

Jan. 16, 1940.

G. R. LOVELESS

2,187,274

REFRIGERATOR STRUCTURE

Original Filed Dec. 19, 1936

3 Sheets-Sheet 1

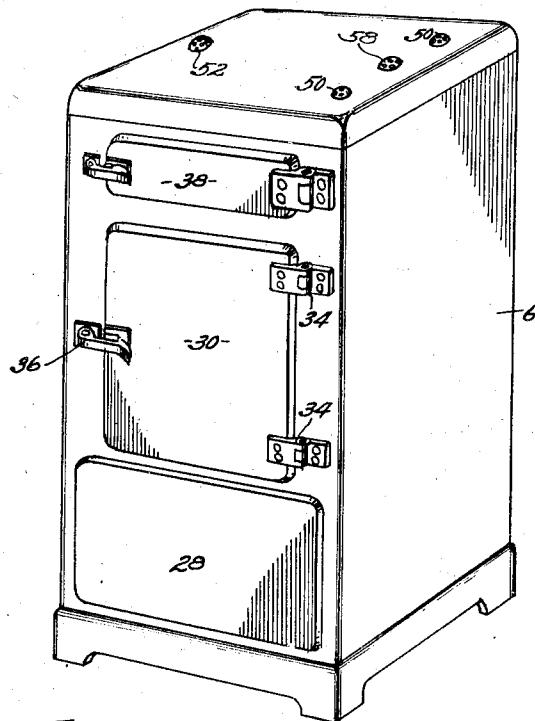


Fig. 1

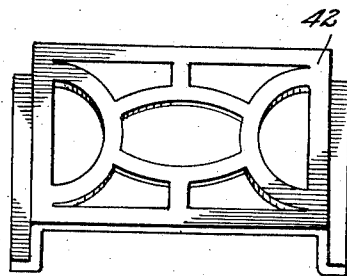


Fig. 4

BY

INVENTOR,
Glenn R. Loveless.

Hoey & Hamilton,
ATTORNEYS.

Jan. 16, 1940.

G. R. LOVELESS

2,187,274

REFRIGERATOR STRUCTURE

Original Filed Dec. 19, 1936 3 Sheets- set

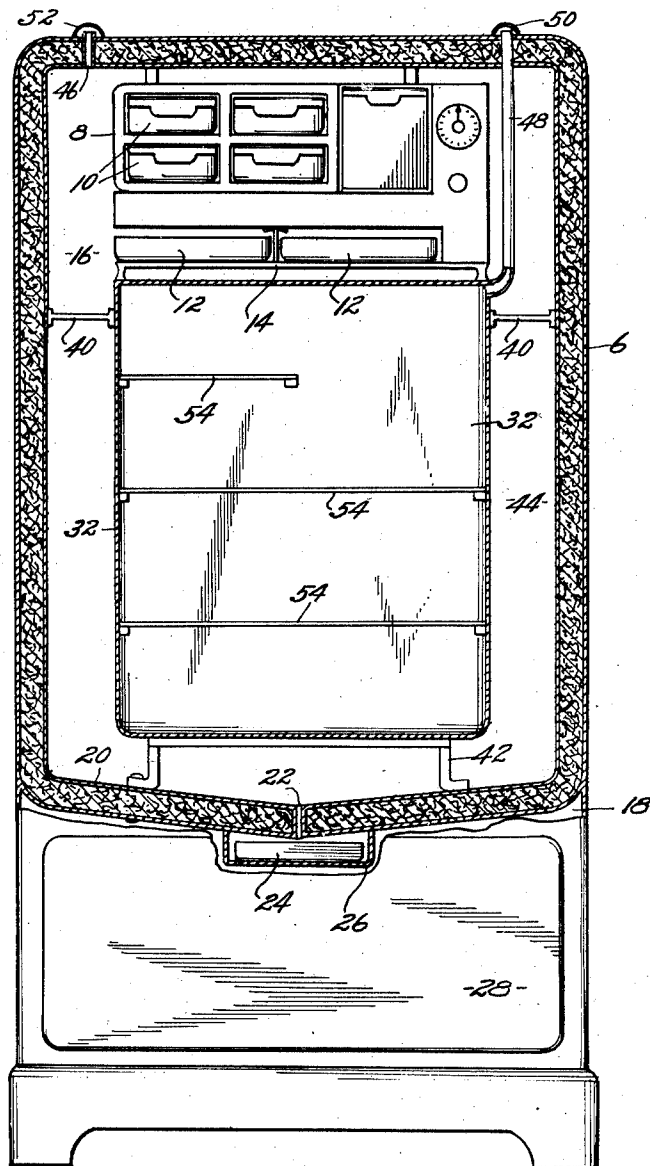


Fig. 2

INVENTOR,
Glenn R. Loveless.
BY *Moore & Hamilton*
ATTORNEYS

Jan. 16, 1940.

