R. T. HAMBROOK.

Refrigerators.

No. 204,216. Patented May 28, 1878.

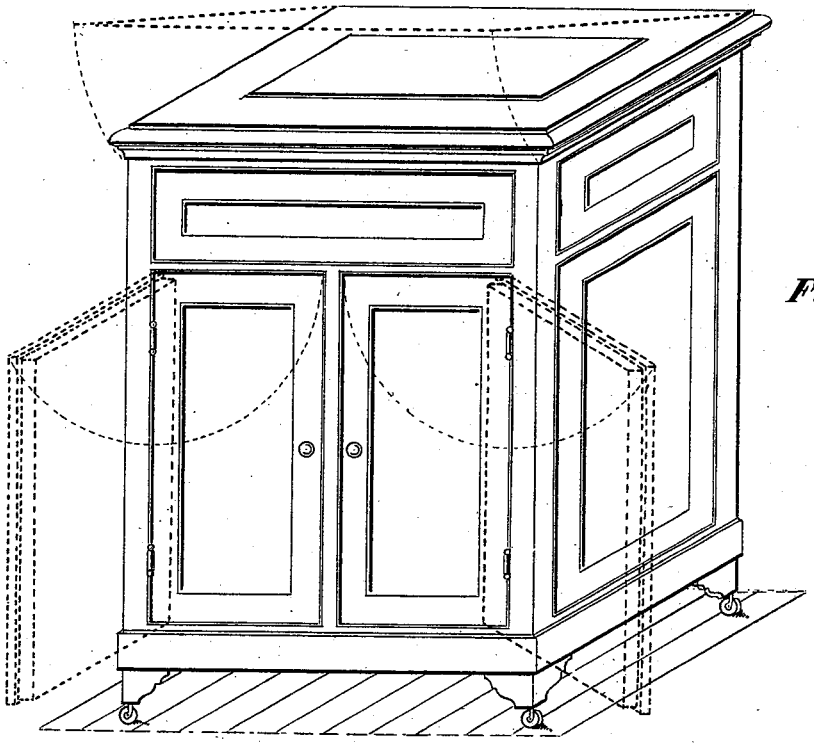

Fig. I.

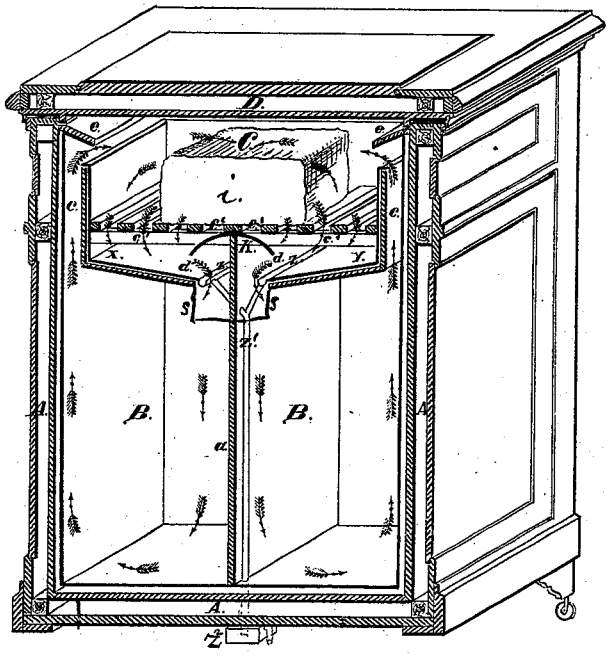


Fig. II.

Witnesses,

Inventor,

Richard T. Hambrook

# UNITED STATES PATENT OFFICE.

RICHARD T. HAMBROOK, OF CHICAGO, ILLINOIS.

## IMPROVEMENT IN REFRIGERATORS.

Specification forming part of Letters Patent No. **204,216**, dated May 28, 1878; application filed March 2, 1878.

*To all whom it may concern:*

Be it known that I, RICHARD T. HAMBROOK, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Refrigerators; and do hereby declare the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification.

The nature of my invention consists in the construction of a refrigerator having the ice-chamber constructed in such manner that the air will impinge upon the top, bottom, and sides of the ice, and that the continuous volume of cold air generated by the melting of the ice will descend, in a dry state, to the provision-chamber without material hindrance, causing the displaced and less frigid air to ascend to the ice-chamber through open spaces at each side thereof without meeting the descending current of cold air.

To enable others skilled in the art to which my invention appertains to construct and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawings, in which—

Figure 1 is a perspective view of my invention, and Fig. 2 is a vertical section thereof.

A represents the outer box or cabinet of the refrigerator. B B represent the provision-chambers, each having a door opening from the center outward. The provision-chambers are separated from each other by the perpendicular partition *a*, which is composed of wood, sheet metal, or other suitable substance, and extends from front to rear of the provision-chamber, and from the bottom thereof into the ice-chamber, as hereinafter described.

