E. Knight,

Ventilating Ships,

No. 5,193 Patented July 17, 1847.

Fig: 4.

Fig: 5.

Fig: 1.

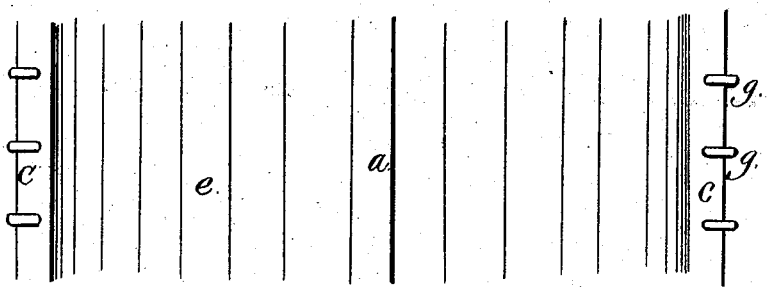

Fig: 3.

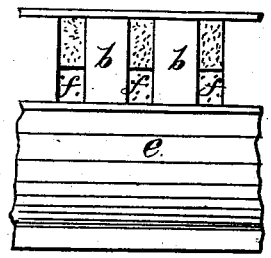

Fig: 2.

UNITED STATES PATENT OFFICE.

EBEN KNIGHT, OF BROOKLYN, NEW YORK.

VENTILATING THE TIMBERS OF VESSELS.

Specification of Letters Patent No. 5,193, dated July 17, 1847.

To all whom it may concern:

Be it known that I, EBENEZER KNIGHT, of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Method of Ventilating the Frames and Timbers of Ships and other Vessels, and that the following is a full, clear, and exact description of the principle or character which distinguishes it from all other things before known and of the manner of making, constructing, and using the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a plan of part of a vessel; Fig. 2, a vertical cross section; and Fig. 3, a vertical longitudinal section.

The same letters indicate like parts in all the figures.

The nature of my invention consists in making use of the motion of the bilge water in vessels to ventilate the spaces between the timbers and the planking and ceiling of vessels for the purpose of preventing the generation of noxious gases, and preserving the timber, by leaving a free admission for the passage of air through the plankshire or near thereto, and the salt stops and other obstructions, the motion of the vessel causing the bilge water to flow from side to side, alternately exhausting and forcing out the air, and thus keeping up a free and constant circulation of pure air, the presence of which tends not only to preserve the timber of the ship, but promotes the health of the crew, and adds much to the comfort of ships.

In the accompanying drawings (*a*) represents the keelson, (*b*) the timbers, (*c*) the plankshire, (*e*) the ceiling, which is made tight and (*f*) the salt stops or partitions placed between the timbers and the planking and ceiling to sustain the salt which is put in to fill up the space between the timbers as a means of preservation. These salt stops are pierced with small holes, or the corners are simply cut off, as shown in section at Figs. 4 and 5 for the passage of air, and holes are made through the plankshire along from stem to stern, one for each space between the timbers, so that the air when acted upon by the bilge water can either pass in or out and thus establish a free circulation of air. For the purpose of preventing water from passing into these spaces from the decks through the holes in the plankshire, each hole is provided with a tube (*g*) which is curved over to open downward, and to prevent ropes from catching in the bent part the outer edge is turned toward and against the bulwarks (*i*) or may be continued down to the plankshire as at (*i'*) leaving the opening on the inside for the passage of the air.

From the above arrangement it will be seen that as the vessel rocks to one side the bilge water which touches the ceiling flows by its weight toward that side, and acts as the piston in a pump to force out the air on that side through the apertures in the salt stops, the salt above them, and out through the holes or tubes in the plankshire, at the same time producing the reverse or exhausting effect on the other side to admit of fresh air by the pressure of the atmosphere, and that when the vessel rolls back the reverse effect will take place, thus keeping up a constant circulation of air through these spaces which will prevent the generation of noxious vapors known to be injurious to timber and not only disagreeable but injurious to the health of the crew and passengers. Instead of making the air passages through the plankshire they may be made in the planking or ceiling and near to the plankshire.

If desired the salt and salt stops may be dispensed with, as the circulation of fresh air through these spaces will have the desired preservative effect. It will be obvious that the holes in the salt stops may be of any desired form which will admit of the passage of air and retain the salt, should any be used; and that the holes in the plankshire may also be formed in any desired manner so long as they admit of the free passage of air in and out. It is desirable however that the tubes should be so formed as to prevent the ingress of water and protect against the catching of ropes, &c.

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

The employment of the motion of the bilge water in vessels, induced by the motions of the vessel, in combination with the air passages opening to the atmosphere, and the openings in the salt stops, when such are used, for the purpose of ventilating the spaces between the timbers of vessels for the purpose and substantially in the manner described.

E. KNIGHT.

Witnesses:
A. P. BROWNE,
J. J. GREENOUGH.