

C.E. Monroe. Refrigerator.

116344

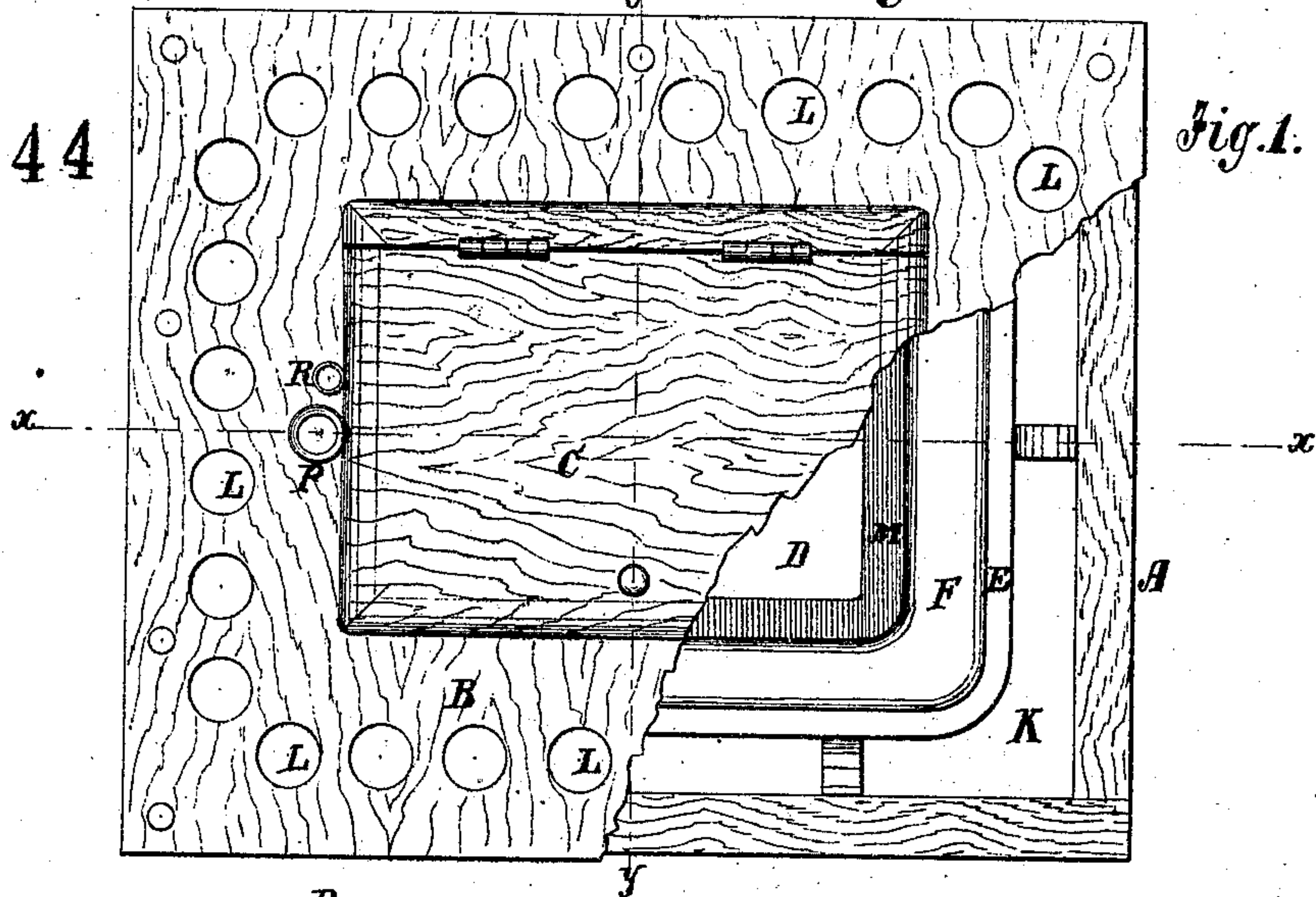


Fig. 1.

