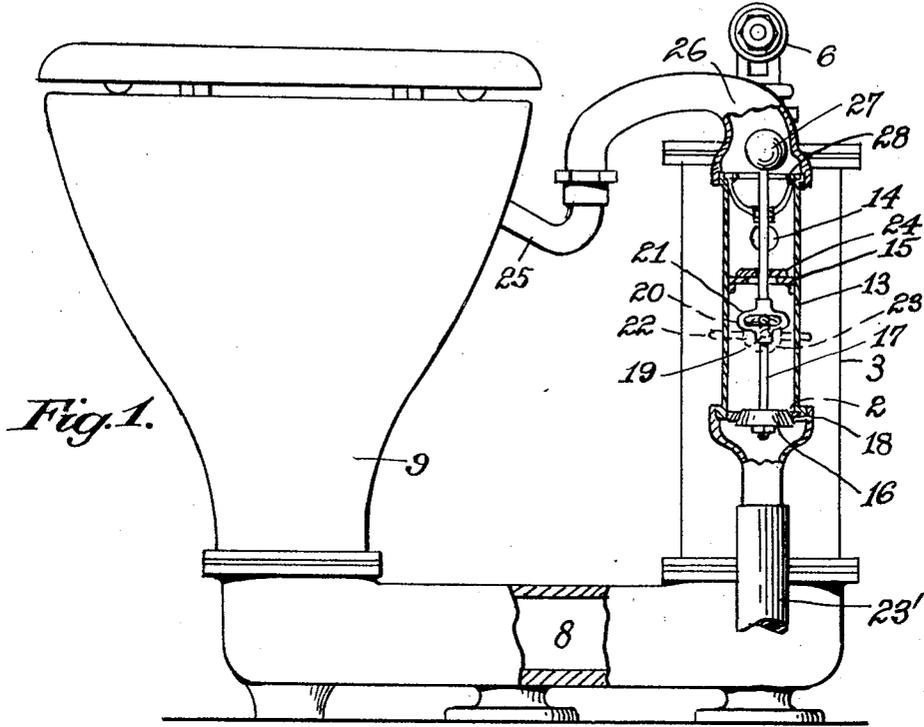


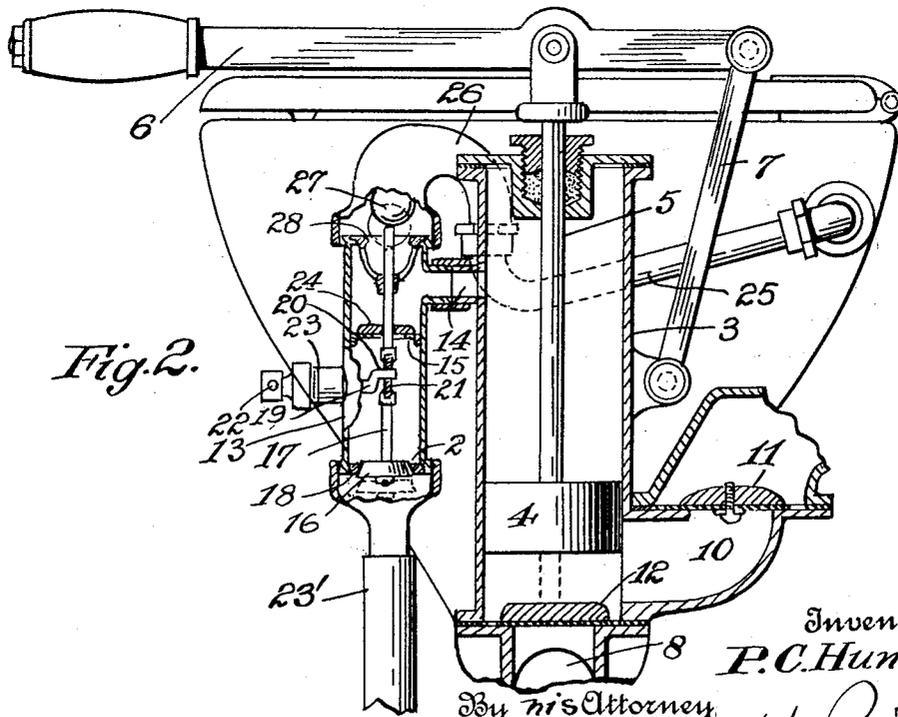
P. C. HUNTER.  
MARINE TOILET.  
APPLICATION FILED JULY 9, 1921.