The inner box of the refrigerator constitutes the sides and bottom of the provision-chambers, as well as the front and rear sides of the ice-chamber. It is lined with metal throughout its entire extent, and is securely fastened and retained in its relative position to the outer case or cabinet by any proper means used by makers of refrigerators, but in such manner as to leave a suitable space on all sides and at its bottom for the retention of fixed air as a non-conductor, or for the packing of charcoal, sawdust, or other non-conducting substance to prevent the temperature of the external air from making an impression upon the temperature of the provision-chambers. Said insulating-space is permanently closed at the top thereof in all its parts by close joinder with the outer box, in any proper manner.

D is the hinged lid, adjusted in the manner usual in refrigerators, and by means whereof access to the ice-chamber is attained.

*c x* and *c y* are side and bottom pieces, securely joined to the front and rear of the inner box, and together with such front and rear constituting the ice-chamber C. The entire four sides and bottom pieces aforesaid are lined with metal, the joints being likewise closely soldered together. The bottom pieces *x* and *y* incline sufficiently toward the center to readily carry off the drip from the ice, and the sheet metal which lines said bottom pieces is sufficiently extended at the lower or depressed edges of said bottom boards as to be formed into respective gutters *z z*, which are connected by any suitable means with a perpendicular waste-pipe, $z^1$, located in the front or rear of the refrigerator, as may be preferred, extending beneath the same, and the mouth thereof being provided with a trap, $z^2$, siphon, or other means, to allow the escape of water without admitting the external air to the interior of the refrigerator. The two independent sides of the ice-chamber, which are annexed to the bottom pieces *x* and *y*, are located one or two inches (or more, if desirable) from the sides of the inner box of the refrigerator, so as to admit of a free circulation of air at the spaces *c c*. Between the provision-chamber and the ice-chamber a projection, *e e*, is placed just beneath the hinged lid and just above the space *c c* on each side of the ice-chamber, so as to effectually guard the falling of ice or other ponderable substances from the top into the provision-chamber through the aforesaid spaces.

The lower edges of the bottom boards *x* and *y* are equidistant from the perpendicular partition *a*, which extends into the ice-chamber a few inches above the gutters *z z*. Upon the top of said partition, extending longitudinally along the length thereof, is a narrow sheet of curved metal or other suitable substance, K, securely fastened, and so arranged as to allow the drip from the ice to fall from said strip of metal upon the bottom boards *x* and *y*, clear of the spaces *d d*.

The spaces *d d* between the partition *a* and the respective gutters *z z* are preferably about one and a half inch, but may be of any other width, and the spaces between the lower edges of the metallic strip K and the points on the respective bottom boards *x* and *y* immediately beneath should be of about the same width.

*c'* is a movable rack or open-work platform, to hold the ice, consisting of narrow strips of hard wood or other suitable substance, screwed or otherwise secured to transverse strips of wood or other suitable material, with open spaces between, so as to allow the air to reach the ice from all directions. Said rack may rest upon cleats in the sides of the ice-chamber, or other suitable mode for its location may be adopted.

If desirable, the ice-chamber may be divided into two parts by extending the partition *a* to the top of the ice-chamber and bisecting the curved apron K longitudinally, and affixing each half thereof upon the respective sides of the partition *a* at the same relative position to the bottom pieces *x* and *y*, as shown in the drawing.

It is sometimes preferable, and I claim the right, to make a close-jointed and metallic-lined recess, *s s*, immediately under the edges of the bottom pieces *x y*, and extending a few inches into the interior from the front, into which recess the gutters *z z* can discharge the drip from the ice; and in such event the waste-pipe $z^1$ does not reach to the gutters *z z*, but is firmly and securely soldered to the bottom of the recess *s s*, so as to drain it of the water which is drained from the gutters *z z*. When thus arranged the metallic curved plate K is abridged so as to cover the recess *s s*.

When ice *i* is placed upon the rack *c'* in the ice-chamber C, the air which is in immediate contact therewith will settle toward the bottom of the ice-chamber C, and will thence pass through the openings *d d* and fall toward the bottom of the provision-chambers B B. The cold air thus falling will displace that of a less frigid temperature, which latter will rise and pass through the narrow spaces *c c*, and will impinge upon the ice *i*, which will absorb its moisture, and again be precipitated in a dry and frigid state into the provision-chambers, thus keeping the latter dry and thoroughly ventilated. The drip from the ice, after falling on the curved strip K and the bottom pieces *x* and *y*, is caught in the gutters *z z*, whence it is carried off by the waste-pipe $z^1$.

I do not claim an outside box and inside provision-chamber or their combination; neither do I claim the fixed air-space between the two, or other method of insulation; neither do I claim the principle of ventilating the provision-chambers by means of a descending current of cold air displacing and causing to ascend the less frigid air; nor do I claim the partitioning of the provision-chamber into two compartments; nor yet do I claim the affixing the trap or siphon to the waste-pipe.

Having thus fully described my invention, and disclaimed so far as seems needful, what I claim as new, and desire to secure by Letters Patent, is—

In combination with the provision-chambers B B, the ice-chamber C, having rack *c'* and double-inclined bottom pieces *x* and *y*, provided with a central opening guarded by the deflector-plate K, and provided, also, with the side passage *c* from the provision chamber and the trough *z*, and pipe *z* , all substantially as described and shown, for the purpose set forth.

RICHARD T. HAMBROOK.

Witnesses:

JNO. LEWIS,

H. C. WHITNEY.