

J. A. CORRY.
RAILWAY WATER CLOSET.
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1,377,185.

Patented May 10, 1921.

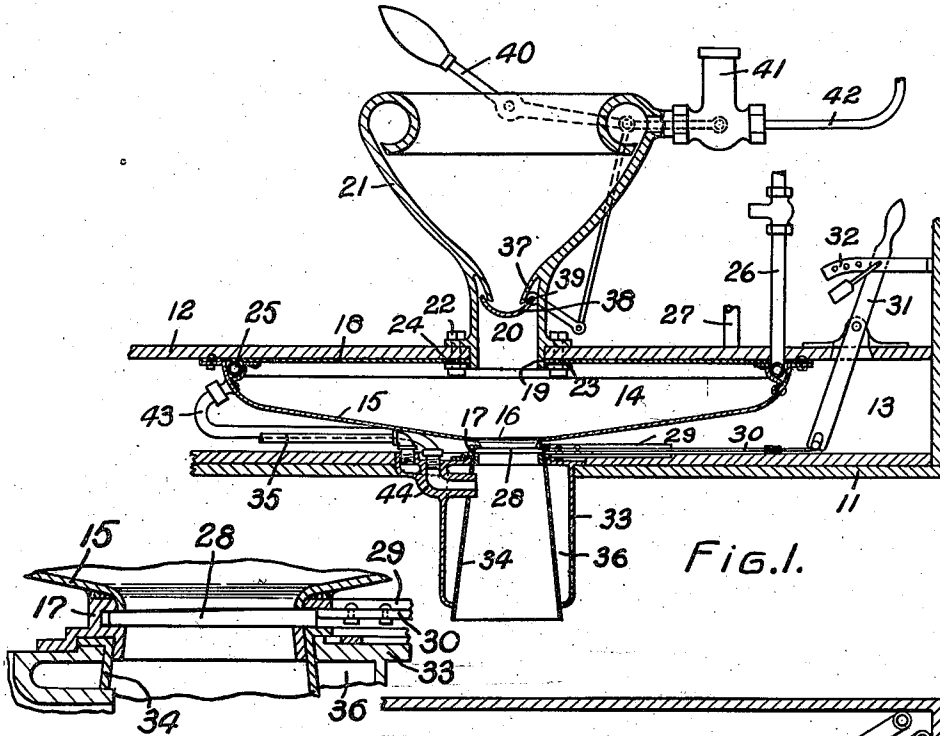


FIG. 1.

FIG. 3.

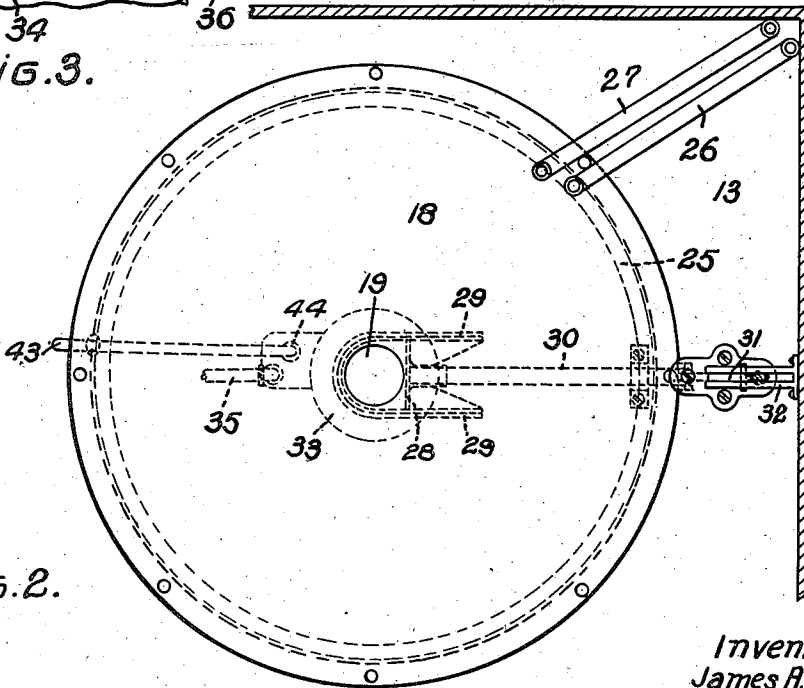


FIG. 2.