1,403,688.

Patented Jan. 17, 1922.



*Fig. 1.*



*Fig. 2.*

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By *his* Attorney  
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# UNITED STATES PATENT OFFICE.

PETER C. HUNTER, OF BROOKLYN, NEW YORK.

## MARINE TOILET.

1,403,688.

Specification of Letters Patent. Patented Jan. 17, 1922.

Application filed July 9, 1921. Serial No. 483,482.

*To all whom it may concern:*

Be it known that I, PETER C. HUNTER, a citizen of the United States, and a resident of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Marine Toilets, of which the following is a specification.

This invention relates to toilet apparatus for use in boats of various kinds where the flushing water is pumped directly from the outside of the boat, and operated mechanically instead of having a supply of water from a tank or other source under pressure.

This invention is in the nature of an improvement on the structure set forth in U. S. Letters Patent granted to me September 10, 1918, No. 1,278,665, and has for its object to provide an improved form of control for the valves in the valve chamber.

In the accompanying drawing showing one embodiment of my invention, Fig. 1 is a front elevation; Fig. 2 is a vertical section taken through the pump and control device.

In the drawing I show a pump device of the usual form comprising a cylinder 3 in which slides the piston 4 on piston rod 5, operated by the hand lever 6, that swings in the link 7. At the lower end of cylinder base 3 is a pipe connection 8 leading into the pump bowl 9. The pump has an outlet at 10 controlled by a check valve 11, while a check-valve 12 admits fluid into the cylinder but prevents a discharge therefrom; and the valve 11 permits discharge but prevents back flow from the outlet. This construction is in general use with this class of toilets.

At one side of the pump cylinder is arranged a valve chamber 13 having a connection at 14 with the upper portion of the cylinder 3 above its piston 4, and it will be observed that the pump cylinder has no other outlet above the piston 4 except this connection, that serves as both inlet and outlet for the flushing water. In the valve chamber 13 below the connection 14 is arranged a valve seat 15, whose upper face is engaged by a check-valve 24 loose on a valve

stem 17, that projects through the lower end 18 of the valve chamber, and also extends up through the valve seat. In the said patent the valve stem was controlled by a foot lever on its lower extension, working in connection with a coil spring that normally held the inlet valve on its seat. In the present construction I provide a rod 19 projecting into the valve chamber 13 through a gland 23, with a handle 22 on the outer end, to rotate the rod. The inner end 20 of this rod is bent to act as a crank pin when the rod is turned. This end projects into a slotted block 21, to which the rod 17 is secured in any suitable manner. By turning the rod 19 a half revolution the inlet valve 16 will be lowered from its seat to admit the water supply, and the upper end of the valve stem 17 will be lowered to permit the ball valve 27 to seat. When the rod 19 is turned another half revolution the valve 16, will be locked in the closed position, and the valve stem will hold the ball 27 away from its seat and prevent its being seated. The valve chamber 13 is provided with an inlet connection at the lower open end containing a valve seat 2, for valve 16, a connection 23' being shown, that extends downwardly, and is usually passed through the boat to the outside water to receive the supply. At the top of the valve chamber 13, I arrange a water outlet leading directly to the flush inlet at the upper portion of the bowl, by the usual connection 25. At the upper part of the valve chamber I provide an outlet portion 26 that connects with the said pipe 25. At this connection I arrange a check-valve, and provide means for normally holding the check-valve unseated, so that when the piston 4 is forced downward air can be drawn in through the connection 25 from the bowl and through the outlet 26. But when this down stroke is a suction stroke, this valve is permitted to close. A ball valve 27 engages the valve seat 28 at the outlet 26, and the valve stem 17 is extended upward so that in the normal seated position of the valve 16 on this stem, the valve stem will engage and hold the ball valve 27 lifted from its seat and prevent its seating. But

depression of the valve stem to unseat the valve 16, will lower the valve stem so that the ball valve will fall and seat itself.

The operation of these parts is as follows.

5 Whenever the piston 4 is drawn upwardly by the lever 6, the valve 12 will raise and a suction will be produced that will act through the pipe connection 8 to withdraw the contents of the bowl at the lower portion.  
 10 On the down stroke of the piston the valve 12 will close, and the fluid drawn into the piston will be forced through the outlet 10, by raising the check valve 11. The raising of the piston 4 will cause air that may be  
 15 in the cylinder 3 above the piston 4, to find exit around the raised valve 27 and through the pipe 25 connecting with the bowl at its inlet. When the piston 4 moves downward, if the valve 27 is held raised by the valve  
 20 stem, as shown, the atmospheric air will be drawn in through pipe 25 around the valve 27, and pass through the connection 14.