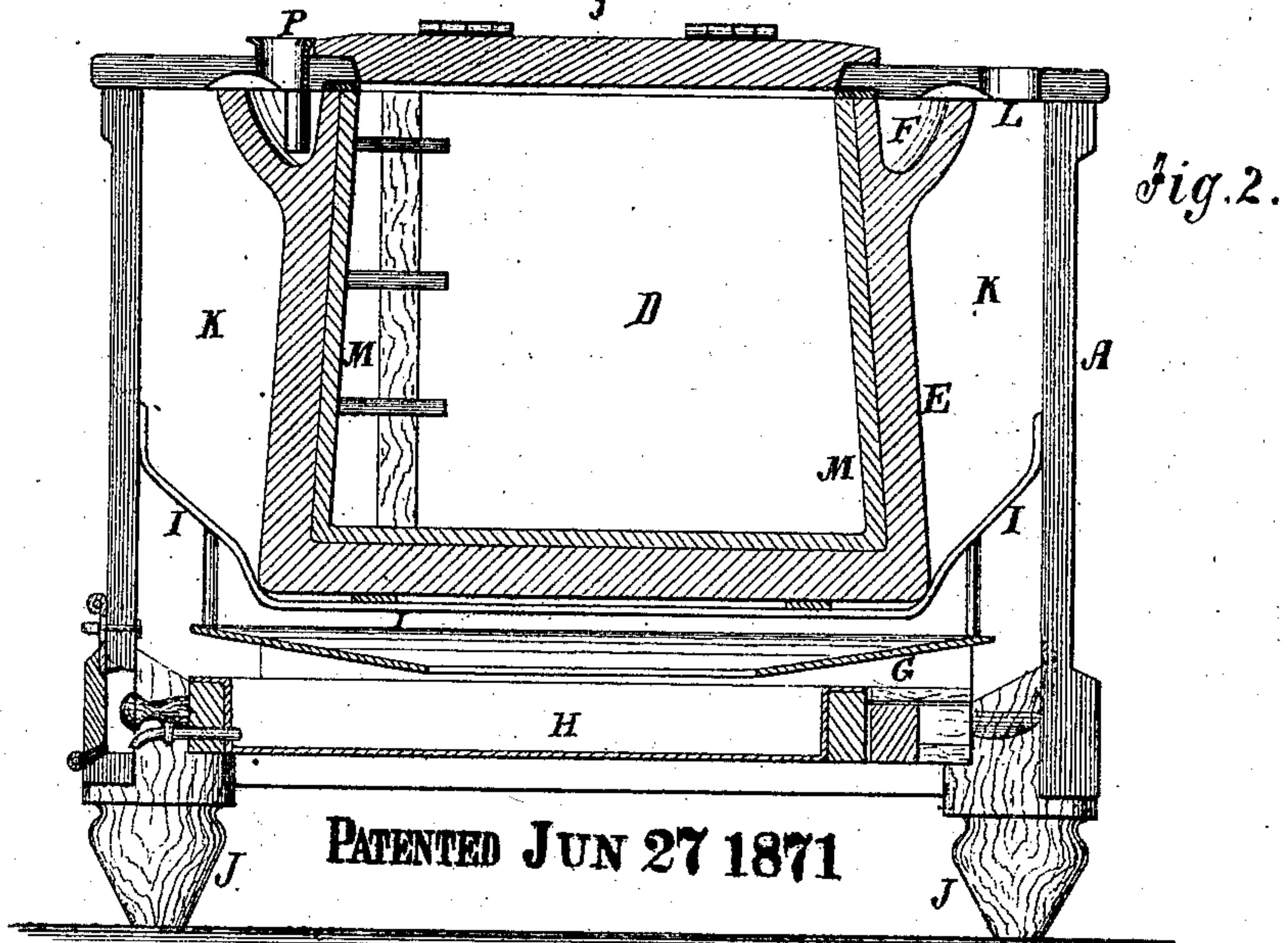


Fig. 2.

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Fig. 4.

