E. G. WATROUS.

WATER CLOSET.

APPLICATION FILED MAY 23, 1907.

1,000,565. **Patented Aug. 15, 1911.**

2 SHEETS—SHEET 1.

Fig. 1

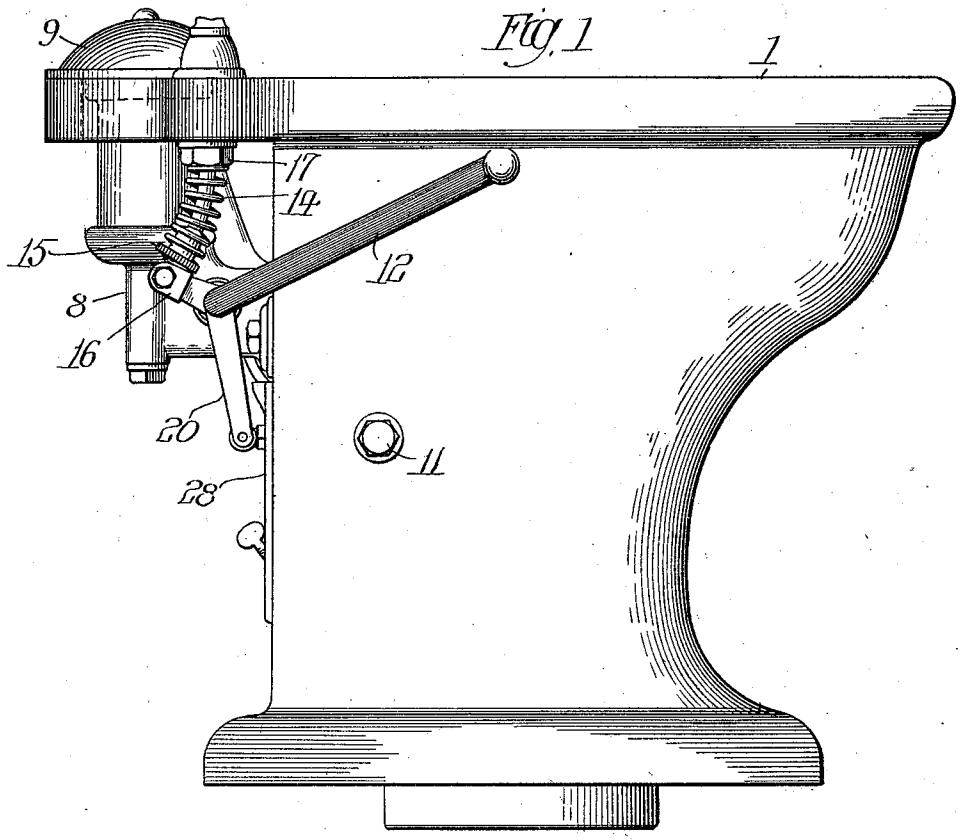

Fig. 2

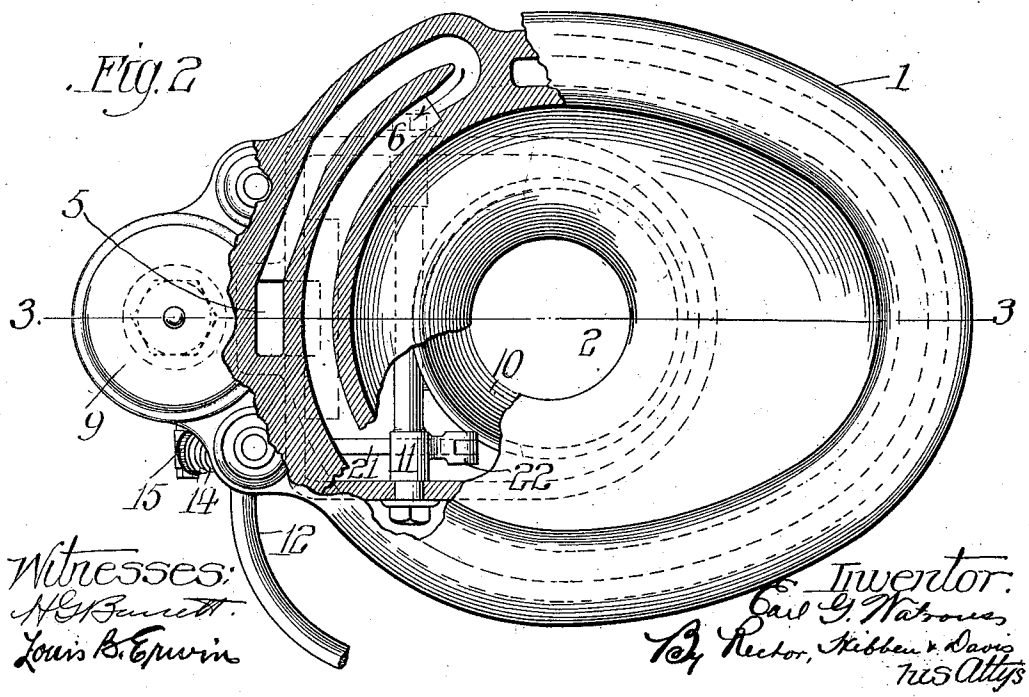

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Fig. 3

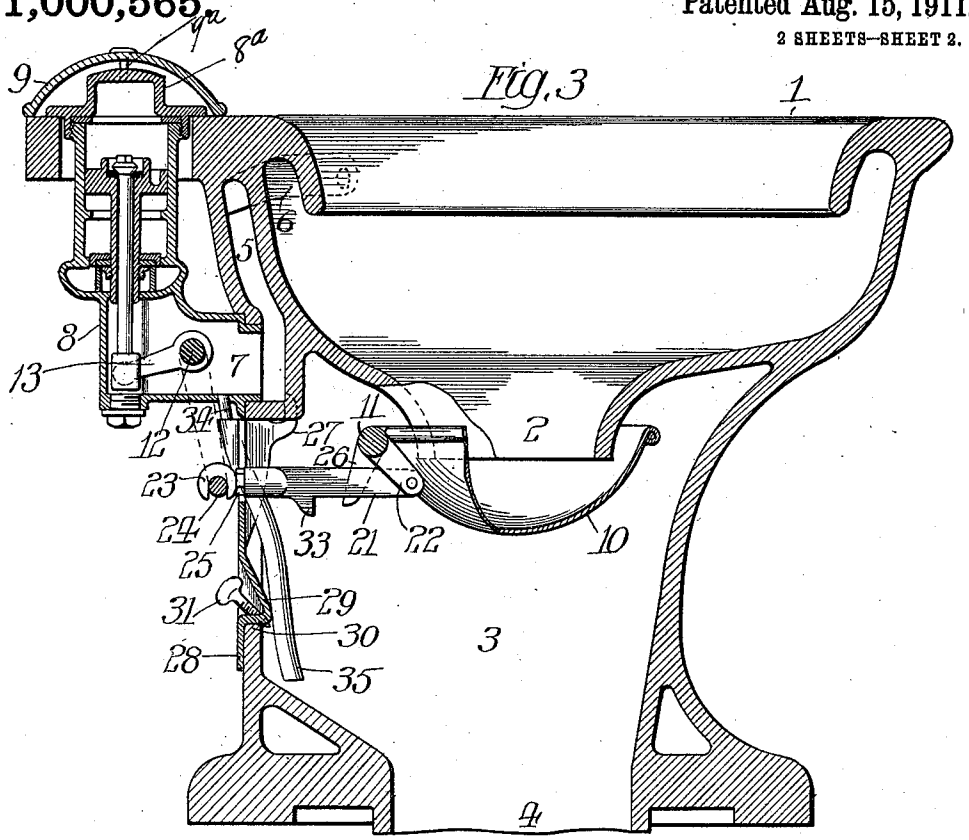

Fig. 4

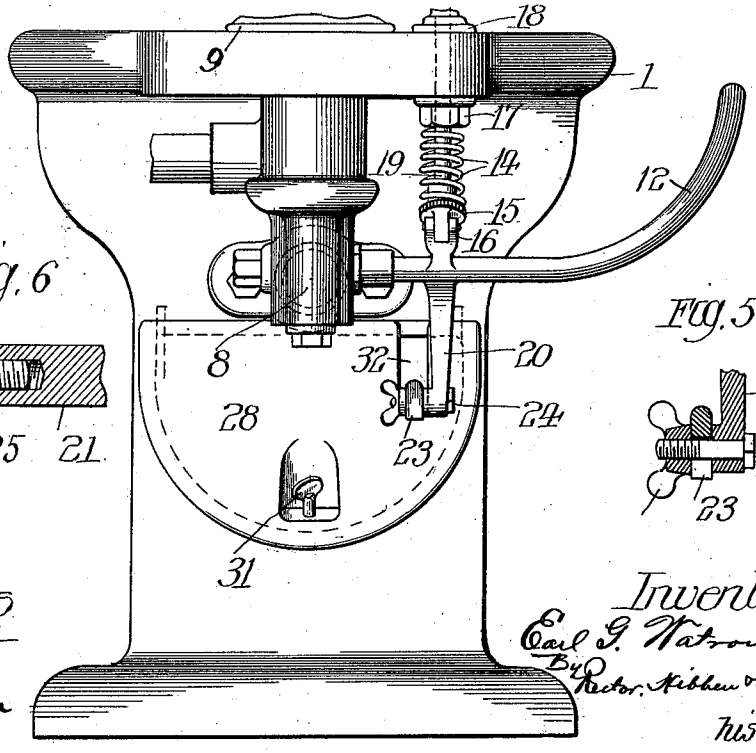

Fig. 6

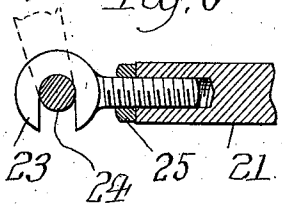

Fig. 5

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WATER-CLOSET.

1,000,565. Specification of Letters Patent. Patented Aug. 15, 1911.

Application filed May 23, 1907. Serial No. 375,229.

To all whom it may concern:

Be it known that I, EARL G. WATROUS, a citizen of the United States, residing at Chicago, Cook county, Illinois, have invented certain new and useful Improvements in Water-Closets, of which the following is a specification.

My invention relates to water closets particularly designed for use on railway cars and the object thereof is to provide a simple and efficient closet of this character and one in which are combined the advantageous features of the flushing and the pan closet, the flushing thereof being performed by water under pressure supplied, at will, through