But when the valve stem 17 is depressed by control rod 19 the valve 16 will be un-  
 25 seated, and the ball valve 27 will seat and close the outlet 26. If the piston 4 is now raised the air will be driven out of the cylinder 3, and passing through the connection 14 into the valve chamber, can find exit by  
 30 raising the ball valve 27. On forcing the piston 4 downward the cylinder will be exhausted, and the ball valve 27 will be held seated by atmospheric pressure. This will exhaust the valve chamber, and the valve 16  
 35 being now open the exhaust action will extend down to the water inlet 23, and the water will be drawn in through the pipe 29 connecting with this inlet, from the outside water. The water will pass around the valve seat 15,  
 40 and will raise the washer valve 24, and pass into the valve chamber above the valve seat, and through the connection 14 into the cylinder 3 above the piston. The piston being  
 45 next drawn upward the water in the cylinder above the piston will be forced through the connection 14 into the valve chamber, and the pressure on this water will cause the check valve 24 to engage the valve seat  
 50 the inlet pipe. Hence the force on the water against the ball valve 27 will raise this valve and the water must find exit through the pipe 25 and thereby be forced into the upper portion of the bowl. Several  
 55 strokes will fill the cylinder 3 and valve chamber at the down stroke of the piston so that as soon as the piston is drawn upward the water will be strongly forced out through the pipe 25 into the bowl. But this  
 60 reciprocation of the piston will at the same time draw all the contents of the bowl at its lower portion through the bottom connection 8, and discharge such fluid through the outlet 10. Such operation will continue as

long as the lever 6 is operated and the valve 65 stem held depressed by control rod 19. On release of the valve stem the inlet for the water will be closed, and the ball valve 27 again opened. Therefore the continued operation of the hand lever 6 will simply 70 serve to draw off the contents of the bowl through the lower connection, without any further supply of the feed water.

What I claim is:

1. In a marine toilet, the combination 75 with a force pump of the double-acting form comprising a cylinder and a piston, and a connection at one end of the cylinder with the bowl outlet and an outlet at said end of the cylinder, of a valve chamber con- 80 nected with said cylinder at its other end portion from said bowl connection, said valve chamber having a valve seat below said connection, a check-valve arranged to engage said valve seat in the chamber to prevent 85 discharge of the feed water through said valve seat, a valve stem and valve working in the valve chamber, said valve chamber having an inlet valve seat for said stem valve at the lower end, a control rod extending 90 into the chamber engaging the stem to normally press the stem valve against its seat, the valve chamber having an outlet at its upper end beyond the cylinder connection arranged to connect with the bowl flush in- 95 let, and a check valve in said latter outlet arranged to close to prevent air admission at such portion, and to be raised by water forced from the said cylinder into the valve chamber to permit discharge by said piston 100 of the feed water around the outlet valve to the bowl, and when the stem is shifted by the said control the said upper valve is released to act as a check valve and the inlet valve is held in the open position. 105

2. In a marine toilet, the combination with a force pump of the double-acting form comprising a cylinder and a piston, and a connection at one end of the cylinder with the bowl outlet and an outlet at said end of the 110 cylinder, of a valve chamber connected with said cylinder at its other end portion from said bowl connection, said valve chamber having a valve seat below said connection, a check-valve arranged to engage said valve 115 seat in the chamber to prevent discharge of the feed water through said valve seat, a valve stem and valve working in the valve chamber, said valve chamber having an inlet valve seat for said stem valve at the 120 lower end, a control rod extending into the chamber engaging the stem to normally press the stem valve against its seat, the valve chamber having an outlet at its upper end beyond the cylinder connection ar- 125 ranged to connect with the bowl flush inlet, and a check-valve in said latter outlet arranged to close to prevent air admission at

such portion, and to be raised by water forced from the said cylinder into the valve chamber to permit discharge by said piston of the feed water around the outlet valve to the bowl, and when the stem is shifted by the said control the said upper valve is released to act as a check-valve and the inlet valve is held in the open position, said control rod having an eccentric end portion engaging the valve stem to hold the valve stem in said two positions when given a half rotation.

Signed at New York city, N. Y., on June 29, 1921.

PETER C. HUNTER.