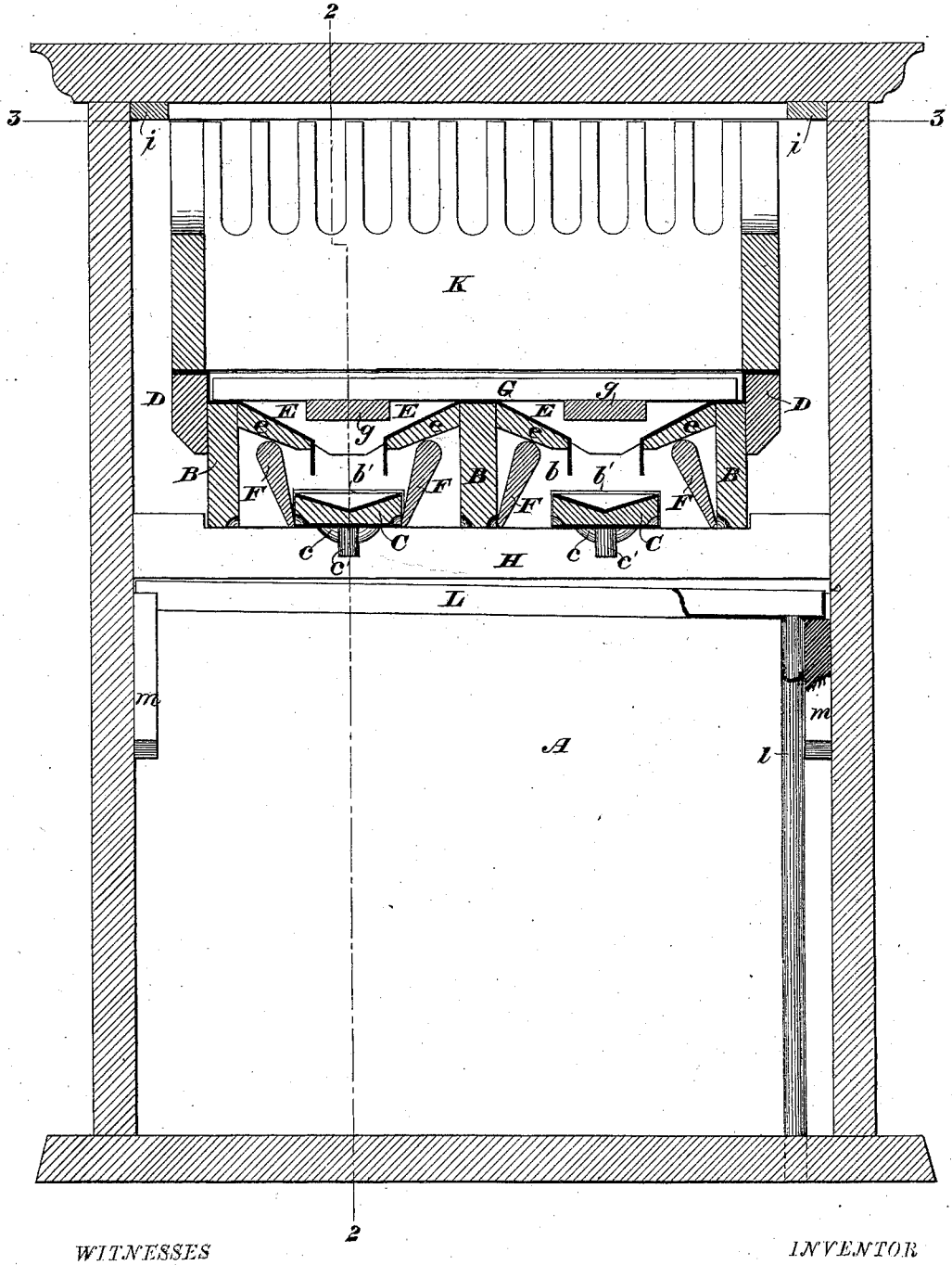
3 Sheets—Sheet 1.

D. A. STEVENS.

Refrigerator.

No. 201,713. Patented March 26, 1878.

Fig 1.



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WITNESSES

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Fig 2.

