

UNITED STATES PATENT OFFICE.

CHARLES F. PIKE, OF PROVIDENCE, RHODE ISLAND.

IMPROVEMENT IN PRESERVING, REFRIGERATING, AND TRANSPORTING PERISHABLE ARTICLES.

Specification forming part of Letters Patent No. 72,894, dated December 31, 1867.

To all whom it may concern:

Be it known that I, CHARLES F. PIKE, of the city and county of Providence, State of Rhode Island, have invented a new and Improved Refrigerating and Preserving Vessel for the transporting and preserving of meats and fruits from place to place upon the ocean or navigable waters, and in supplying ships stationed on the waters, having no communication with the land, desiring fresh meats, fish, vegetables, or fruits; 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 having an ordinary vessel propelled in part by sails or steam, or wholly by steam, and so constructing the hold or rooms on said vessel with pipes or tubes so arranged that you will get a large amount of cooling-surface with a small amount of ice, and combining those tubes or pipes with ice-boxes, reservoirs, or depositories to supply the pipes or tubes for cooling the preserving-rooms in the vessel. There may be a series of rooms built in this vessel with separate chambers and separate pipes or tubes to each chamber, and the temperature may be governed in each room by the person having charge of the machine. Meats and fish might be frozen without harm, while with a cargo of fruit you might keep it between 34° and 40°, or if the thermometer rose to 48° above zero it would do no harm. These pipes or tubes may be constructed in any form described in my former patents. Reference is hereby had and made to them.

To enable others skilled in the arts to make and use my invention, I will proceed to describe its construction and operation.

Figure 1 is a side view of the vessel cut in two, showing the bows of the vessel from her decks to her keel, represented by the letter V. Fig. 2 is a transverse section through the vessel.

W is the keel of the vessel. X is the outside planking of the vessel. U are the timbers of the vessel, to which the inside and outside planking are fastened. T is the inside planking or ceiling to the ship. S is a floor to the bottom of the room or rooms or preserving-cham-

ber. When made as a whole, this floor should be double, and filled with wool, hair, or other non-conducting substances.

R is the refrigerating or preserving room, containing the pipes or tubes, and in this room the meats or fruits are placed to be kept cool or refrigerated. This room may occupy the whole width of the vessel, and as much of the length as can be spared for the purpose of the preserving-room. The height of this room will be governed by the height between the decks of the ship or vessel, P, and the floors to the room S.

The better way is to construct these rooms R into separate apartments, about ten feet square, or as near as can be, on either side of the center of the ship or vessel, fore and aft, leaving a passage-way in the center and on each side; then each room could be got at, and the temperature of the rooms could be kept very low, or any one or more could be kept at any other desired temperature, and a door like unto the one shown in this figure to enter each room, to pass in and out of, into the gangways. In this wise you could put meats into one and fruits into another.

P is the deck of the vessel, into which openings are cut between the deck-beams to admit the reservoirs or depositories A, to which are attached the pipes or tubes B and D by a socket on the bottom of the reservoirs or depositories A, to which are attached the pipes or tubes B and D by slipping the pipe or tube B and D over the sockets on the bottom of the reservoirs or depositories A, as will be seen by reference to the drawings. These pipes or tubes B, C, and D may be made vertical or horizontal, as in the accompanying drawing they are both shown; and for a more particular description of them reference is made to the patents already granted to me, with the drawing and specification attached, which patents are dated June 12, December 18, A. D. 1866, January 1 and December 10, A. D. 1867.

A are the reservoirs or depositories in the main-deck P. This main-deck P is sealed up on the under side of it, in the hold R, and the space filled with a non-conductor.

L is a horizontal pipe or tube, which may be filled or not with holes or openings to let

the air out into the pan E, the air to flow into the room R, and the water to run off at the drain-pipes *t*. Upon this pipe or tube L is a socket for the pipes or tubes D to ship into. This pipe or tube L, when constructed in this wise, stands or rests in a support represented by the letter O, and it may be made of metal or wood; has openings in it like unto those represented by the letter *a* at stand O. This pipe L is constructed in this wise to allow a free circulation of air around it.

The object of the pan E is to catch the water from the pipes D and L, and prevent the water from running into the chamber R in case the vessel shall roll or pitch, and allow it to run off at the escape-pipe *t* into the hold of the vessel, to be pumped out with the bilge-water.

K is another deck, which should be double, and filled with wool or hair or other non-conducting substance; also, the sides between the two decks K and P.

The room J is intended to carry ice and salt on the passage, also the grinder to grind the ice; and this room wants to be as near airtight, when shut up, as possible. This room J may be subdivided into small rooms.

Care should be taken to leave the space over A so that it would be at all times ac-

cessible. The forms of these rooms may be varied according to size of vessel. The partitions that divide the room should be made in sections, so as to be removed readily by the crew of the vessel, as well as the pipes or tubes. They should go together with screwbolts. The pipes or tubes ship one into the other.

Having thus given a full and exact description of my refrigerating and preserving vessel for the transportation of meats and fruits and other perishable articles, what I claim as new, and desire to secure by Letters Patent, is—

1. The application of the pipes or tubes to a vessel for the purposes of refrigeration, preservation, and transportation of meats, fruits, and provisions from one place to another, substantially as set forth and described, whether the rooms are built to the ship or built and put into the ship or vessel.

2. The combination of the tubes or pipes with the rooms R and vessel V, substantially as herein described and set forth, and for the purposes set forth.

CHARLES F. PIKE.

Witnesses:

HENRY MARTIN,
CHARLES SELDEN.