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REFRIGERATOR CONSTRUCTION

Filed Aug. 4, 1926

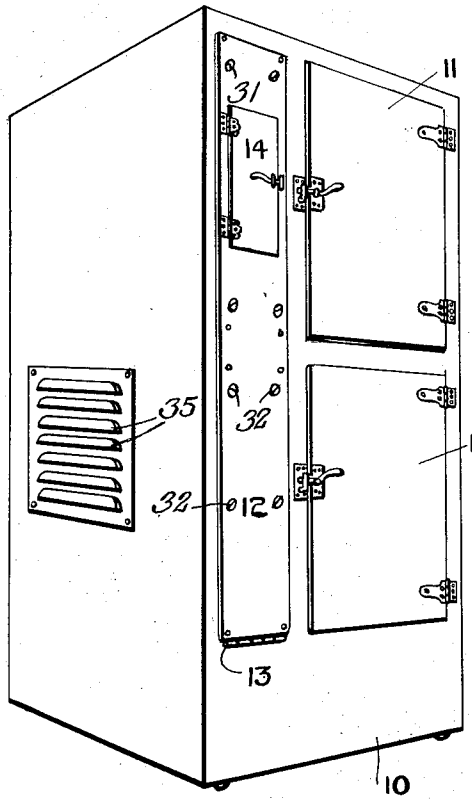


Fig. 1.

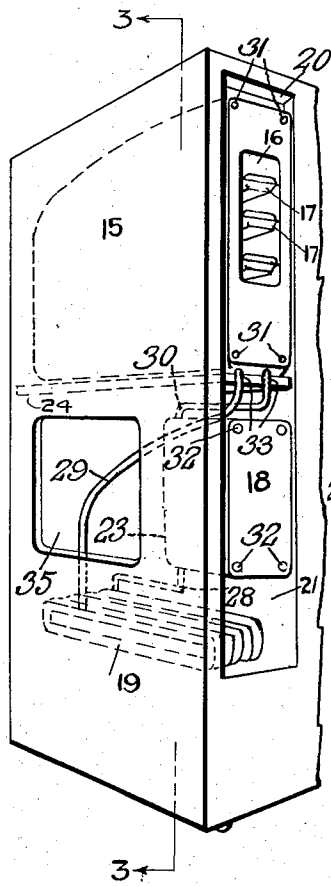


Fig. 2.

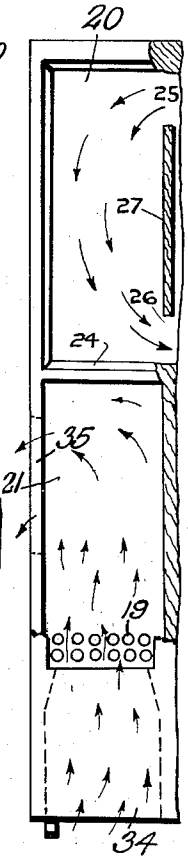


Fig. 3.

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UNITED STATES PATENT OFFICE

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REFRIGERATOR CONSTRUCTION

Application filed August 4, 1926. Serial No. 126,975.

The principal object of this invention is to provide an improved refrigerator box construction particularly of the type in which an individual refrigerating unit is employed.

A further object is to provide a construction whereby the refrigerating unit may be easily handled and wherein parts of the unit are most advantageously positioned for the performance of their functions.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view.

Fig. 2 is a perspective view of a portion of the box with parts removed; and

Fig. 3 is a section taken on line 3—3 of Fig. 2.

According to the invention herein disclosed, the refrigerating unit is arranged vertically in one side of the refrigerator box. There are several advantages in such construction, for instance, the food compartment may then be the full height of the box to create an air column and better air circulation; also the various parts of the refrigerating device may be advantageously placed, that is, the expansion coil may be placed adjacent the top of the box so that the air when cooled will more naturally descend towards the lower regions of the food compartment, while the condenser may be placed near the floor where the air in the room is usually found to be the coolest.

A particular feature of the invention is that of securing the various parts of the refrigerating unit to a base member which is preferably hinged to the box, and also serves as a lid or cover for that compartment which receives the refrigerating unit; a unitary construction is thereby provided which is readily removable, replaceable, or transportable.

The refrigerator box is indicated generally at 10, and is provided with doors 11 which open into a single food compartment, and a cover 12 which serves as a base member for carrying the refrigerating unit and as a lid for closing those compartments which receive the refrigerating unit, as will hereinafter more fully appear. The cover 12 is connected to the refrigerator box by means of a hinge 13 which should preferably be of that particular well known type which may be readily separated by withdrawing the pivot pin.

