G. F. ZAUN.

RAILWAY CAR TOILET CONSTRUCTION.

APPLICATION FILED NOV. 21, 1918.

1,325,310.

Patented Dec. 16, 1919.

2 SHEETS—SHEET 1.

Fig. 1

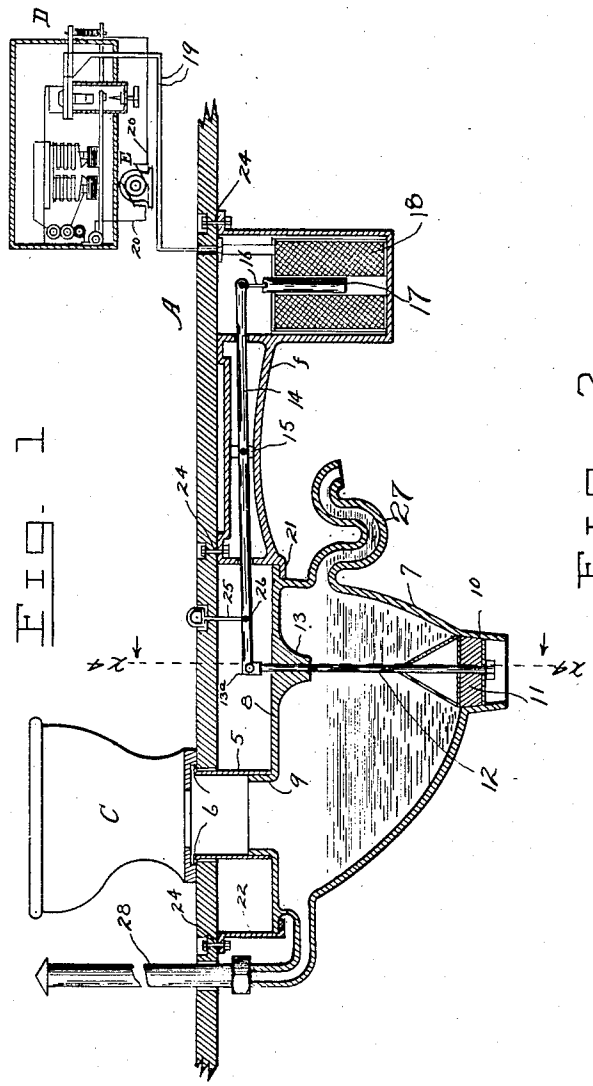
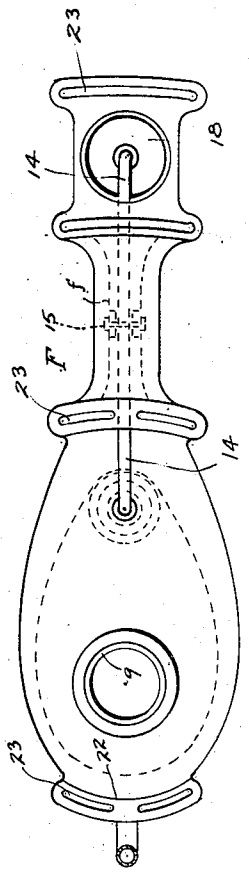


