R. ARMIGER.

Refrigerating-Car.

No. 163,961. Patented June 1, 1875.

Fig. 1.

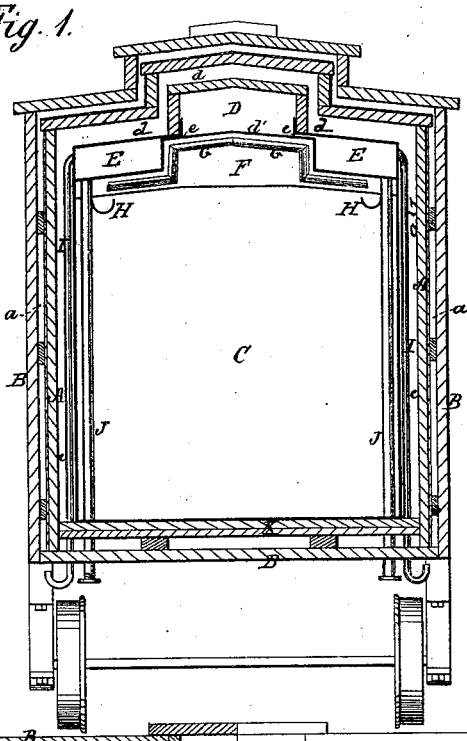
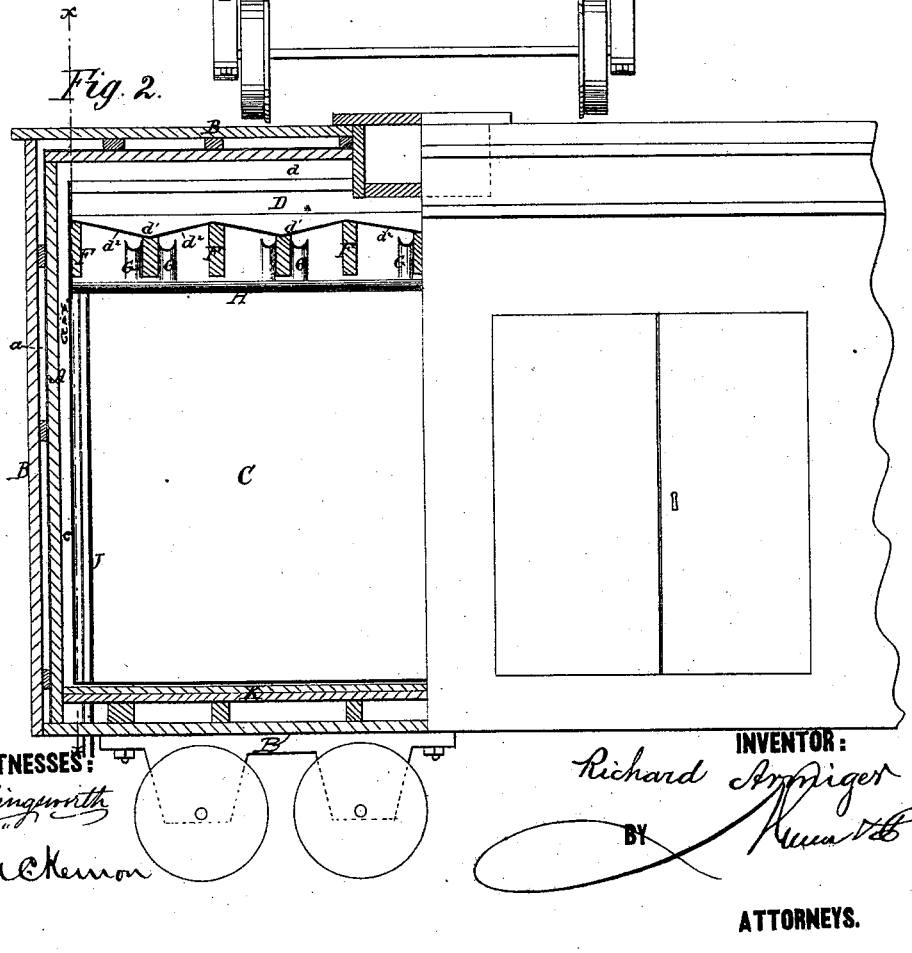


Fig. 2.