Suitable compartments 20 and 21 are arranged in the refrigerator box for receiving the refrigerating apparatus. In the upper compartment 20 is shown a casing 15 which forms an expansible chamber, or what may otherwise be termed the cold side of the refrigerating unit. In the lower compartment 21 is shown a base plate 18, for carrying the compressor 23, and a condenser 19, this combination forming what may be termed the hot side of the refrigerating unit. Various pipes such as shown at 28, 29 and 30, as well as all other accessories essential to complete the refrigerating unit obviously should be provided and may be arranged either in the hot compartment 21 or the cold compartment 20 according to their operating temperature; such accessories as well as the details of refrigerating units are well represented in the prior art and further description of such features are thought to be unnecessary in this disclosure. However, in carrying out this invention, the entire refrigerating unit should be fixed to the cover member 12 in such manner so that it may be carried thereby, and for this purpose bolts 31 and 32 are shown. The partition 24 separates the hot chamber 21 from the cold chamber 20, and any connections between the hot and cold sides of the refrigerating unit should be arranged to lay close to the cover member, such as shown with respect to the pipes 29 and 30 at the points 33, so that a close joint can be made between the end of the partition and the cover member, but permitting removal of

the cover member, including the refrigerating units as attached thereto, without disturbing any of the connections between the hot and cold sides of the refrigerating unit.

In the casing 15 may be provided a chamber 16 for receiving the trays 17 of the usual type for freezing water to form small cubes of ice, and a hinged door 14 should then be provided to permit access thereto without removing the cover member 12.

In Fig. 3 the course of the air currents through the refrigerator unit are clearly shown. At the top of the box there is an opening 25 between the food compartment and the cold compartment 20, and at the lower end of compartment 20 there is another opening 26, and except for these openings 25 and 26 the cold compartment 20 is separated from the food compartment by means of an insulating wall 27 so that as air surrounding the expansion unit 15 is cooled and becomes more dense, it will flow out through the opening 26 into the food compartment and continue downwardly along the left-hand side to the lower regions thereof while the air in the box which is warmed by heat absorbed through the walls of the refrigerator box and that extracted from food placed in the box will rise and enter the cold compartment 20 through opening 25 wherein it is again cooled and passes down and out through opening 26 as described.

The bottom of the hot compartment 21 opens to the exterior atmosphere as shown at 34 so that air at normal temperature may circulate upwardly and around the condenser coils 19 and out through opening 35 so as to carry off the heat liberated by the hot side of the refrigerating unit.

From the above description it is apparent that a refrigerator may be constructed which has desirable advantages, particularly in the provision of a high narrow food compartment and its particular relation to a smaller compartment 21 at high elevation which contains the cold side of the refrigerating unit, and which in connection with the openings 25 and 26 creates an ideal form of air circulation throughout the refrigeration space; also ideal arrangements are provided for the natural circulation of air from the exterior atmosphere upwardly and around the various elements comprising the hot side of the refrigerating unit.

Another important advantage of this construction which is evident, that is the securing of all parts of the refrigeration unit to the cover member 12, and accordingly there is provided a unit which may be readily handled and transported, and more particularly there is provided a unit which is very advantageous to service. Should the refrigerating unit break down for one reason or another it may be readily pivoted about its hinge 13 and let down on an appropriate wheeled carrier and then on removal of the hinge pivot pin the unit may be entirely removed. The substitution of a service unit for the inoperative unit may be just as readily accomplished in that it is only necessary to bring a service unit so that its hinge portions register, and then on insertion of the hinge pivot pin the unit may be turned upwardly thereabout and positioned in its proper relation to the box.

We claim:—

1. A refrigerator comprising a box having a vertically elongated compartment along one side thereof, a removable cover for said compartment and a refrigerating unit mounted on said cover and normally positioned in said compartment.

2. A refrigerator comprising a box having a food compartment and an auxiliary compartment adjacent thereto, a hinged cover for said auxiliary compartment and a cooling element mounted on said cover and normally positioned in said compartment.

3. A refrigerator comprising a box having a food compartment and a vertically elongated compartment along one side thereof, a hinged cover for said elongated compartment, a cooling device mounted on the upper portion of said cover and normally positioned in said elongated compartment and means mounted on the lower portion of said cover for causing the flow of a refrigerant to and from said cooling element.

4. In a refrigerator, a box having a food compartment and an auxiliary compartment adjacent the food compartment and communicating therewith, a removable cover for said auxiliary compartment, a refrigerating machine mounted on said removable cover and normally positioned in said auxiliary compartment, said machine including a cooling element and a door on said cover adjacent said cooling element for permitting access thereto without removing said cover.

5. A refrigerator including a box having a food compartment and a vertically elongated compartment along one side thereof, a refrigerating machine mounted in said elongated compartment and having a cold side and a hot side, the cold side of the machine being positioned substantially vertically above the hot side thereof and means for transferring heat from the food compartment to the cold side of the refrigerating machine.

6. In a refrigerator, a box having a vertically elongated compartment in one side in communication with the food compartment thereof and a refrigerating machine mounted in said elongated compartment and completely housed thereby, said machine including a cooling element in the upper portion of said elongated compartment and an element for giving off heat to the atmosphere in the lower portion of said compartment.

7. In a refrigerator a box having a vertically elongated compartment along one side

in communication with the food compartment thereof and a refrigerating machine mounted in said elongated compartment and completely housed thereby, said machine including an expansion chamber in the upper portion of said elongated compartment, and a condenser mounted in the lower portion of said compartment for transferring heat from said machine to the atmosphere.

Signed at Chicago, in the county of Cook, and State of Illinois, this 29th day of July, 1926.

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