Fig. 2



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Fig. 3

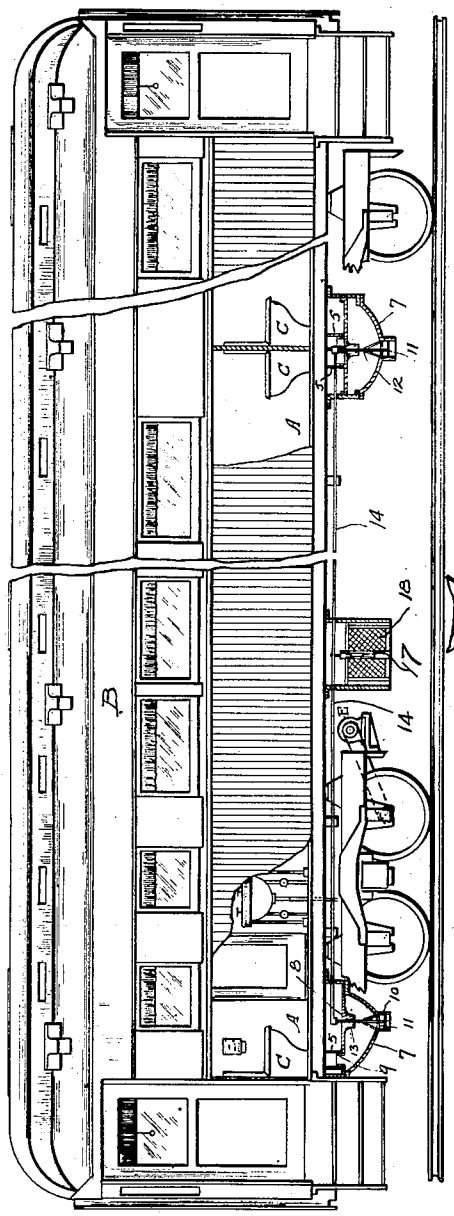
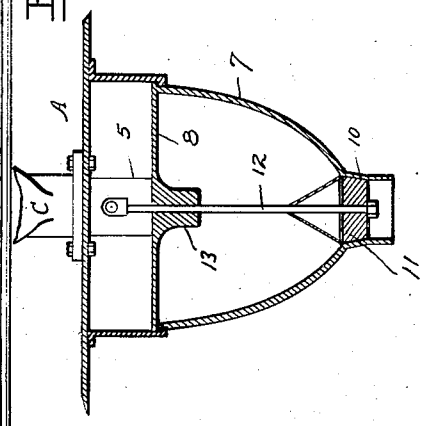


Fig. 4



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UNITED STATES PATENT OFFICE.

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RAILWAY-CAR-TOILET CONSTRUCTION.

1,325,310. Specification of Letters Patent. Patented Dec. 16, 1919.

Application filed November 21, 1918. Serial No. 263,565.

To all whom it may concern:

Be it known that I, GEORGE F. ZAUN, a citizen of the United States, residing at San Bernardino, in the county of San Bernardino and State of California, have invented new and useful Improvements in Railway-Car-Toilet Constructions, of which the following is a specification.

This invention relates to railway car toilet construction, and it has for its object to provide improvements in railway car construction relating to the disposition of substances consigned to toilets, whereby such substances may be withheld from station and yard zones and only discharged or released upon the right of way at zones other than the yard and station zones. In accordance with the invention, these substances may be entirely withheld from the zones in which it is undesirable to deposit them, and this may be accomplished automatically without the attention or service or watchfulness or intervention of the train crews. In accordance with the invention, the discharge of the substances consigned to toilets and deposited therethrough may be caused only when the train or car is operating at or above a predetermined speed. Thus, when the car or train slows down to enter a yard or station zone, the deposition of such substances is automatically terminated and prevented. The invention has, for further objects, the provision of improvements in railway car toilet construction of the nature stated which will be superior in point of relative simplicity and inexpensiveness of construction, taken in conjunction with positiveness and efficiency and reliability in service, facility in installation or removal for repair or replacement of parts, durability, responsiveness to control, compactness in form, and adaptability to mechanical construction and environment, and which will be generally superior in serviceability.

With the above and other objects in view, the invention consists in the novel and useful provision, formation, construction, combination, association, and relative arrangement, of parts, members and features, all as hereinafter described, shown in the drawings, and finally pointed out in claims.

In the drawings:

Figure 1 is a central longitudinal sectional view taken through a portion of the floor construction of a car, and through car toilet construction, embodying the invention, and supported from the floor, parts being shown in elevation;

Fig. 2 is a top plan view of the toilet construction shown in Fig. 1, the same being in a detached position;

Fig. 3 is a side elevation of a railway car, equipped with toilet construction embodying the invention, the same being partly broken away and in section, to assist illustration; and,

Fig. 4 is a detail vertical sectional view, taken upon the line x^4—x^4, Fig. 1, and looking in the direction of the appended arrows.

