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C. KÖHNEL
REFRIGERATORS
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2 Sheets-Sheet 1

Fig. 1

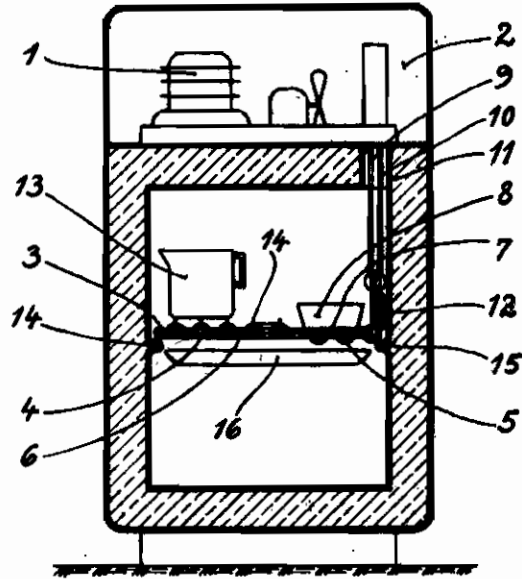
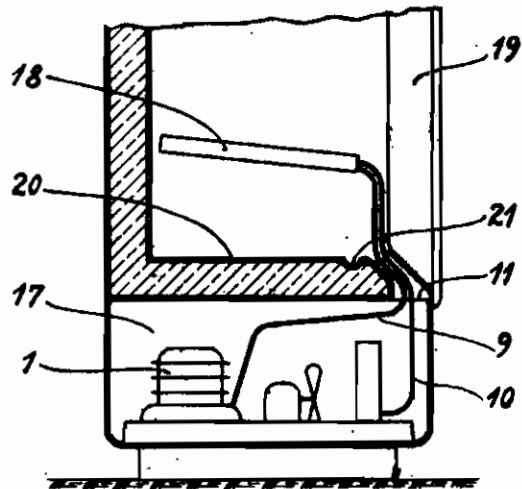


Fig. 2



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Fig. 3a

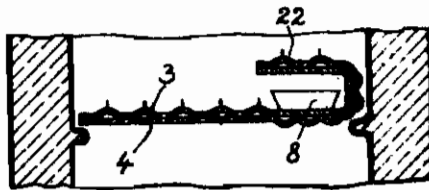


Fig. 3b

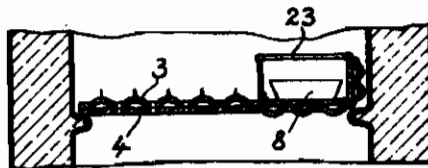
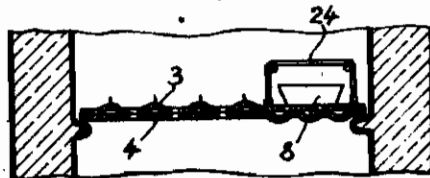


Fig. 3c



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ALIEN PROPERTY CUSTODIAN

REFRIGERATORS

Carl Kühnel, Berlin-Charlottenburg, Germany;
vested in the Alien Property Custodian

Application filed July 19, 1941

This invention relates to refrigerators, and more particularly to a refrigerator cabinet equipped with a refrigerating apparatus.

In refrigerator cabinets equipped with refrigerating apparatus, one or more shelves which subdivide the cooling chamber into compartments for storing food products are arranged in the cooling chamber. The evaporator is, as a rule, mounted in the upper cooling chamber compartment formed by these shelves. It is also well known in the art to design the evaporator of a refrigerating apparatus in the form of a shelf which subdivides the cooling chamber into two compartments intended for the storage of food products. The known arrangement is provided with a uniformly designed supporting surface of the evaporator shelf. In this case, it is therefore to be feared that food products placed on the shelf freeze as a result of too intense a refrigeration. The object of the invention is to remove this difficulty. According to the invention the supporting surface of the evaporator shelf is subdivided into two sections, one of which serves to support trays for the production of ice and is so designed that there results an intense refrigeration between the evaporator and the lower supporting surface of the ice cube tray, whereas the other serves to store food products and is therefore provided with means for preventing too intense a refrigeration between the evaporator and the lower bearing surface of the food products. By subdividing the supporting surface of the evaporator shelf as described above it is possible to utilize the supporting surface of the evaporator to the greatest possible extent for storing articles to be cooled without having to dispense with the production of ice which is desirable in most cases.

