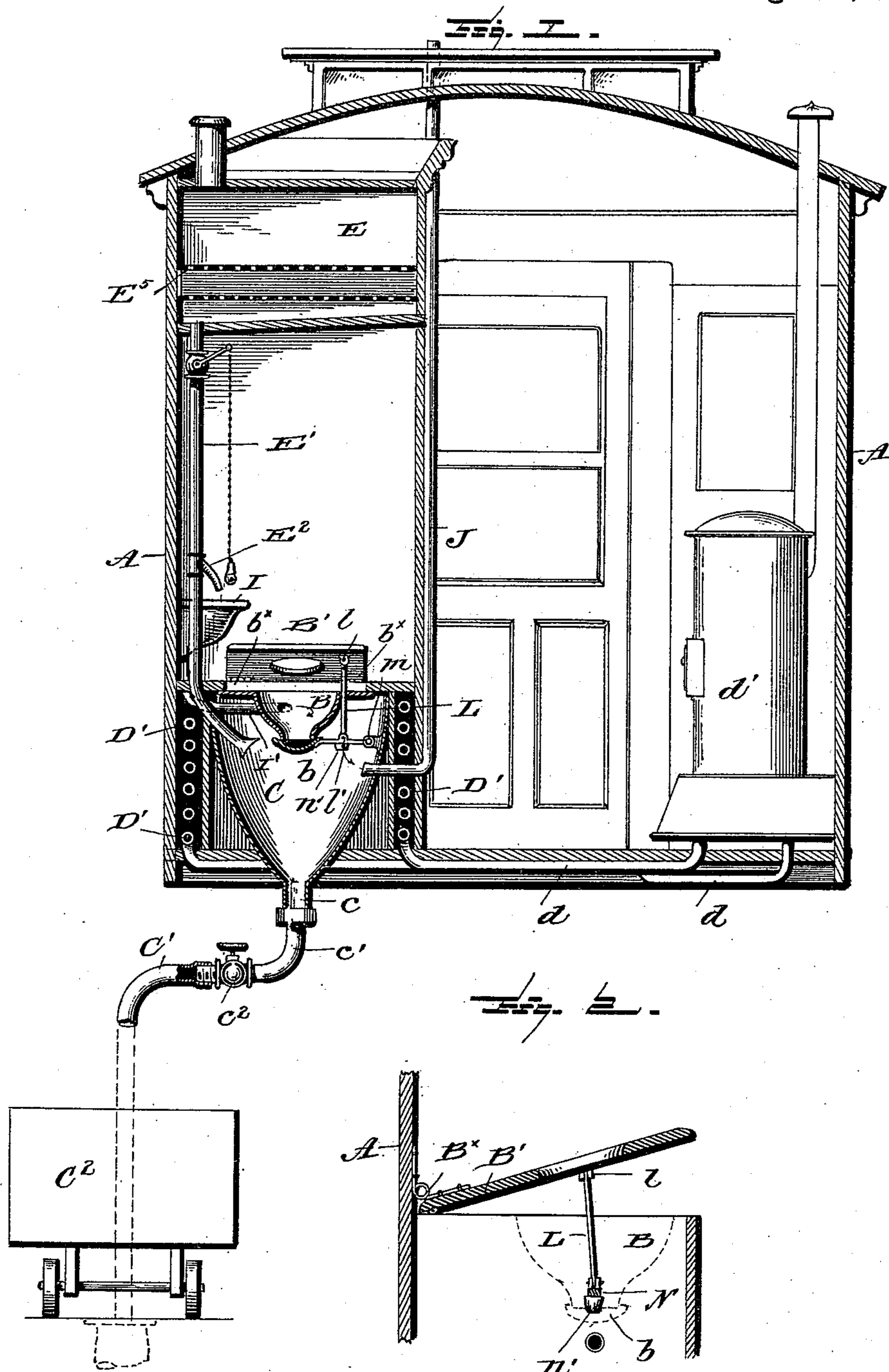


(No Model.)

S. S. HERRICK.
WATER CLOSET FOR RAILWAY CARS.

No. 525,104.

Patented Aug. 28, 1894.



Witnesses:

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UNITED STATES PATENT OFFICE.

STEPHEN S. HERRICK, OF SAN FRANCISCO, CALIFORNIA.

WATER-CLOSET FOR RAILWAY-CARS.

SPECIFICATION forming part of Letters Patent No. 525,104, dated August 28, 1894.

