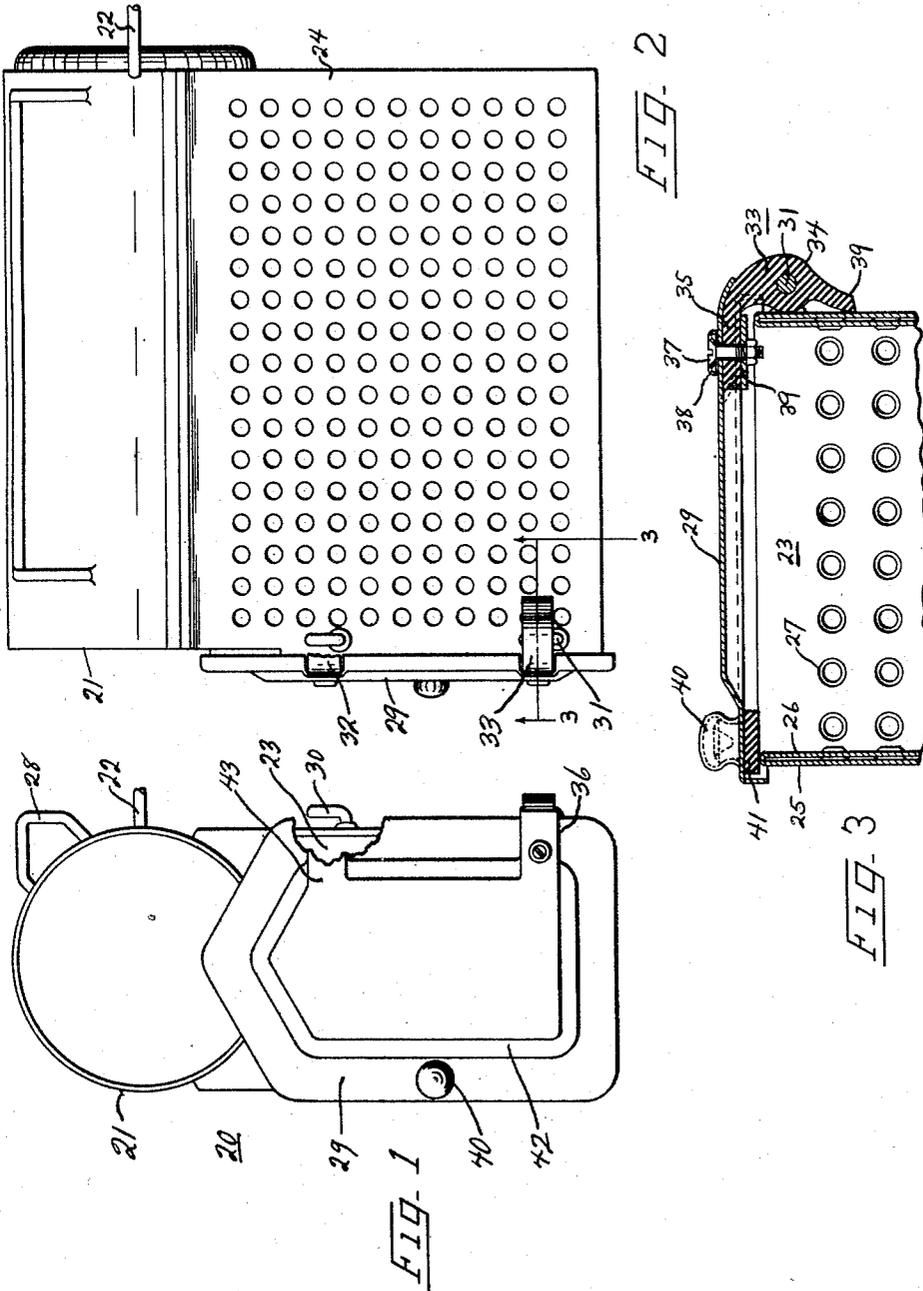


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REFRIGERATING APPARATUS

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REFRIGERATING APPARATUS

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2 Claims. (Cl. 62—1)

This invention relates to refrigerators and more particularly to an improved hinge construction for supporting the door closing the entrance to a compartment of the refrigerator.

Refrigerators are often provided with various types of porcelain coated compartments, some of which are provided with doors. For example, a freezing compartment for freezing ice cubes is usually provided in the cooling element or evaporator of refrigerators of the household type. It is desired to keep this compartment below freezing temperatures at all times while it is usually desired to cool the remaining portion of the interior of the refrigerating cabinet to a lesser degree. In order to keep the freezing compartment as cold as possible, it is desirable to provide a door for closing its entrance and preferably to provide a self-closing door. The provision of a suitable hinge for the door, particularly a hinge involving a door closing means, is made difficult because it is often desired to coat all the exterior portions of the cooling unit with porcelain. This difficulty is also found in hinges for other types of compartments coated with porcelain and having porcelain coated doors. Many different types of hinges have been tried but these hinges were found to be objectionable because they squeak and because they chip the porcelain from portions of the door and the cooling unit, particularly when attaching the same. Other objectionable features of the hinges were that they were expensive, that they were difficult to attach to the porcelain surfaces, and that they were not simplified to a sufficient degree.

Consequently one of the objects of the invention is to provide an improved simplified hinge which will not squeak or mar the finished surfaces of the door or the structure to which the door is attached.

Another object of the invention is to provide an improved hinge of rubber material having means for keeping the door in a desired position.

A further object of the invention is to provide an improved and facile means for fastening a hinge to a door and a door supporting structure.

Further objects and advantages of the present invention will be apparent from the following description, reference being had to the accompanying drawing, wherein a preferred form of the present invention is clearly shown.