Corresponding parts in all the figures are designated by the same reference characters

Referring with particularity to the drawings, A designates a portion of the flooring of a railway car, B, upon which flooring is or are supported one or more toilet bowls, C, over suitable openings in the floor, the contents of such bowls being adapted to be discharged or disposed of through discharge pipes, 5, extending beneath the flooring and flanged as at 6 to rest upon it. Each such pipe or tubular discharge spout, 5, empties into a hopper, 7, of which there may be one for each toilet bowl, C, or one for a plurality of toilet bowls, each such hopper having a top covering or wall or closure plate, 8, provided with a separate collar, 9, extending upwardly into each discharge pipe, 5, the discharge through which it accommodates. At the lower end of each hopper, 7, or at the bottom portion thereof, is provided a downwardly tapering discharge spout, 10, the inner wall of which provides a seat for a valve or stopper, 11, preferably of rubber, to produce a tight closure when seated, and mounted upon the lower end of a valve stem or rod, 12, the upper end of which passes freely and slidably through a boss, 13, upon the top closure plate 8, such boss serving as a guide to confine the stem or rod, 12, to its proper path of play, and insure the direct seating of the valve or plug, 11. Loosely and pivotally connected with the upper end of the stem or rod 12, as at 13^a, is a lever arm, 14, fulcrumed as at 15, at a point between its ends, and preferably further from the end of the pivotal connection 13^a, than from the other end, which other end is loosely and pivotally connected by a link 16 with the core or armature 17 of a solenoid 18, energized

through circuit wires 19, making an electric path to an automatic switch device, D, receiving and controlling electrical energy through a path comprising circuit wires 20 which electrically connect such switch device with a source of electrical energy E, which in practice will be a generator operated by or in the movement of the car or train with which the toilet construction of the invention is equipped. The switch device, D, is so organized in accordance with well known and standard practice, or of any preferred organization, that it will only operate to energize the solenoid 18, when a predetermined pressure or voltage is supplied through the circuit wires 20, from the source of electrical supply, E, and this electrical pressure or voltage will be that which is generated at a predetermined speed of motion of the car or train, with which the improvements are associated. Thus, the switch device D may be set or adjusted to energize and maintain the energization of the solenoid 18, when the car or train is moving at a speed of forty miles an hour, and it follows that if the trains or cars of a given system never operate at a speed as high as forty miles an hour when within the station or yard or other prescribed zones or limits, the solenoid 18 will never be energized at such latter times, and no pull will be exerted to oscillate the lever arm 14, and displace the valve or plug 11 from its seat in the hopper 10. Thus, conversely, it is only when the car or train is out of the yard or other prescribed limit, that the solenoid 18 will be energized and the valve or plug 11 removed from its seat or held so removed, so as to permit the discharge of the contents of the hopper 7 upon the right of way.

The solenoid, 18, and lever 14, with its fulcrum 15, are both accommodated in a frame member *f*, which is flanged as at 21, in connection with the hopper, 7, and its attendant features, these latter being flanged in connection with a hanger, 22; and such hanger and hopper, 7, and its features, together with its frame member, *f*, are all comprised within a detachable unit, F, which may be connected with the flooring, A, by means of curved slots, 23, in the frame member, *f*, and, in the hanger, 22, and whereby such detachable unit may be suspended by bolts 24 from the flooring, A, and adjusted so as to properly center with the bowl C and its discharge spout, 5. Likewise, this permits of conveniently and speedily detaching and re-attaching the hopper, 7, and the attendant features, for purposes of repair, cleaning, replacement, or the like. A safety pull, 25, may be provided through the flooring A, and connected with the lever arm 14, pivotally, as at 26. Likewise, an overflow, 27, with trap, may be provided upon the hopper. From the opposite side of the hopper, 7, may be provided a vent pipe, 28, which may extend above the roof of the car.

In Fig. 3, the car is shown as provided with three of the bowls, C, one of them being at one end of the car and provided with a separate hopper, 7, with its plug or valve 11 and the other attendant features, and the other two bowls being indicated as in separate compartments such as those in a compartment sleeping car, and jointly served by one of the hoppers, 7, with its valve or plug 11 and the other attendant features. Two of the lever arms, 14, are shown in this arrangement, one for each of the valve rods, 12. Thus when the solenoid 18 is energized both hoppers are caused to evacuate and all three bowls are thus served. It is apparent that thus any desirable number of bowls may be served by a proper number of hoppers, and that the valves or plugs of all the hoppers may be jointly controlled, to withdraw them from their seats and permit the hoppers to discharge, when the car or train reaches a predetermined speed of motion, and that when the speed falls below such predetermined rate, all of the plugs or valves will seat, and all of the hoppers will thus be closed, for passage through prescribed station or yard limits or zones, or the like.

