2 Sheets—Sheet 1.

E. CLARK.

REFRIGERATORS.

No. 194,130. Patented Aug. 14, 1877.

Fig. 2.

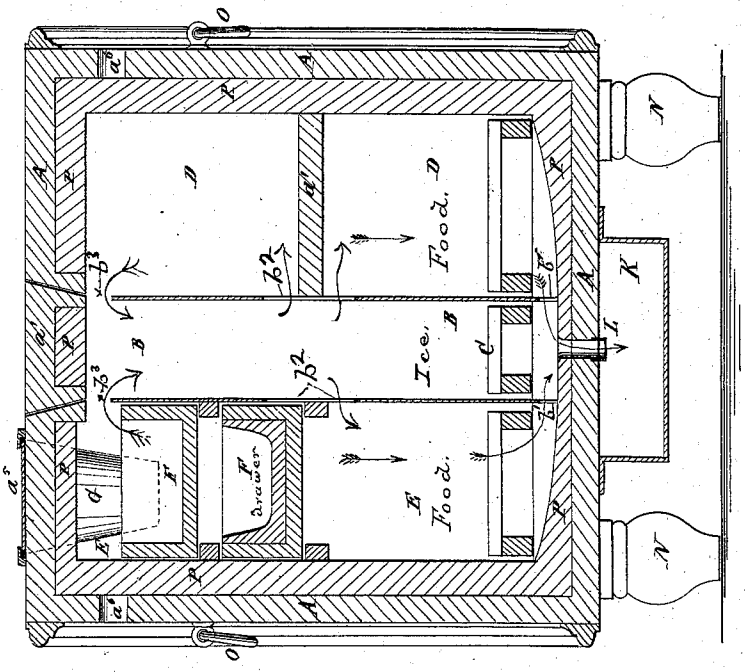
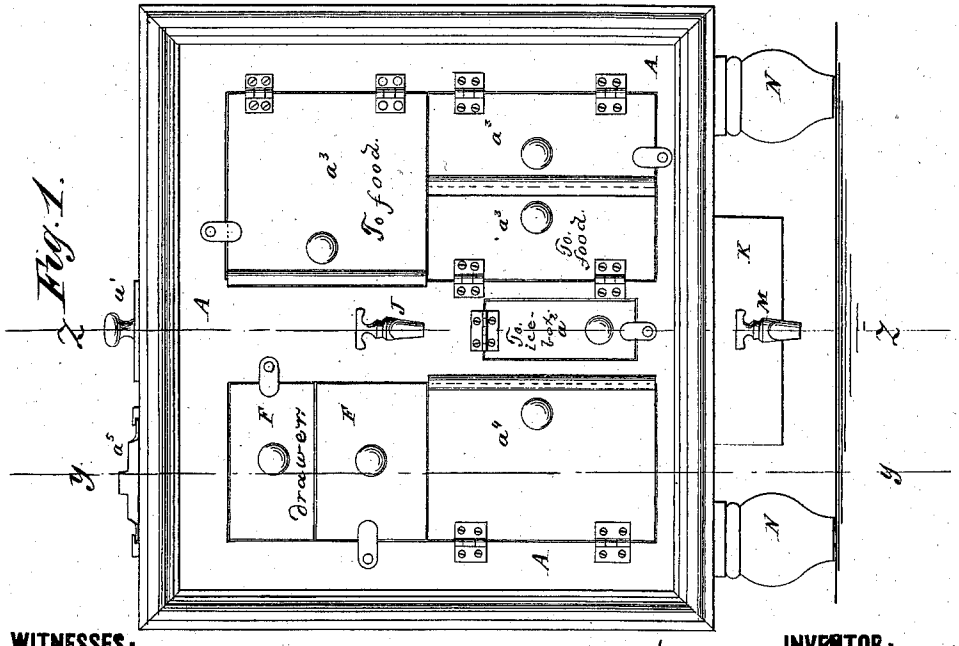


Fig. 1.



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2 Sheets—Sheet 2.

