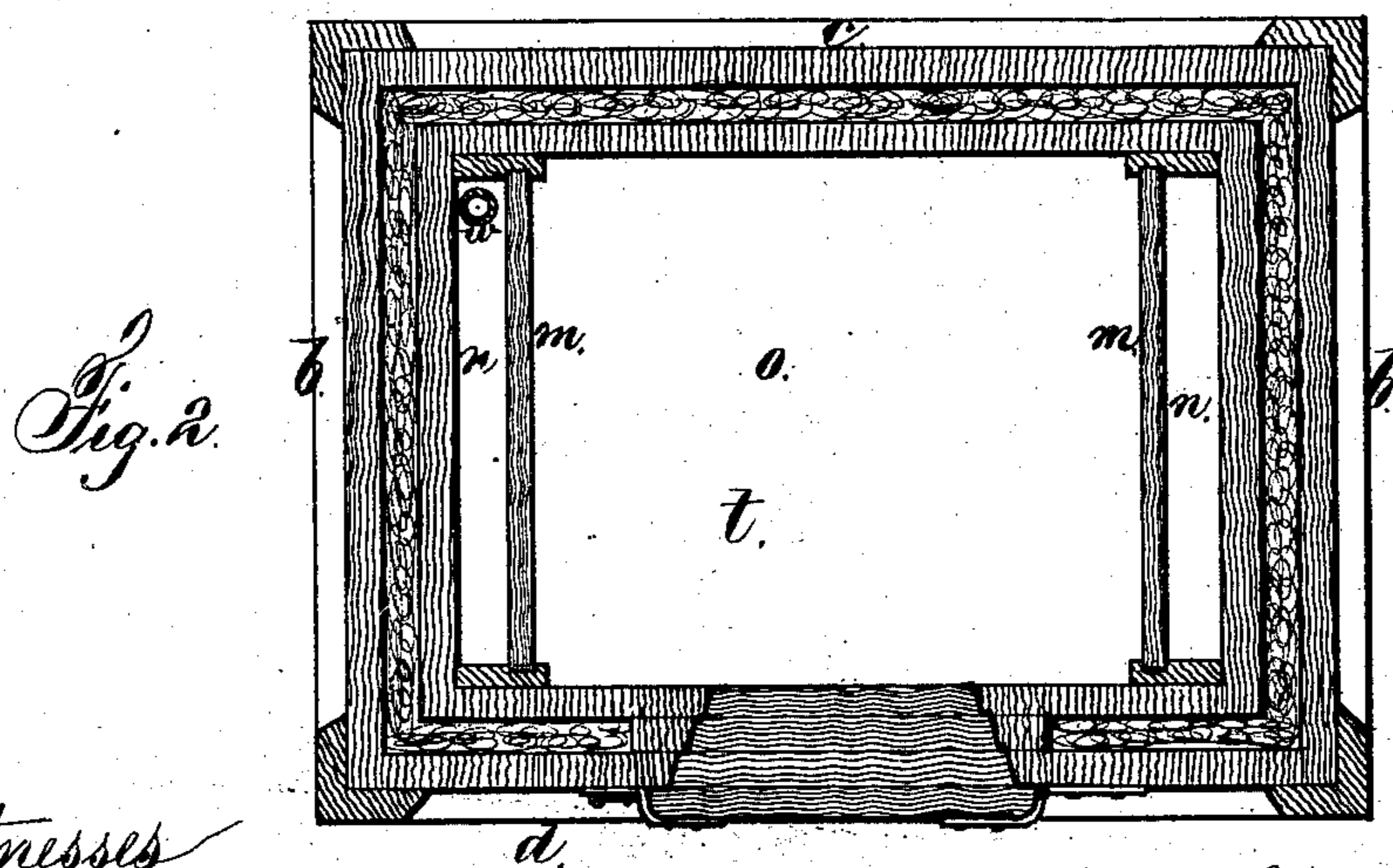
