G. H. HAMMOND.
Refrigerator.

No. 219,256. Patented Sept. 2, 1879.

Fig. 1

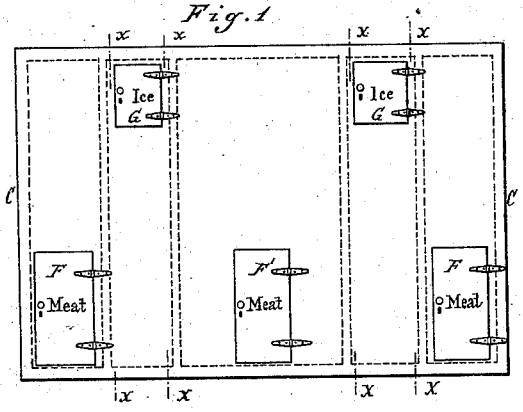


Fig. 2

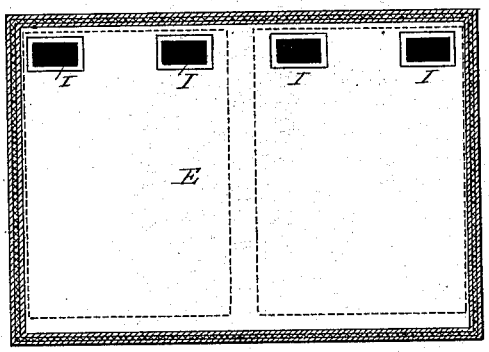


Fig. 3

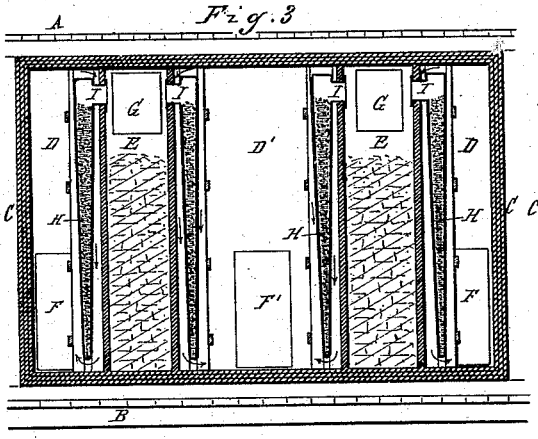
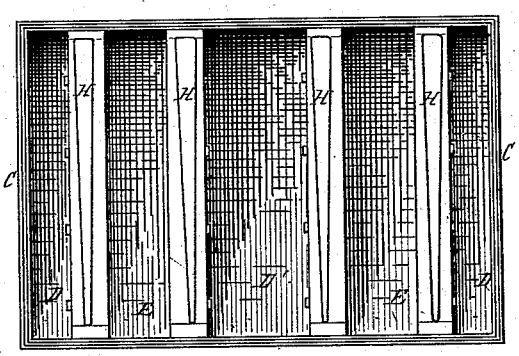


Fig. 4



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UNITED STATES PATENT OFFICE.

GEORGE H. HAMMOND, OF DETROIT, MICHIGAN.

IMPROVEMENT IN REFRIGERATORS.

Specification forming part of Letters Patent No. **219,256**, dated September 2, 1879; application filed June 4, 1879.

To all whom it may concern:

Be it known that I, GEORGE H. HAMMOND, of Detroit, in the county of Wayne and State of Michigan, have invented an Improvement in Refrigerating-Rooms for Shipping, of which the following is a specification.

The nature of my invention relates to new and useful improvements in the construction of rooms on board ships for the purpose of transporting fresh meats and other perishable material, whereby economy of space is secured, and at the same time the articles are transported without danger of loss by decay.

The importance of this is daily increasing by the rapid increase in the traffic in fresh meats, the animals being killed at or near the place where fattened, and the meat transported across the ocean and to distant parts of the world.

To render this transportation safe requires that the rooms wherein the meat is placed or hung should be air-tight, and provided with receptacles to contain ice or other refrigerants, to which access can readily be had from the outside, so that as such receptacles require recharging, it may be done without opening or admitting air into the rooms. It is also essential that, so far as is practicable, the outside of these rooms should be kept cool as possible, as this to a large degree prevents a rapid thawing of the ice in the receptacles, thereby rendering unnecessary to frequently charge them—a work of severe labor.

