

E. P. KOONTZ.
Refrigerator.

No. 225,063.

Patented Mar. 2, 1880.

Fig. 2.

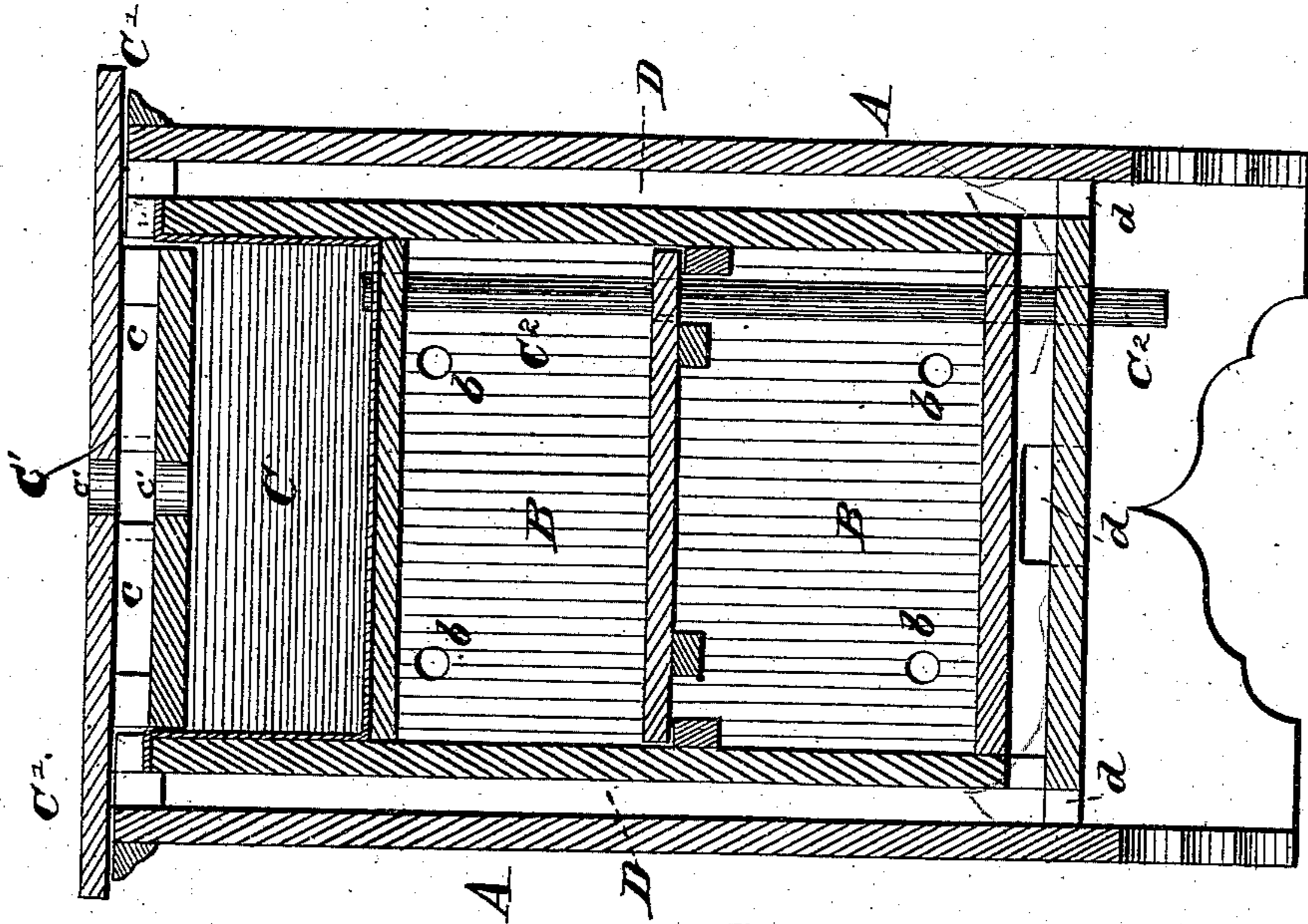
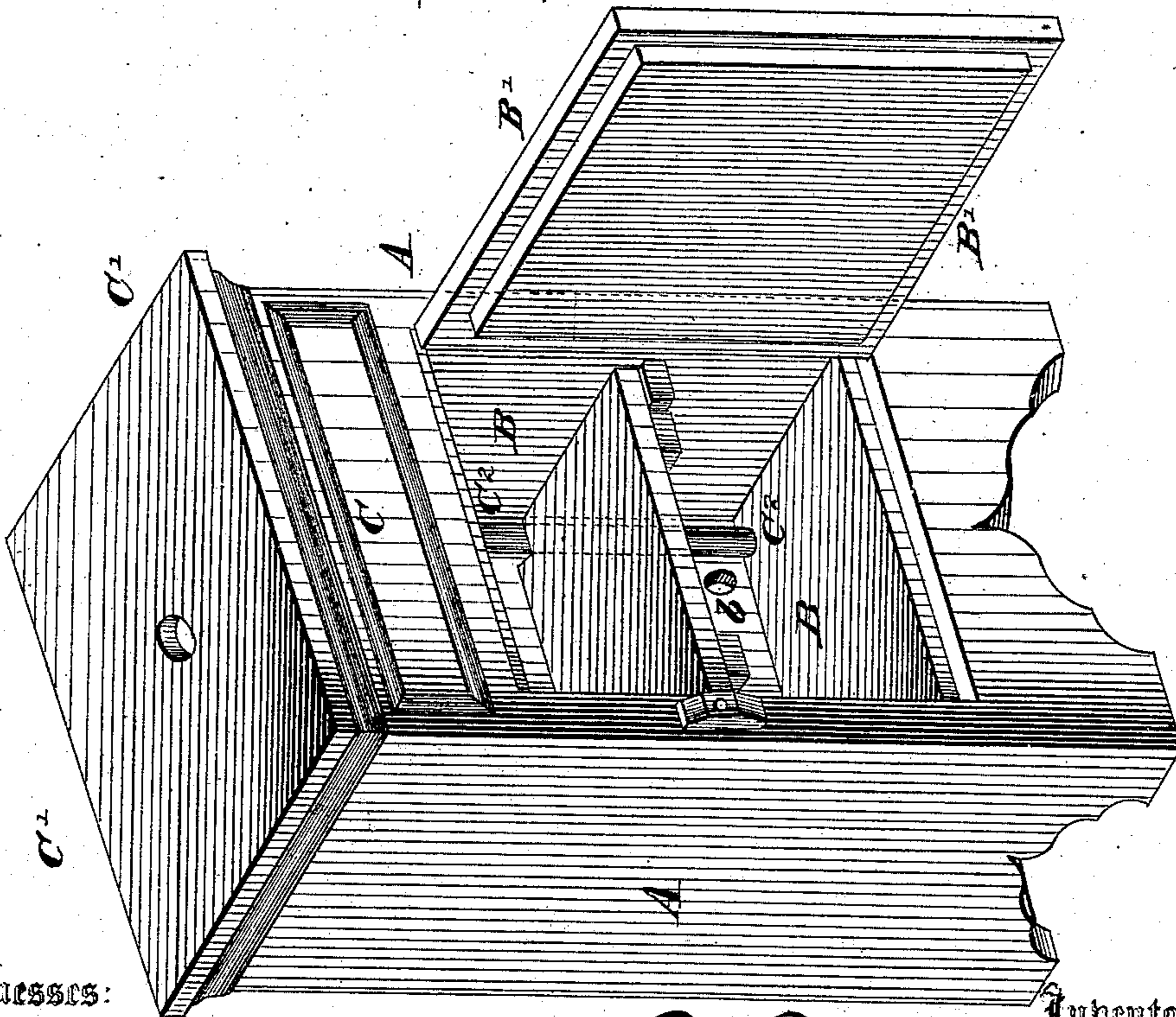


