No. 637,399. Patented Nov. 21, 1899.

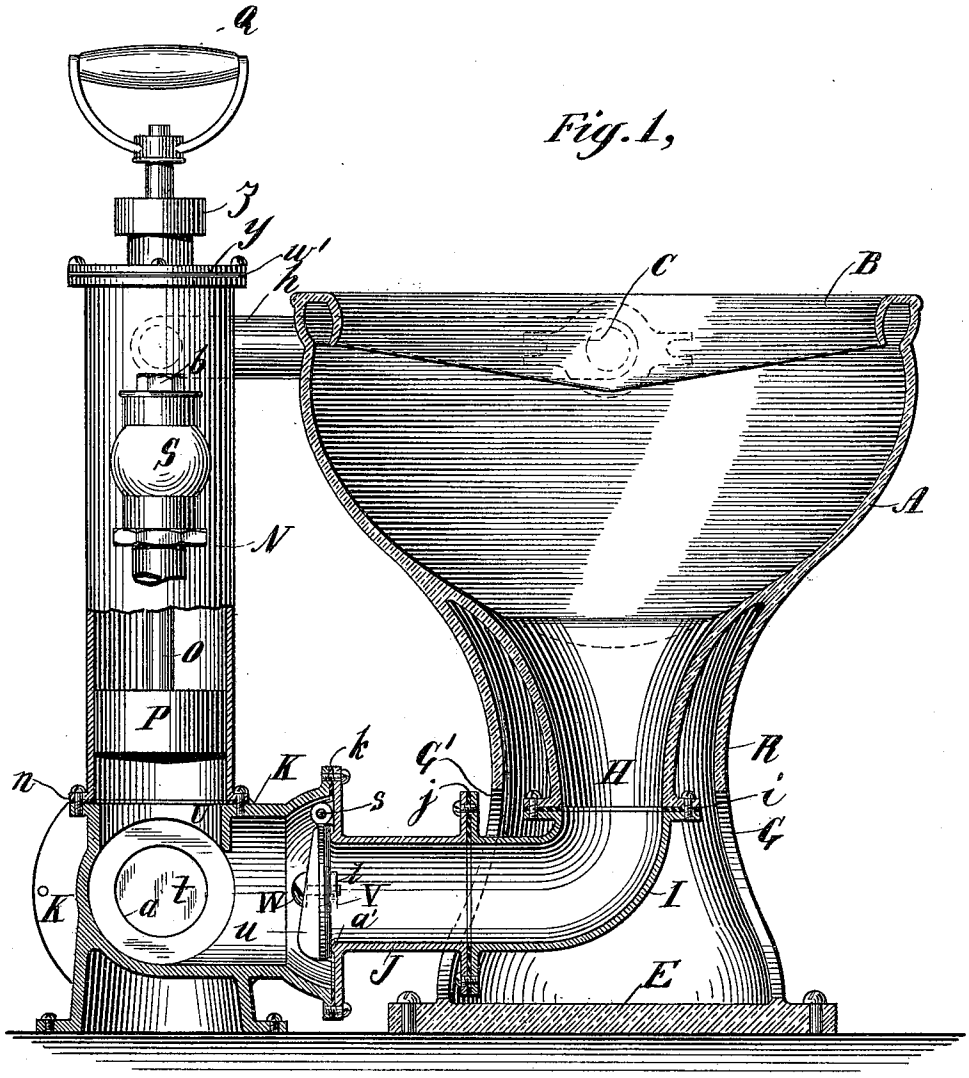
S. R. MILES.

PUMP WATER CLOSET FOR SHIPS.