Hitherto it has been found impracticable to introduce ice into the refrigerant-receptacles in the meat-preserving rooms on board ship without cutting through the decks and inserting funnels for that purpose, to which there are great objections, and the ice could not be utilized except by being inserted into the receptacles.

The object of my invention is to overcome these objections and obtain all the results required as above stated; and it consists, first, in a chamber situated between the decks of the vessel, and divided into vertical preserving-compartments having ice-receptacles, and into vertical compartments for the storage of the surplus ice, situated between the preserving-compartments, all of such compartments being disconnected and having independent doors; and, second, in the combination of the same parts with the ice-receptacles, constructed to open into the ice-storage compartments, all as fully hereinafter explained.

In the drawings, Figure 1 is a front elevation of my improved refrigerating-room or preserving-chamber, extending across the ship between decks. Fig. 2 is a longitudinal vertical section on the lines *x x* in Fig. 1. Fig. 3 is a vertical cross-section. Fig. 4 is a front elevation with the front wall removed.

In the accompanying drawings, which form a part of this specification, A represents a deck of a ship, and B another deck, and between these two decks my room is built, extending athwart the ship. Between the outer walls, C, of the room and the inner walls of the ship, and between the decks and the floor and the ceiling of the room, there is placed any suitable non-conducting material—such as felt, wool, sawdust, or other materials suitable, and if there is room it is preferable to provide for a dead-air space around the sides and top and bottom of the room.

D D and D′ represent apartments or preserving-chambers within this room, those D D being about twice the width of D′.

E E represent passages or apartments between these preserving-chambers, care being taken that there be no communication between any of these chambers.

The chambers D D and D′ are provided with doors F F F′, through which access is had to said chambers for the purpose of storing them with the articles to be transported. These doors should be fitted so that when closed they are air-tight. The chambers F F are also provided with doors G G, fitted tightly, near the top of said chambers, as shown.

The chambers D D and D′ are provided with V-shaped receptacles H H H, made preferably of galvanized iron, arranged preferably, as shown, near the dividing-walls between the preserving-chambers and the passages. These receptacles are tight, so that there is no communication between their interiors and the chambers D D D′, wherein they are situated; but at or near their upper ends these receptacles, by means of openings I, coincident in the walls of the passages E E, com-

municate with such passages. These receptacles are secured in place in any convenient manner, so that a space is left above, below, and in rear of them, to allow for a free circulation of air around them.

The passages E E are employed as storage-places for ice, and from them, as is required, the ice and salt are charged into the ice-receptacles H H H through the openings I, which are supplied with stoppers or covers, and should always remain closed except when necessary to recharge the receptacles with ice, as described.

By this construction and arrangement I am enabled to store my surplus ice for charging the receptacles where it will assist in keeping a low temperature adjacent to the preserving-chambers, and so that with but little labor it can be charged into the top of the receptacles through the openings, as required, without the necessity of cutting openings in the deck for that purpose.

In practice, the preserving-chambers are stored with fresh meat at the point of shipment, the receptacles are filled with ice and salt, or their equivalents, and the doors leading into the preserving-chambers closed air-tight. The surplus ice, sufficient for the voyage, is stored in the passages between the preserving-chambers, and as often as necessary is charged into the receptacles, as above described. This process is repeated—of charging the receptacles—during the voyage, at the termination of which the contents of the preserving-chamber will be found in a good marketable condition.

It is essential that the ice should be charged into the receptacles at or very near the top, so that they may be kept as nearly full as possible; hence the necessity of charging them with ice through the side walls.

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

1. An inclosed chamber divided into vertical preserving or refrigerating compartments having receptacles for the ice or other refrigerant, and vertical ice-storage compartments dividing such preserving-compartments, all of such compartments being disconnected and having independent doors, substantially as and for the purpose set forth.

2. In combination, vertical preserving-compartments, vertical compartments for the storage of surplus ice, situated between said preserving-compartments and not connected therewith, and receptacles for the refrigerant, opening into such storage-compartments, substantially as described and shown.

GEO. H. HAMMOND.

Witnesses:

THEO. S. DAY,

H. S. SPRAGUE.