Sheet 1, 2 Sheets.

J. Palmer.

Bilge Water Discharging.

No. 50,153. Patented, Sept. 26, 1865.

Fig. 6.

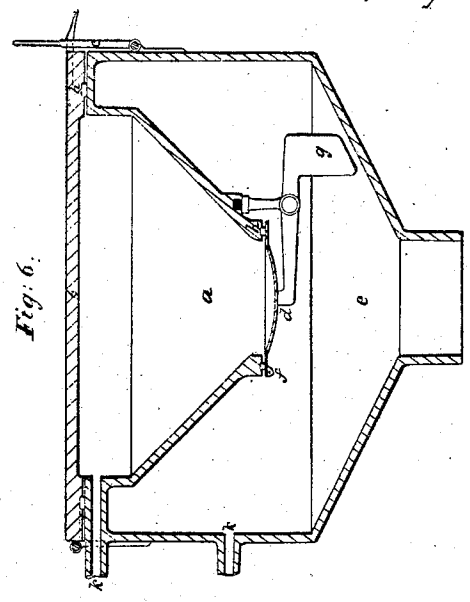


Fig. 2.

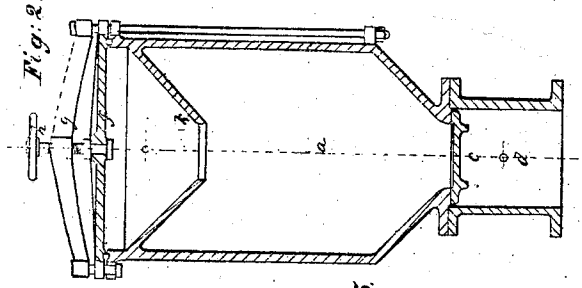


Fig. 4.

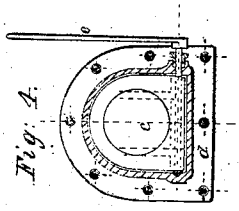


Fig. 5.

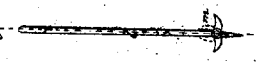
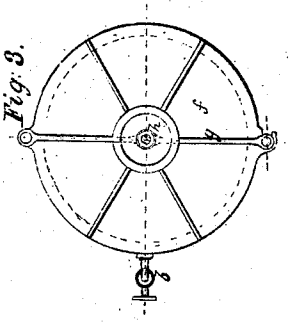


Fig. 1.

Fig. 3.



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James Martin

Inventor:
John Palmer

Sheets, 2 Sheets.

J. Palmer.

Bilge Water Discharging.

No. 50,153. Patented Dec. 26, 1865.

Fig: 14.

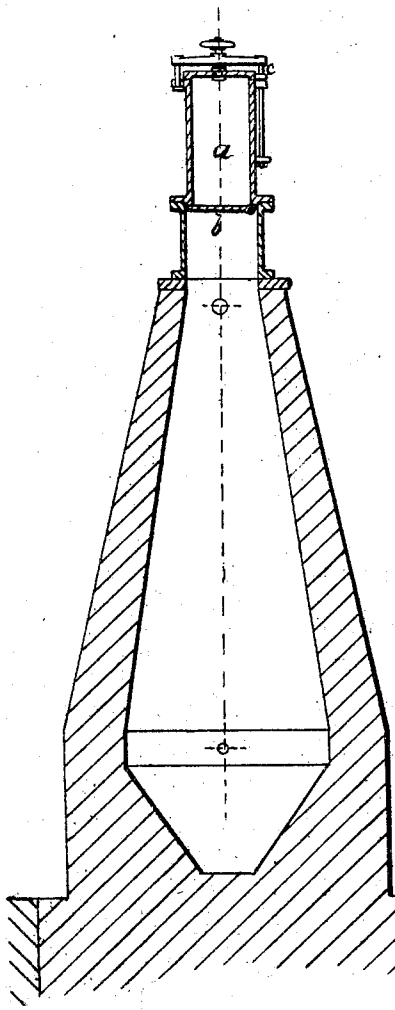
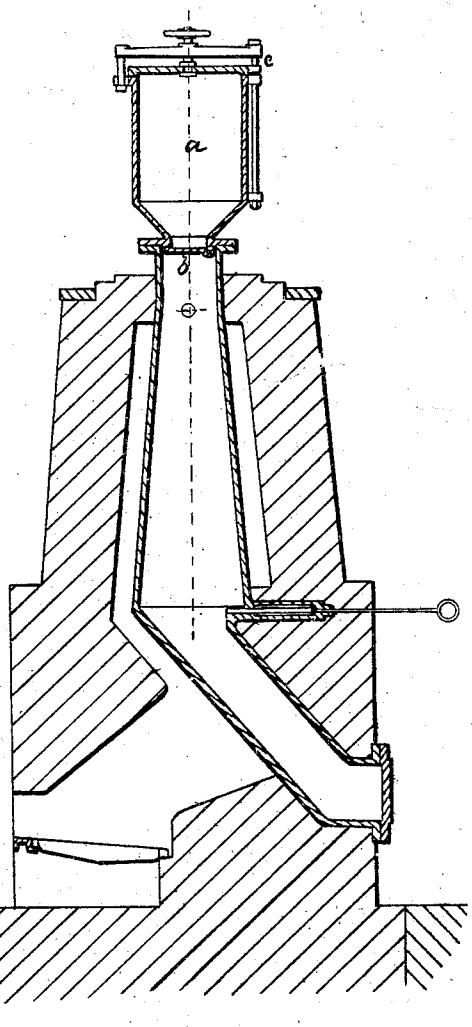


