(No Model.)

C. H. BLUHM.

REFRIGERATOR.

No. 385,089. Patented June 26, 1888.

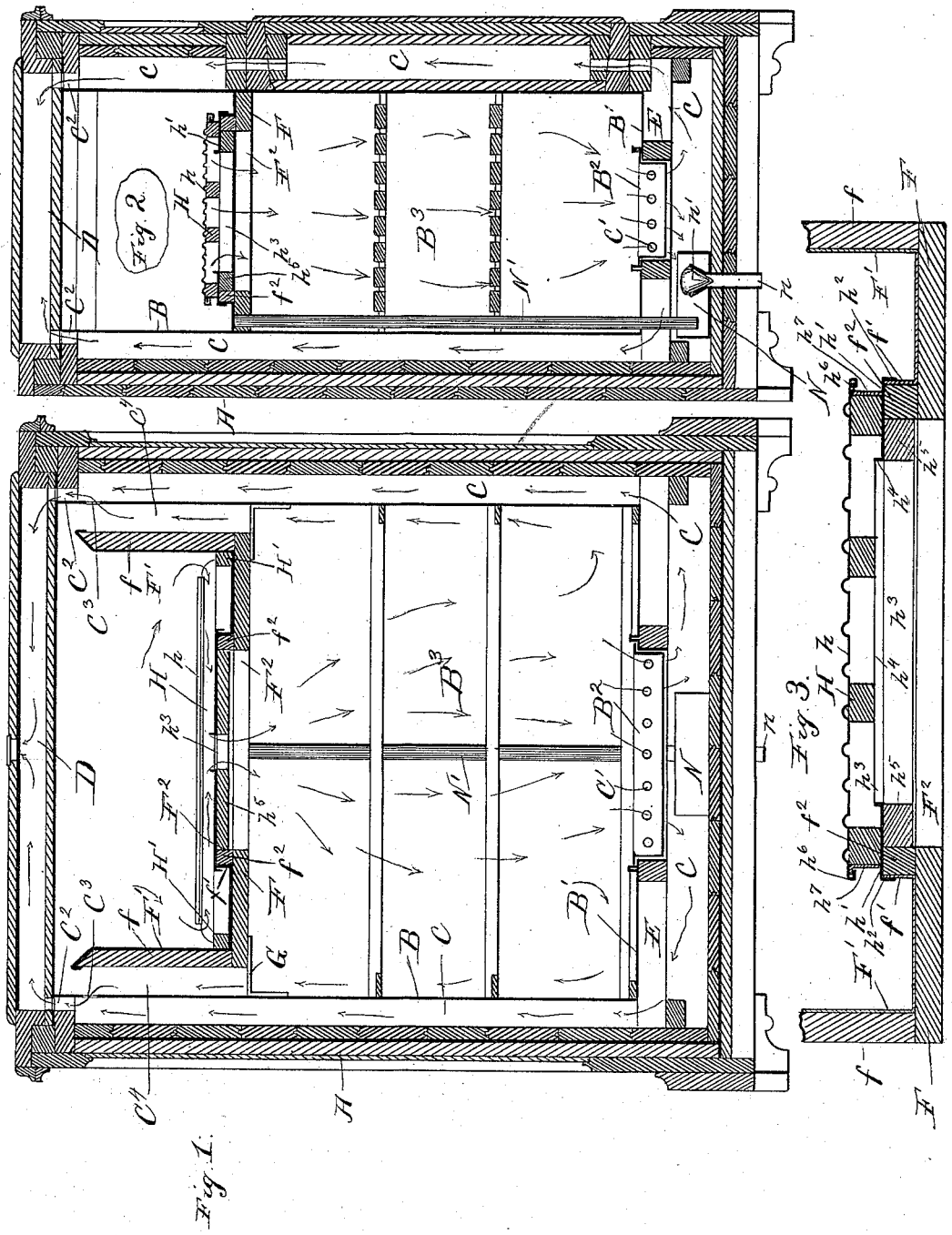

Fig. 1.

Witnesses:
Lew. E. Curtis.
H. W. Munday.