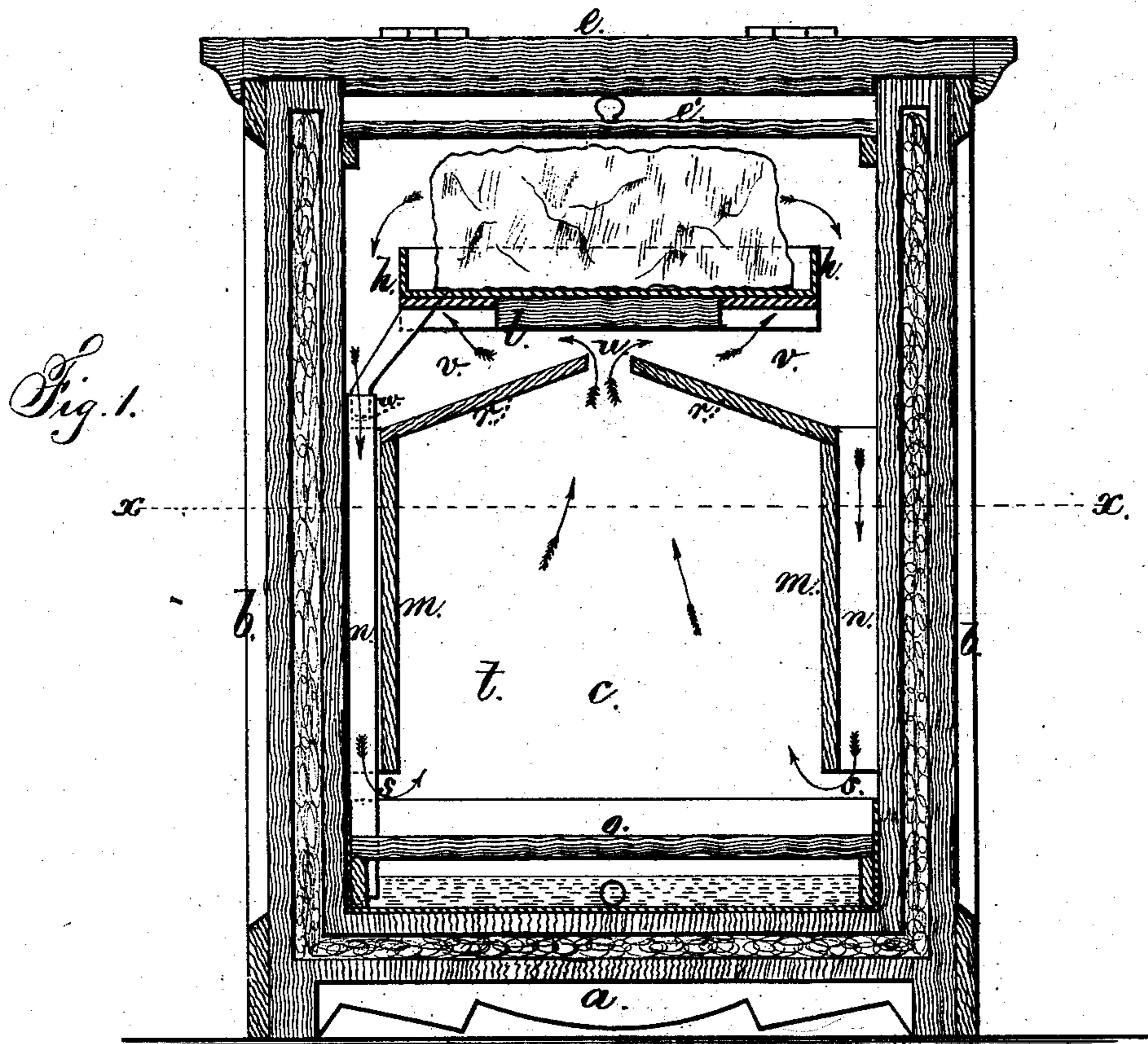


