(No Model.)

C. HAFFCKE.

COOLING AIR IN REFRIGERATORS, &c.

No. 343,369. Patented June 8, 1886.

FIG. I.

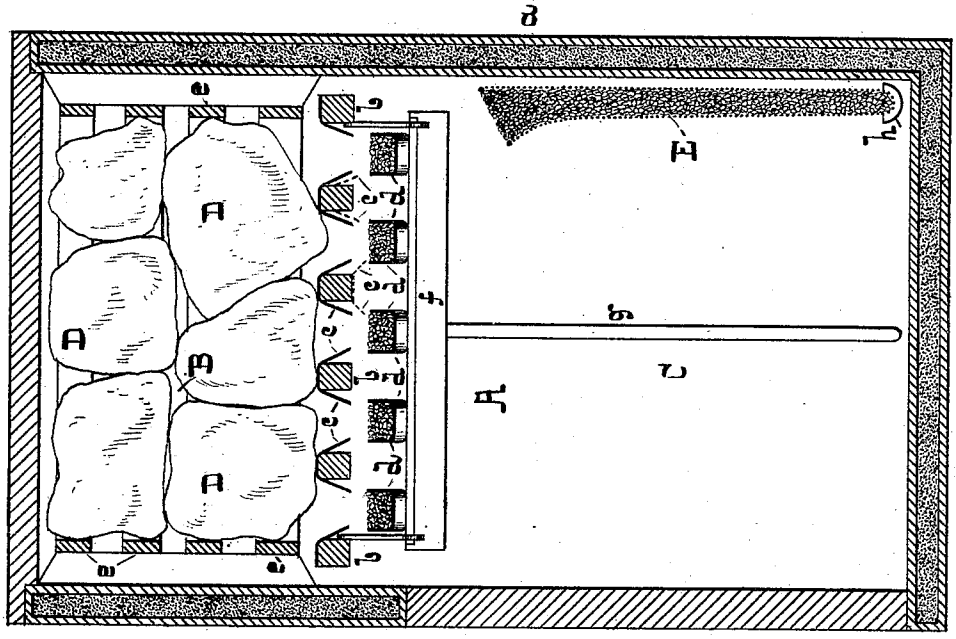
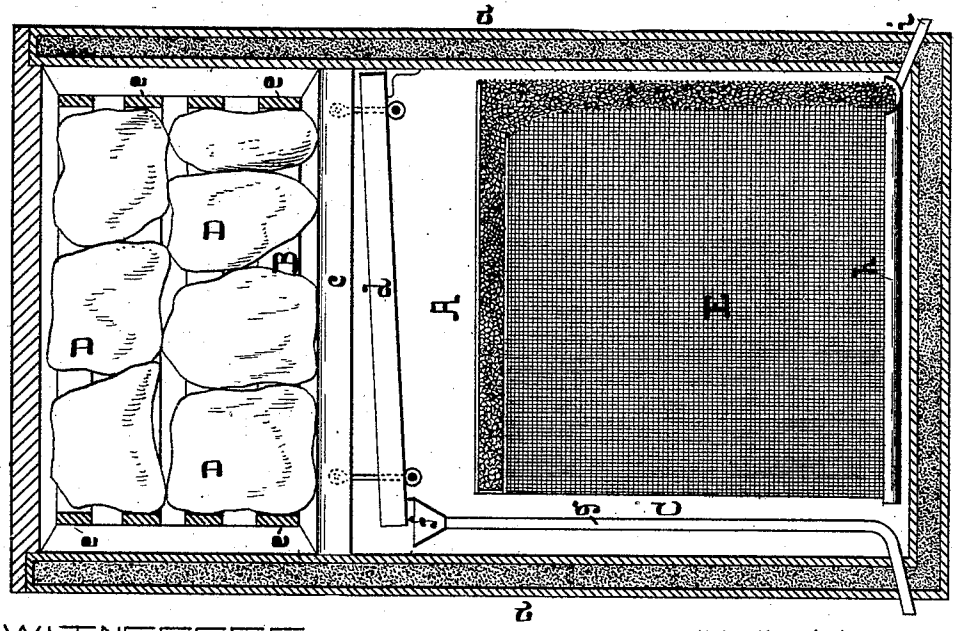


FIG. II.



WITNESSES

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COOLING AIR IN REFRIGERATORS, &c.

SPECIFICATION forming part of Letters Patent No. 343,369, dated June 8, 1886.

Application filed March 31, 1885. Serial No. 160,755. (No model.)

To all whom it may concern:

Be it known that I, CHARLES HAFFCKE, of the city of Baltimore and State of Maryland, have invented certain Improvements in the art of Frigeration, of which the following is a specification.

The first part of my invention relates to an improved method of reducing the temperature of water resulting from the liquefaction of ice in a frigerating-chamber to increase its cooling influence on the surrounding air.