the medium of a slow-closing valve device. Moreover my water closet, in the present instance and by preference, is provided with means whereby the pan may be rendered inoperative and be swung away from operative position with respect to the bowl outlet, which arrangement is of advantage in the event that the water supply of the car should become exhausted or the slow-closing valve mechanism should, by chance, become inoperative, whereupon the closet would be converted into an ordinary so called dry hopper closet.

In the drawings Figure 1 is an elevation of my improved water closet; Fig. 2 a plan view thereof with a portion broken away; Fig. 3 a central section on the line 3—3 of Fig. 2; Fig. 4 a rear elevation of the water closet; and Figs. 5 and 6 detail views of the operating rod or connection between the pan and operating lever.

The same reference characters refer to the corresponding parts in the several figures in the drawings.

Referring to the present embodiment of my invention as shown in the drawings, the water closet or bowl structure consists of a bowl proper marked 1 having a bottom discharge opening 2 communicating with a discharge space or chamber 3 therebelow formed as an integral part of the bowl structure. This bowl structure is arranged to rest upon or be supported by the floor of the car and said discharge chamber 3 is adapted to communicate with the usual discharge pipe or connection (not shown) through the opening or outlet 4 in the base portion of such bowl structure. The bowl proper is, in the present instance, provided with means for a spiral flush and to this end it is provided with a flushing passage 5 having a discharge port 6 for discharging the water upon the inner surface of the bowl proper at such an angle as to bring about the spiral flushing action in the proper manner and initially at the back of the bowl. This water supply passage 5 communicates with the space or chamber 7 formed in the lower part of a slow-closing valve device 8 which being not well known and not forming any part *per se* of my present invention, need not be further described, except to say that such slow-closing valve device which has a top or cap 8^a is arranged at the rear end of the closet bowl and substantially below the top plane thereof, the same being covered by a cap 9 of the same material, usually porcelain, as the bowl itself and secured to cap 8^a by suitable fastening means such as the screw 9^a.

