

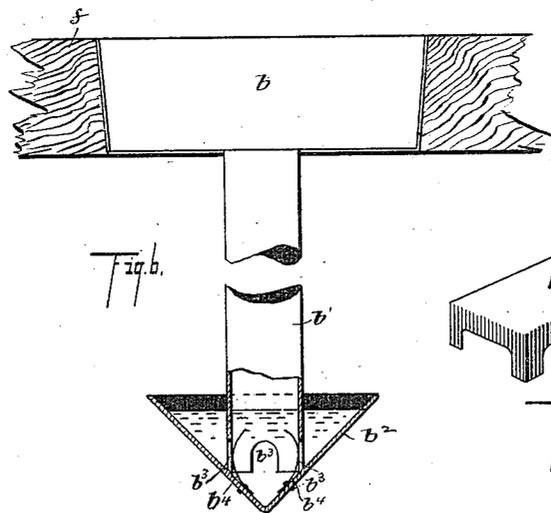
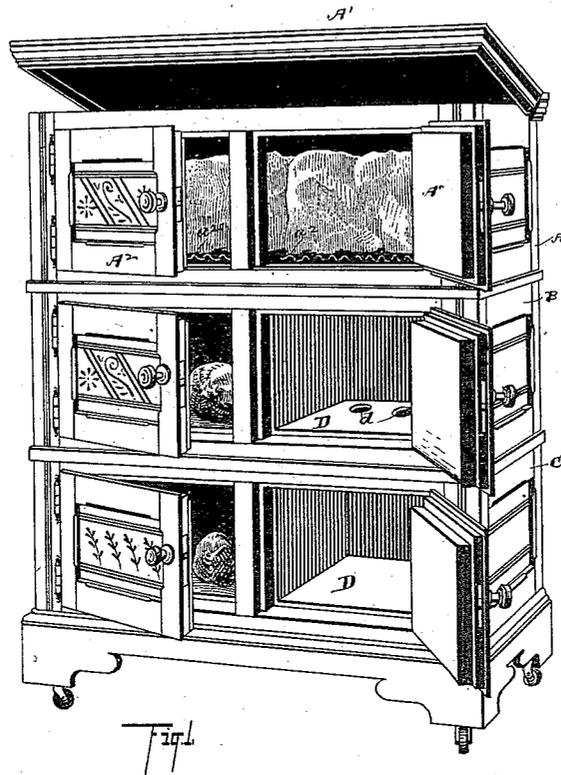
(No Model.)

3 Sheets—Sheet 1.

C. W. MONROE. REFRIGERATOR.

No. 379,521.

Patented Mar. 13, 1888.



