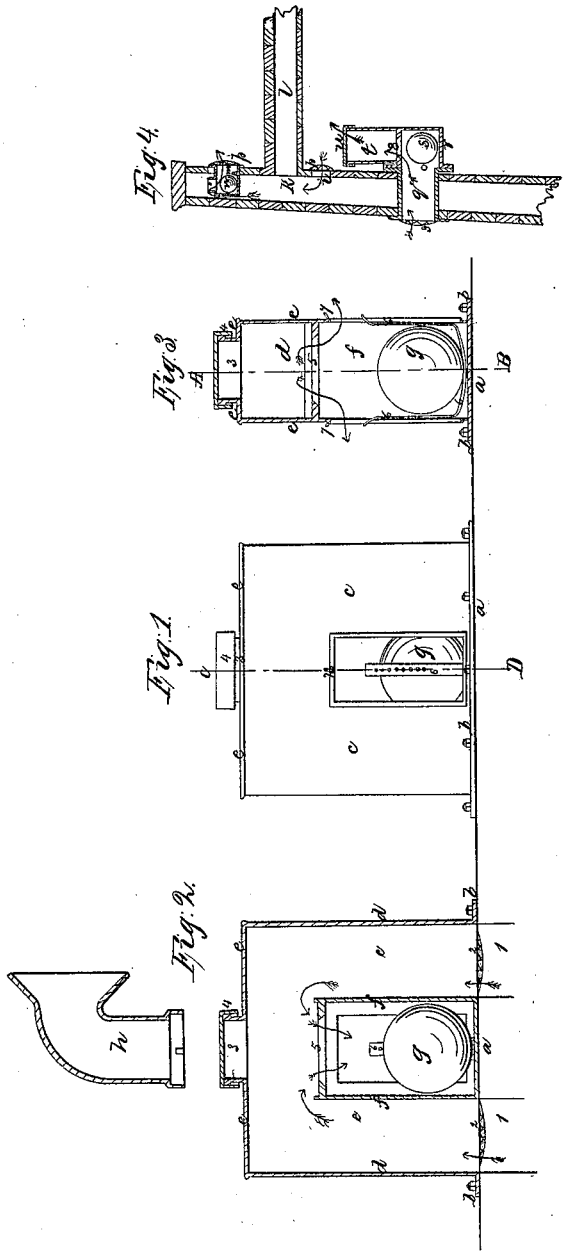
R. Bulkley,

Ventilating Ships.

No. 7,794. Patented Nov. 26, 1850.



UNITED STATES PATENT OFFICE.

RALPH BULKLEY, OF NEW YORK, N. Y.

SHIP'S VENTILATOR.

Specification of Letters Patent No. 7,794, dated November 26, 1850.

To all whom it may concern:

Be it known that I, RALPH BULKLEY, of the city of New York, in the county and State of New York, have invented a new and Improved Mode of Ventilating Steamers and Vessels; and I do hereby declare that the following is a full and exact description.

The nature of my invention consists in providing ventilators with floatable valves to be acted upon by the water which casually rises in contact with the ventilator, whereby the air orifice of the ventilator becomes closed during the time the water remains in contact with it.

To enable others skilled in the art to make and use my invention, I will proceed to describe the construction and operation of the same, reference being had to the annexed drawing making a part of this specification in which—

Figure 1 is a side elevation of my ventilator complete for use in rough or stormy weather; Fig. 2 is a sectional elevation through the line A B of Fig. 3 and shows above the bonnet to be used in fair weather; Fig. 3 is a section elevation through the line C D of Fig. 1 with the exception of the ball strap the outside of which is shown. Fig. 4 is a section of a portion of the side of a vessel with my ventilator attached.

a—Figs. 1, 2, and 3, represents a deck or other place to which the ventilator is attached, through which, are openings 1—1 having gratings 2 to prevent anything from getting into the hole: 3, is a foot flanch secured to the deck by bolts or screws and carries two sides *c c* and ends *d d* which are inclosed by a cover *e* having a short pipe 3 over which a cap 4 sets in rough or foul weather. Within the ventilator, between the sides *c* are two partitions *f* receiving near the top a horizontal inverted seat 5.

