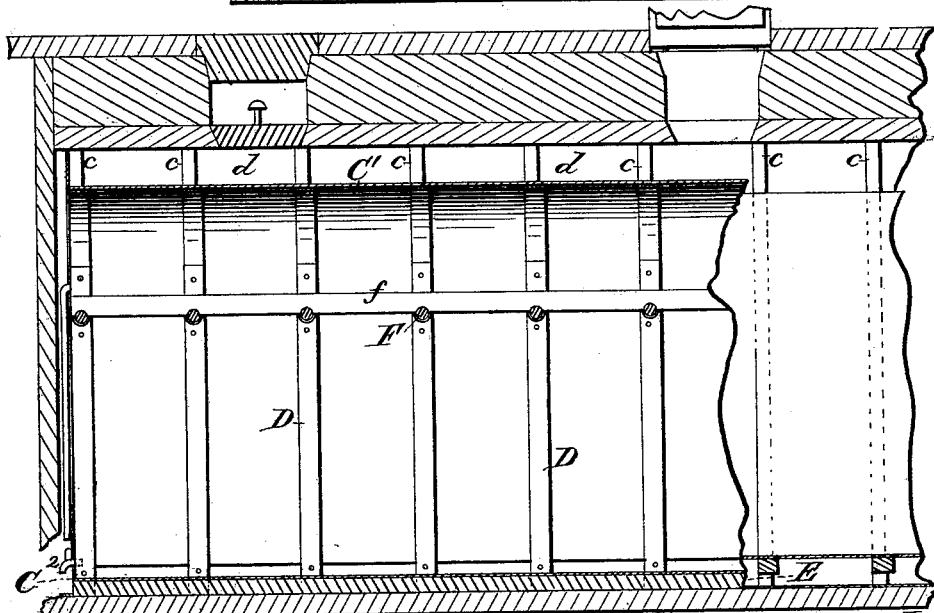
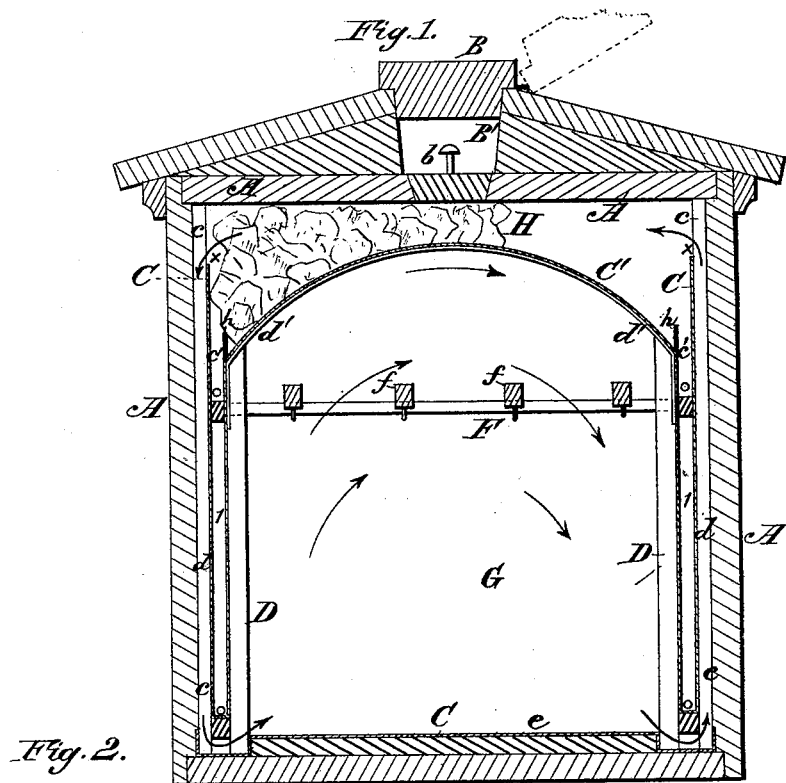


D. W. DAVIS.
Refrigerator.

No. 220,915.

Patented Oct. 28, 1879.



Attest:
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att'y.

UNITED STATES PATENT OFFICE.

DAVID W. DAVIS, OF DETROIT, MICHIGAN.

IMPROVEMENT IN REFRIGERATORS.

Specification forming part of Letters Patent No. **220,915**, dated October 28, 1879; application filed May 29, 1879.

To all whom it may concern:

Be it known that I, DAVID W. DAVIS, of the city of Detroit, in the county of Wayne and State of Michigan, have made certain Improvements in Refrigerators or Refrigerator-Cars, of which the following is a specification.

This invention relates to that kind of refrigerator or refrigerator-car used for the purpose of preserving meats, fruits, or vegetables, either as a refrigerator, for keeping while at rest, or a refrigerator-car, for transporting to market such meats, fruits, or vegetables, by keeping the temperature in the cool chamber to that degree that neither fermentation nor decomposition of animal or vegetable substance will take place—say at 34° to 40° Fahrenheit; and it consists in the construction of the refrigerator, its preserving-chamber, and its relation to the ice-chamber and the circulating air-passages, whereby a continuous circulation of air is automatically kept up between the preserving-chamber, its contents, and the ice-chamber that contains the ice or refrigerating-mixture.