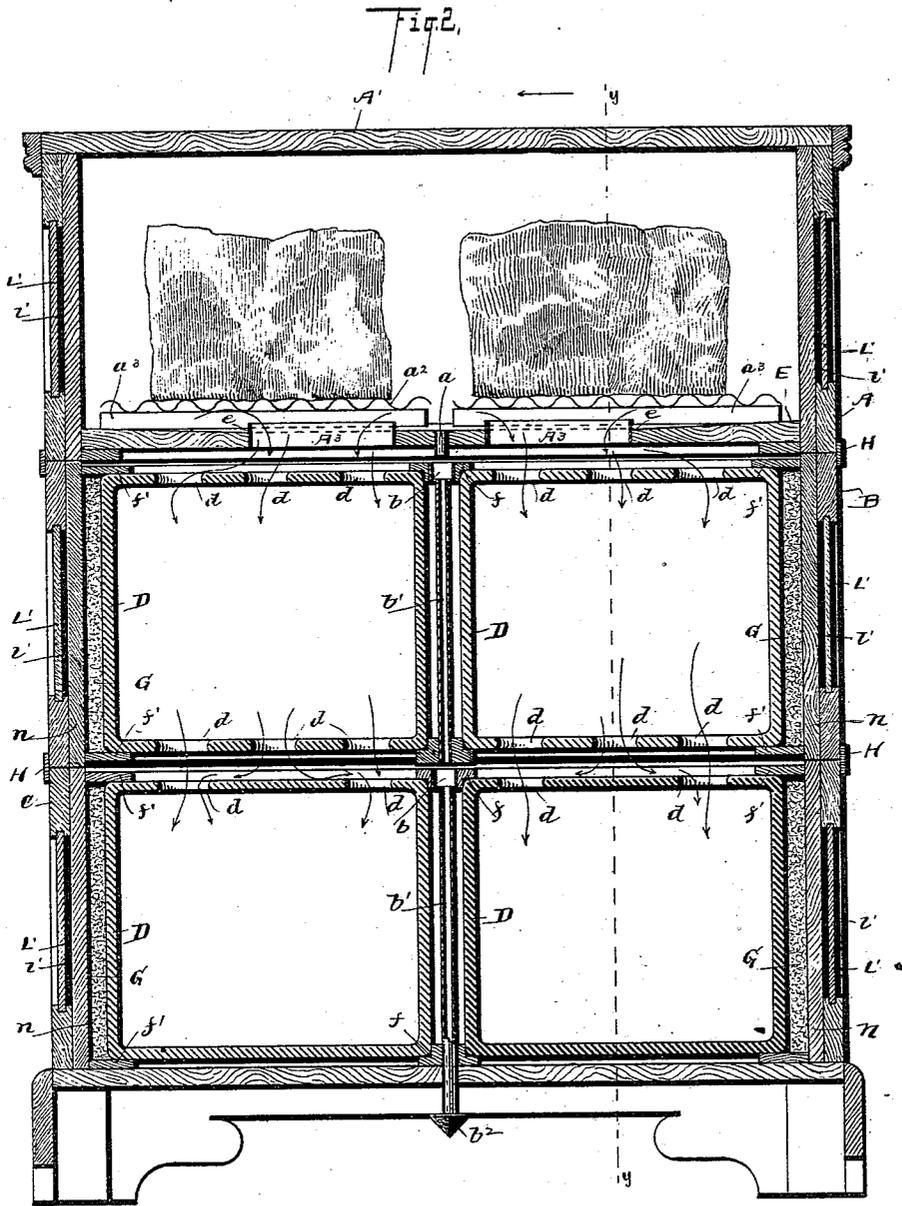
WITNESSES.
Or-S. Amstutz
Geo. W. King

Chas. W. Monroe, INVENTOR,
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 Attorneys.

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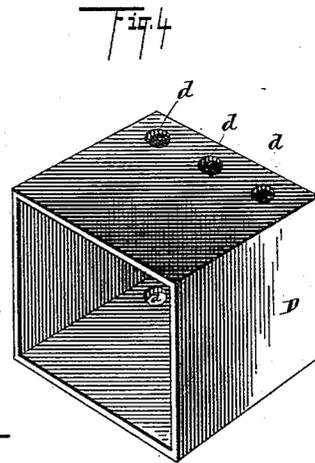
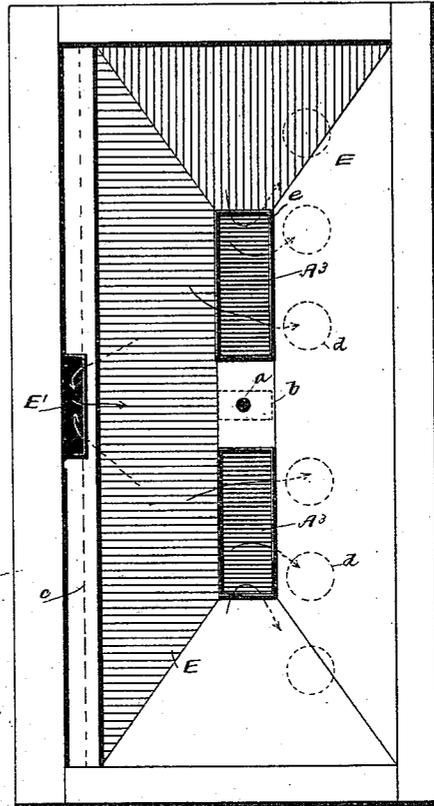
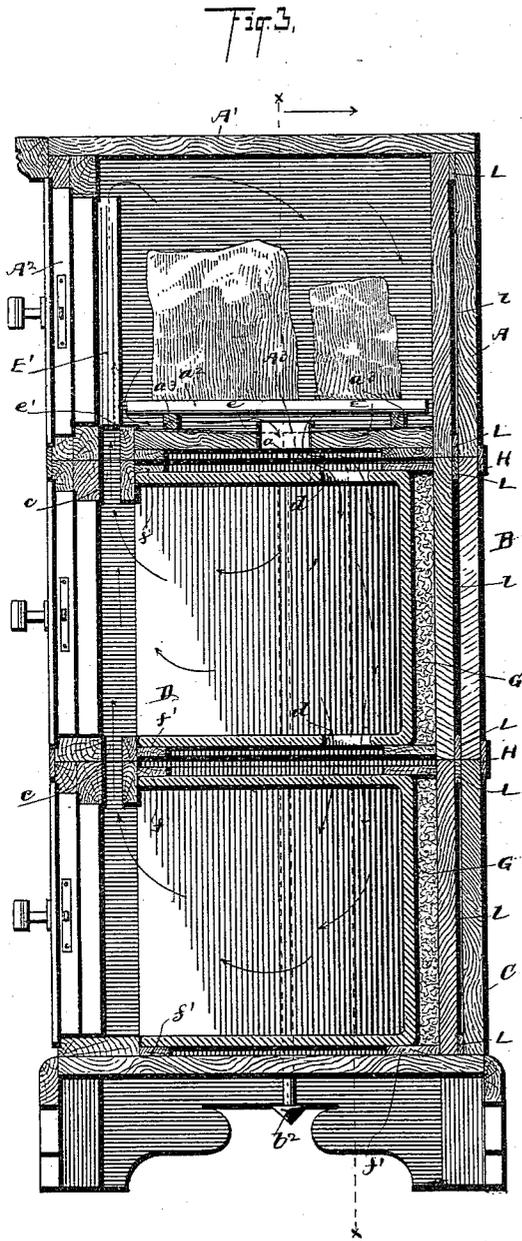


