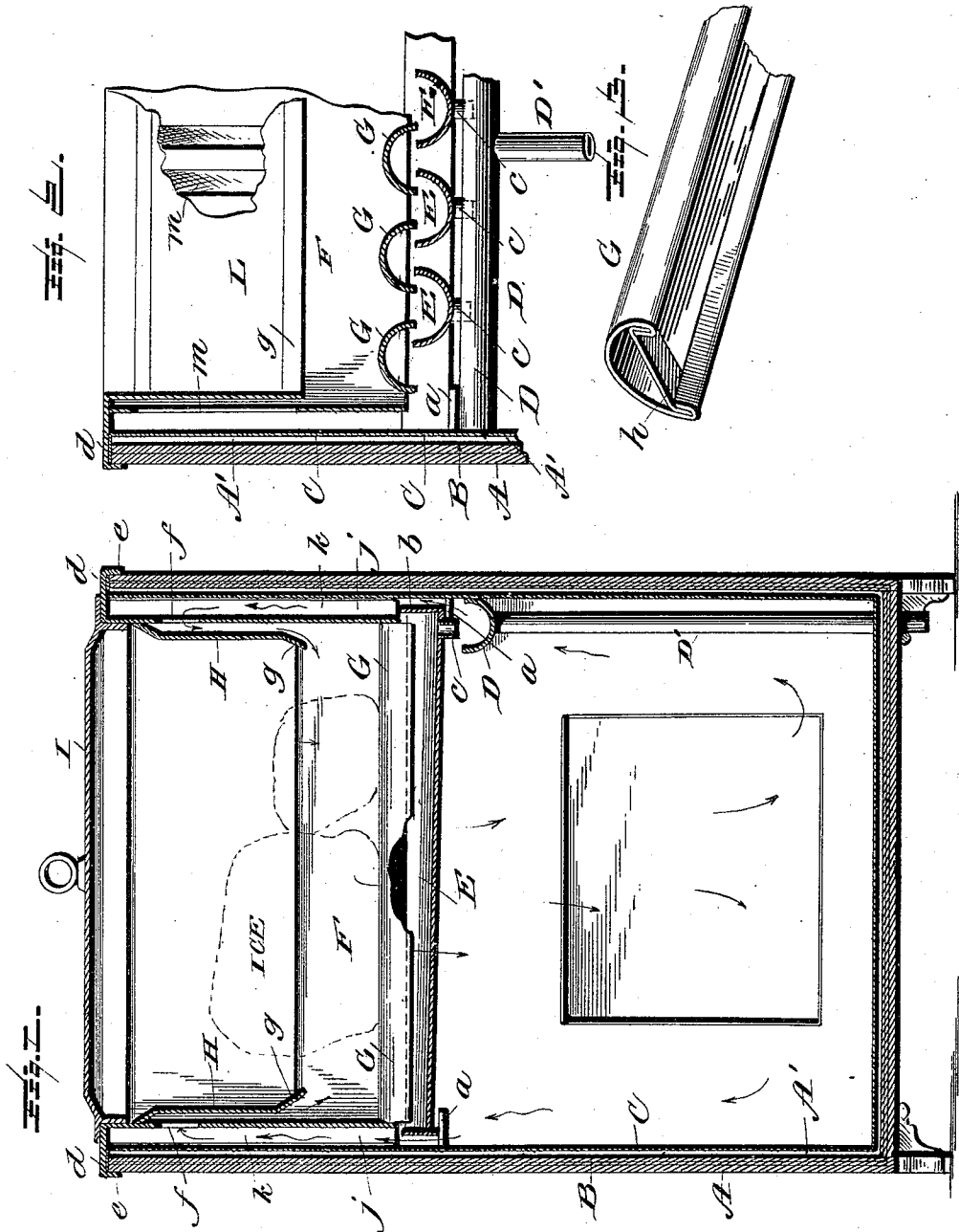


(No Model.)

L. J. EVEREST & H. C. BETTERMAN.
REFRIGERATOR.

No. 467,225.

Patented Jan. 19, 1892.



Witnesses

L. C. Hills.
E. A. Bond.

Inventors

Laban J. Everest.
Henry C. Betterman.
by *E. B. Hocking*
Attorneys

UNITED STATES PATENT OFFICE.

LABAN J. EVEREST AND HENRY C. BETTERMAN, OF OMAHA, NEBRASKA.

REFRIGERATOR.

SPECIFICATION forming part of Letters Patent No. 467,225, dated January 19, 1892.

Application filed April 21, 1891. Serial No. 389,813. (No model.)

To all whom it may concern:

Be it known that we, LABAN J. EVEREST and HENRY C. BETTERMAN, citizens of the United States, residing at Omaha, in the county of Douglas, State of Nebraska, have invented certain new and useful Improvements in Refrigerators, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to certain new and useful improvements in refrigerators; and it has for its objects, among others, to provide an improved device of this character wherein provision is made for the free passage of the
15 cold air from the ice-chamber directly down to the storing-chamber, and thus force the warm air up each side of the end of the ice-chamber and out through openings provided in the end of the chamber, making a full and
20 free circulation.