The safety pull, 25, may be utilized to discharge the contents of the hopper 7, if by chance any of the valve controlling means should get out of order, the overflow 27 permits any liquid contents of the hopper to be discharged in case of overflowing of the hopper, and the vent pipe 28 discharges into open space any gaseous or noxious fumes, or the like, accumulating within the hopper.

It is manifest that many variations and changes may be made in practising the invention and adapting it to varying conditions of use and service, all with respect to the specific disclosures of the drawings and foregoing description and statement, all without departing from the true spirit of the invention.

Having thus disclosed my invention, I claim and desire to secure by Letters Patent:

1. Rolling stock provided with a toilet bowl and a hopper with which the bowl communicates, a valve for the hopper, a solenoid, the rolling stock being provided with an electrical generator the voltage of the current generated by which is responsive to change of speed of motion of the rolling stock, a device electrically connected with the generator and with the solenoid and whereby the solenoid is energized when the train is moving at a predetermined speed, and means actuated by the core of the solenoid for operating said valve to discharge the contents of the hopper.

2. Rolling stock provided with a toilet

bowl and a hopper with which the bowl communicates, a valve for the hopper, a solenoid, the rolling stock being provided with an electrical generator the voltage of the current generated by which is responsive to change of speed of motion of the rolling stock, a device electrically connected with the generator and with the solenoid and whereby the solenoid is energized when the train is moving at a predetermined speed, and means actuated by the core of the solenoid for operating said valve to discharge the contents of the hopper; said named means comprising a lever operatively connected with said valve at one side of its fulcrum, and operatively connected with the solenoid core at the other side of such fulcrum.

3. Rolling stock provided with a toilet bowl and a hopper with which the bowl communicates a valve for the hopper, a solenoid, the rolling stock being provided with an electrical generator the voltage of the current generated by which is responsive to change of speed of motion of the rolling stock, a device electrically connected with the generator and with the solenoid and whereby the solenoid is energized when the train is moving at a predetermined speed, and means actuated by the core of the solenoid for operating said valve to discharge the contents of the hopper; said last named means comprising a lever, operatively connected with said valve at one side of its fulcrum and operatively connected with the solenoid core at the other side of such fulcrum; and said lever being provided with a safety pull for manually operating said valve.

4. Rolling stock provided with a toilet bowl and a hopper with which the bowl communicates, a valve for the hopper, a solenoid, the rolling stock being provided with an electrical generator the voltage of the current generated by which is responsive to change of speed of motion of the rolling stock, a device electrically connected with the generator and with the solenoid and whereby the solenoid is energized when the train is moving at a predetermined speed, and means actuated by the core of the solenoid for operating said valve to discharge the contents of the hopper; said last named means comprising a lever operatively connected with said valve at one side of its fulcrum and operatively connected with the solenoid core at the other side of such fulcrum; said solenoid and said lever and said hopper and said valve being combined into a detachable unit applicable to the flooring of the rolling stock.

5. Rolling stock provided with a toilet bowl and a hopper with which the bowl communicates, a valve for the hopper, a solenoid, the rolling stock being provided with an electrical generator the voltage of the current generated by which is responsive to change of speed of motion of the rolling stock, a device electrically connected with the generator and with the solenoid, and whereby the solenoid is energized when the train is moving at a predetermined speed, and means actuated by the core of the solenoid for operating said valve to discharge the contents of the hopper; said last named means comprising a lever operatively connected with said valve at one side of its fulcrum and operatively connected with the solenoid core at the other side of such fulcrum; said solenoid and said lever and said hopper and said valve being combined into a detachable unit applicable to the flooring of the rolling stock; said detachable unit being provided with curved-slotted portions adapted to receive securing devices for properly centering the detachable unit in connection with the toilet bowl.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

GEORGE F. ZAUN.

Witnesses:
G. A. H. SPEYERER,
W. H. STOCKLEY.