(Application filed Oct. 10, 1898.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1,



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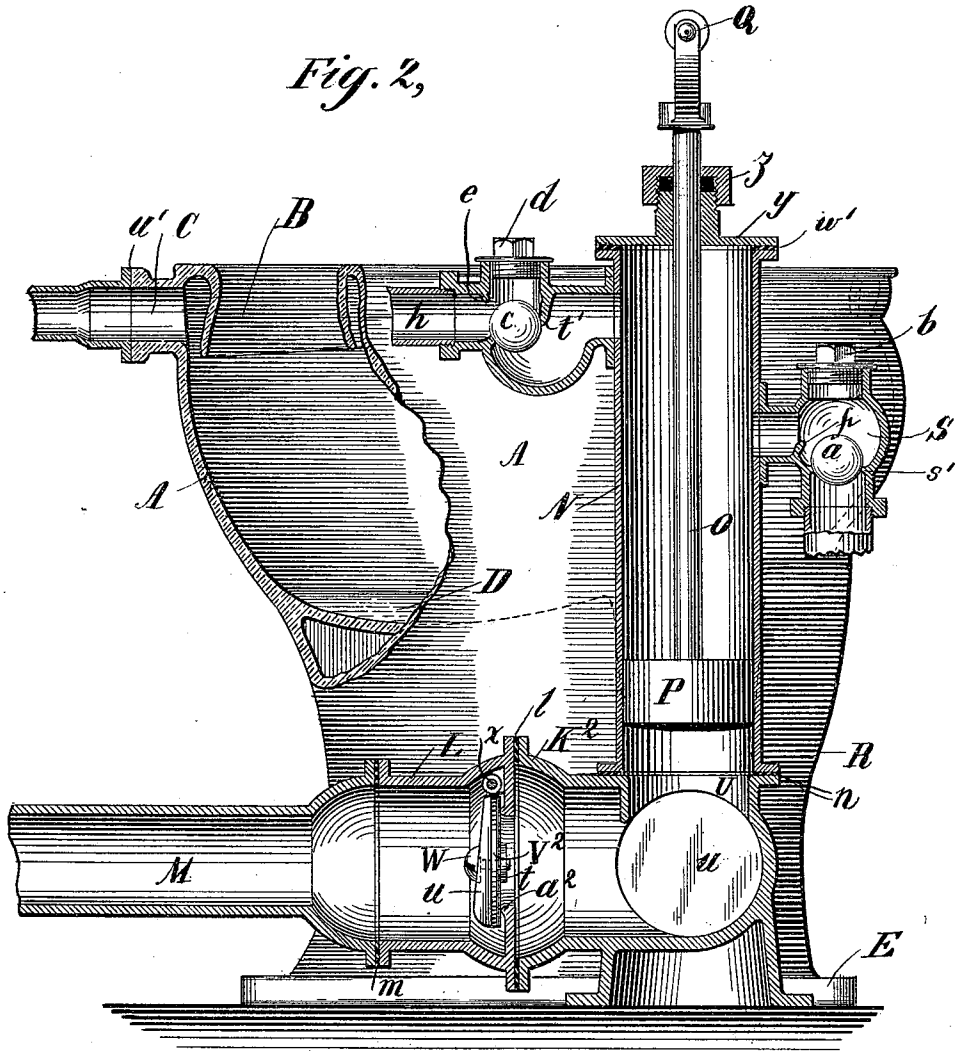
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Fig. 2,



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UNITED STATES PATENT OFFICE.

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PUMP WATER-CLOSET FOR SHIPS.

SPECIFICATION forming part of Letters Patent No. 637,399, dated November 21, 1899.

Application filed October 10, 1898. Serial No. 693,105. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL R. MILES, of the city of Yonkers, county of Westchester, and State of New York, have invented certain new and useful Improvements in Pump Water-Closets for Ships, of which the following is a specification.

My invention relates more especially to that class of water-closets that is provided with pumps intended for use aboard yachts and other vessels; and its objects are to improve the efficiency, cleanliness, and convenience of installation of such water-closets aboard vessels.

My invention consists in the several-named devices, construction, combination, and arrangement of parts hereinafter fully described and claimed.

In the drawings, Figure 1, Sheet 1, is a front elevation, partly sectional, of my invention; and Fig. 2, Sheet 2, is a side elevation, partly sectional, of same, both figures clearly illustrating all features of my invention, their construction, and operation, as will appear in the detailed description following.