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RAILWAY WATER-CLOSET.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JAMES A. CORRY, a subject of the King of Great Britain, and resident of the city of Ottawa, in the Province of Ontario and Dominion of Canada, have invented certain new and useful Improvements in Railway Water-Closets, of which the following is a full, clear, and exact description.

This invention relates to improvements in water closets for passenger vehicles on land and water, and the object of the invention is to provide a device which may be used while a railway car or the like is standing in the station, or a vessel is docked or passing through canals or other waters where it is not permissible to discharge raw sewage.

At the present time, it is necessary, in order to preserve the cleanliness of stations, harbors, canals, etc., to lock the toilet rooms on cars which are to stand in the station or boats lying in harbors, and in large cities it is necessary to keep the toilet rooms locked for a considerable time after the train leaves the station, in order to preserve the cleanliness of the tracks running through the city. In the case of ordinary day trains, this condition does not present a very great hardship to the traveling public but, in the case of boats which receive passengers many hours before starting or through sleeping cars and the like which frequently stand in a station for several hours before proceeding on the succeeding stages of their journeys, and in the case of private cars which frequently stand several days at a station, the inconvenience to the occupants of the cars is so very great that means permitting the use of toilet facilities while cars are standing in stations has become an absolute public necessity.

The present invention overcomes the foregoing condition by providing a reservoir below the hopper, the reservoir having close means at its outlet and a seal being provided between the hopper and reservoir.

In the drawings which illustrate the invention:—

Figure 1 is a vertical sectional view of the device.

Fig. 2 is a plan view of the device, the hopper being removed.

Fig. 3 is an enlarged section of the reservoir outlet.

Referring more particularly to the drawings, 11 designates the floor of a car and 12 a false floor thereabove, occupying only the area of the toilet room or such part thereof as is necessary. In the space 13 between the floors, a closed reservoir 14 is provided. This reservoir is preferably of inverted conical form and quite shallow, as shown in Fig. 1, so as to occupy a minimum of space in the vertical direction. The reservoir comprises an inverted conical or frusto-conical pan 15 connected at its apex or outlet 16 in any suitable manner such as by soldering with a mouth ring 17. The pan is provided with a flat top 18 hermetically sealed thereon and lying immediately under the false floor 12. The top of the reservoir is provided with a central opening 19 into which the foot 20 of the hopper 21 projects. This hopper is secured to the false floor 12 by bolts 22, which pass through the top of the reservoir around the opening 19 and through a ring 23, so as to compress a gasket 24 between the ring and the top of the reservoir and between the ring and the foot 20 of the hopper. The gasket provides a hermetic seal between the hopper and the reservoir and prevents the escape of odors at the junction into the toilet room or into the space 13. A pipe 25 carrying flushing water lies around the inside of the reservoir at the junction of the pan and top and is supplied from the water tanks of the car through a pipe 26. A ventilating pipe 27 is also provided leading from the top of the reservoir. The outlet of the reservoir is controlled by any suitable means, such as a very slightly tapered gate valve 28 sliding in the ring 17 and in the guides 29 extending therefrom. This gate is connected by a link 30 with a lever 31 which may be locked at any desired point on a quadrant 32 to prevent unauthorized manipulation of the gate valve 28. The mouth ring 17 rests on the jacket 33 of the waste pipe 34 and serves to hold the waste pipe in place. Steam may

be admitted through a pipe 35 into the space 36 between the waste pipe and jacket in order to prevent freezing of the waste pipe in winter. It should be noted here that, as clearly shown in the drawing the jacket 33 is in contact with the valve casing and mouth ring of the reservoir and entirely surrounds the mouth of the overflow. Obviously the reservoir, mouth ring, valve and overflow will be heated by the introduction of steam into the said jacket and this is an important feature of the invention as it is essential to the operation of the apparatus under all conditions.

