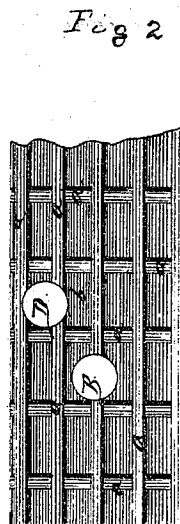
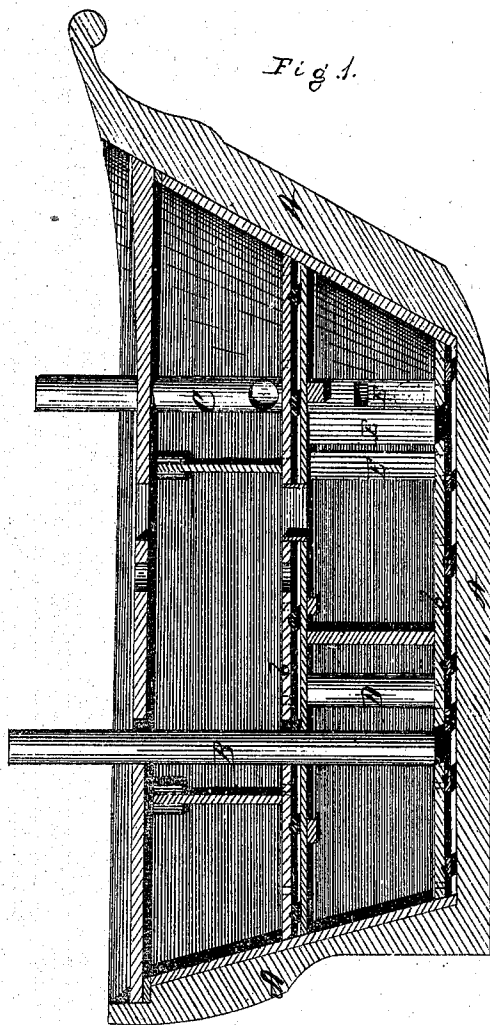


W. L. Phillips,

Ship Ventilator.

No. 97,689

Patented Dec. 7, 1869.



Witness.
Chas. L. Evers
Attestation

Inventor
W. L. Phillips
per
Alexander Mearns
Att'y

United States Patent Office.

WILLIAM L. PHILLIPS, OF NORMAL, ILLINOIS.

Letters Patent No. 97,689, dated December 7, 1869.

VENTILATOR.

The Schedule referred to in these Letters Patent and making part of the same

To all whom it may concern:

Be it known that I, WILLIAM L. PHILLIPS, of Normal, in the county of McLean, and in the State of Illinois, have invented certain new and useful Improvements in Mode of Ventilating Vessels; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification.

The nature of my invention consists in an improvement in the method of constructing vessels or ships of any description, for the purposes of warming and purifying the air, and preserving the cargo from the injurious effects of too much moisture, and particularly all grain and fruit that suffer from dampness.

My method is as follows

I catch or take the air in a common hood, or any other convenient way, and pass it over or through an air-warmer of any kind or description, if needed to dry it in moist or damp weather; if not, I pass it directly over or through the warmers, or other convenient passage, to rooms or apartments, by means of conducting-shafts, and deliver it into any convenient or desirable part of said rooms.

In order to enable others skilled in the art to which my invention appertains, to make and use the same, I will now proceed to describe the manner in which the same is or may be performed, referring to the annexed drawings, in which—

Figure 1 is a longitudinal vertical section of a vessel constructed on my plan, and

Figure 2 is an inside view of the double floor or sides of the same.

A represents the hull of a vessel, of any shape or dimensions.

B is the smoke-stack in a steam-vessel, or the ventilating-shaft in a sailing-vessel.

C is a shaft for the ingress of air, which shaft may be provided with a hood or a fan for forcing down the air. The air passing down this shaft, a tube can be made to pass around a stove or warmer, or not, as necessary, at one time or another, according to circumstances; thence it (the air) passes into the vessel, and through it and the grain; or about the cargo; thence through perforations in the floor, and between the double floor, constructed as hereinafter described, so as to admit of a perfect and ready circulation. And if the vessel be a double-decker, as represented in the drawing, through the tube or shaft D, between the two decks below the lower deck; thence along under the lower-deck floor to the bottom of the smoke-stack in a steam-vessel, or foul-air shaft in any other vessel,

or a foul-air shaft in a steam-vessel, if it be desirable not to connect with the smoke-stack; thence through the smoke-stack or foul-air shaft into the open air.

The floors of the vessel, or of any room in the same that it is desirable to warm, purify, or keep dry, are provided with an extra or second floor on top, which extra covering may be put on the sides or walls in the same manner, namely, laying a single or double set of furring, *a a*, (where double set is used, laying them one on top of the other, at a convenient angle to facilitate the object desired,) and then fastening a floor, *b*, on top of the furring, said furring to be of thickness in proportion to the size of the room, or the amount of air to be passed through, and running in any direction desired.

The second or extra floor *b* is to be perforated with holes for the exit of air, or provided with registers, wire gauze, or made slotted, or a combination of perforations, registers, gauze, and slots.

The space or chamber between the floors is connected by suitable ducts to the bottom or other desirable point of the smoke-stack or other shaft in steam-vessels, and in other than steam-vessels, with an upright shaft, with delivery above the deck. The outlet of air from any room should be at or near its lowest point, and from the vessel it may be at any point desired.

Standing upright in the various apartments occupied by grain or other substance, I place shafts, *E E*, which are provided with more or less of wire gauze, registers, or perforations, for the purpose of facilitating the passage of air laterally through the grain or rooms, and the bottoms of said shafts shall make connection with the air-chamber made by the construction of the extra floor or walls.

A grain-warehouse or elevator may be constructed in the same manner as above described for a vessel, for the same purpose.

Having thus fully described my invention,

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

The arrangement of the air-shaft C, smoke-stack or foul-air shaft B, shafts D and E E, and the double floors or sides, constructed substantially as described, and for the purposes set forth.

In testimony that I claim the foregoing, I have hereunto set my hand, this 6th day of September, 1869.

WM. L. PHILLIPS.

Witnesses:

THOS. SLADE,
W. M. HATCH.