The evaporator is so designed according to the invention that at least a portion of the evaporator surface may serve as a smooth supporting surface for ice cube trays. The other portions of the supporting surface of the evaporator shelf may be designed in any suitable manner to prevent the articles to be cooled from freezing. Thus, for instance, the supporting surface may be provided with ribs which reduce the contact between the food products and the evaporator to a minimum. Besides the fact that the refrigerator may be assembled in a simple manner, the novel refrigerator presents the advantage in that all parts of the cooling chamber are easily accessible and may therefore be properly cleaned. In order to support the circulation of air in the cooling chamber itself, the evaporator shelf may be pro-

vided with perforations, provided that it is made in a known manner of sheets. If in some cases the evaporator surface resulting from the size of the shelf is not sufficient, the evaporator may be extended by bending it at convenient points, for instance, in the upward or downward direction.

Since in contradistinction to the constructions hitherto known the novel evaporator has a relatively large horizontal surface, particular means are provided according to the invention to prevent as far as possible the water from dripping. To this end, the shelf is so designed that the lower surface of the evaporator is somewhat inclined towards one of the sides or to the rear. At the lowest point of the evaporator a correspondingly designed, for instance, an elongated drip pan may be arranged. Instead of the drip pan also a groove may be employed which is arranged at a corresponding point of the lower portion of the refrigerator inner casing. This construction may then be employed to a particular advantage if the evaporator is slightly inclined towards the door for the purpose of carrying off the drip water. The evaporator may be made of individual sheets which are provided with grooves and are secured together between the grooves and around the edges by welding. However, the evaporator shelf according to the invention may also consist of tubes.

Fig. 1 shows an embodiment of the invention in which the evaporator is made of single sheets; the domestic refrigerator cabinet is equipped with a refrigerating apparatus of the compression type. The machine set 1 is mounted in an upper machine compartment 2. The evaporator consists of two sheets 3 and 4 provided in a known manner with grooves 5 serving to form refrigerant channels. The evaporator sheets are secured together around their edges by welding. The evaporator thus formed serves as an upper cooling chamber shelf. To support the circulation of air, the sheets are provided with perforations for the passage of the cooling chamber air. The part 7 of the evaporator made of sheet metal is designed in the form of a smooth supporting surface for an ice cube tray 8. 9 and 10 denote the refrigerant conduits which connect the evaporator with the machine set. These conduits are laid in a groove 11 provided in the door side of the upper insulation of the refrigerator cabinet. Besides the horizontal portion serving as a shelf, the evaporator may possess a vertical portion 12 adapted to increase the effective evaporator surface. To prevent the food products 13 to be

cooled from sticking to the supporting surface as a result of too high a freezing temperature or from being cooled below a predetermined temperature, ribs 14 as will be seen from Fig. 1 are secured to the evaporator shelf in order to reduce the contact between the articles to be cooled and the evaporator to a minimum. The evaporator rests on the supporting lugs 14' and 15 provided in the refrigerator cabinet for the reception of the shelves. Particular fastening means for the evaporator are therefore under circumstances not necessary.

To carry off the drip water in a simple manner and to support the circulation of air the evaporator is slightly inclined from the door side to the rear. 16 denotes a correspondingly elongated collecting pan arranged at the lowest point of the evaporator.

Fig. 2 shows another form of the invention in which the machine set 1 is mounted in a lower machine compartment 17 and in which like numerals denote like parts as in Fig. 1. The evaporator 18 forms in this case the lower cabinet shelf. The evaporator is inclined from the rear to the side of the door 19 so as to cause the drip water to flow to the groove 21 arranged in the cabinet inner casing 20. In this case a separate collecting pan is not necessary.

In the embodiment shown in Fig. 1 the space above the supporting surface of the ice cube tray 8 cannot be utilized for the reception of further food products to be cooled. Figs. 3a, b, c show forms in which also the space above the ice tray may be properly utilized. To this end, the evaporator shelf 3, 4 is correspondingly bent as will be seen from Fig. 3a to obtain the supporting surface 22 arranged above the ice cube tray 8. The evaporator shelf 3, 4 shown in Fig. 3b corresponds substantially to that shown in Fig. 1. To obtain the supporting surface for the food products above the ice cube tray 8, a shelf 23 bent at right angles is employed. Finally, Fig. 3c shows an evaporator shelf 3, 4 designed as a smooth supporting surface on which a shelf 24 is arranged and which is as shown bent twice at right angles.

The forms of the invention described above may be modified in such a manner that the two laterally bent parts of the evaporator shelf rest directly on the surface of the cooling chamber.

To easily insert and remove the evaporator shelf the refrigerant conduits which connect the evaporator with the other parts of the refrigerating apparatus may under circumstances be designed as flexible conduits.

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