The pan 10 is arranged below the bowl outlet 2 and is of such shape as to contain a body of water sufficient to seal such bowl outlet. This pan is arranged to swing downwardly and rearwardly to open the bowl outlet and to discharge its contents and to this end the pan is pivoted upon a cross rod or shaft 11 extending from side to side of the bowl structure as shown particularly in Fig. 2.

The slow-closing valve device and pan are arranged to be operated in unison and the same are therefore provided with common actuating connections. In the present instance the operating device is a handle or lever 12 whose inner end has its bearings in the slow-closing valve device 8 and is operatively connected with such valve device by means of the crank arm 13 with the result that when the lever is rocked downwardly the slow-closing valve device is operated to admit the water to the passage or chamber 7 and thence through the passage 5 and outlet port 6 to the interior of the bowl for flushing the same. This movement of the operating lever is against the tension of the coiled spring 14 which bears at one end against the plate 15 which is pivoted to the lugs 16 projecting from the lever 12 and at its other end against the recessed nut 17. For the sake of compactness and simplicity I take advantage of the presence of this nut 17 whose primary purpose is to engage the tubular post or sleeve 18 of one of the hinges for the usual cover or lid (not shown) of the water closet. By preference I provide the plate 15 with a

curved rod or stem 19 which serves as a guide or support for the spring and which is received by the tubular post 18 when the operating lever 12 is rocked as hereinbefore described.

The operating lever 12 is likewise operatively connected with the pan 10 and the preferred connections will now be described. This operating lever 12 is provided with a depending crank arm 20 positioned at the rear of the bowl structure and pivotally connected to a horizontal link 21 whose inner end is in turn pivotally connected with a crank arm 22 secured to the rock shaft 11 to which the pan 10 is secured as described. It is desirable to make provision for adjusting the length of one at least of the operating connections in order to compensate for variations occurring in the manufacture of the parts so that the pan shall have the proper or desired arc of movement and in the present instance I provide such adjustment in the link 21 which is made in two parts the rear one of which marked 23 is formed at its rear end as a hook adapted to hook over or engage a thumb screw 24 which screws into the lower end of the crank arm 20. As shown particularly in the detailed view, Fig. 6, the stem or shank of the hook 23 is screw threaded so as to screw into the rear end of the body of the link 21 whereby the link may be lengthened or shortened. These parts are held or locked in their adjusted position by means of a lock nut 25. It will now be understood that when the operating lever is rocked downwardly in the manner hereinbefore described, the crank arm 20 is rocked rearwardly thereby shifting the link 21 in the same direction and causing the pan to swing downwardly and rearwardly. In order to limit the rearward swing of the pan I provide the latter with a stop arm 26 which is adapted to engage a part of the bowl structure, the same contacting in the present instance at the point 27.

For the purpose of convenient access to the discharge chamber 3 below the bowl proper and also to the operating parts therewithin I provide the rear end of the bowl structure with an opening of considerable size which is arranged to be closed by a cover 28. In the present instance this cover, which is in the form of a plate, is provided with an inwardly directed recess 29 whose bottom portion rests upon the top edge 30 of the opening in the bowl structure. As a convenient means for locking the cover or plate in position I provide the thumb screw 31 passing angularly through the recessed portion 29 and engaging in front of the top edge 30 of said opening. As shown in Fig. 4 this plate 28 is provided with a slot 32 in order to accommodate link 21.