In order to isolate the hopper from the reservoir it is necessary to provide some form of trap. The S traps ordinarily used in domestic plumbing require a much greater flow of flushing water than can be provided for either in the tanks of the car or in the reservoir 14 and it is therefore necessary to provide a special form of trap. Any form which will be gas-tight and which may be flushed with a very small amount of water will be satisfactory. One such arrangement is illustrated in Fig. 1 and comprises an inwardly projecting flange 37 at the bottom of the hopper below which is located a saucer-shaped pan 38 hinged at a suitable point on its periphery, as indicated at 39. This pan forms in practice a bottom for the hopper and is so proportioned that its edge is above the lower edge of the flange, in order that when the pan is filled or nearly filled with water, the lower edge of the flange 37 will be submerged and a water seal will be effected. The pan normally occupies the horizontal position shown, but may be tipped to empty the hopper by means of any suitable operating mechanism 40, which also controls a flushing valve 41 in the water supply line 42 of the hopper. This flushing valve may be of any suitable type which will prolong the flow of water until the pan is returned to normal position, so that the pan will be filled with water and the desired seal effected. In order to prevent an overfilled reservoir blocking the pan 38 in open position, so that odors would escape into the car, an overflow pipe 43 is provided leading from near the top of the reservoir to a passage 44 formed in the jacket casting 33 and leading into the waste pipe.

The reservoir being circular and the outlet valve being located at its center, it is obvious that in installing the device, the valve handle may be located in any suitable part of the room by merely turning the reservoir as desired. The hopper may then be set on in any desired position. While one particular form of hopper has been shown, it is obvious that other types may be used where conditions permit, such as the ordinary domestic hopper with S-trap

where the water supply and size of reservoir are not limited.

The operation of the device is extremely simple and entails no more work on the train crew than the present method of locking and unlocking the toilet rooms. When a car comes into a station where it is to remain for some time, the gate valve at the bottom of the reservoir is closed and locked to prevent unauthorized opening. The toilet facilities of the car are then used in the ordinary manner. When the lever 40 is operated, it tips the pan forming the hopper bottom so that there is a straight fall from the hopper into the reservoir. At the same time the flushing valve 41 is operated and a flow of water rinses the hopper and pan, this flow of water being maintained a sufficient length of time after the pan returns to normal position for the pan to be filled and a water seal formed. Owing to the straight drop from the bottom of the hopper, a very small amount of water will suffice to rinse the same, so that a comparatively small reservoir will serve to contain the water of many flushings. When the car moves out on the line, a trainman unlocks the lever 31 and opens the valve 28 and then flushes out the reservoir by admitting water through the pipe 26. When the train is running, the valve 28 will preferably be locked in open position to prevent unauthorized closing. It will be noted that the hopper is directly above the waste pipe 34 and is of smaller diameter, so that there will be a straight drop from the hopper to the waste pipe, which will prevent the reservoir filling up. The provision of a slight taper in the valve 28 or other suitable means will prevent leakage from the reservoir into the space 13 and, at the same time, the hermetically sealed construction of the reservoir will prevent the escape of odors into this space.

Having thus described my invention, what I claim is;—

1. In a device of the class described, an inverted frusto-conical reservoir, a discharge pipe, a heating jacket for said discharge pipe, a mouth ring for the reservoir secured to said jacket and holding the discharge pipe in place.

2. A device according to claim 1, in which the reservoir projects into the mouth ring and the mouth ring projects into the discharge pipe.

3. In combination with a device according to claim 1, a plate slidable in the mouth ring forming a gate valve controlling communication between the reservoir and discharge pipe.

4. In combination with a device according to claim 1, a passage formed through the jacket and leading into the discharge pipe below the ring, and a conduit between

said passage and the upper part of the reservoir.

5 In a device of the class described, a reservoir, a hopper discharging into the reservoir, an over-flow pipe for the reservoir, a cup valve controlling communication between the hopper and reservoir, operating means for said valve adapted on clos-

ing to admit water to the valve to form a seal between the hopper and reservoir, a 10 valve controlling discharge from the reservoir, and a common warming means for reservoir, valve and over-flow pipe.

In witness whereof, I have hereunto set my hand.

JAMES A. CORRY.