In our improved refrigerator the ice-chamber is made removable, and the bottom is formed of separated convex bars, which are alternately arranged with concave bars re-
25 movably supported within the refrigerator. The lower or concave bars communicate with a drip-trough having a discharge-pipe. An air-space is provided at each end of the ice-chamber.

30 Other objects and advantages of the invention will hereinafter appear, and the novel features thereof will be specifically defined by the appended claim.

35 The invention is clearly illustrated in the accompanying drawings, which, with the letters of reference marked thereon, form a part of this specification, and in which—

Figure 1 is a vertical cross-section through a refrigerator embodying our invention. Fig.
40 2 is a detail, partly in section and partly in side elevation, with parts broken away, the section being taken at right angles to the section of Fig. 1 and showing a slightly-modified form of ice-chamber. Fig. 3 is a perspective
45 detail showing a modified form of bar.

Like letters of reference indicate like parts throughout the several views.

Referring now to the details of the drawings by letter, A designates the case or box,
50 preferably of wood, lined with some suitable non-conducting material, as asbestos, prefer-

ably of two layers, as seen at B, and an interior lining C of zinc, with an air-space A' between the zinc and asbestos, as shown in Fig.

1. It may be provided with any desired number and style of doors.

Within the case, preferably at one end, is affixed a drip-trough D, which may be supported therein in any suitable manner, and is provided with a discharge-pipe D', which
60 may extend through the bottom or side or end of the case, as may be found most desirable. Upon a line slightly above the upper edge of this drip-trough we arrange suitable
65 supports *a*, which may be affixed to the inner walls of the case in any desired way and designed to support the removable drip-bars E, which are several in number, which number
70 may be varied according to the size of the box or the number of inversely-arranged bars in the ice-chamber. These bars are all secured to end supports *b*, and are provided at
the ends over the drip-trough with discharge-openings *c*, as seen in Figs. 1 and 2. The bars
75 are substantially semicircular in cross-section, as seen in Fig. 2, and are arranged with their concave face uppermost, as seen in Fig. 2. The bars are supported by means of their end supports upon the supports *a*. These
80 bars are readily removable for the purpose of cleaning or for other reasons.

The ice-chamber F is made of heavy galvanized iron preferably, which is of sufficient
85 thickness as to be proof against punctures by the ice-pick in breaking the ice, and it is provided at its upper edge with a surrounding horizontal flange *d*, which at its outer edge is turned down, as seen at *e*, to embrace the outer walls of the case or box, as seen in
90 Fig. 1, to close the upper end of the box or case. The bottom of the ice-chamber is formed of separated bars G, which are substantially semicircular in cross-section, as
95 seen in Fig. 2, and are arranged with their convex face uppermost. These bars are suitably secured to the end walls of the ice-chamber, and are so arranged as to alternate with the bars E—that is, so that the bars cover the
spaces between the lower sets of bars—as will be readily seen from Fig. 2, so that the
100 drip from the upper bars will fall into the lower bars, and from thence conducted into

the drip-trough and through its discharge-pipe away into the sewer or other place of deposit. The upper bars are supported at a distance from the lower bars, so as to provide space for free circulation of the air therebetween, as will be seen from Fig. 2.

The end walls of the ice-chamber are provided with one or more openings *f*, as seen in Fig. 1, through which the hot air rising from the storage-chamber passes and forces the cold air downward, as indicated by the arrows in Fig. 1.

Within the ice-chamber we arrange the deflecting-plates *H*, which are connected with the end walls of the ice-chamber above the openings therein and extend downward for a sufficient distance and their lower edges preferably turned inward, as seen at *g* in Fig. 1, to deflect the air toward the center of the ice-chamber. The passage of the air and the full circulation will be understood from the arrows in Fig. 1.

The ice-chamber is provided with a removable cover *I*, and the chamber itself is removable bodily from the box for the purpose of cleaning the parts.

The bars of the rack or bottom of the ice-chamber may sometimes be constructed in the manner shown in Fig. 3, the operation being the same; but the brace *h* greatly strengthens the same, the said brace having its edges turned at a right angle with the body thereof and clamped between the turned-over edges of the bar, as shown clearly in Fig. 3. The

upper contour of the bar is the same in both instances.

The ends of the ice-chamber are extended, as seen at *j*, so that when in place the extended portions form, with the inner end walls of the box or case, air-spaces *k*, as seen in Fig. 1.

We sometimes provide the sides of the ice-chamber with interior plates *L* and slot the side walls, as seen at *m*, to form air-passages, as seen in Fig. 2; but this may be omitted without materially affecting the successful operation of the other parts.

Modifications in detail may be resorted to without departing from the spirit of the invention or sacrificing any of its advantages.

What we claim as new is—

In a refrigerator, an ice-chamber having its bottom formed of separated bars, air-spaces at the ends, a surrounding flange to embrace the walls of the box or case, openings through the end walls of the chamber, and deflecting-plates independent of the said bars of the ice-rack within the chamber adjacent to said openings, with their lower ends unattached, substantially as specified.

In testimony whereof we affix our signatures in presence of two witnesses.

LABAN J. EVEREST.
HENRY C. BETTERMAN.

Witnesses:

ABNER K. NUCKOLLS,
CHARLES S. CARPENDRE.