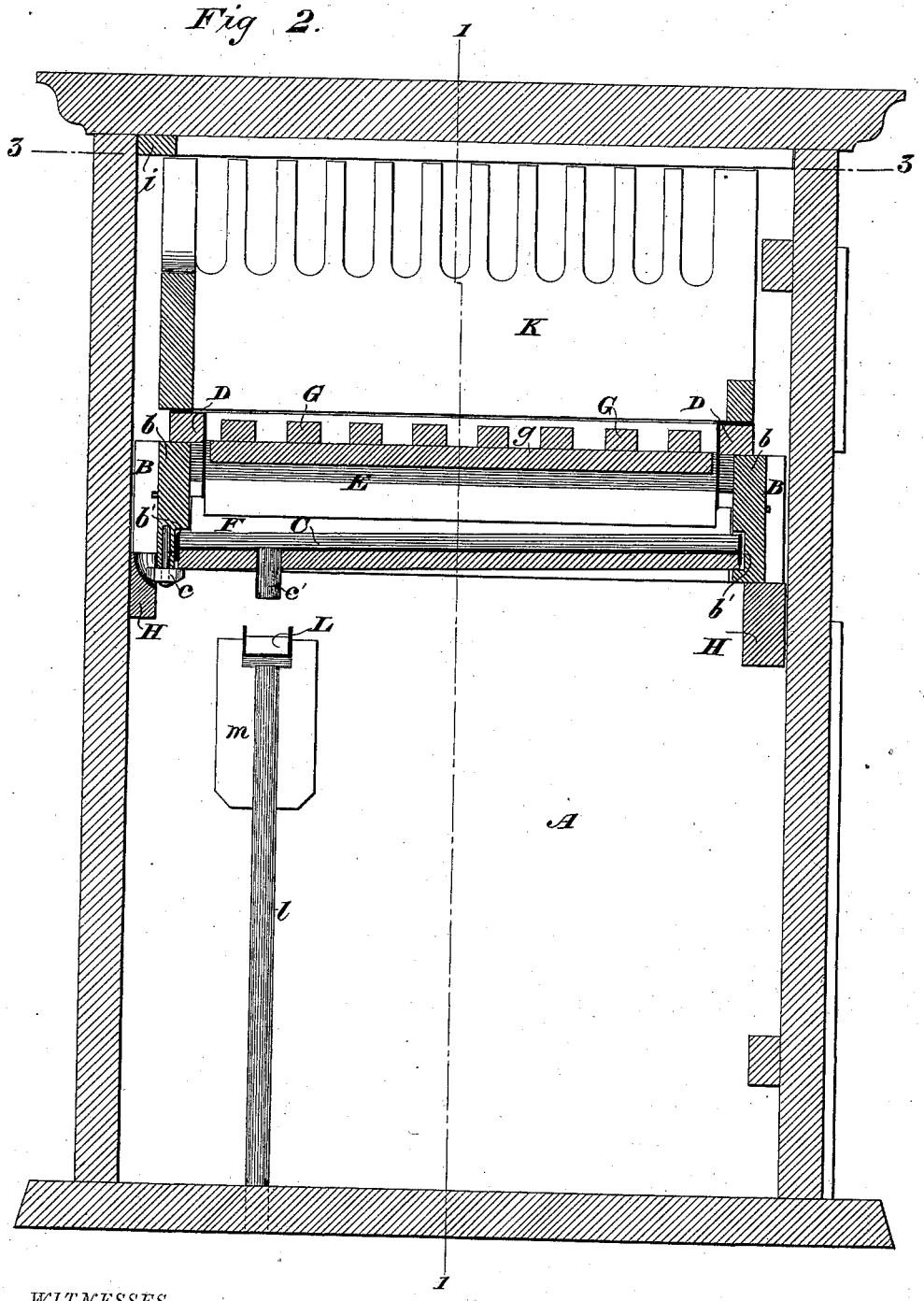

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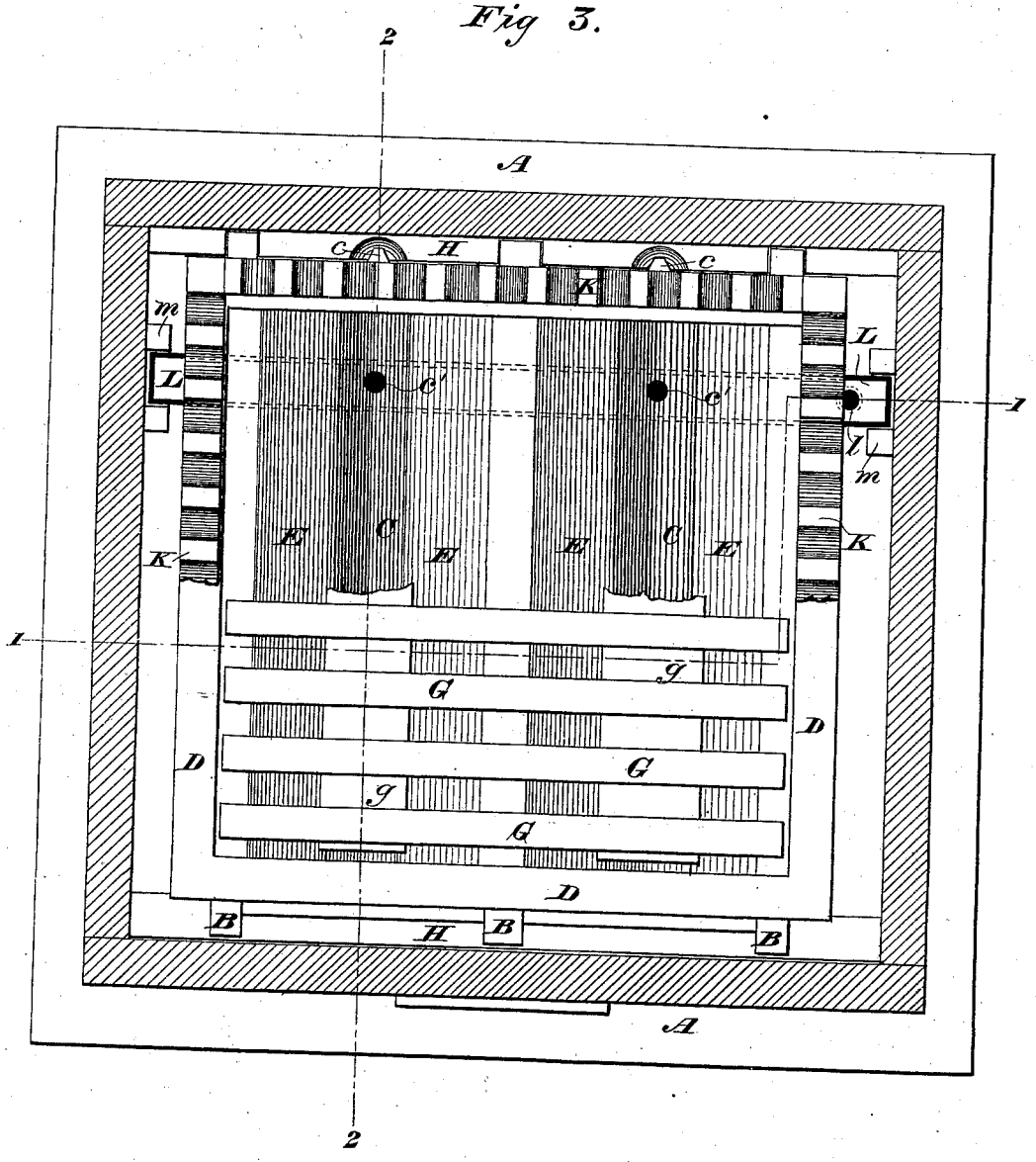
Fig 3.



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UNITED STATES PATENT OFFICE.

DAVID A. STEVENS, OF TOLEDO, OHIO.

IMPROVEMENT IN REFRIGERATORS.

Specification forming part of Letters Patent No. **201,713**, dated March 26, 1878; application filed December 12, 1877.

To all whom it may concern:

Be it known that I, DAVID A. STEVENS, of Toledo, in the county of Lucas and State of Ohio, have invented certain Improvements in Refrigerators, of which the following is a specification, accompanied by suitable drawings, in which—

Figure 1 is a vertical section on the lines 1 1 of Figs. 2 and 3. Fig. 2 is a vertical section on the lines 2 2 of Figs. 1 and 3; and Fig. 3 a horizontal section on the lines 3 3 of Figs. 1 and 2, showing the ice-rack partly broken away to disclose the ice-trough beneath it.

The object of my invention is to produce a refrigerator the parts of which for supporting the ice shall be detachable, compact, and convenient for accommodating drainage and ventilation, and the frame-work and walls of which shall be protected from the water produced by the melting of the ice.

My invention relates to the class of refrigerators in which there is a communication for the circulation of air between the ice-chest and the depository for food; and it consists in the improvements hereinafter described in detail as perfectly as I am able to do, and then stated in my claims.

Referring to my drawings in aid of my description of my improvements, A indicates a suitable box or receptacle, having a door, as usual, and divided into two apartments by a removable floor, the upper one of which is to contain ice, and the lower one of which is to contain articles of food or other things to be kept cool.

The bottom or floor of the ice-apartment is composed of a suitable number of joists, B B B, connected near their ends by cross-pieces *b b*, in which are mortises *b' b'*, to receive the ends of the detachable drip-troughs C C, which may be held in place by buttons *c*, or by any other convenient appliance. These drip-troughs (as also the frame-work of the removable floor and the body of the receptacle) I prefer to form of wood, and in their upper "dug-out" faces I place a zinc or other suitable lining.