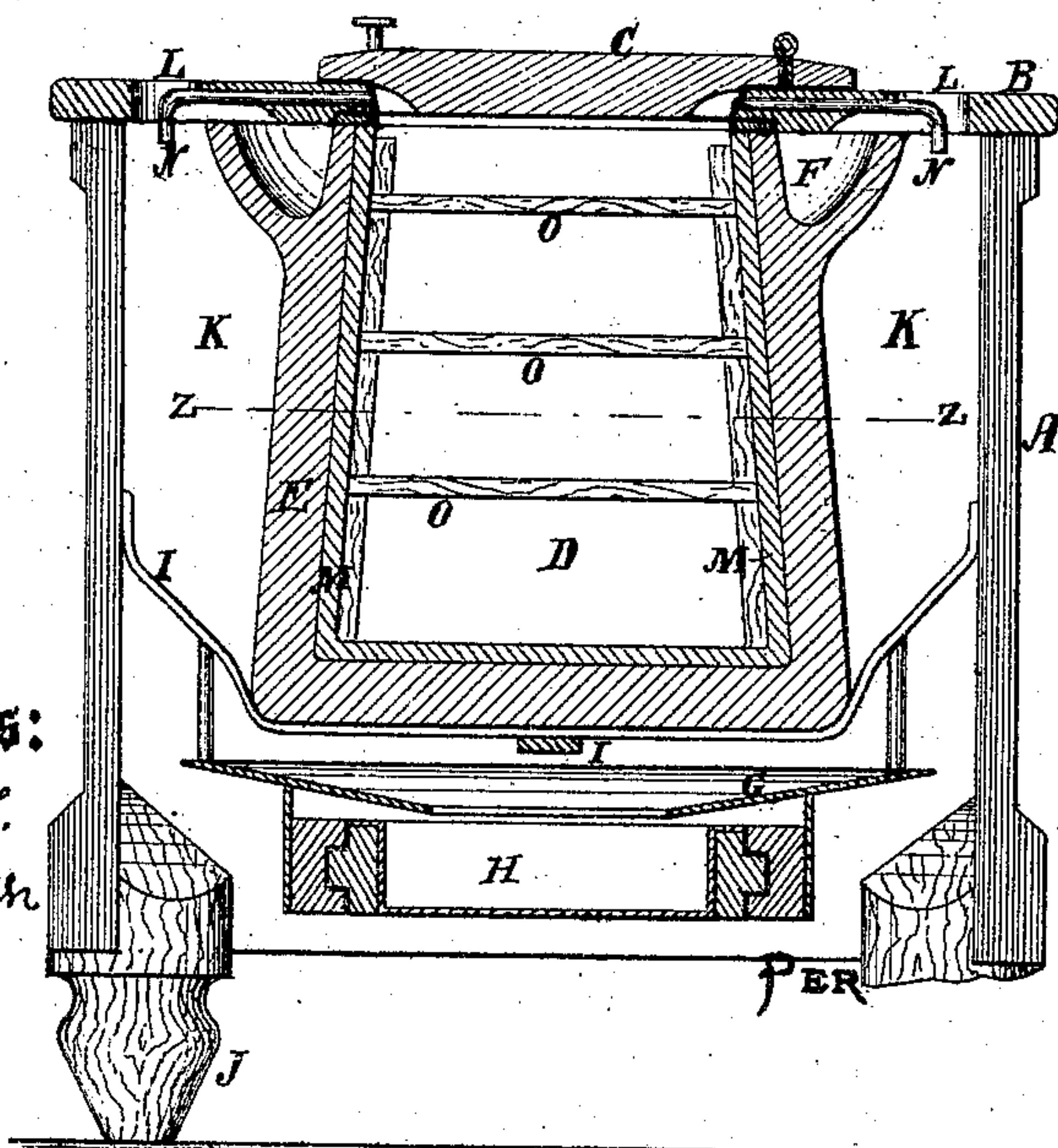