The second part of the said invention relates to the construction of the frigerating-chamber, whereby it is adapted to the carrying out of the method above alluded to.

The third part of the said invention relates to means for absorbing moisture from the air in the frigerating-chamber, and diffusing throughout the said chamber a saline atmosphere which has antiseptic qualities, and thereby assists in the preservation of meats placed in the chamber.

My improved method of increasing the frigerating effect of a body of ice in a chamber consists, broadly, in conducting the water of liquefaction to a separated body of salt or chloride of sodium situated beneath the melting ice, whereby a portion of the salt is liquefied and the temperature of the water and the air in contact therewith reduced. By this method drain on the ice is lessened at the expense of salt, which is a comparatively inexpensive article.

In the drawings, forming a part hereof, Figures I and II are vertical sections of the improved frigerating-chamber as seen from different sides.

A is a chamber, which may be a room or a frigerator adapted for household use, having suitable walls, *a*.

B is the ice-compartment, separated from the cooling-compartment C by means of bars *b*. These bars, which in a large building would constitute joists, are provided with metallic shedding-strips *c*, to conduct water resulting from liquefaction of the ice to below them and to inclined removable trays *d*, supported by any suitable mechanism. The shedding-strips, while preferably constructed to cover the upper sides of the bars *b*, as shown, may be attached to their under sides, as indicated in dotted lines, Fig. II.

The blocks of ice (represented by D) rest on the bars *b*, and are prevented from touching the walls of the ice-chamber by means of strips *c*, which admit of air circulating freely around the blocks of ice. The trays *d* contain common salt or chloride of sodium, and as the drip from the melting ice falls thereto its temperature is lowered by the liquefaction of a portion of the salt. The salt-saturated water passes off to a pan, *f*, having an escape-pipe, *g*, leading to the exterior of the chamber.

E is a hopper, formed of some perforate material, preferably galvanized woven wire, to contain salt; and it may extend partially or entirely around the chamber, as may be preferred. The salt in the hopper E absorbs moisture from the air in the chamber, which air becomes strongly saline and an effective preservative agent. Water resulting from the absorption of moisture by the salt falls to the pan *h*, from which it escapes through the pipe *i*. The liquefaction of salt in the hopper E also lowers the temperature of the air in the compartment C.

It may be well to combine with the chloride of sodium some prophylactic—such as permanganate of potash—to destroy germs contained in the water resulting from the liquefaction of ice.

I am aware that common salt (chloride of sodium) has been combined with ice in a frigerator to increase the cooling effect of the ice by hastening its liquefaction; but in the first part of my invention, in which I use ice and salt, I separate the salt from the ice and conduct only water resulting from the melting ice to the salt, which water is cooled by the liquefaction of a portion of the salt. By this means I cool the drip-water and the air in contact therewith at the expense of a small quantity of salt, which is comparatively inexpensive.

Further, I am aware that chloride of calcium has been exposed in a frigerating-chamber to absorb moisture from the air therein; but this salt will not answer the purpose which I have in view, partly owing to its extreme deliquescence, but principally for the reason that it will not diffuse a saline atmosphere in the chamber. Instead of chloride of calcium I employ chloride of sodium, which I find is sufficiently deliquescent for all practical purposes, and by its use I am enabled to obtain

a saline atmosphere in the chamber which in itself is a preserving agent.

I disclaim the use of combined ice and salt in a frigerating-chamber, as also an exposed body of chloride of calcium, but claim as my invention—

1. The method of reducing the temperature of air in a frigerating-chamber containing ice without increasing the drain on the ice, which consists in conducting the water resulting from liquefaction of the ice to a separated body of chloride of sodium and the brine resultant from the said chamber, substantially as and for the purpose specified.

2. In a frigerating-chamber divided into two compartments by means of bars, the combination of a support for the ice, a tray to receive the drip from the ice, containing chloride of sodium, and means to conduct the salt solution to the exterior of the chamber, substantially as and for the purpose specified.

3. In a frigerating-chamber, a perforate hopper containing chloride of sodium, combined with means to conduct the salt solution resulting from the absorption by the salt of moisture from the air in the chamber, substantially as and for the purpose specified.

4. In combination with a frigerating-chamber, an exposed body of chloride of sodium arranged to absorb moisture from the air in the chamber, and to establish in the said chamber a saline atmosphere, substantially as and for the purpose specified.

5. In combination with a frigerating-chamber, a perforate hopper containing a body of chloride of sodium arranged to absorb moisture from the air in the chamber, and to establish in the said chamber a saline atmosphere, substantially as and for the purpose specified.

6. In a frigerating-chamber, a perforate hopper containing chloride of sodium, secured to the wall of the said chamber, substantially as and for the purpose specified.

CHARLES HAFFCKE.

Witnesses:
JOHN WILLIAMS,
DANL. FISHER.