Fig. 5.

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UNITED STATES PATENT OFFICE.

CHARLES W. MONROE, OF CLEVELAND, OHIO.

REFRIGERATOR.

SPECIFICATION forming part of Letters Patent No. 379,521, dated March 13, 1888.

Application filed April 12, 1887. Serial No. 234,532. (No model.)

To all whom it may concern:

Be it known that I, CHARLES W. MONROE, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Refrigerators; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same.

My invention relates to improvements in refrigerators, in which the device is made in detachable and in a measure in interchangeable sections, to the end that the detached sections are convenient for shipping, handling, cleaning, repairs, &c., and that the capacity of the refrigerator may be increased at any time by adding one or more sections. My invention also relates to details of construction hereinafter described and claimed.

This invention is designed as an improvement on a refrigerator for which United States Letters Patent No. 336,057 were granted to Charles W. Monroe, February 9, 1886.

In the accompanying drawings, Figure 1 is a view in perspective of a refrigerator embodying my invention, the one shown being of the double variety. Fig. 2 is an elevation in section on the line $x x$, Fig. 3. Fig. 3 is an elevation in transverse section on the line $y y$, Fig. 2. Fig. 4 is a top plan with the cover and ice-rack removed. Fig. 5 is a view in perspective of a pottery-lining of one of its compartments. Fig. 6 is an enlarged elevation, partly in section, of a water-discharging tube and bottom attachment, the same being the lower of a series of discharging-pipes. Fig. 7 is a view in perspective, in detail, hereinafter described.

The refrigerator shown is of the double variety—that is to say, it has two tiers of compartments or cells—such double variety being the most in use; but from the drawings and specifications any mechanic skilled in the art can readily construct a refrigerator of the single variety having one set of cells, or a refrigerator of three or more sets of cells if one of such large dimensions were wanted.

A represents the top section, and B the intermediate and C the bottom section, of the refrigerator. The wood-work for the sides and ends of these respective sections may be substantially alike. Two thicknesses of wood be-

ing employed, these are separated by strips L, leaving dead-air spaces l along the rear side; also, dead-air spaces l' are had between the end panels, L' , and the lining-boards n . The top section is utilized as an ice-box, and usually has a zinc lining, E, and has a detachable cover, A', usually hinged to the rear side thereof, and, except in small refrigerators, has doors A². If preferred, the doors may be omitted and panel-work substituted that will correspond with the general finish; or the doors may be used and the cover made fast, if so preferred; but it is more convenient for many purposes to have both the hinged or detachable cover and the doors for the ice-box. The doors of the different sections are intended to be alike, except the zinc lining is not had for the sections B and C.

