

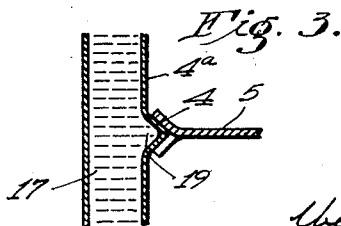
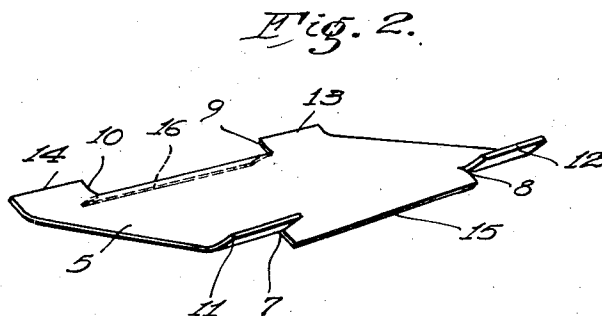
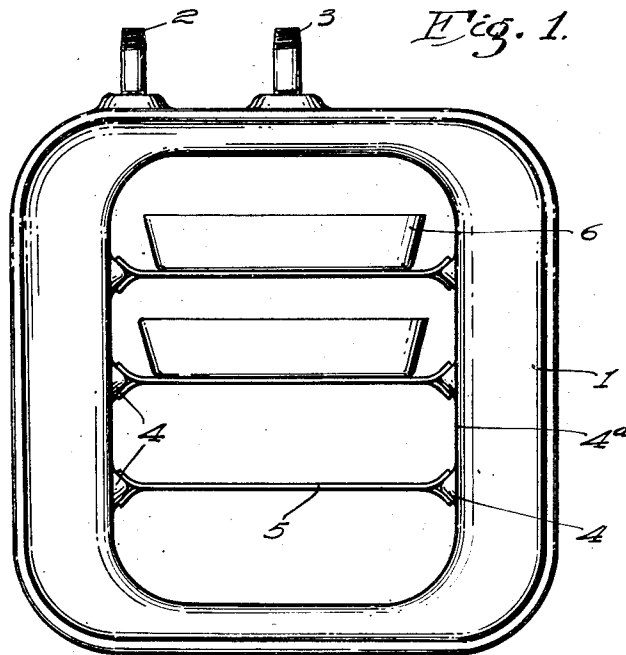
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1,990,883

REFRIGERATING APPARATUS

Filed April 17, 1931



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REFRIGERATING APPARATUS

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7 Claims. (Cl. 62-1)

My invention relates to refrigerating apparatus and particularly to the construction of cooling units for mechanical refrigerators.

In refrigerator units, such as those used for domestic purposes, it is important to construct the interior of the refrigerator in such manner that it may easily be kept clean. For this reason, the inside is usually of white porcelain or enamel, the shelves are made removable for cleaning the inside of the box and the shelves themselves, and the corners are rounded so that no food or dirt can remain to decay and produce unhygienic conditions in the refrigerator.

In a mechanical refrigerator using a cooling unit for ice trays, it is equally important to keep this part clean. It is also important to have a large metal contacting surface between the ice trays and the cooling unit, as metal conducts heat rapidly, and a large area of metal will extract heat from the ice trays quickly. This is particularly important in a cooling unit of the type employed in a flooded system in which the cooling fluid fills the evaporator shell and is boiled off as heat is extracted from the interior of the refrigerator. Another important consideration is that the shelves on which the ice trays are placed shall not pull out with the trays, when the machine is operating normally. Fixed shelves make good contact and will not pull out, but, in a small area, such as a cooling unit, they make it almost impossible to clean the unit properly.

An object of my invention is, therefore, to construct a cooling unit for a mechanical refrigerator of such character that it may be easily cleaned.

Another object of the invention is to secure a maximum amount of metal contact between the cooling-unit walls and the removable shelves and ice trays.

A further object of the invention is to keep the shelves firmly in place when the refrigerator is running normally and the ice trays are to be removed.

A still further object of the invention is to so construct a shelf as to secure the advantage of removability with the heat-conductivity of a fixed shelf.

