Serial No. 26,442.

This invention relates to a passenger car waste transfer apparatus. The object of the invention is to transfer waste from passenger car water closets and wash basins to a temporary storage container which can be discharged at convenient times and places. The mode of operation of the herein described apparatus is embraced in the transfer method set forth in my application Serial No. 26,440 filed contemporaneously herewith relating to railway vehicle ash and other waste transfer method and apparatus.

In the accompanying drawings forming a part hereof and illustrating the present invention:

Fig. 1 is a side elevation of a portion of a passenger car, parts being broken away to indicate a water closet and a temporary storage waste container with electrical apparatus diagrammatically indicated.

Fig. 2 is a transverse section at line 2—2 of Fig. 1 showing the apparatus in plan, the electrical apparatus not being indicated.

Fig. 3 is a vertical section through a water closet bowl in connected parts, at line 3—3 of Fig. 2.

Fig. 4 is a partial sectional elevation at line 4—4 of Fig. 2 and shows a motor driven suction fan as a part of the temporary waste storage apparatus. In the drawings A indicates a portion of a car body and *a* indicates the floor of the car. Fig. 5 is a sectional view of the electrical switch.

Referring to the drawings, (Fig. 3) 1 indicates the upper portion of the water closet bowl having a bottom chambered extension 2 which extends through the car floor and is fitted to the upper intake end of a trap 3 located in a dependent box 4 suspended from the under side of the car floor; and 5 (Fig. 1) indicates a wash basin, the outlet pipe 6 of which communicates with the trap 6^a. The trap has a discharge end connected with a horizontal waste conduit 7 which extends through an end wall of the box and leads into one side of a temporary waste storage container.

As there are usually two water closets in a passenger car, a corresponding waste pipe 7^a of another water closet is entered in the storage container opposite the connection of the discharge end of conduit 7 with the container.

The upper portion of the water closet

bowl 1 is chambered at 8 and has at its bottom a vertical discharge port provided with an upwardly opening cover 8^a which is hinged on a rod 9 provided with an upwardly extending rocker arm 9^a. An end of this rocker arm is pivoted at 10 to one end of a link 11 the other end of which is pivoted at 12 to the under arm 13 of a bell crank lever, the bend of which is pivoted at 14. The end of the upper arm of the bell crank is pivoted at 15 to the under end of a lengthwise reciprocable actuating rod 16 carrying at its top a bracket arm 17 provided with a lug 18 opposed to a switch structure described below. A chambered switch holder 19 is shown attached to the bowl structure. Its upper wall has a hole through it for reception of a vertically reciprocable thimble *a*, the closed top of which carries an insulating block *b*. A coiled spring *c* is mounted in the thimble and provided at its under end, within the chamber of the holder, with an annular electric contact flange *d*. The coil spring is mounted partially within the thimble with its upper end against the top of the thimble and its under end supported on an upstanding stud *e* carried by the under wall of the holder. An electric contact *f* within the chamber holder is in the path of the contact flange *d* and is connected with the lead *m*. A contact *g* within the chamber of the holder is also in the path of the contact flange *d* and is connected with the lead *m*¹.

The actuating rod 16 is reciprocably in a vertical bearing 20 carried by the water closet bowl structure. When the rod 16 is thrust downwardly against the resistance of a coiled spring 21, which encircles a portion of the rod 16 between the bottom of the bearing 20 and the fixed abutment 22 of the rod, the bowl flushing apparatus not shown is provided; and at the same time the lug 18 is thrust down against the insulating plug *b* with the result of pushing the thimble *a* downwardly and bringing the contact flange *d* and the contacts *f* and *g* into contact for energizing the hereinafter described motor M.

The switch holder 19 is shown insulated at *c*¹ from the bowl structure to prevent the operator of the rod 16 from receiving an electric shock when operating it.

From the under side of the car floor (Fig. 4) an electric motor M is hung dependent-

ly. The motor shaft 24 is provided with a suction fan 25 within the fan casing 26. The intake port 26^a of the fan casing is connected with an exit port at the upper end of a liquid seal tank 27. This tank has a dependent web 28 extending part way to the bottom of the tank, the lower portion of which is filled with a liquid x for forming a liquid seal. Web 28 serves to resist surging of the liquid seal.