G. R. LOVELESS

2,187,274

REFRIGERATOR STRUCTURE

Original Filed Dec. 19, 1936

3 Sheets-Sheet 3

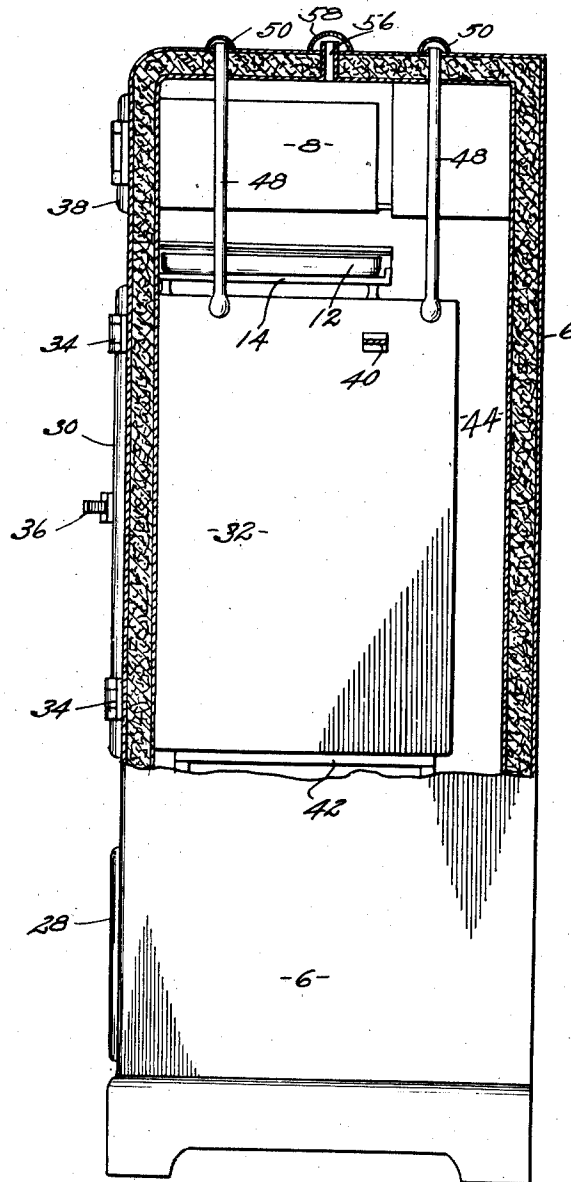


Fig. 3

INVENTOR,
Glenn R. Loveless.
BY
Hovey & Hamilton,
ATTORNEYS.

UNITED STATES PATENT OFFICE

2,187,274

REFRIGERATOR STRUCTURE

Glenn R. Loveless, Kansas City, Mo.

Application December 19, 1936, Serial No. 116,793
Renewed June 19, 1939

4 Claims. (Cl. 62-89)

This invention relates to refrigerator structures and particularly commercial type refrigerators wherein is provided a compartment for perishables or foodstuffs and a refrigerating means in the form of a mechanical unit of conventional type or a holder for ice.

The primary object of this invention is to provide a refrigerator structure of the aforementioned character wherein the inner box or food compartment is completely isolated from the refrigerating unit so that air circulating over the said refrigerating unit does not come into contact with the articles being cooled when they are stored in the inner box.

Another important object of this invention is the provision of novel and unique means for venting the inner box of a refrigerator structure so that foul air or gases evolved therein will pass from the closed box without coming into contact with the refrigerating coil or other means for absorbing heat units from the air which is being circulated around the outside of the said inner box.

Further aims of the invention will become apparent during the course of the following specification referring to the accompanying drawings, wherein,

Figure 1 is a perspective view of a refrigerator structure made to embody the present invention.

Fig. 2 is a front elevation of the same with a portion of the front wall thereof broken away.

Fig. 3 is a side elevation of the refrigerator with a portion of the side wall broken away to reveal the inner box, and

Fig. 4 is a perspective view of the supporting grid which is employed to carry the inner box.

It is well known in the art of preserving perishable foods that the air which comes in contact with the cake of ice or refrigerating coils carries therefrom certain amounts of moisture and other entrained foreign particles which when contacting the food will cause contamination thereof and therefore facilitate decomposition. It is further recognized that when moisture-containing articles are housed within a closed compartment with a refrigerating unit of the commercial type for a great length of time, that the said moisture therein is removed and the foodstuff rendered practically useless because of the excessive amount of dehydration which occurs throughout the time the refrigerating action takes place.

Vast amounts of perishables are wasted every year because of the unsatisfactory conditions which arise from the foregoing situations and

it is the object of this invention to overcome such deficiencies in refrigeration. The concepts of the invention have been embodied in experimental models of various characters and it has been found that when the products being stored or refrigerated are isolated from the refrigerating unit as graphically illustrated herein, the spoilage is reduced appreciably and the product is maintained in a highly satisfactory condition suitable for human consumption long after the same has been placed in storage.