Application filed August 26, 1893. Serial No. 484,144. (No model.)

To all whom it may concern:

Be it known that I, STEPHEN S. HERRICK, a citizen of the United States, residing at San Francisco, in the county of San Francisco, State of California, have invented certain new and useful Improvements in Water-Closets for Railway-Cars, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention has relation to certain new and useful improvements in water closets for railway cars, and it has for its objects, among others, to provide a simple and inexpensive construction whereby the deposits of foul
15 matter can be retained within a receptacle below the bowl, which latter is provided with an automatically-operated valve to prevent reflux of foul odors back into the car, and a ventilating pipe controlled by the same valve.
20 This receptacle is provided with a discharge pipe closed by a valve or cock, whereby the contents may be removed at a station or any predetermined place, and conducted into a sewer or into any receptacle provided for the
25 purpose. A tank is arranged above the seat divided into two compartments by a false bottom with numerous small perforations, and designed to supply a deodorizing or disinfecting solution to the urinal and to the receptacle
30 below the bowl. In order to prevent freezing in cold weather, the receptacle beneath the bowl is surrounded by a coil of water-pipes, connected with the locomotive or with the heating apparatus of the car, or arranged to
35 receive steam from the locomotive. The devices as a whole are compact, occupy but little room, and a car can be equipped therewith at small cost.

40 Other objects and advantages of the invention will hereinafter appear, and the novel features thereof will be specifically defined by the appended claims.

45 The invention is clearly illustrated in the accompanying drawings, which, with the letters of reference marked thereon, form a part of this specification, and in which—

50 Figure 1 is a vertical cross section of a car equipped with my improvements, showing also the manner of disposing of the excretions at a station. Fig. 2 is a sectional detail of the seat.

The advantages of the construction herein-after specified are numerous; among the most important may be mentioned that currents of cold air cannot strike the body; that passen- 55 gers may be allowed to use the closet at all times, while now the use of closets is prohibited at stations. It obviates the indecency of dropping foul matter along the line of travel, and it affords opportunity to disinfect the 60 contents of the closet, and thereby preclude all danger of spreading such filth diseases as typhoid fever, cholera, dysentery, &c. The parts need occupy no more room than the ordinary closets now in use. 65

Referring now to the details of the drawings by letter, A, designates a portion of a car of usual construction, except as hereinafter specified.

B is the water-closet bowl, affixed beneath 70 the seat B', in any well known manner, and its lower end is closed by a valve *b*, attached to the arm N which is hinged to some fixed point, as *m*, on the pipe J or the side of the receptacle C either directly or upon a bracket 75 fixed thereon.

C is a receptacle arranged beneath the bowl, and into which the lower end of said bowl extends; the lower end of the said receptacle is provided with a reduced portion 80 or neck *c*, to which is affixed a short pipe *c'*, in which is located a valve or cock *c''*; and to this pipe may be connected a pipe C', flexible or otherwise, through which the contents of the receptacle may be conducted by means of 85 a suction and force pump to a sewer, or into a truck or other receptacle C², as indicated at the lower left hand corner of the drawings; or it may be allowed to fall by gravity.

Surrounding the receptacle C is a chamber 90 or jacket D, within which is arranged a coil of pipe D', which is designed to be connected, as by the pipe *d*, with the boiler of the locomotive, or with the heating apparatus *d'* of the car, in any well known manner, so as to keep 95 up a circulation of hot water or steam to prevent freezing of the contents of the receptacle and bowl.

Above the seat is a tank E, designed to be filled with water from any suitable source. 100 This tank is provided with a false bottom E⁵, in which are numerous small perforations.

Some chemical agent, as copperas or chloride of lime, is placed in the upper compartment through a suitable opening, which may be in the roof of the car, and the water passing through said chemical is charged for use. The discharge pipe E' leading from the lower compartment empties into the bowl B or the receptacle C, and has a branch E² to the urinal; the flow in both the main and the branch pipes is governed by suitable cocks.

I is the urinal, having a discharge pipe I', which empties into the receptacle C, or, if desired, into the bowl. It may be of any well known kind.