As hereinbefore stated it may become desirable, for instance in case the water supply on the car should become exhausted, to convert the water closet into a dry hopper closet, in which event the pan 10 would be swung downwardly to open position. In order that this may conveniently be done I provide the hook 23 which may be uncoupled from the crank arm 20 by simply loosening the thumb screw 24 and I also provide means whereby such pan may be held in open position. As shown the lower edge of the link 21 is provided with a projection or lug 33 which after the disengagement of the link 21 from the crank arm 20 and after such link has been drawn rearwardly, is adapted to hook over the bottom of said slot 32 and thereby retain the pan in open position. In order to drain the lower end of the slow-closing valve mechanism of water I provide a pipe arranged to communicate with the chamber 3. As shown this pipe is made in two parts or sections, one of which 34 communicates with the chamber or passage 7 and the other of which 35 is secured to and removable with the plate or door 28.

I claim:

1. In a water closet, the combination with a bowl having a bottom outlet, of a slow-closing valve mechanism for governing the supply of water for flushing the bowl, a pan controlling said bowl outlet, means common to said valve mechanism and pan for operating them, means whereby the operating connection with the pan may be rendered inoperative, and means for holding the pan in open position when thus disabled; substantially as described.

2. In a water closet, the combination with a bowl having a bottom outlet, of a slow-closing valve mechanism for governing the supply of water for flushing the bowl, a pan controlling said bowl outlet, means common to said valve mechanism and pan for operating them, consisting of a lever connected with such valve mechanism and connections between the lever and pan comprising a crank arm 20 on the lever, a crank arm 22 connected with the pan, and a link 21 connecting the arms, and removably connected with one of them, and means for holding the pan in open position when the link is disconnected or removed; substantially as described.

3. In a water closet, the combination of a bowl structure comprising a bowl proper having an outlet 2 and a chamber 3 below the bowl proper, said chamber having an opening in one side and a closure 28 therefor, slow-closing valve mechanism for governing the supply of water for flushing the bowl, a pan controlling said bowl outlet, a lever for operating the valve mechanism, and operating connections between such lever and the pan, said closure being remov-

able without disturbing such connections; substantially as described.

4. In a water closet, the combination of a bowl structure comprising a bowl proper having an outlet 2 and a chamber 3 below the bowl proper, said chamber having an opening in one side and a closure 28 therefor, slow-closing valve mechanism for governing the supply of water for flushing the bowl, a pan controlling said bowl outlet, a lever for operating the valve mechanism, a link 21 operatively connected with the pan and the lever respectively and extending through the closure, such link being removably connected with the lever and arranged to be rendered inoperative, and means for holding the link in position to keep the pan open when the former is thus rendered inoperative; substantially as described.

5. In a water closet, the combination of a bowl structure comprising a bowl proper having an outlet 2 and a chamber 3 below the bowl proper, said chamber having an opening in one side and a closure 28 therefor, slow-closing valve mechanism for governing the supply of water for flushing the bowl, a pan controlling said bowl outlet, a lever for operating the valve mechanism, a link 21 operatively connected with the pan and the lever respectively and extending through the closure, such link being removably connected with the lever to enable it to be rendered inoperative and being provided with a projection adapted to engage the closure to thereby maintain the pan in open position when the link is thus rendered inoperative; substantially as described.

6. In a water closet, a bowl having a substantially central discharge outlet and provided with a water discharge passage having an opening into the bowl interior to discharge the water backwardly and initially at the back portion of such bowl interior; substantially as described.

7. In a water closet, a bowl having a discharge outlet 2 and provided with a passage 5 extending laterally and forwardly of the bowl body and terminating in a discharge opening 6 arranged to direct the stream of water tangentially and backwardly of the bowl interior and initially at the back portion thereof; substantially as described.

8. In a water closet, the combination of a bowl structure having a central rearward extension, a slow-closing valve device cooperating therewith and having a casing passing through said extension said casing including a top portion 8^a bearing upon the top surface of the bowl structure, and a cap 9 fitting over said top portion and secured thereto; substantially as described.

9. In a water closet, the combination of a bowl structure comprising a bowl and a chamber 3, having a rear opening, a removable closure therefor, a slow-closing valve mechanism coöperating with the bowl for governing the supply of water for flushing it, and a drain pipe connection from the valve mechanism to said chamber, said drain pipe being made in two sections one of which is connected to and removable with the closure; substantially as described.

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