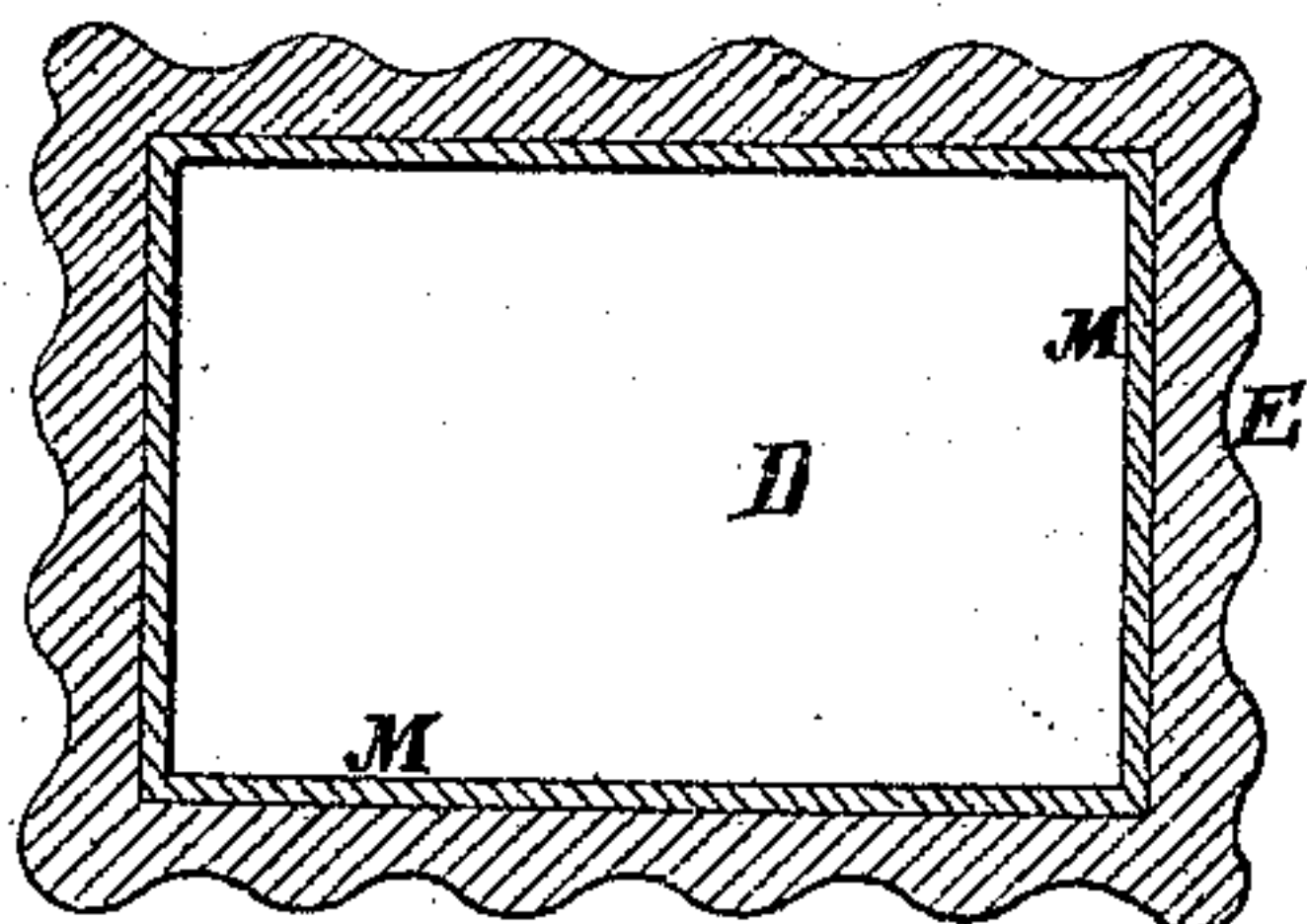