Inventor:
Charles H. Bluhm
By Munday Evarts & Adcock
his Attorneys:

UNITED STATES PATENT OFFICE.

CHARLES A. BLUHM, OF MICHIGAN CITY, INDIANA.

REFRIGERATOR.

SPECIFICATION forming part of Letters Patent No. 385,089, dated June 26, 1888.

Application filed August 20, 1887. Serial No. 247,420. (No model.)

To all whom it may concern:

Be it known that I, CHARLES A. BLUHM, a citizen of the United States, residing in Michigan City, in the county of La Porte and State of Indiana, have invented a new and useful Improvement in Refrigerators, of which the following is a specification.

My invention relates to refrigerators, and more particularly to certain improvements upon the refrigerator heretofore patented to me in Letters Patent of the United States, No. 365,901, dated July 5, 1887.

My present invention consists in the novel construction of the ice-pan and platform and the novel combination of devices whereby I produce a central circulation of cold air downward from the ice-chamber through the center of the refrigerating-chamber below. In my former patent, above referred to, I employed deflecting-plates, marked L in the drawings of said patent, which were located below the ice-pan for the purpose of deflecting the cold air centrally through the refrigerating-chamber. The difficulty in the practical use of the deflecting-plates is that occasionally, under certain circumstances, moisture is liable to collect upon the deflecting-plates and drip down upon the articles in the refrigerating-chamber.

It is the object of the present invention to overcome this difficulty.

In the accompanying drawings, which form a part of this specification, and in which similar letters of reference indicate like parts, I have shown my refrigerator—as shown and described in my former patent—with my present improvements attached or applied thereto. A detail description of the general construction of the refrigerator itself will be found in my former patent, and need not therefore be here particularly given.

In the drawings, Figure 1 is a central vertical longitudinal section of the refrigerator. Fig. 2 is a central vertical cross-section of the same, and Fig. 3 is a detail enlarged cross-sectional view of the parts to which my present improvement relates, as shown in Fig. 2.

In said drawings, A represents the outer or non-conducting wall, and B is the inner metallic or conducting wall of the refrigerator; C, the continuous air-space between the two conducting and non-conducting walls.

D is the top or cover.

E represents the horizontal frame-pieces or platform upon which the inner or sheet-metal wall or the bottom B′ thereof rests.

B^2 is the drip-pan.

C′ are the ventilator-openings in the sides or walls of the drip-pan, which constitute the principal means of communication between the refrigerating-chamber B^3 and the air-space C between the walls, and C^2 C^2 are the ventilator-openings which lead from said space C to the space between the two walls of the cover D.

F is the ice platform or chamber, supported upon the angle-iron or other brackets, G, which are secured to the inner wall of the refrigerator.

The ice-platform F is of wood, and has vertical end pieces, *f*, also of wood, and is lined upon the inside or upper side with a tight sheet-metal pan or tray, F′, having vertical flanges *f′* extending around the central opening, F^2, in the platform F. To support and protect these vertical flanges *f′*, square wooden strips f^2 are also secured to the platform F around the opening F^2.

H is the ice-rack, consisting of the longitudinal timbers H, covered on the upper side with corrugated galvanized sheet-iron *h*, and provided on the under side with a galvanized iron plate, *h′*, which plate is furnished with depending flanges h^2, which fit over the vertical flanges *f′* of the ice-platform pan F′. The plate *h′* is secured to the longitudinal bars H of the ice-rack, and is furnished with a central opening, h^3, for the passage of the cold air from the ice centrally downward through the refrigerating-chamber. Around this opening h^3 the sheet-metal bottom *h′* of the ice-rack is furnished with a vertical flange, h^4, to prevent the moisture which may collect on the under surface of the sheet-iron *h* and drop down on the sheet metal *h′* from dripping through the air-passage h^3 down upon the articles in the refrigerating-chamber. To prevent any water or moisture collecting upon the under surface of the sheet-metal bottom *h′* of the open hollow ice-rack, I provide said metal bottom *h′* with a wood or non-conducting lining, h^5, on its under side. The sheet-metal bottom *h′* of the hollow ice-rack does not extend the full

length of the ice-rack, but simply far enough to fit over the inner edge or wall, f', of the ice-pan F'.