Fig. 1.



Witnesses:
A. M. Bright.
F. O. McLean.

Inventor
E. P. Koontz.
Per S. J. & S. J. S. Attorneys.

UNITED STATES PATENT OFFICE.

EZRA P. KOONTZ, OF LIGONIER, INDIANA.

REFRIGERATOR.

SPECIFICATION forming part of Letters Patent No. 225,063, dated March 2, 1880.

Application filed July 25, 1879.

To all whom it may concern:

Be it known that I, EZRA P. KOONTZ, of Ligonier, in the county of Noble and State of Indiana, 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 it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to a new and useful improvement in refrigerators for preserving food, &c.; and it consists in a chamber for the food, &c., surrounded by an air-space, which air-space is thoroughly ventilated from beneath, and communicates with the exterior also at the middle of the top cover, and an ice-chamber located above the food-chamber, the ice-chamber being closed except a small orifice at the central upper part, which communicates with the exterior and with the conduits leading to the interior air-spaces.

In the drawings, Figure 1 is a perspective view of a refrigerator embodying my invention. Fig. 2 is a central section of same by a vertical plane, and illustrating its construction.

A is a suitable outer frame, of any desired shape or size. B is the chamber for the food or other articles which it is desired to keep cool. C is an ice-chamber, located immediately above the food-chamber. C' is its cover, which is made of double thickness, so as to leave air-passages through its interior. D is an air-space surrounding the food-chamber B, the ice-chamber C, and communicating with the air-passages in the cover of the ice-chamber. The air-space D is also in free communication at the bottom with the external air by means of the air ports or passages *d*, and at the top by means of the air-passage *c'*, which also leads into the ice-chamber, being the only opening into that chamber.

Holes *b* are formed in the wall or bottom of the chamber B, for the escape of foul air from the said food-chamber. B' is a door for access to the chamber B.

The chamber is provided with the usual shelves and hooks, &c., and may be of any desired arrangement.

The operation of the device is briefly as follows: Advantage is taken of the fact that cold air will settle and displace the adjacent warmer air. The ice having been put into the chamber C and the lid closed down, it soon cools the air in the chamber D, surrounding it. This cool air descends around the food-chamber B and expels the warmer air, which, not being able to ascend against the colder stratum above, is expelled and escapes beneath the refrigerator. As the air descends its space left above is supplied through the top central orifice, *c'*, in the cover, until soon the whole of the air-space D and its passages are filled with the cold air, which thoroughly chills and preserves the food, while the ice is utilized to its greatest extent, and does not waste as rapidly as in other forms of refrigerators. As the air descends, and a slight current is maintained downward around the food-chamber, the foul air is expelled from the food-chamber through its orifices *b*.

A waste-pipe, C², serves to convey off beneath the water that may collect in the ice-chamber.

The food-chamber may or may not be lined with zinc or galvanized iron, and a suitable trap may be placed over the projecting upper end of the waste-pipe C² to constitute a water-seal and prevent escape of cold air by a draft down through the said pipe.

By this construction a refrigerator is made without any surrounding packing and without weighty and expensive elements, thus constituting a light, cheap, and thoroughly effective apparatus for the purpose.

What I claim is—

1. In a refrigerator, the combination, with an ice-chamber and food-chamber, the latter located below the ice-chamber, of an outer casing surrounding the food and ice chambers, and leaving an intervening air-space around said food and ice chambers, said ice-chamber and outer casing provided with openings communicating with the outer air at the top of the refrigerator, substantially as set forth.

2. In a refrigerator, the combination, with the ice-chamber C, provided with passage *c'*, and food-chamber B, provided with openings *b*, of the outer casing, A, surrounding the food and ice chambers, and leaving an intervening

air-space, D C, around said food and ice chambers, said outer casing provided with air-passages *d c'*, substantially as set forth.

3. In a refrigerator, the combination, with
5 a food-chamber, of an ice-chamber provided with a single air-passage, *c'*, and the outer casing surrounding the food and ice chambers, and leaving an intervening air-space around the sides of the food-chamber, connecting with

an air-space over the top of the ice-chamber, so substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

EZRA P. KOONTZ.

Witnesses:

FRANK P. BOTHWELL,
FERD. SANDROCK.