The mortises *b' b'* are cut one higher than the other, so that when the troughs are inserted they will have a sufficient incline to run the drip-water off at one end through the apertures or tubes *c' c'*.

On top of the main frame-work of the ice-floor I secure, detachably if desired, another comparatively light open frame, D, lined with zinc or other suitable material, in such a way as to form drip-shelves E E E, as best shown in Figs. 1 and 3, which cover and protect the joists B B B from the drip-water, and which are so extended and beveled or inclined laterally as to convey the water into the troughs C C. I prefer to support and stiffen these drip-shelves by the beveled strips *e e e*, which may be secured either to the drip-shelves underneath or to the main floor-frame, as most convenient in the manufacture.

It will be noted by reference to Fig. 1 that there is an open space left between the lower edges of the drip-shelves and the edges of the drip-troughs, and the purpose of this is to admit of a direct circulation of air between the ice-apartment and the food-depository.

In order to control the amount of circulation, or, when desired, to prevent it altogether, through these openings, I provide hinged wings or valves F F F F on both sides of each trough, pivoted at their ends to the cross-pieces of the main floor-frame, and capable of being swung to and from the troughs, so as to close or open the air-spaces.

There will necessarily be a slight circulation of air between the upper and lower compartments through the space between the edges of the ice-floor and the adjoining walls of the receptacle even when the valves are closed; but it will be practically inconsiderable. When they are open the cold air will descend directly from the ice-compartment, and the warm air will rise around the walls and enter the upper part of the ice-chest in considerable volume, to establish an equilibrium of temperature according to natural law.

On top of the compound frame-work thus constructed I place a floor-rack, G, of slats or open work, secured to cross-pieces *g g* running parallel with the troughs, and immediately over them, and being of sufficient width to prevent the drip of the ice from falling directly into the troughs and spattering into the

lower apartment, thus compelling it all to run down the inclined shelves, and so slowly descend into the troughs.

This complete ice-floor, either as a whole or in its separable parts, may be placed in or removed from the receptacle at will, for cleaning or repairing the apparatus. It is supported, as shown in the drawings, on front and back cross-beams H H, having suitable mortises, into which the projecting ends of the joists fit; but it might be supported on side beams, which would permit the floor to be slid in and out.

Above the floor, and resting on it, I provide a detachable cage or ice-rack, K, preferably of open work, as shown, to prevent the ice from coming in contact with the walls of the receptacle and its drip-water from running down them. This may be held in place by guide-strips *i i i*, as shown, or by any other projections or convenient means. These guide-strips are shown attached to the cover, which may be removable, and they serve also to keep it in place.

Below the floor, and immediately under the apertures in the drip-troughs, is an inclined trough or conduit, L, with a pipe, *l*, at its lower end, extending through the bottom of the depository, which conveys away the drippings from the ice. These parts are also detachable, the ends of the conduit being supported by brackets *m m*.

From this construction it will be noted that all parts of the apparatus not necessary to directly receive and convey the drip are kept wholly protected from it. It will also be noted that the direct circulation of air through the ice-floor can be perfectly controlled or entirely prevented at will. It will also be noted that all the parts desirable to be removed for cleaning or repairs can readily be detached, and that the different parts of the ice-floor can readily be separated for similar purposes. Finally, it will be noted that by my plan of construction of the composite partition or ice-floor a minimum of space only is necessary to accommodate the supporting-frame, the drip-shelves, the drip-troughs, and the ventilating contrivances, including barely that occupied by the width of the joists and the thickness of the zinc lining and floor-rack.

Having thus set forth in the best manner now known to me the general purposes and details of my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination of the inclined troughs, the drip-shelves serving to cover and protect the joists of the ice-floor main frame, and the valves or pivoted wings between the shelves and troughs, all arranged, as described, between the joists and within the space occupied by the main frame, whereby space is economized and compactness of structure secured, as set forth.

2. The combination of the ice-floor rack, provided with cross-pieces over the troughs, with the drip shelves and troughs, whereby the spattering of the drip is prevented, substantially as described.

3. The combination of the ice-cage, the ice-floor rack with its cross-pieces, the drip shelves and troughs, and the conduit and exit pipes, whereby the drip is prevented from contact with the frame-work and walls, substantially as described.

In testimony whereof I have hereunto subscribed my name.

DAVID A. STEVENS.

Witnesses:
CHAS. L. RHOADES,
A. C. BARLOW.