The suction side of fan casing 26 has a pipe 29 which discharges into a mass 30 of filtering material held in a tank 31 fixed to the tank 27. The tank 31 is provided with a tube 32 entrant through its bottom wall and open at its under end. The upper end of tube 32 is located in the filtering material 30 spacedly apart from the top wall of the tank.

The temporary storage container 33 is held suspended from the under side of the car floor and is provided with a discharge port 34 into the upper portion of the chamber of the tank 27. The temporary storage container receives waste W from the water closet and wash bowl through the conduit 7 and is interiorly provided with two spaced apart plates 35 which project downwardly into the chamber of the container 33, part way to its bottom which is provided with a discharge port 35^a controlled by a stopper provided with a handle 36 whereby the storage tank 33 may be cleaned out at convenient times and places. The upper portions of plates 35 are perforated at 35^a to permit gas within the storage container to flow through the discharge port 34 and pass downwardly through the liquid seal and thence upwardly into the suction fan casing. The plates 35 prevent undue surging of the waste in the container 33.

When the contacts d , f and g are in contact, a circuit comprising the leads m and m^1 to a dynamo m^2 or other suitable electric power source interposed in the lead m is established. This dynamo or other current generator may be in an electric locomotive at a greater or lesser distance from the car or it may be a storage battery carried by the car or part of an electric lighting equipment of the car.

When the motor M is in operation the suction fan is operated to suck air and gas through the liquid seal tank from the upper portion of the storage container thereby rarefying the gaseous pressure within the container and inducing a flow of waste material from the trap 3 through the conduit 7 into the container. When the fan is in operation it blows the air and gas which it has taken into its casing outwardly through the pipe 29 and therewith associated parts above described.

The liquid seal in tank 27 and the filtering material 30 in the tank 31 serve to prevent

odors and gases passing through the tanks and fan casing and muffles noise otherwise produced by escape of air through the tube 32.

A heater pipe 23^a is shown for the chamber of the container 33. The dependent plate 28 in the liquid seal tank, serves to compel air entering the storage container with the waste to travel downwardly into and through the liquid seal tank and past the under edge of the plate then upwardly to the atmosphere through the exhaust apparatus.

What I claim is:

1. The combination in a man carrying vehicle of a toilet apparatus including a waste receiver; a temporary waste storage container in conduit connection with the waste receiver; and an electrically operated partial vacuum forming apparatus under the control of an operator for automatic transfer of waste from said receiver to the container.

2. The combination in a man carrying vehicle of a toilet apparatus including a waste receiver; a temporary waste storage container in conduit connection with the waste receiver; and an electrically operated apparatus under the control of an operator for automatic transfer of waste from said receiver to the container; said electrically operated apparatus comprising a motor carried by the vehicle; a motor; a fan casing and a suction fan; a liquid seal tank; and a filtering and noise reducing apparatus; said liquid seal tank being in communication with the container and also with the intake side of the fan casing; the discharge side of the suction fan casing being in communication with filtering and noise reducing apparatus and the latter having a discharge side open to the atmosphere.

3. The combination in a man carrying vehicle of a toilet apparatus including a waste receiver; a temporary waste storage container in conduit connection with the waste receiver; and an electrically operated partial vacuum forming apparatus under the control of an operator for automatic transfer of waste from said receiver to the container; said electrically operated apparatus comprising an electrically insulated operating member; and filtering and noise reducing apparatus operatively connected with the waste storage container.

4. The combination in a man carrying vehicle of a toilet apparatus including a waste receiver; a temporary waste storage container in conduit connection with the waste receiver; and an electrically operated partial vacuum forming apparatus under the control of an operator for automatic transfer of waste from said receiver to the container; said electrically operated apparatus comprising a suction fan casing and fan operative to suck gases through the temporary storage container and to blow out the gases

received into the casing, and thereby to induce flow of waste through the receiver into the container; and filtering and noise reducing apparatus operatively connected with the waste storage container.

5. The combination of toilet apparatus comprising a receiver; a temporary storage container in conduit connection with the receiver; and a suction fan having a casing in conduit connection with the container; the

fan being operative to rarefy the gaseous content of the container and thereby induce flow of waste into the container; and filtering and noise reducing apparatus operatively connected with the waste storage container.

Signed at Scranton, in the county of Lackawana and State of Pennsylvania, this 9th day of April A. D. 1925.

SAMUEL S. RIEGEL.