

E. F. HULBERT.
REFRIGERATOR.
APPLICATION FILED APR. 23, 1910.

979,304.

Patented Dec. 20, 1910.

2 SHEETS—SHEET 1.

Fig. 2.

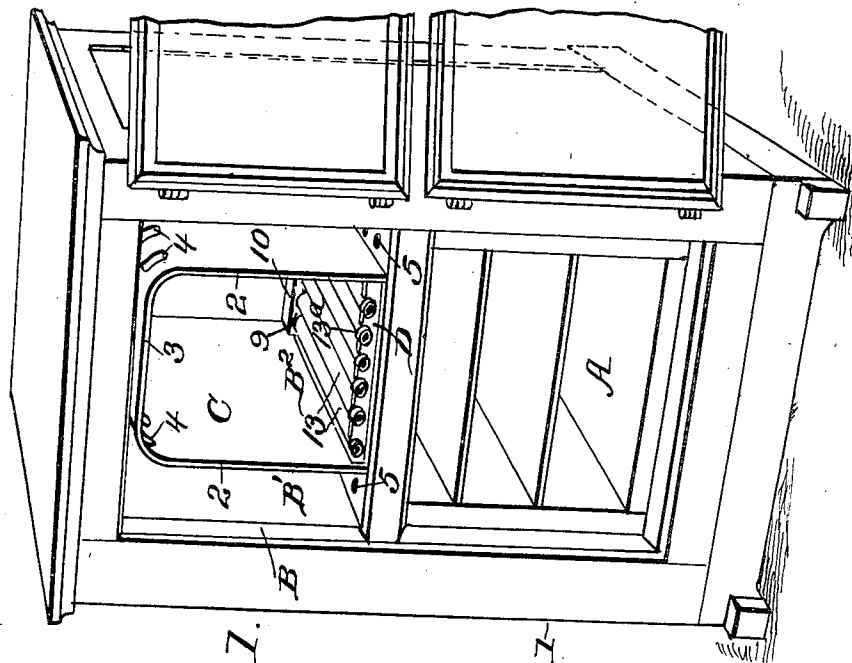
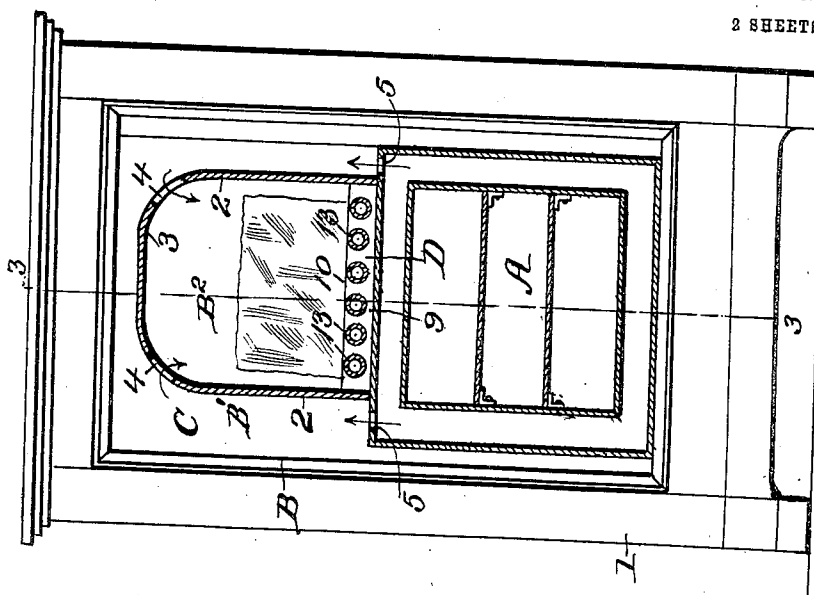


Fig. 1.