Like letters indicate corresponding parts throughout the respective figures.

A is the bowl of the closet, provided with a flushing-rim B, with inlet to the latter at C. D is a sump in the center of the bowl. (Clearly shown in Fig. 2.) R is a hollow pedestal, and E the base of the same. G G′ are lateral openings through opposite sides of the said pedestal, and H is the throat of the bowl, located to one side of the sump D, extending downward within the pedestal and provided with a horizontal flange *i*.

I, Fig. 1, is a tubular flanged vertically-arranged elbow joined to said horizontal flange of the throat H at *i*.

J is a short tubular flanged section, one end of which is joined at *j* to the outer flange of the horizontally-projected end of elbow I, the other end being provided with a wider flange for jointure with one of the flanged ends of a horizontally-arranged bend K at *k* and provided with a valve-seat *a*′, projecting slightly for engagement of a vertical weighted gravity-valve V, which is hinged or pivoted by metallic parts to said section at *s*. This valve on the inner side is faced with a disk of leather *t* or other suitable substance and on the outward side has a weight *u*, thicker at the lower edge than at the upper, as shown. On the upper side and centrally of the bend K is a flanged opening U, to which is connected vertically a pump-cylinder N at *n*.

P is a plunger-head, and O the plunger-rod, the latter extending through the cap-head *y* and stuffing-box *z* and terminated by a handle Q.

On the front side of the pump-cylinder (see Fig. 2) and connecting by an opening therein is a ball-valve pocket S, provided internally with a valve-seat *s*′ and finger *f*. Within this pocket is a ball-valve *a*, of any suitable material. The opening in the top of the pocket through which the ball *a* is entered or removed is closed by a screw-cap *b*. On the opposite side of the pump-cylinder, near its top, is another valve-pocket containing a ball-valve *c* and having similar parts—to wit, valve-seat *t*′, finger *e*, and screw-cap *d*. Fitted to this valve-pocket is a pipe *h*, which is connected to the opening C of the flushing-rim at *u*′.

In Fig. 2, joined to the flange of the other end of the bend K^2, is shown another short tubular flanged section L, having ends of the same dimensions as those of the section J in Fig. 1 and provided with an internal flange and valve-seat a^2 for engagement of a vertical hinged weighted gravity-valve V^2, which in all respects is similar to valve V in Fig. 1. The flange at the other end of this section is connected at *m* with the discharge-pipe M, leading to the sea.

A feature of my invention is comprised in the interchangeability of the parts J, Fig. 1, and L, Fig. 2, and in the reversibility of the horizontal bend K, whereby, in connection with the provision for entering the vertical end of the elbow I through either of the lateral openings G G′ in the pedestal without additional fittings, the pump may be placed to the right or left hand of the bowl A as necessity or convenience and economy of space may require. This reversibility and interchangeability will also permit of placing the closet-bowl so that the back may become the front, if convenience for connecting up the parts or other conditions should demand. In order

that the horizontal bend-section K may be reversible and adapted to accommodate the swing of the hinged valves carried in the sections J and L, I enlarge the interior of the former at both ends. This section K may in some cases be made straight instead of being bent, as shown. It will be understood too that by the general construction of my improved pump water-closet, as shown, I not only provide what is termed "open plumbing," but so reduce the area of floor-space required that the closet may be secured direct to the floor and very close to the converging side of the ship. It will be seen too that by use of the vertical weighted hinged gravity-valves V V^2 and a soil-discharge pipe comprised as described and arranged throughout its length in the same horizontal plane I avoid using "goosenecks," and thereby insure a more direct passage for the soil, greatly reducing the friction and chances for fouling, besides rendering it easy to operate the pump. The weights *u u* on these gravity-valves, which are to make them more prompt in closing, I prefer to make heavier at the lower edge, and these, with the disks *t t*, are held in place by a screw or bolt W W, passing entirely through. By use of the metallic hinge arrangement *x* and *s* these soil-pipe valves cannot easily become deranged, as in the case of flexible fibrous flap-valves. Moreover, no special skill is required to replace the simple disks of leather *t t* in case of necessity. The ball-valves *a c* are also renewable with equal facility.