Fig: 15.



Witnesses:
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Inventor:
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UNITED STATES PATENT OFFICE.

JOHN PALMER, OF SANDISFIELD, MASSACHUSETTS.

IMPROVEMENT IN APPARATUS FOR EJECTING REFUSE MATTER FROM STEAM-VESSELS.

Specification forming part of Letters Patent No. **50,153**, dated September 26, 1865.

To all whom it may concern:

Be it known that I, JOHN PALMER, formerly of Sandisfield, in the county of Berkshire, in the State of Massachusetts, in the United States of America, but at present residing at Ferrol, in the Kingdom of Spain, in Europe, have invented a new and useful Apparatus for Expelling Solid and Liquid Refuse Matter from Steam and Sailing Ships Below the Water-Line, and for analogous purposes; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The nature of my invention consists in the depositing any material or matter to be disposed of under unequal pressures of water, air, gas, or other agents into a barrel or receptacle, which barrel or receptacle, by means of the mechanism to be hereinafter described, can be put alternately into operation by means of the aforesaid unequal pressures, so that, a communication with the greater pressure being cut off, the matter can be placed under the ordinary lower pressure in the receptacle or barrel, which, upon being hermetically closed by a lid or cover, is put into communication with the greater pressure by opening a valve, sluice, or other partition, whereupon the aforesaid matter is ejected or falls into the fluid or gas of greater pressure by means of pneumatic or any other elastic fluid pressure externally applied. This pneumatic or other pressure is likewise applied before opening the cover communicating with the lower pressure, in order to expel the fluid or gas of greater pressure from out the box or receptacle which receives the matter to be disposed of.

My said improvement has for its object the getting rid of the ashes, clinkers, and other refuse of the furnaces of a steamship without the necessity of hoisting them out of the stoke-hole; and it consists in attaching to the bottom or any other convenient part of the ship's hold in the vicinity of the furnaces, and sufficiently below the water-line, a water-tight tube, barrel, channel, or receptacle, provided with two suitable covers or any number of valves, one of them opening within the stoke-hole, for the reception of the substances required to be got rid of, and another or external valve is for the purpose of opening the external communication through which the matters to be rejected are passed out of the ship. At the same time the aforesaid receptacle is to be supplied with suitable pressure, as, by example, air forced in by means of a pneumatic pump worked by the steam-engine, or otherwise, which air or other pressure depresses the water and allows the substances deposited in the receptacle to fall by their own weight into the sea so soon as the external valve is opened. Thus, by opening and shutting the valves alternately and the intervention of the air or other pressure at proper times between the valves, the expulsion of the contents of the said submarine receptacle or apparatus may be easily and safely effected.

My said improvement is also applicable to the discharging of the contents of sinks and water-closets when such sinks and water-closets are fixed below the water-level in any part of the ship. In this case, in addition to the pneumatic pump or other air-forcing apparatus, I use a packing of gum-elastic, india-rubber, gutta-percha, or other similar substance, which I place within a suitable recess or groove to be turned in the top cover and bottom edges of the receptacle, and against which the valves or covers may rest, being screwed up thereto by strong cross-bars and properly-arranged pinch bolts, hinges, and clasps, or by any other convenient means, by which the accidental leakage of any offensive effluvia within the ship will be totally prevented. Although the valvular arrangement is not precisely the same, the *modus operandi* for this improvement is the same as hereinbefore described.

I propose to apply the same valvular arrangement and apparatus to the charging of gas-retorts and iron-furnaces on land. In these cases the pneumatic pump will not be required.

In order that the nature of my invention and the means by which I carry the same into effect may be thoroughly understood, I append to this specification a sheet of drawings, having figures and letters of reference marked thereon. In these drawings, although various forms or modifications of my invention are shown, I have in the ash apparatus shown more particularly the details of my said invention, the principle being the same in its various applications. I would likewise have it to be understood that the forms and dimensions of the

vessels, receptacles, valves, levers, and such like parts, as well as their arrangement, can be altered and modified, according to the peculiar adaptation of my invention to the object which it is desired to effect.