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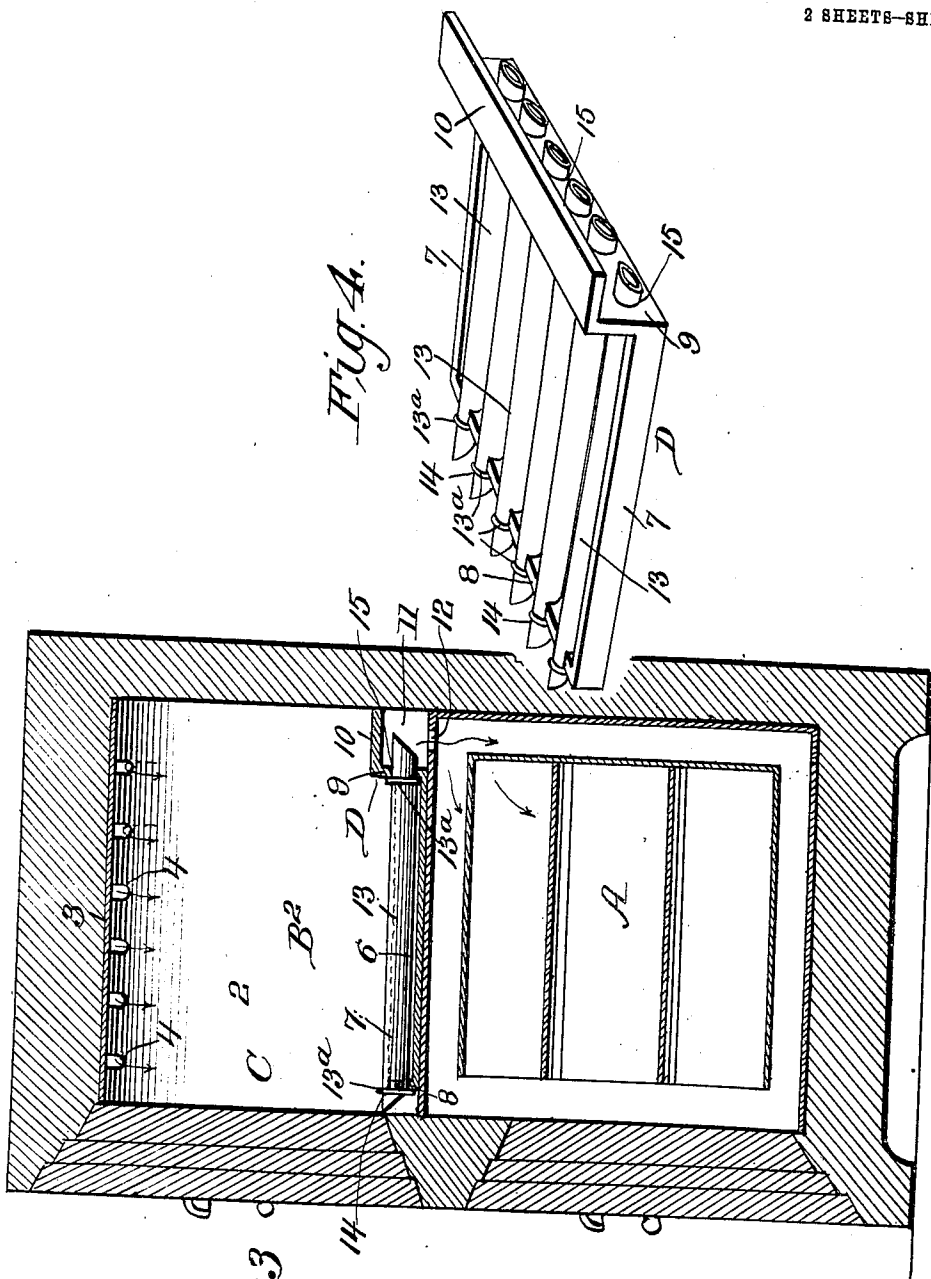
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UNITED STATES PATENT OFFICE.

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REFRIGERATOR.

979,304.

Specification of Letters Patent.

Patented Dec. 20, 1910.

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To all whom it may concern:

Be it known that I, EDWIN F. HULBERT, citizen of the United States, residing at South Norwalk, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Refrigerators, of which the following is a specification.

This invention comprehends certain new and useful improvements in refrigerators and has for its primary object an improved construction and arrangement of parts whereby the circulation of air through the cooling chamber and to and from the storage or food chamber, will be effectively promoted and whereby a maximum circulation of the air currents in and around the cooling chamber, in proportion to the size or area of the same, will be effected. And the invention also has for its object an improved construction of tray, upon which the ice is intended to rest, said tray forming part of the air circulating means and being preferably detachable and capable of being readily inserted in place, said tray embodying a series of pipes which extend entirely across the bottom of the casing in which the ice is placed, and, together with openings herein-after specified, establishing communication between the interior of said casing and the interior of the food chamber.

For a full understanding of the invention, reference is to be had to the following description and accompanying drawings, in which:

Figure 1 is a perspective view of a refrigerator embodying the improvements of my invention; Fig. 2 is a vertical longitudinal sectional view thereof, parts being shown in front elevation; Fig. 3 is a transverse sectional view, the section being taken substantially on the line 3—3 of Fig. 2; and, Fig. 4 is a detail perspective view of the tray upon which the ice is intended to be placed.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

Referring to the drawings, the numeral 1 designates the body portion of my improved refrigerator, said body portion being of any desired construction and design and formed with non-conducting walls of any desired character. The refrigerator embodies a lower storage or food chamber A and a dis-

tinct cooling chamber B thereabove. Preferably, each chamber is provided with its own door, as indicated in Fig. 1. The upper or cooling chamber B is divided into two compartments B' and B², this being effected in the present instance by means of a preferably metal casing C which embodies vertical side walls 2 which extend parallel to the walls of the outer compartment B', from front to right, as shown, and an upper connecting horizontally disposed wall 3, the sides 2 and top 3 being spaced from the main walls of the cooling chamber, whereby to provide a clear passage all around the casing C. The said casing is provided in its top 3, and preferably at the junction of the top of the sides 2, with any desired number of apertures 4 that establish communication between the exterior and interior of the casing. The space surrounding the casing C communicates with the interior of the food chamber A by means of any desired number of apertures 5 which in the present instance are arranged in two series extending from front to rear on opposite sides of the casing C and at the bottom thereof. In other words, the apertures 5 are formed in the top of the food chamber and in that portion of said top which is outside of the casing C.