L. C. SHELDON.
Refrigerator.

No. 224,360.

Patented Feb. 10, 1880.



Witnesses
Harold Serrell
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Inventor
Luther C. Sheldon
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att'y

UNITED STATES PATENT OFFICE.

LUTHER C. SHELDON, OF BROOKLYN, NEW YORK.

REFRIGERATOR.

SPECIFICATION forming part of Letters Patent No. 224,360, dated February 10, 1880.

Application filed July 21, 1879.

To all whom it may concern:

Be it known that I, LUTHER C. SHELDON, of Brooklyn, in the State of New York, have invented an Improvement in Refrigerators, of which the following is a specification.

Refrigerators have been made in which the ice is received into a pan or into a basket of slats in the upper portion of the refrigerator, and the air has circulated within the various chambers and flues in such refrigerators.

I make use of a pan in the upper and central part of the refrigerator for holding the ice, and I provide flues at the sides of the refrigerator and a double-inclined roof beneath the ice-pan, so that the air circulates downwardly through the side flues and ascends in the cooling-chamber and passes out at the top below the center of the ice-pan, and thence travels nearly horizontally to the vertical flues. There is a central or cross bearing-board beneath the ice-pan and over the central opening from the cooling-chamber. This answers the twofold purpose of supporting the ice-pan and forming a non-conductor to prevent the air being chilled by the ice-pan, and, falling back through the central opening into the cooling-chamber, thus insures a continuous circulation. Furthermore, if cold air were allowed to fall back among the warmer air of the cooling-chamber it would produce a deposit of moisture upon the articles in the refrigerator. My improvements avoid this, because the air is cooled by contact with the cooling-plates near the descending flues, so that moisture is deposited and does not reach the cooling-chamber, and there is no tendency to cool the cooling-chamber except by the accumulation of the cold air in the bottom thereof, causing an upward circulation.

In the drawings, Figure 1 is a vertical section of the refrigerator, and Fig. 2 is a horizontal section at the line *x x*.

The bottom *a*, sides *b*, back *c*, and front *d* are made double, as usual, with non-conducting filling or packing, and there is to be a door to give access to the cooling-chamber, and also a door or flap, *e*, to the opening where ice is to be supplied. I have shown the top part, *e*, of the refrigerator-case as hinged, and a movable board, *e'*, resting upon the ledge over the ice.

The pan *h* is adapted to receive the ice. It

is preferably of metal, such as zinc, and it is supported upon the central cross board or bearer, *l*.

The partitions *m m* separate the flues *n n* from the cooling-chamber. These extend from near the secondary bottom *o* upwardly to the roof-pieces *r*.

The cool air circulates down the flues *n*, passing out of the mouths *s* into the chamber, *t*, that is to be cooled, and the cool air accumulates in said chamber *t*, displacing the air therein, and causing it to rise and circulate up through the opening *u*, from whence it moves along the horizontal flue *v* under the end portions of the ice-pan, where it becomes cool, and then descends, through the flues *n*, to the bottom of the cooling-chamber.

If the air that circulates upwardly through the opening *u* came directly into contact with the metal of the ice-pan it would be chilled and fall back into the cooling-chamber and lessen the circulation, and cause a deposit of vapor or dew upon the articles in the cooling-chamber. By using non-conducting material, such as the wooden center board or bearer *l*, above the upper opening, *u*, this is prevented, and the air, while somewhat warm, is diverted horizontally and comes into contact with the exposed portions of the ice-pan, upon which the moisture is deposited, and the atmosphere, becoming cooled, passes down the vertical flue.

If desired, metal plates may be employed beneath the end or outer portions of the ice-pan to chill the circulating atmosphere and condense any moisture in the same.

The water from the melting ice runs by the pipe *w* into the water-tight bottom portion of the refrigerator, so as to utilize its low temperature, and the water is drawn from this from time to time by means of a faucet. The bottom of the refrigerator should be lined with sheet metal.

I am aware that a downward-circulating flue has been employed at one side of the cooling-chamber, and that a horizontal flue is connected with the same; but the air passed through the ice-chamber and there were no cooling-plates.

I am also aware that the ice-box has been in the middle and upper portion of the refrigerator; but the air passed through the ice-sup-

porting grate and entered the upper part of the cooling-chamber, so that moisture was liable to be precipitated upon the articles to be cooled, or else the air circulated through the ice-chamber, and there was not a horizontal flue beneath the ice-pan.

My improvement insures uniformity of temperature, and lessens or removes the risk of condensation upon the articles that are being cooled.

I claim as my invention—

1. The combination, in a refrigerator, of the ice-pan *h*, having the non-conducting bearer beneath, the partitions *m*, and roof *r*, forming the vertical flues *n* and horizontal flues *v*, and

separating the same from the cooling-chamber, but communicating therewith by means of openings *u* and *s*, substantially as described.

2. The combination, with the ice-pan in the central upper portion of the refrigerator, of the roof to the cooling-chamber, having an opening beneath the ice-pan, and the downward-circulating flues *n* at each side of the cooling-chamber, substantially as set forth.

Signed by me this 17th day of July, A. D. 1879.

L. C. SHELDON.

Witnesses:

GEO. T. PINCKNEY,
WILLIAM G. MOTT.