In the drawings, Figure 1 represents a transverse sectional view, and Fig. 2 a longitudinal sectional view, of the refrigerator.

A represents the usual double walls, top, and floor of a refrigerator or refrigerator-car, which are constructed, in the common way, with an intermediate space and such space filled with a non-conducting material.

B is the hinged door or trap at the top of opening B', through which the ice or refrigerating-mixture is placed in the ice-chamber. *b* is a removable trap that secures opening B' at the lower part of said opening B', and consequently prevents the admission of air from the outside through the opening B' into the ice-chamber, or the cold air in the ice-chamber from escaping.

C is a metal lining inside of the walls of the body of the refrigerator. This lining is secured near to the top, at *xx*, of upright pieces *c*, that are fast to the inner walls of the refrigerator, and extend from the bottom to the top of said walls, while the lining extends to near the bottom of said pieces *c*, when it turns inward on both sides at right angles on a horizontal line a short distance, when it again turns upward to points *c' c'*, leaving narrow

spaces 1 between the lining to form a fine-ice chamber and drip-space for the water from the melting ice, and at *c' c'* the lining curves to form the arch C'. This metal lining, attached to uprights *c*, forms air-spaces *d* between it and the inner walls of the refrigerator. Water that results from the melting ice is drawn off at spigot 2.

D D are upright supports inside of the metal lining C, and tend to support the inner side of lining C and the arch part C' by sub-arch strips *d'*. E is a raised floor extending across the bottom of the refrigerator between the supports D.

e is a metal covering to the raised floor E, and at the edges of the floor it is bent down to the bottom of said floor, and passes under the feet of uprights D and *c* to and upward a short distance on the inner side of the side walls of the refrigerator, leaving open spaces between supports D, under the drip-spaces 1, into openings or air-spaces *d*.

F F are horizontal transverse beams or rods, extending between and secured in the uprights D. *f f* are movable slats that slide upon beams F, and upon which articles to be preserved can be placed.

G is the preserving-chamber, in which the things to be preserved are placed, either by suspending them from the beams F, hanging them to uprights D, or other modes of properly securing them in position.

H is the ice or refrigerating-mixture chamber, and is supplied with ice through opening or openings B', and is so constructed and situated within the walls A that air-spaces *d* are formed between the inner walls of the refrigerator and the fine-ice and drip spaces. *h h* are upwardly-projecting stops at the shoulders of the arch, to hold the ice in place and prevent its stopping up the spaces 1. By this construction and position of the ice-chamber a greater amount of surface over the preserving-chamber is in contact with the ice, and at the same time the arch shape of the floor of the ice-chamber affords ready drainage for the water (if any forms) from the melting ice, and brings a greater proportion of the ice or refrigerating-mixture in the ice-chamber over the top of the preserving-chamber, where it is most needed. According to natural law the

coldest air occupies the lowest space, and as the air is coldest in the ice-chamber H, and it above the preserving-chamber, the air will naturally go down some of the air-spaces *d* to the bottom of the refrigerator, thence under the spaces or chambers 1 into the preserving-chamber, where the warmer air is, and, mingling with it, becomes lighter and a circulation is formed by the constant change of temperature, so that the warmer and lighter air is constantly escaping in one direction under the narrow cool spaces 1, and up through some of the spaces *d* to the ice-chamber, in contact with and through the ice, while the air so cooled takes the reverse direction and falls down through some of the spaces *d*, and goes into the preserving-chamber to become warmer and then rise again, thus automatically keeping up a continual circulation of air from the ice-chamber through the preserving-chamber and back again to the ice-chamber, as indicated by the arrows in Fig. 1.

What I claim as my invention is—

1. In combination with the car, the ice-chamber H, having the perpendicular ice or

drip spaces 1, forming air-spaces *d* between the drip-spaces and wall of the refrigerator, substantially as described.

2. The combination, in a refrigerator or refrigerator-car, of the arched preserving-chamber G, ice-chamber H, that entirely covers the top of the preserving-chamber, the perpendicular ice or drip spaces 1, that nearly inclose the sides of chamber G, the air-spaces *d*, communicating with both the ice-chamber and preserving-chamber, substantially as described.

3. A refrigerator or refrigerator-car having the top of its preserving-chamber G entirely covered by the ice-receptacle H, and its sides nearly surrounded by the ice or drip spaces 1, the raised floor E, covered with the bent metal plate *e*, forming a communication between the preserving-chamber and ice-receptacle through the air-spaces *d*, constructed and arranged to operate as described.

DAVID W. DAVIS.

Witnesses:

GEO. B. REMICK,
GEO. H. CARLISLE.