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Fig. 1

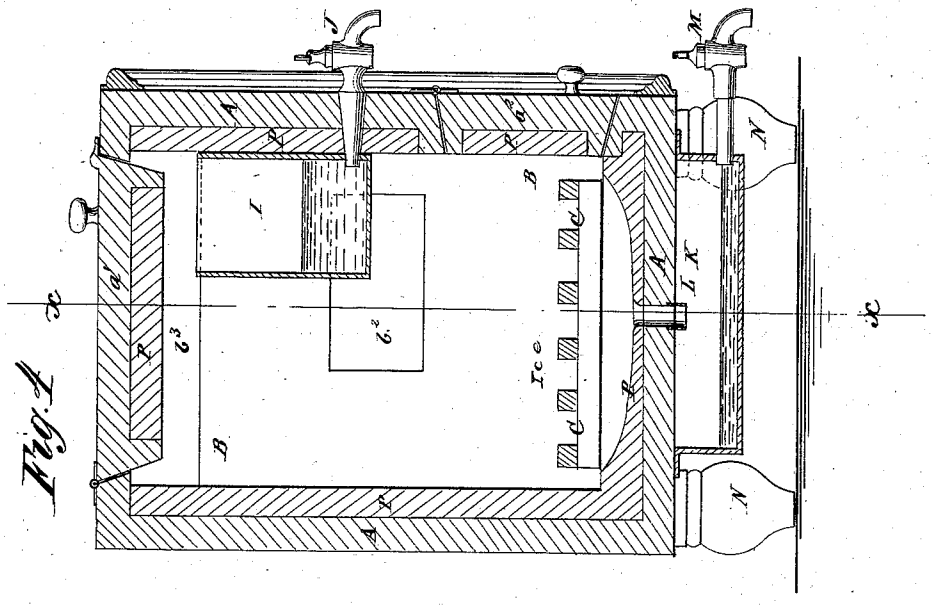
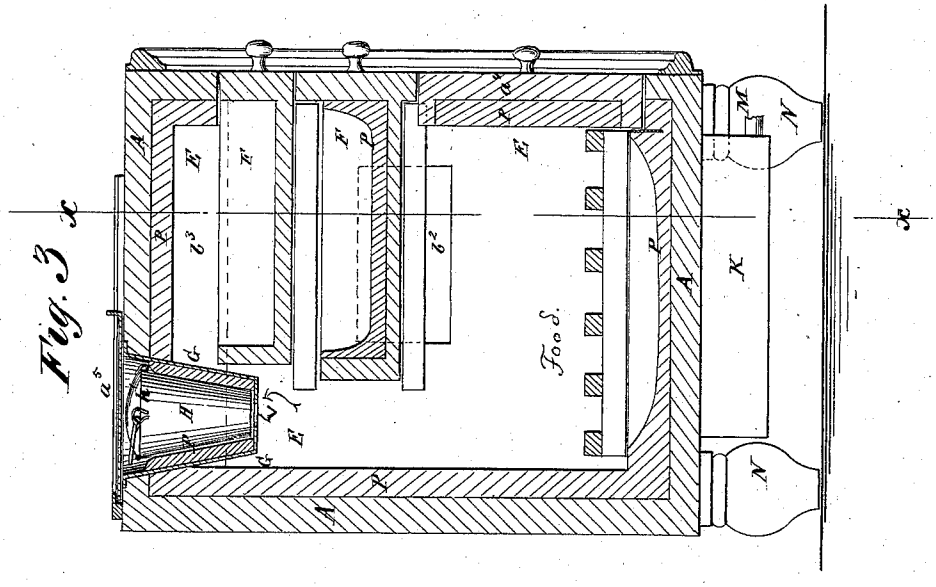


Fig. 2



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UNITED STATES PATENT OFFICE.

EDWARD CLARK, OF NEW YORK, N. Y.

IMPROVEMENT IN REFRIGERATORS.

Specification forming part of Letters Patent No. **194,130**, dated August 14, 1877; application filed July 23, 1877.

To all whom it may concern:

Be it known that I, EDWARD CLARK, of the city, county, and State of New York, have invented a new and useful Improvement in Refrigerators, Ice-Boxes, Ice-Houses, &c., of which the following is a specification:

Figure 1, Sheet 1, is a front view of my improved refrigerator. Fig. 2, Sheet 1, is a vertical cross-section of the same taken through the line *x x*, Figs. 3 and 4. Fig. 3, Sheet 2, is a vertical longitudinal section of the same taken through the line *y y*, Fig. 1. Fig. 4, Sheet 2, is a vertical longitudinal section of the same taken through the line *z z*, Fig. 1.

Similar letters of reference indicate corresponding parts.

The object of this invention is to improve the construction of refrigerators, ice-boxes, ice-houses, and other receptacles for ice, or for things to be kept cool, so as to make them more convenient in use and more effective in operation, while at the same time being less expensive in manufacture.

The invention will first be described in connection with drawing, and then pointed out in the claims.

A is the box or shell of the refrigerator, which may be built in any desired manner, and of light or heavy material.

B is the ice-chamber, which is made of zinc, galvanized iron, or other suitable material, and extends from the bottom to the top of the box A, and in its bottom is placed a rack, C, to receive the ice.

In the lower part of the sides of the ice-chamber B are formed a number of small holes, b^1, to allow the cold air from said ice-chamber to pass into the lower part of the provision-chambers D E. For the same reason openings b^2 are formed in the middle part of said sides.