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UNITED STATES PATENT OFFICE.

RICHARD ARMIGER, OF BALTIMORE, MARYLAND.

IMPROVEMENT IN REFRIGERATING-CARS.

Specification forming part of Letters Patent No. **163,961**, dated June 1, 1875; application filed May 1, 1875.

To all whom it may concern:

Be it known that I, RICHARD ARMIGER, of Baltimore city, State of Maryland, have invented a new and Improved Refrigerator-Car; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing, forming a part of this specification, in which—

Figure 1 is a vertical section; Fig. 2, a side elevation partly in section.

The invention will first be fully described in connection with the drawing, and then pointed out in the claim.

A represents the frame, and B the casing, between which is an air-space, *a*, while C is the provision-chamber, having another air-space, *c*, next thereto. Straw-board and felt-lining are placed next to the air-chambers. D is the ice-chamber, above and at the sides of which is the air-space *d*. The bottom d^1 of the ice-chamber slopes from the middle down to openings *e e*, and toward the water-tanks E E, the said bottom upon which the ice rests being made of metal. Under this bottom the supporting-pieces F are alternately higher than another, and to each alternate one is attached troughs G G, to which the sections d^2 d^2 of bottom d^1 incline.

By this construction the impure gases which arise with the heated air and aqueous vapor from the provisions in chamber C strike the provision-chamber roof or ice-chamber bottom d^1, where the vaporized mixture becomes condensed, assumes the liquid form, and flows down the sections d^2 into troughs G G. It is then carried through transverse troughs G G into longitudinal ones H.

As the car-chamber C is air-tight, and the elements which generate putrefaction are condensed into a liquid form and retained in the troughs, the great source of mischief is removed, and the provisions will afterward keep in a good state of preservation even at a considerable temperature.

As soon as any of the ice melts and takes the form of water, it flows into the tanks E E, thus creating a very low temperature over the whole bottom or roof d^1.

As the water-chambers, as well as the ice-chamber, are entirely surrounded by the non-heat-conducting frame, casing, and air-spaces, this temperature will be maintained for a long time after the ice has melted.

Connected with the tanks may be arranged the vertical overflow-pipe I, with goose-neck cap, and the discharge-pipe J having screw-cap on lower end, so that more or less of the water may be withdrawn, if desired. K is the double bottom of the car, between which and the casing B is an air-chamber. In all the air-spaces, if preferred, non-conducting material may be employed.

It will be observed that a distinctive feature of this provision-car is that the ice-chamber is entirely separate from the provision-chamber, both being air-tight; also, that the whole bottom d^1 that constitutes the metallic upper surface or roof of provision-chamber is covered with cooling ice or water, thus producing a perfect condenser of all the vapors that rise in the provision-chamber, the ice and water being made to subserve the double purpose of refrigerator and condenser. Again, all the drippings from the ice may be preserved, and its cooling power employed before its discharge, thus maintaining the desired low temperature from twelve to fifteen hours after all the ice may have melted. It is, however, by means of the pipes I J, rendered optional whether the drippings of the ice shall be allowed to remain or be carried off as the ice melts.

It will also be perceived that my mode of causing the moisture in the air of provision-chamber to condense and flow down into gutters G H removes one of the essential conditions of putrefaction, so that many provisions will not afterward spoil at a temperature of 80° or more; also, by not admitting any outside air, or by the total exclusion thereof, the provision-chamber can be maintained at a lower temperature than those now known to the public with a less quantity of ice.

This invention is applicable to ice-houses, slaughter-houses, and analogous uses. The ice and provision chambers are provided with doors, as shown in the drawing.

Having thus described my invention, what I claim as new is—

In refrigerator-cars, a median ice-chamber, D, and a water-chamber, E, on each side to receive the drippings thereof, the whole resting upon a metallic bottom, d^1, that forms the roof of an air-tight provision-chamber, C, as shown and described, so that the ice-cold water, which absorbs caloric slowly on the journey, may form an important part of the cooling medium over the provision-chamber.

RICHARD ARMIGER.

Witnesses:
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