J is a ventilating pipe extending from the receptacle C through and above the roof of the car. The lower end of this pipe is extended inwardly substantially horizontal, as seen in Fig. 1, with its inner end contiguous to the bottom of the bowl B, as seen clearly in Fig. 1. This ventilating pipe is normally open, while exit to the bowl B is normally closed; and in order to operate the valve which serves conjointly the said ventilating pipe and the outlet to the bowl, so that the same valve serves for both and closes one when the other is open, I have provided the following construction:

As shown in Fig. 1, the seat B' is hinged at its rear edge, as seen at B^x, and its front end is elevated, say three or four inches above the horizontal, by means of suitable springs B^x. To the under side of this seat there is attached at l, by a pivotal connection, the substantially vertical rod L, which, extending downward, is pivotally connected at l' with the arm N, which is hinged, as at m, to some fixed part, as the pipe J, or the inner wall of the receptacle C, or a bracket thereon, the said arm carrying the valve b fitted to close the discharge end of the bowl; and this valve b is constructed to close by its opposite side, the lower end of the ventilating pipe J, as the said arm removes the valve b from its position below the discharge end of the bowl. If desired, there may be a curved enlargement n' at this point, to project within the horizontal portion of the ventilating pipe, to better close the same, as seen in Fig. 2.

It will be understood that the connection between the seat and the arm N is such that the weight of the person on the seat will move the said arm downwardly, so as to open the discharge end of the bowl and close the end of the ventilating pipe.

With the parts constructed and arranged substantially as above set forth, the operation is as follows: The valve b is normally closed, so as to prevent the escape of bad odors as well as splashing, but yields to the weight of a person on the seat, so as to open and allow the matter to drop into the receptacle C. In the construction shown the valve b normally closes the bottom of the bowl, so as to prevent reflux of bad odors; and the arm N being up, the lower end of the ventilating pipe is consequently open, so as to allow proper

ventilation of the receptacle C; but by reason of the construction of the said arm with the seat, the weight of the person on the seat depresses the arm N, removes the valve b from the discharge end of the bowl, thus allowing matter to pass freely into the receptacle C, and at the same time closing the end of the ventilating pipe and shutting off currents of cold air from the outside. In cold weather the hot water or steam is kept circulating through the coil around the receptacle C, to prevent freezing. The liquid in the tank E is admitted to the bowl B on the receptacle C, and the urinal I, by opening suitable cocks, whenever it may be deemed advisable to disinfect or deodorize said vessels.

Modifications in detail may be resorted to, without departing from the spirit of the invention or sacrificing any of its advantages.

The contents of the receptacle C may be removed at any desired intervals or places, and the admission of the deodorizing or disinfecting liquids should be solely under the control of the railway servants.

What I claim as new is—

1. The combination with a water-closet bowl, of a closed receptacle beneath the same having a valved outlet and a valve at the bottom of the bowl normally closed or automatically opened by the weight of a person on the seat, a vent valve carried by the arm of the valve for the bowl, and a vent pipe from said receptacle adapted to be closed by said vent valve, substantially as specified.

2. The combination with a water-closet bowl, having an automatically-closing valve, of a receptacle beneath said bowl, terminating in a valved pipe, and having a ventilator extending upward above the roof of the car, said ventilator having a valve normally open and carrying a supplemental valve to close the bottom of the bowl, but automatically closing by the weight of a person on the seat, substantially as specified.

3. The combination with a water-closet bowl, of a receptacle beneath, terminating in a valved pipe and ventilated by an automatically-valved pipe above a pivotally mounted bar carrying a valve for the bowl and for said ventilating pipe, and a circulating coil of pipe around the receptacle, substantially as specified.

4. The combination of a water-closet bowl, of a receptacle beneath terminating in a valved pipe and ventilated by an automatically-valved pipe, of a jacket around the receptacle, a pivoted part carrying a valve for said bowl and another for said pipe and a coil of pipe between these two connected with a source of heat, substantially as specified.

5. The combination with a water-closet bowl, of a receptacle beneath the same which embraces the valved discharge end, an automatically-acting downwardly-movable valve from the bowl above actuated by the weight of a person sitting on the seat, and a vent valve carried by the arm of the valve for the

bowl and adapted to close a vent pipe, substantially as specified.

5 6. The combination with a water-closet bowl, of a receptacle beneath the same, an automatically-acting valve for said bowl, a valved outlet pipe to said receptacle, a ventilating pipe to said receptacle, a vent valve carried by the arm of the valve for the bowl, and a jacket around the receptacle and a coil

of pipe within the jacket connected with a source of heat supply, as set forth.

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

STEPHEN S. HERRICK.

Witnesses:

LEE D. CRAIG,
RICHARD MORRIS.