Figures 1, 2, 3, 4, 5 represent the ash apparatus, in which *a a* is the barrel or receptacle, in which the ashes, clinkers, or other refuse matter to be disposed of are to be placed. *b* is the pipe or tube through which the pneumatic or other pressure is communicated to the receptacle *a a* and valve-box *d*. *d* shows the valve-box, with the valve *c*. The former in the drawings is shown of a D shape, in order that the valve may hang down flat against its side, thereby offering no obstacle to the ashes passing through the valve-box into the sea. *e* is an external lever attached to the valve-spindle, so that the valve may be always under the control of the attendant. *f* is the cover, constituting the communication between the ash barrel or receptacle and the hold of the ship. The lid *f* is hermetically closed by means of the cross-bar *g* and the screw *h*. In order to insure a water-tight fit of this lid or cover, I propose to interpose between the joint-faces a ring, *i*, of india-rubber or other material of a similar nature.

The drawings show the manner in which the cover or lid is hinged to the barrel, by means of which its opening can be effected without detachment. In order to prevent large pieces of clinker or other stuff from getting into the valve-passage *c* and choking the same, I propose to fit the barrel *a* with a funnel-shaped strainer, *k*, the passage through which is somewhat smaller in diameter than the valve-passage. This strainer can be omitted at discretion. To prevent against casualties with regard to the blocking up of the valve-passage, I have shown attached to the apparatus a clearing-rod, *l*, by means of which the said passage can be perfectly cleared. At *m* is shown a kind of fingers, which open when the clearing-rod *l*, to which they are attached, is drawn back, and closed when it is pushed forward, thereby greatly facilitating the clearing operation. The pneumatic pressure may be applied either by a pump or other apparatus, worked either by hand or by a connection with the engines of the vessel, and communicating by the tube *b* to the ash apparatus, when the stop-valve *n* will be opened, thereby establishing the communication of the pneumatic or other pressure with the interior of the barrel. The ash apparatus is shown in these five figures drawn to a scale of one inch to a foot, but the actual dimensions of the said apparatus will be varied according to situation and especial requirements.

The mode of operating and action of the apparatus is as follows: The pressure supplied to the apparatus being sufficient to overcome the pressure of the water upon the bottom of the ship, it descends below the valve *c;* then close the air-valve by the valve-spindle *n;* then close the valve *c* by the lever *e*, turn to the left the wheel *h* until the cover *f* is raised clear from the top edge of the barrel or receptacle *a;* swing the cover open. Fill the barrel *a* with ashes; replace the cover, turn the wheel *h* to the right-hand until the cover is firmly set to its place; next open the air-valve by the valve-spindle *n*. Thus the pressure becomes equal in the barrel *a*, and its contents, by their own gravity opening the valve *c*, fall through into the sea, the lighter particles that would otherwise float, being forced by the pressure into the sea.

Fig. 6 shows the application of my invention to a ship's sink or water-closet. In this drawing *a* is the vessel or receptacle of first deposit; *b*, the lid or cover to the same, which can be closed hermetically by the clasp *c*. *d* is the valve communicating with the secondary vessel *e*, (under higher pressure,) which secondary vessel is in direct communication with the sea. The valve *d* is opened by a lever attached externally to the spindle *f*, and kept closed by the counter-weight *g*. *h h* are packing-rings to insure a water-tight closing of the cover, and valves *k k* are the openings communicating with the pneumatic apparatus. The mode of operating this arrangement is in substance the same as hereinbefore described with respect to the ash apparatus. The scale of this figure is one-quarter size.

Fig. 14 shows how the principle of my invention may be applied to the feeding of a cupola or melting furnace of which the hot gases are appropriated to other useful purposes—such, for example, as the heating of steam-boilers. Fig. 15 shows the application of the same principle to the feeding of gas-retorts. In both these figures *a a* is the first receptacle for the charging material; *b b*, the valve communicating with the furnace or the retort. *c c* is the external cover, shutting off communication when the charged material is ejected or let fall into the furnace or retort. Figs. 14 and 15 are drawn to a scale of one-quarter of an inch to a foot.

Having now described the nature of my invention and the manner in which the same is to be effected, what I claim is—

The construction and arrangement of apparatus, substantially as herein specified, for expelling solid and liquid substances from ships and other vessels into the water below the water-line, and for other analogous purposes, as herein set forth.

JOHN PALMER. [L. S.]

Witnesses:
WILLIAM MARTIN,
JAMES MARTIN.