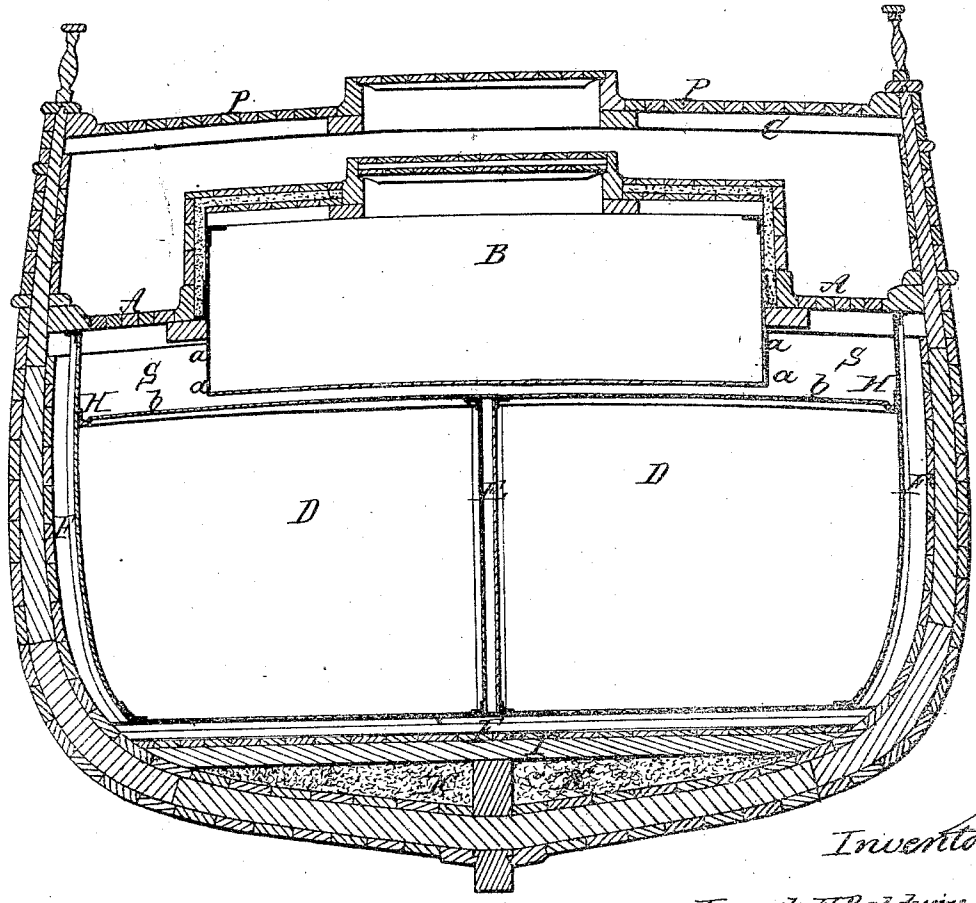
J. F. Baldwin,

Refrigerator.

No. 92,246. Patented July 6. 1869.



Inventor,

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by his attorney

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JOSEPH F. BALDWIN, OF PROVINCETOWN, MASSACHUSETTS.

Letters Patent No. 92,246, *dated July* 6, 1869.

IMPROVEMENT IN PRESERVING ANIMAL AND VEGETABLE SUBSTANCES ON SHIP-BOARD.

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

To all persons to whom these presents may come:

Be it known that I, JOSEPH F. BALDWIN, of Provincetown, in the county of Barnstable, and State of Massachusetts, have made a new and useful invention, having reference to the Preservation of Vegetable or Animal Matters on Shipboard; and I do hereby declare the same to be fully described in the following specification, and represented in the accompanying drawings, of which—

Figure 1 denotes a vertical and transverse section of the hull of a navigable vessel, as provided with my invention.

The object I have had in view, in making such invention, has been to so construct a navigable vessel as to render it very advantageously capable of preserving from decay, during a voyage, fruits, vegetables, or various other articles of a perishable nature.

In carrying out my invention, I erect within the main deck, A, and poop, P, of the vessel, one or more chambers or apartments, B, each being extended both above and below the deck, and nearly up to the poop-deck C, such chamber, or chambers, being intended for receiving and holding ice in blocks.

In the sides of that part of each of the said ice-receptacles which projects below the main deck, I make one or more openings, *a*, for air to pass into the receptacle, and also for water to escape from it, and flow upon a second deck, *b*, constituting the top plate or covering of two galvanized-iron tanks, or chambers, D D.

These chambers, or cargo-receptacles, are arranged beneath the deck *b*, and separated from one another by an air-space, E, disposed between and extending from top to bottom of them, in manner as represented.

Furthermore, there is another air-space, F, arranged underneath the bottom and against the outer side of each cargo-receptacle, such space being extended nearly up to the main deck, and made to open into the air-space S, between the main and auxiliary decks A and *b*.

At each side of the auxiliary deck, I form a gutter, or channel, H, to receive the water that may flow from the ice-receptacle, and be discharged on the auxiliary deck.

This deck should slope from its middle to each of the gutters, which may discharge the water through scuppers, or into one or more cisterns or tanks.

Below the air-space, underneath the cargo-receiving chambers D D, I arrange, across the hull, a cement water-tight flooring, I, and have below it a space, K, for holding ballast.

The ice-room, or receptacle, where it extends above the main deck, should have suitable heat non-conducting covering, or be so constructed that the heat of the air which may be within the space around it may not be readily conducted to the ice.

It is intended for the cargo-receptacles to be made of sheet-iron galvanized, or, in other words, protected by coatings of zinc, or other material or composition not readily oxidizable.

There should be suitable hatchways, or openings into such receptacles, for the purpose of getting cargo into and from them, such hatchways being provided with proper hatches, or covers.

The same may be said with respect to the ice-chamber.

When a vessel is constructed as above specified, the ice-receptacle duly charged with ice, and the cargo-chambers are supplied with fruit, or vegetable, or animal-matters, which, by being kept in a cool state, will be preserved from decay or decomposition, it will be seen that the air in the space S, between the inner and auxiliary decks, will be cooled by contact with the ice, and will pass into the spaces about and between the cargo-chambers, and thus will cool their sides, and by abstracting the heat of the air which may be within such receptacle, will keep their contents at a low temperature, or one which will protect them from decay.

The air-spaces next the sides and bottom of the cargo-receptacles, also, so insulate them from the sides of the hull as to prevent the heat of the hull, or the water in which it may float, from being absorbed by the walls of the chambers.

The water-tight flooring prevents any water which may leak into the ballast-hold, or space, from coming in contact with the floors of the cargo-chambers.

I contemplate using a quantity of quick-lime or other proper absorbent in each of the cargo-compartments, such being to absorb any moisture which may be generated therein, by reason of what is termed the "sweating" of the fruit.

The employment of a poop over the ice-receptacle, protects it from the rays of the sun, and the power of such to heat it, and thereby melt the ice.

I claim as my invention the following, viz:

The herein-described arrangement of the main deck and hull and the ice-receptacle, with the cargo-receptacles and the air-spaces between and about the cargo-receptacles.

Also, the arrangement of the water-tight flooring and the ballast-receptacle in the hull, with the cargo and ice-receptacles and air-spaces disposed together, and with respect to the main deck and hull, in manner substantially as set forth.

Also, the combination and arrangement of the poop P, with the main deck, the ice and cargo-receptacles, and their air-spaces disposed together and within the hull, substantially as specified.

JOSEPH F. BALDWIN.

Witnesses:
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