Fig. 3.

Witnesses:

A. Pennerdorf.
Wm. H. C. Smith

Inventor:

C. E. Monroe.

Munroe
Attorneys.

UNITED STATES PATENT OFFICE.

CHARLES E. MUNROE, OF CAMBRIDGE, MASSACHUSETTS.

IMPROVEMENT IN REFRIGERATORS.

Specification forming part of Letters Patent No. 116,344, dated June 27, 1871.

To all whom it may concern:

Be it known that I, CHARLES E. MUNROE, of Cambridge, in the county of Middlesex and State of Massachusetts, have invented a new and useful Improvement in Refrigerators; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawing forming part of this specification.

My invention consists in improving refrigerators, as hereinafter fully described and subsequently pointed out in the claim.

In the accompanying drawing, Figure 1 represents a top view with a portion broken away to show the interior. Fig. 2 is a vertical section of Fig. 1 taken on the line *x x*. Fig. 3 is a vertical cross-section taken on the line *y y* of Fig. 1. Fig. 4 is a horizontal section of Fig. 3 on the line *z z*, but showing the outer surface of the absorbing-vessel corrugated.

Similar letters of reference indicate corresponding parts.

A represents the box or outer casing, which may be made of wood, and of any convenient or required form, size, and proportion. B is the top. C is a door hinged to the top, which gives access to the preserving-chamber. D is the preserving-chamber. E is a porous vessel, either made in a single piece or in slabs or pieces of any material, (preferably of kaolin,) but of any mineral or other substance which possesses the required degree of porosity. The outer surface of this porous vessel or evaporating medium may be corrugated, as seen in Fig. 4, so as to present a more extended evaporating-surface; or it may be made with double walls or projecting wings, or in any form, for the same purpose. F is a channel or gutter around the top of E, either continuous or in sections, into which water or other liquid is placed. This liquid is absorbed by the porous vessel or slab E, so that the latter becomes saturated with the moisture. Any water or liquid which may drip from the vessel or evaporating medium is caught by the hopper-shaped false bottom G and conducted into the watertight drawer H, from whence it may be discharged at pleasure through a faucet or otherwise. The vessel or absorbing and evaporating medium E is supported above the drip-bottom G in any suitable and substantial manner. In

this example of my invention it is supported by straps of metal I, which cross each other at right angles. Any supporting device may be employed which will not obstruct the current or currents of air from passing up or down entirely through the refrigerator. The box or casing A is elevated on legs J. Between the casing and the evaporating medium E is an open space, K, on each side, which open space extends from the top entirely through, and in the top are orifices L for the admission or discharge of air. In practice the air-current is downward, and the more rapid the evaporation of the liquid or moisture from E the stronger will be the descending current of air. M is a lining on the inside of the vessel E, which may be of zinc or other metal, but preferably of some mineral composition, cement, or plastic material, either water-proof in itself or used in combination with a water-proof coating on the vessel E, so that moisture shall be entirely excluded from the preserving-chamber D.

I am well aware that it is no new thing to lower the temperature and even produce ice by evaporating moisture in an atmospheric current; but I am not aware that refrigerators have heretofore been constructed upon this principle.

By my adaptation of means to this end the use of ice is dispensed with. The temperature in the preserving-chamber is readily reduced to 40° in the hottest weather. In fact, the temperature is more readily reduced in hot than in moderate weather, as the evaporation will then be more abundant.

My improvement applies not only to refrigerators for family use, but to refrigerating compartments on board of vessels or on railroad cars for the transportation of meats, fruits and vegetables. The motion of such vessels or cars will produce currents of air, which might be conducted to the absorbing and evaporating medium and utilized in maintaining a low temperature in a preserving-chamber.

Lateral as well as vertical currents may be employed, and the air may be forced in contact with the evaporating medium by a blower or otherwise, as may be found most convenient, or as circumstances may dictate.

Referring again to the drawing, N represents tubes which communicate with the preserving-chamber, and serve to draw off moisture or gases which may be generated in that chamber. O are

shelves supported in the chamber in any suitable manner. In forming the walls of the chamber D of a mineral composition, instead of zinc or other metal, I avoid the poisonous salts of such metals and keep the chamber sweet and in good condition at all times. The water or other liquid to supply the evaporating-vessel F is introduced through the funnel P. R is an aperture, through which the stem of a float, resting on the water in the gutter F, may project to indicate the quantity of water contained in the gutter. The door C in the top of the refrigerator is lined or covered on its inside, so as to render it a non-conductor of heat. The top B is designed to fit tightly to the top of the vessel E or to the inner lining thereof, as seen in the drawing, and to be fastened to the casing in any substantial manner.

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

1. In combination with the refrigerating or preserving-chamber D, the absorbing and evaporating-vessel or medium E and air-space K, substantially as and for the purposes described.

2. The channel-vessel E F, lining M, bottom G, and receptacle H, combined, as and for the purpose specified.

3. The top B with air-orifices L, or their equivalents, in combination with the vessel E and air-space K, substantially as and for the purposes set forth.

CHAS. E. MUNROE.

Witnesses:

JAMES B. HUTCHINSON,
R. LITCHFIELD, Jr.