The sump D provides for sufficient accumulation of water at all times to prevent soil from adhering to the surface of the bowl, and consequently facilitates instant cleansing of the same.

In all of the joints *w'*, *n*, *k*, *j*, *l*, and *m* a washer of a material suitable for insuring water-tight unions is interposed, and at *i* the union of the throat H and bend I should be effected by the interposition of a washer of some elastic, yielding, or cushioning substance in order that no "cramp" may fracture the the said earthenware flange *i* of said throat H.

I describe no particular construction for the plunger P, the only requirements being that it should be packed and cupped, so that it will be water-tight both on the up and down strokes. However, serving as it does for both soil discharge and flushing of the closet both its upper and nether sides are always sealed and saturated with water, and consequently lubricated and prevented from drying out.

The operation of my invention will be understood by the following brief description: A downstroke of the plunger D forces any soil and water in the bend K K^2 outward through the valve V^2 toward the discharge, being resisted to the rear by the valve V, and at the same time by suction closes the ball-valve *c* and opens the ball-valve *a*, (which latter, by the finger *f*, is kept from closing the passage to the pump-cylinder,) drawing clear water from the sea past this valve *a*, filling the pump-cylinder above the plunger. An upstroke of the piston by suction below opens valve V and draws the soil and water from the bowl A, throat H, and bend I into the space below the plunger P and into the bend K K^2, the valve V^2 being closed by the suction and sea-pressure, and simultaneously, by pressure above, closes the ball-valve *a* and opens the ball-valve *c*, (which latter, by the finger *e*, is kept from closing the passage to the pipe *h*,) forcing water into and around the rim B, flushing the bowl A.

I do not wish to limit myself to the use of both the interchangeable valve-carrying sections L and J as separable parts, respectively, of the straight section M and the elbow-section I, for manifestly under some conditions the section L might be an integral part of the horizontal section M, or the section J might be an integral part of the horizontal limb of the section I, without departing from the spirit of my invention, since they would still be adapted to be interchangeably joined at *k l* to the respective flanged ends of the intermediate reversible section K.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a pump water-closet, a bowl provided with intake and flushing passage-way and a throat, a soil-discharge passage-way connected to said throat comprising an elbow I, interchangeable valve-carrying sections J, L each provided with a perpendicular suspended weighted valve arranged to open outwardly, and a reversible horizontally-disposed bend-section intermediate said valve-carrying sections, in combination with a single cylinder-pump operatively connected to both said intermediate bend-section and the intake and flushing passage-way, constructed and to operate substantially as and for the purposes shown and described.

2. In a pump water-closet, a bowl provided with intake and flushing passage-way and a throat, a soil-discharge passage-way connected to said throat comprising an elbow I, interchangeable valve-carrying sections J, L each provided with a perpendicular suspended weighted valve, arranged to open outwardly, and a reversible horizontally-disposed section intermediate said valve-carrying sections, in combination with a single cylinder-pump operatively connected to both said intermediate section and the intake and flushing passage-way, constructed and to operate substantially as, and for the purposes shown and described.

3. In a pump water-closet, a bowl provided with intake and flushing passage-way and a throat, a soil-discharge passage-way connected to said throat comprising an elbow and valve-carrying section I J carrying a perpendicular suspended weighted valve V in

its horizontally-disposed limb arranged to open outwardly, a straight horizontally-disposed valve-carrying section L M also carrying a perpendicular suspended weighted valve V^2 arranged to open outwardly, and a reversible horizontally-disposed section intermediate said valve-carrying section, in combination with a single-cylinder pump operatively connected to both said intermediate section and the intake and flushing passage-way, substantially as described.

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