Other objects and advantages of the invention will be apparent from the following description and the accompanying drawing, wherein,

Figure 1 is a front elevational view of a cooling unit embodying the invention,

Fig. 2 is a perspective view of my improved shelf, and

Fig. 3 is a sectional view of a portion of a cooling unit embodying the invention and showing a detail of the shelf support construction.

The shelf is so constructed that it may be taken out of the cooling unit when the unit is de-frosted, so that the inside of the cooling unit and the shelves may easily be cleaned. When the cooling unit is frosted, the shelves are gripped firmly and will not pull out with the ice tray. The frost surrounds the metal shelf and the cooling-unit shelf support, further aiding in securing the shelf in position, and a large metal area is available for heat transfer from the ice trays to the cooling unit.

Referring specifically to the drawing, numeral 1 designates a cooling-unit casing having inlet and outlet conduits 2 and 3, respectively. The inner wall 4a of the cooling unit is provided with pressed shelf supports 4. The shelf 5, which is placed on the supports 4, is formed by shearing a metal sheet at points 7, 8, 9 and 10, and bending the portions 11, 12, 13 and 14 in one direction and the portions 15 and 16 in another direction. The sheared pieces are bent to form an acute angle or V formation with each other.

The novel manner of bending the metal shelf so that it will be supported by the smooth pressed portions 4 of the cooling unit allows the shelf to be taken out when the machine is de-frosted, and the inside may, therefore, be thoroughly cleaned. The shelves will not be pulled out when the cooling unit is frosted, as the portions 11 and 14, or 12 and 13 will be held on the supports 4 by the frost which has collected. A very efficient contact will be insured by the frosting between both edges of the shelf 5 and the supports 4, as the metal edge of the shelf 5 contacts with the support along its entire length. The shelf is no more expensive to manufacture than the usual fixed or removable shelf set on supports but has the advantages of both.

As shown in Fig. 3, the cooling fluid 17 which may be either refrigerant or brine fills the space between the inner and the outer walls of the cooling unit and extends into the pressed shelf support 19. The V-shaped edges of the shelf 5 make contact with both sides of the shelf support, thus increasing the amount of contacting surface between the shelf and the heat-absorbing medium.

Although I have shown and described a specific embodiment of the invention, it is understood that modifications and changes may be made without departing from the spirit and scope of the appended claims.

I claim as my invention:

1. In combination, a cooling unit for refrigerator apparatus having substantially V-shaped shelf supports pressed in at least two of the walls thereof, and a shelf provided with cooperating V-shaped portions to engage both outer faces of the shelf supports.
2. In combination, a cooling unit for refrigerating apparatus, shelf supports having upper and lower surfaces pressed in at least two sides of said unit, a heat-absorbing medium contained in said unit, shelves removably mounted on said supports, said shelves comprising a metal sheet provided with edges adapted to engage portions of both the upper and lower surfaces of said supports.
3. In a cooling unit for a refrigerating apparatus, the combination of a plurality of horizontal extensions arranged in two generally vertical formations, a plurality of shelves supported upon the horizontal extensions between the two generally vertical formations, and means at the edges of the shelves for contacting more than one side of the extensions.
4. In a cooling unit for refrigerating apparatus, the combination of a plurality of horizontal supports arranged in two generally vertical for-

mations, a horizontal shelf between said two formations, and means at the edges of the shelf for contacting more than one side of the supports.

5. In a cooling unit for refrigeration apparatus, the combination of a plurality of horizontal refrigerant supports arranged in two generally vertical formations, a horizontal shelf between said two formations, and means at the edges of the shelf for contacting a portion of the upper and lower surface of a duct.

6. In a cooling unit for refrigerating apparatus, the combination of a plurality of horizontal supports arranged in two generally vertical formations, a horizontal shelf between said two formations having a pair of forked edges, said edges conforming to the configuration of a portion of a support and each receiving a portion of a duct, whereby heat and cold may be readily conducted between said support and said shelf.

7. In a cooling unit for refrigerating apparatus, the combination of a plurality of horizontal refrigerant-containing supports, a shelf supported upon the horizontal supports, and means at the edges of the shelf for contacting more than one side of the adjacent ducts.

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