In the upper part of the sides of the ice-chamber B are formed large openings b^3, to allow the air partially warmed by contact with the articles in the provision-chambers D E to enter the ice-chamber B, to be again cooled.

a^1 is a large door formed in the top of the the box A, for putting in the ice. In the front of the box A is formed a small door, a^2, opening into the lower part of the ice-chamber B, for convenience in putting ice into the lower part of said chamber B.

The provision-chamber D is divided into two compartments by a close horizontal partition, d', as shown in Fig. 2, and each compartment is provided with a door, a^3, so that access may be had to either compartment without opening the other, and allowing warm air to enter. The doors a^3 may be single or double. In the drawings the upper door a^3 is represented as single, and the lower one as double.

In the forward upper part of the provision-chamber E are placed one, two, or more small drawers, F, to receive pastry, butter, and other small articles, to prevent them from being flavored by the articles that may be in the lower part of the chamber E, and to enable said articles to be put in and taken out without opening any part of the refrigerator except the drawer. The lower part of the chamber E is closed by a door, a^4, which may be single or double. G is a case, made of zinc, tin, or other suitable material, and inserted through and secured in a hole in the top of the box A. The case G may be made tapering, as shown in Figs. 2 and 3, or of any other desired form, and is designed to receive a vessel, H, made of similar shape, but smaller, and provided with a cover, h'. The vessel H is designed to contain milk, ice-cream, or other similar article to be kept cool, and to be protected from the odor of any other article that may be in the chambers of the refrigerator. The opening in the top of the box A is closed with a sliding door, a^5. The case G has an opening, v, in its bottom, to allow the cold air to circulate around the vessel H.

This construction allows access to be had to the vessel H without opening the refrigerator, and enables the said vessel to be conveniently removed for washing it, or other desired purpose.

A similar case and vessel may be placed in the rear upper part of the chamber D, if desired.

In the forward upper part of the ice-chamber B is placed a vessel, I, to receive water to be cooled, and which is provided with a faucet, J, which passes through the forward side of the box A, for convenience in drawing off the water, as desired. K is a pan, secured

water-tight to the bottom of the box A, to receive the waste water from the ice-chamber B, and, at the same time, prevent the entrance of air through the drip-pipe L, which leads down through a hole in the center of the bottom of the box A, the said bottom being made concave to guide the water in the drip-pipe. The pan R is provided with a faucet, M, to enable the waste water to be conveniently drawn off as required. The box A is provided with legs N to support it at a suitable height, which legs may have small wheels, or wheels and axles, pivoted to them, to enable the refrigerator to be conveniently moved from place to place. For the same purpose handles O are attached to the sides of the box A.

The bottom, sides, top, and doors of the box A, the case G, and the drawers F, if desired, are lined with the composition hereinafter described. In preparing this lining I take one bushel of finely-ground charcoal, three bushels of hydraulic cement, one-half bushel of fine sawdust, one-half bushel of plaster-of-paris, and one-half peck of fine white sand. These ingredients are thoroughly mixed, and enough water is added to reduce them to the consistency of a soft mortar. The mortar is then molded into bricks or slabs P, and is pressed to squeeze out the surplus water, and to pack the ingredients more compactly. The bricks or slabs P are then dried in the air or in an oven. In some cases it may be advisable to spread the mortar upon the surface to be lined, and allow it to dry there.

The bricks or slabs P are laid in cement upon the surface to be lined, and are supported where necessary, as, for instance, upon the top and doors of a refrigerator, by means of dovetailed strips of wood, tin, zinc, or other suitable material. The bricks or slabs P may be used for building an ice-box or cooling-chamber without a box, or with only a skeleton box. This composition may also be used for lining butter-pails, water-coolers, baskets and boxes for fish, and for various other similar uses where coolness is required, either with or without the use of ice. A peculiar quality of the lining P is that it will absorb the moisture while retaining a cool, dry surface.

When used for lining refrigerators, &c., a number of holes, a^6, may be formed in the upper part of the sides of the box A, to allow moisture to escape that may collect between the lining and the sides of said box.

It should be observed that the bricks or slabs P may be sawed with an ordinary saw into any desired shape, to enable them to be snugly fitted into place.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The ice-chamber B, placed in the middle part of the box A, and provided with the openings $b^1 b^2 b^3$ in the lower, middle, and upper parts of its sides, and with the doors a^1 a^2 at its top and at the lower part of its front, substantially as herein shown and described.

2. The combination of the case G, having an open bottom, and the refrigerator-box A, provided with a door, a^5, in its top, with the detachable milk-vessel H, as and for the purpose set forth.

3. A non-conducting lining for refrigerators, consisting of charcoal, hydraulic cement, sawdust, plaster-of-paris, sand, and water, mixed in about the proportions specified.

EDWARD CLARK.

Witnesses:
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