The illustrated embodiment of the invention is in the form of a domestic or commercial type refrigerator which comprises a case 6 formed of insulated walls and carrying therein adjacent the top a conventional type refrigerating coil unit 8 that is provided with the usual tray 10 wherein the ice cubes may be manufactured. Drain pans 12 are set beneath unit 8 and a shelf 14 is provided for slidably supporting drain pans 12 as shown in Fig. 2. Case 6 is divided into an upper and a lower compartment 16 and 18 respectively and it is within this last mentioned compartment 18 that the compressor or other mechanical unit of the refrigerator may be situated. No claim is made to the particular type nor location of the mechanical refrigerating unit or parts thereof and the explanation thereof that is made herein is merely for the purpose of indicating the manner in which the essential parts embodying this invention are associated therewith.

Case 6 is divided into upper and lower compartments 16 and 18 by a partition 20 that forms the floor of said upper compartment. This floor is provided with a drain opening 22 through which may pass any collected moisture such as condensate or the like. The floor of compartment 16 is inclined from the edges thereof toward drain opening 22 and a tray 24 is positioned beneath opening 22 to catch liquid passing through opening 22. A drainage tray carrier 26 is provided to removably support tray 24 and this tray may be removed merely by displacing front plate 28 secured to the wall of case 6 to cover an opening which permits access to tray 24 and into lower compartment 18. The front wall of case 6 has an opening there-through which is closed by the conventional type door 30, which door serves to close the open side of box 32 which is mounted within case 6 in a manner more particularly hereinafter set down.

Door 30 is provided with the conventional hinges 34 and a latch 36 and when opened, the door permits access to the interior of box 32 but

not to compartment 16 formed in the upper part of case 6. Another door 38 is provided to close an opening through the front wall of case 6 opposite to refrigerating unit 8. This door 38 may be swung open to remove trays 10 and to adjust the cold control of the unit. It is notable in this regard that opening door 38 will not open or permit access to the interior of box 32. Box 32 is mounted within case 6 through the medium of spacers or supports 40 and a grill work 42 all constructed so that as little as possible of the area of box 32 is covered or obstructed. This inner box 32 is preferably formed of metal or some material that is a good conductor of heat units so that the food or the like stored therein will be cooled by conduction rather than by actual contact with the air which circulates over and around the refrigerating unit 8. An air chamber 44 is provided around five sides of box 32 while its open or sixth side is in communication with the opening normally closed by door 30. A small vent 46 extends through the top of case 6 so that fresh air might be taken into air chamber 44 as the temperature of the air circulating in chamber 44 is altered. Vent pipes 48 each in communication with the interior of box 32 extend upwardly and outwardly through the top of case 6 so that foul air may escape from box 32. This venting of box 32 is an important point of the invention and constitutes the only way in which air may be moved toward or from the food within box 32. There may be two or more vent pipes 48 extending upwardly from a point adjacent the top of box 32 and each of these pipes should be covered by a perforated cap 50 to permit the escape of air yet to preclude introduction of foreign matter into the pipes. Likewise a cap 52 is set over vent 46 for the same purpose.

It will be found that an advantage is gained through the use of an exhaust port 56 which is covered by a cap 58. Intake port or vent 46 is located to one side of refrigerating unit 8, while exhaust port 56 is to the other side thereof.

Shelving 54 may be built into box 32 in any suitable manner to conveniently support the foodstuffs being stored and it is conceivable that many other refinements might be embodied in a refrigerator construction without departing from the spirit of the invention.

Obviously the broad concept of the invention might be utilized in constructing small storage boxes for foods or it may be amplified to embrace

buildings having vents located in the manner described hereinabove.

Having thus described the invention, what I claim as new and desire to secure by Letters Patent is:

1. A refrigerator structure comprising a closed case; a storage box supported within the case with at least four walls thereof spaced from the walls of the case to provide a continuous air chamber; an evaporator positioned in the chamber; a vent pipe in communication with the box at the top thereof and terminating exteriorly of the case; and a drainage tray carrier mounted on the case below the bottom thereof, said case having a drain-opening formed through the bottom thereof above the said carrier.

2. A refrigerator structure comprising a closed case; a storage box supported within the case with at least four walls thereof spaced from the walls of the case to provide a continuous air chamber; an evaporator positioned in the chamber; a vent pipe in communication with the box at the top thereof and terminating exteriorly of the case; and a drainage tray carrier mounted on the case below the bottom thereof, said case having a drain-opening formed through the bottom thereof above the said carrier, the bottom of said case being inclined from the edges thereof toward said drain opening.

3. A refrigerator structure comprising a closed case; a closed storage box supported within the case with the walls thereof spaced from the walls of the case to provide an air chamber around the box; refrigerating means within the air chamber at the top thereof; a vent pipe in communication with the box; an intake port in communication with the chamber, formed through the wall of the case at one side of the refrigerating means; and an outlet port also in communication with the chamber, formed through the wall of the case at the other side of the said refrigerating means.

4. The method of refrigerating perishables which consists in confining the same in a closed compartment having a single vent at the uppermost part; and circulating cold air around the compartment to cause heat exchange through the walls of the compartment, said cold air being contained in a closed outer case, provided with a vent for supplying air from the atmosphere thereto.

GLENN R. LOVELESS.