D designates the tray upon which the ice is supported within the casing C. In the present embodiment of the invention the tray D comprises a bottom 6, sides 7 extending from front to rear, a front 8 and a back 9, the two sides, front and back, extending vertically, as shown, and the back being formed at its upper edge with a rearwardly extending flange 10 adapted to abut with its rear edge against the rear wall of the cooling chamber and thereby produce underneath the flange and distinct from the cooling chamber, a laterally extending air chamber 11 which communicates with the food chamber A by means of a series of openings 12 formed in the top of the food chamber and extending in a series close to and parallel with the rear wall thereof. In addition to the body portion of the tray just described, said tray includes a series of tubes 13 which extend side by side at any desired distance apart, preferably close together, and on which the ice is adapted to directly rest. These tubes 13 are supported at their front ends in recesses 14 which are formed in the front 8 of the body portion of the

tray and are supported at their rear end by having the latter slipped rearwardly into openings 15 formed in the back 9. The pipes are provided with beads 13^a, as shown, so as to limit their rearward movement when they have been properly slipped into place.

As best illustrated in Figs. 3 and 4, it will be seen that the tubes 13, which are preferably provided with downwardly facing beveled ends, have their rear ends extending through the back 9 of the body portion of the tray and into the air chamber 11. It is intended that the tray D shall be slipped into the casing C and that it may be readily removed from the casing for purposes of cleaning or the like.

From the foregoing description in connection with the accompanying drawings, the operation of my improved refrigerator will be apparent. In the practical use of the device, after ice has been placed in the casing C, it is evident that the air currents will flow upwardly from the food chamber A through the apertures 5 and around the casing C to the extreme top thereof, and will thence flow inwardly through the apertures 4 and down over the ice block, the air currents then flowing into the front ends of the tubes 13, underneath the ice block, and finally passing from said tubes into the air chamber 11 and down through the openings 12 in the food chamber. It will thus be seen that a maximum circulation of the air currents is established proportionate to the size of the refrigerator and the cooling chamber thereof and that the air will not only be cooled by direct contact with the ice, but also by passing through the tubes 13 upon which the ice is supported.

Having thus described the invention, what is claimed as new is:

1. A refrigerator embodying a food chamber and a cooling chamber thereabove, an ice receiving casing mounted in the cooling chamber and separated from the walls thereof, the refrigerator being provided with openings leading from the interior of the food chamber to the cooling chamber exterior of the ice receiving casing, the latter being provided in its top with openings establishing communication between its exterior and interior, an air chamber embodied in the refrigerator and having communication with the food chamber, the said air chamber being separate and distinct from the interior of the ice receiving casing, and the ice receiving casing being provided in its bottom with air passages which open at one end in the said air chamber and at their opposite ends within the casing.

2. A refrigerator, embodying a food chamber, and a cooling chamber thereabove, an ice receiving casing in the cooling chamber

and separated from the walls thereof, the refrigerator being provided with openings establishing communication between the cooling chamber and the food chamber exterior of said casing, the casing being provided in its top with openings establishing communication between its exterior and interior, tubes extending across the bottom of the casing, the tubes at one end opening into the interior of the casing, and said tubes opening at their other ends at points exterior to the casing, and the refrigerator being formed with openings establishing direct communication between the last-named ends of the tubes and the food chamber.

3. A refrigerator, embodying a food chamber, an ice receiving casing above said food chamber, a tray within the ice receiving casing and embodying a plurality of tubes and a body portion holding said tubes, the body portion being formed with a flange underneath which the tubes project from the body portion, the flange and the adjacent side of the body portion of the tray forming an air chamber distinct from the interior of the casing and communicating with the interior of the food chamber, the refrigerator being provided with openings establishing communication between the food chamber and the exterior of the casing, and the casing being formed with openings establishing communication between its exterior and interior.

4. In a refrigerator of the character described, a tray provided in its front side with recesses and at its rear side with openings, tubes held in said recesses and projecting through said openings, the tray being formed above said protruding ends with a flange, for the purpose specified.

5. A refrigerator embodying a food chamber and a cooling chamber, an ice receiving casing mounted in the cooling chamber and separated from the walls thereof, the refrigerator being provided with openings leading from the interior of the food chamber to the cooling chamber exterior of the ice receiving casing, the latter being provided with openings establishing communication between its exterior and interior, an air chamber embodied in the refrigerator and having communication with the food chamber, and the ice receiving casing being provided with air passages which open at one end in the said air chamber and at their opposite ends within the casing.

In testimony whereof I affix my signature in presence of two witnesses.

EDWIN F. HULBERT. [L. s.]

Witnesses:

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J. A. GRAY, Jr.