In the sides *c* are openings between the partitions *f* and in the space between the partitions *f* and sides is a ball valve *g* made of india rubber or any fit material. The operation is as follows: The foul air from the apartment to be ventilated will pass in the direction of the arrows up through the openings 1 through the space formed between the partitions *f* the side *c*, and the end *d d* through the seat 5 and out through the openings in the sides *c*, or fresh air may enter in the contrary direction, but if the vessel ships a sea the water rising on the deck takes the ball valve *g*, which floats up against the seat 5 shutting the water out from the openings 1, 1, and on the water returning the ball *g* drops again opening the passages as before, but in fine weather if there is no danger of the vessel shipping a sea, the cap 4 is to be removed and the hood *h*, put on the pipe 3, and in that case if the air is ascending through the opening 1 the ball *g* may be left in the position shown in the drawing but if it is wanted that the wind blowing into the hood *h* shall force a current down through the openings 1 then the ball *g* is to be raised up by the strap 6 and secured by putting the holes in the strap over the pins 7. This will close the openings through the seat 5 and allow the wind to pass down through the opening 1.

In Fig. 4, *k* represents the side of the vessel, *l*, the deck *i* is an opening through the inside planking between any two timbers the heated air passes in here in the direction of the arrows and ascending passes out through a small ventilator *m*, which has a ball valve *n*, operating up against the seat *o* to shut out any water should any enter the ventilator. *p* are gratings or other covers to prevent foreign substances entering either the ventilator *m* or the opening *i*. *q*, is a pipe connecting the outside and inside planking receiving by a flanch a box *r* with ball valve *s* with a cover *u*, and seat 8 at the lower end of a short vertical pipe *t*, when cover *u* is opened fresh air enters in the direction of the arrows and if water enters the pipe *q*, the ball valve *s* floats up against the seat 8 shutting out all water from the pipe *t*. A grating 9, may be attached to protect the parts.

Tubes and ventilators by which the air passages are to be protected by float valves to prevent water from entering the vessel may be made of different devices and with or without temporary air tubes as shown at letter *h*, in the drawing, depending on place of application and extent of ventilation required, or other circumstances. Self acting floats or fixtures to be acted upon by water when it comes in contact therewith for protecting the air passages against the entrance of the water may be so applied that the float will act within the orifice, or they may be applied in combination with the ventilator and operate with lever fixtures or otherwise upon single conjoined or hinge valves or other movable fixtures to be acted upon

by water for protecting air passages in ventilators.

This improvement as described is believed to differ from all others in use, and among the advantages comprising its usefulness the following may be enumerated: It is intended as a constant acting fixture in combination with vessels and steamers, and in its action during fair or foul weather requires no attendance, while by the use of ventilators available in fair weather only, the stagnant air necessarily becomes confined below deck in tempestuous weather, thereby rendering it liable to become foul, and the more especially if persons are confined in it, whereby the vital air within the space is liable to be rendered inert by respiration. The certainty that vessels can be ventilated by continuous openings consists in the fact, that heated air will rise by its specific lightness compared with the density of that through which it passes, and that when heated air escapes from inclosures, through apertures, the more dense, surrounding air will enter the inclosures through the same apertures. The importance of such continued ventilation is especially evident from the fact that confined air in steamers and ships is liable to become heated, and foul, by the friction caused by the chafing of the cargo and timbers, in consequence of the motion and working of the vessel at sea, as well as by the fermentation of substances and by respiration, and that the removal of the vitiated air and the interchange of fresh air is necessary for the preservation of sea stores and of cargo as also in the preservation of the timber, and the protection of persons exposed.

What I claim as my invention and desire to secure by Letters Patent, is—

The combination of "floatable valves" with ventilators for ventilating vessels and steamers, and, the combination of "floatable valve ventilators" with vessels and steamers; the valves to be acted upon, by the rising and the falling of the water when in contact with the ventilator; the rising water to cause the valve to close the air orifice and prevent the entrance of water, and the falling water to permit the valve to recede by its own gravitation and thereby open the air orifice; the devices and operations of the same as herein described, for the objects and purposes herein set forth.

RALPH BULKLEY.

Witnesses:
I. H. MOSELEY,
JNO. J. LATTING.