A drip-pipe, a , is located at some convenient part of the ice-box. With the double variety it is usually located at the central part, as shown; but in refrigerators of the single variety this pipe is usually located near the rear side of the ice-box. The pipe a discharges into a catch-basin or enlarged end, b , of the section next below, the catch-basin having a pipe, b' , attached, that discharges into a similar catch-basin or enlarged end of the next pipe below, and so on. The pipe of the bottom section has a cup, b^2 , detachably attached, the latter being usually funnel-shaped. This cup fills with water and covers the openings b^3 in the pipe and prevents a draft of air up the pipe; and springs b^4 hold the cup in place.

One or more large openings, A³, are had through the bottom of the ice-box to allow the cold air to descend. The lining of the ice-box is flanged up around such opening, as shown at e , to prevent the water from entering these openings. The air that is cooled by the ice descends through the openings A³ and comes in contact with the top of a cell, D, of the next lower section. A rack or support of some kind is arranged at the bottom of the ice-box to support the ice. For this purpose I use corrugated plates a^2 , of galvanized iron, set on wooden strips a^3 . If open racks are used, a cap, K, (see Fig. 7.) is set over the opening, to prevent the water from dripping into such opening. The cells or pots D are of glazed pottery, with openings d located preferably near the rear end thereof, such openings d for

the cells of section B being made in both top and bottom, while the cells of the bottom section, C, have holes *d* only on the top side.

With the arrangement shown the cold air in the ice-box can descend to the cells of any number of sections B and pass into the cells of the lower section. The front or open end of the cells D set back an inch (more or less) from the inner face of the door when the latter is closed, and spaces are left through the wood-work, as shown at *c*, Fig. 3. Such spaces in the upper section opposite the doors are closed by the zinc lining, as shown at *e*. Between the doors the lining is secured to the wood-work and offset to form the duct E'. This duct extends to near the top of the ice-box. When doors are not used for the ice-box, as is usually the case with small refrigerators, the zinc lining is carried up and blocked away from the wood-work in front, thus forming an air-duct in place of the duct E' shown.

Blocks *f* and strips *f'* are secured to the wood-work in position to hold the pots D in place, and some non-conducting material, G, preferably mineral wool, is packed between the pots and wood-work at the rear side and ends of the refrigerator. There is considerable space between the next adjacent pots of the different sections, by reason of which the cold air comes in contact with the top and bottom of the intermediate sections and with the top of the lower sections. It is therefore a matter of no importance whether the holes *d* register or not. Usually a molding or strip, H, is made to cover the crack where the sections come together. The respective sections are easily handled, and when placed one upon the other in the order shown the refrigerator is in working order, whether it be only a top

and bottom section that is assembled, or if any number of intermediate sections be used.

The cells D are not necessarily of pottery, as glass and other material that is impervious to moisture and does not absorb odors will answer the purpose; but I know of no suitable material that is as cheap as the glazed pottery, and therefore give the latter the preference.

What I claim is—

1. A refrigerator formed of detachable sections, and consisting of an ice-box, series of suitably-supported and slightly-separated perforated cells located below the ice-box, and having communicating air-passages on two or more of their sides for allowing a continuous circulation of air from the ice-box, and drip-pipes leading from the ice-box through an air-space between the cells, and thence out of the refrigerator, substantially as set forth.

2. A refrigerator made in detachable sections, and consisting, essentially, of an ice-box, superimposed rows of perforated cells having air-passage ways on two or more sides thereof, and a drip-pipe located in one of the air-passage ways, said air-passage ways being in open communication with each other when the different sections are together, the drip-pipes being made with enlarged upper ends or catch-basins to receive the discharge of the drip-pipe of the next section above, substantially as set forth.

In testimony whereof I sign this specification, in the presence of two witnesses, this 18th day of December, 1886.

CHARLES W. MONROE.

Witnesses:

CHAS. H. DORER,
GEO. W. KING.