The ice-rack H rests and is supported upon the wood-supporting ledges H', extending transversely across the ice-platform at its ends. The cold air from the ice in the ice-chamber will pass through the hollow ice-rack H, between the upper and lower sheet-metal walls thereof, h h', and down through the central opening, h^3, centrally through the refrigerating-chamber B^3, and through the air-passages C' and up through the air-space C and out of the refrigerator.

It will be observed that the hollow ice-rack H may be removed bodily from the ice-platform F and taken out of the refrigerator through its open top or cover. This is a matter of convenience, and facilitates the cleaning. To further facilitate the cleaning of the ice-rack, and also the removal and replacement of the galvanized iron h when worn, I secure the same to the timbers H removably. This I do by providing the outside timbers H with sheet-metal angle or flange plates h^7, which serve as guides, and then providing the corrugated sheet metal h with folds h^6 h^6 at its edge, which serve as guide-grooves, so that the sheet h may be slipped lengthwise on or off.

N is the water-pan at the bottom of the refrigerator, into which the water from the ice-pan F' is delivered by the drip-pipe N'. The water-pan N is furnished with an exit-pipe, n, the mouth of which extends up to near the top of the water-pan and above the lower end or mouth of the drip-pipe N'. This discharge-pipe n is furnished with a float-valve, n', which operates to open the discharge-pipe and allow the surplus water to escape when it rises above a certain level and keep the discharge-pipe closed at other times, so that the warm air will not be admitted through the same. As the lower end of the drip-pipe N' is below the surface of the water in the water-pan N, no air can pass up through this drip-pipe to the ice-chamber.

The inner sheet-metal wall, B, of the refrigerator I furnish with openings C^3 for the passage of air from the refrigerating-chamber up through the space C^4 between the ends of the ice-platform and the inner wall, B, out through the air-space C between the outer and inner wall, and thence out of the refrigerator through the ventilator-opening in the cover D at the top. These ventilator-openings C^3, I find, materially contribute to the prevention of moisture collecting under the surface of the ice-platform and dripping down upon the articles in the refrigerating-chamber.

I claim—

1. In a refrigerator, the combination, with its ice-pan and drip-pipe N', of a water-pan, N, into which said drip-pipe extends, and a discharge-pipe, n, projecting into the water-pan, provided with a float-valve, n', said drip-pipe extending below the orifice of said discharge-pipe and said float-valve operating to close the discharge-pipe except when the water rises above its proper level in said water-pan, substantially as specified.

2. The combination, in a refrigerator having double walls at sides, top, and bottom and an air-space between them, of a refrigerating-chamber and an ice chamber above said refrigerating-chamber, an ice-platform, and an ice-rack, H, provided with upper and lower metal sheets, h h', said upper sheet, h, being secured to the ice-rack H by guides h^7, attached to the ice rack at its edges, and guide-grooves h^6 at the edges of said metal sheet h, so that said sheet-metal cover h may be removed from the ice-rack, substantially as specified.

3. The refrigerator having an outer non-conducting wall and an inner metallic or conducting wall, with a continuous or connected air-space between the same at sides, top, and bottom, said inner wall having a central ventilator-opening through the floor or bottom thereof, and said outer wall having a ventilator-opening through its top or cover, said ventilator-openings communicating together through the air-space between said walls, a refrigerating chamber, and an ice pan or chamber above said refrigerating-chamber, said ice pan or chamber having air spaces or passages between its ends and said inner metallic wall of the refrigerator, the ice platform or bottom of the ice-chamber being of wood and provided with a central opening, and said refrigerator being furnished with a hollow ice-rack, H, provided with a central opening, h^3, to permit the cold air from the ice to pass centrally downward through the refrigerating-chamber, and said inner sheet-metal wall B being furnished with ventilator-openings C^3, communicating between the space C and the space C^4 between the ends of the ice-platform and the inner wall, substantially as specified.

CHAS. A. BLUHM.

Witnesses:
OTTO KLOEBFER,
L. G. TALIFARO.