In the drawing:

Fig. 1 is a front view of a cooling unit provided with my improved hinge construction;

Fig. 2 is a side view of the cooling unit shown in Fig. 1, and

Fig. 3 is a sectional view on the line 3—3 of Fig. 2.

My invention is disclosed, for the purpose of illustration, as applied to a cooling unit.

Referring to the drawing there is shown a cooling unit 20 having a reservoir portion 21 which is provided with a conduit 22 for supplying refrigerant to and for withdrawing refrigerant from the cooling unit 20. Beneath the reservoir portion 21 there is provided a freezing compartment 23 for freezing ice cubes therein which is provided with a U-shaped refrigerant wall 24 for enclosing the freezing compartment on the bottom and sides. The refrigerant walls 24 comprise a pair of metal sheets 25 and 26 which are maintained in spaced relation by a plurality of projections 27. Refrigerant fills the space between the plates 25 and 26 and provides refrigeration for keeping the freezing compartment below freezing temperatures and for keeping the interior of the refrigerator cabinet cooled to a desired degree. The freezing compartment 23 is preferably provided with a suitable rear wall, not shown. The cooling unit 20 is preferably supported within the refrigerator cabinet by a supporting bracket 28 which is preferably secured to the reservoir portion 21 of the cooling unit.

In order to prevent the cold air from escaping from the freezing compartment and for preventing the access of warm air to the freezing compartment, a door 29 is provided for closing the front entrance thereto. The door 29 is provided with an ornamental raised portion 42 from which extends, on one side of the door, a pair of recesses 36 and 42. These recesses are provided for receiving a hinge.

According to the present invention a pair of pivot pins 30 and 31 are fastened to the side of the refrigerating walls 24 and extend upwardly. These pins are coated with porcelain along with the remaining portion of the cooling unit including the door 29. In order to provide a hinge which will not chip the porcelain, I have discarded all metal hinges which have been used for such a purpose. In place of the metal hinges I prefer to use rubber hinges 32 and 33. These rubber hinges are preferably composed of a single piece of homogeneous resilient rubber composition, but if desired other materials of rubber composition may also be used such as rubberized fabric or from a material composed of alternate layers of rubber and fabric. My preferred type

of hinge has an eye portion 34 which fits over the pivot pin 31 and has portions projecting in either direction therefrom. One portion 35 extends from the eye portion 34 and is shaped and curved to fit into the recess 36 which is provided therefor in the door 29. This projection 35 is clamped to the door by means of the screw and nut 37, the protecting washer 38 on the exterior of the door, and the clamping plate 39 for clamping the end of the projection 35 to the rear side of the door.

This construction prevents the chipping of the porcelain coating of the door around the screw 37 and the washer 38. In assembling, should the screw and nut 37 be screwed too tight, the rubber portion 35 between the clamping plate 39 and the door 29 will yield and prevent an excessive pressure and also distortion from being applied to the porcelain coating around the screw 37 and the washer 38. The eye portion 34 of the hinge 33 easily slips over the pivot pin 31 and obviously no trouble is had from this connection.

In order to keep the door closed I have provided a resilient projection 39 which extends in the opposite direction from the eye 34 and contacts with the exterior adjacent the refrigerating wall 24. In Fig. 3 this projection 39 is shown curved because of the tension in this projection which presses against the adjacent wall of the cooling unit 24 and fulcrums the projection 35 of the hinge and the door 29 to closing position about the pivot pin 31.

By means of this projection 39 the door is resiliently urged into its desired closed position. By the use of this simple integral projection 39 no additional devices are required for keeping the door 29 in the closed position. By providing a resilient means for urging the door into the closed position it is assured that the door will be opened only when it is desired to have access through the freezing compartment and not at any other time. It will thus be seen that my hinge is of exceedingly simple construction. It requires but a unitary piece of rubber of a desired configuration, a screw and nut, a washer, a clamping plate and a pivot pin. It requires no oiling, does not squeak and does not mar or chip the porcelain or any other finish. It is exceedingly simple to assemble and its parts can be manufactured at a very low cost.

At the edge of the door opposite the hinge, the door 29 is provided with an integral knob 40

which is pressed in the door. In order to prevent chipping of the porcelain and jarring when the door swings to its closed position under the influence of the rubber hinge 33, a rubber bumper 41 is provided adjacent the knob 40 and has a projecting portion of a slightly larger size than the interior of the knob 40 which extends into the interior of the knob and presses tightly against its sides to hold the rubber bumper 41 in its proper position. This rubber bumper cushions the shock which is caused by the swinging of the door to the closed position. By cushioning the shock with rubber, noise is prevented as well as the chipping of the porcelain upon the interior surface of the door and the forward edge of the refrigerating wall 24.

Although my improved hinge is particularly adapted for use with a porcelain coated door and compartment, it is not limited to such a rise and obviously it is capable of being used in many other situations, particularly where it is desired to prevent the marring of a frangible attaching surface.

While the form of embodiment of the invention as herein disclosed constitutes a preferred form, it is to be understood that other forms might be adopted, all coming within the scope of the claims which follow.

What is claimed is as follows:

1. An element for use in mechanical refrigerators comprising an evaporator having a portion thereof forming an open ended chamber for the freezing and storing of frozen articles, means forming a closure member for said open end of said chamber, said last named means comprising a heat conducting member, and means for supporting said closure member in position including a hinge of resilient non-conducting material, said element being adapted to be located as a unit within a refrigerator to be cooled.

2. An element for use in mechanical refrigerators comprising heat conducting walls forming an open ended chamber for articles to be frozen, means for cooling said chamber, means forming a closure member for said chamber, said last named means comprising a heat conducting member, and means for insulating said heat conducting member from and for supporting said closure member upon said chamber walls, said element being adapted to be located as a unit within a refrigerator to be cooled.

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