June 30, 1936. P. J. WIEZEVICH 2,046,009

REFRIGERATOR

Filed June 13, 1932

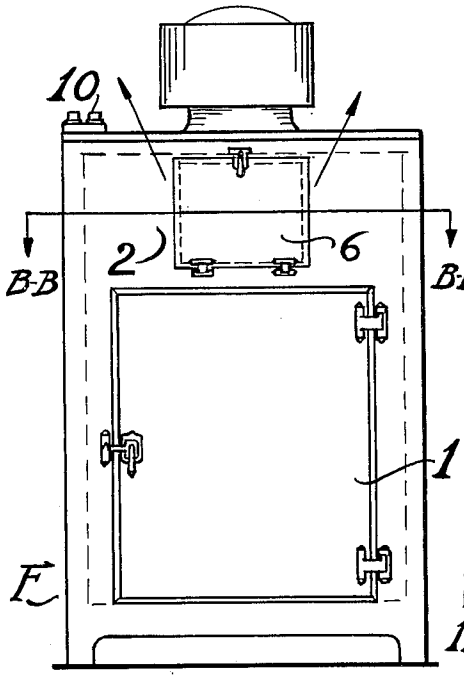


Fig.-4

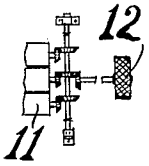


Fig.-7

Fig.-5

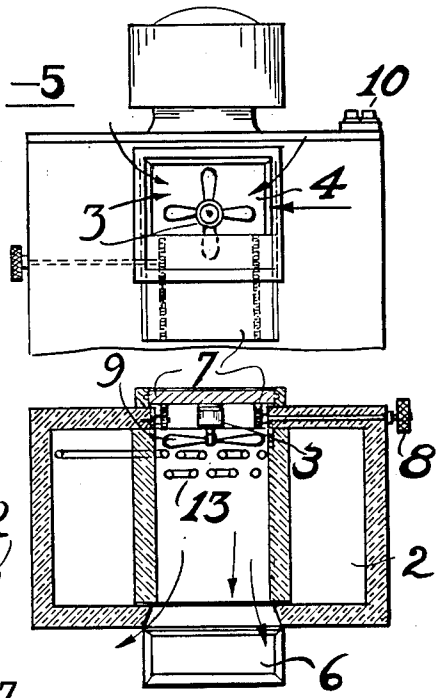


Fig.-6

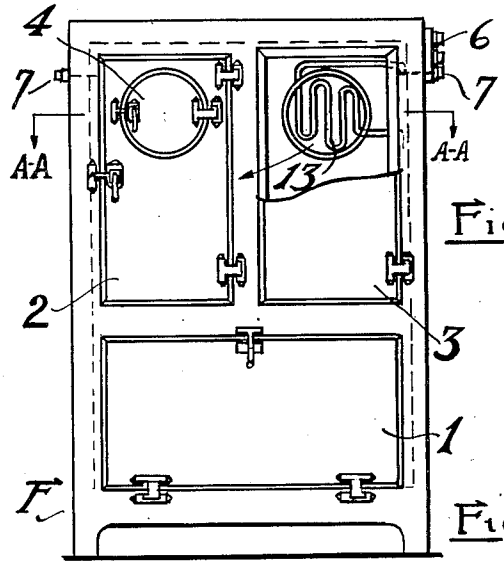


Fig.-1

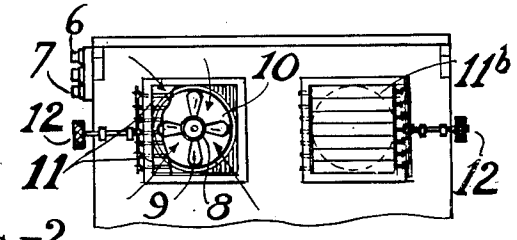


Fig.-2

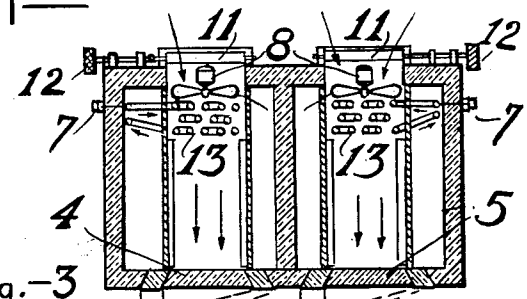


Fig.-3

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REFRIGERATOR

Peter J. Wiezevich, Elizabeth, N. J.

Application June 13, 1932, Serial No. 616,787

3 Claims. (Cl. 62—116)

This invention relates to improvements in refrigerators, and more specifically, it relates to improvements in the manufacture of refrigerators so as to make them serve a dual purpose; that is, to not only cool food, water, and the like, but also to cool and circulate air in order to lower the temperature of the room or adjoining rooms near which said refrigerators are located.

Generally, refrigerators are placed in kitchens which may be regarded as the hottest locations in the usual home, apartment, hotel, or other dwelling. In the summer especially, the kitchen is very uncomfortable. The heat from such locations is absorbed by the walls and is rapidly conducted into other portions of the building. It is therefore highly desirable to keep the temperature of the kitchen as low as possible in the summer. In the winter, of course, warmth in the kitchen is often an advantage.

This invention involves the use of a separate cooling compartment in the refrigerator in which said compartment is equipped with a fan capable of circulating air from without over a cooling medium such as a cooling coil, water spray, or the like, thence forcing the air into the space outside the refrigerator. In the winter, the cooling medium may be used to cool food, and the like, if desired, the fan not necessarily being driven. In these respects, the compartments may be characterized as bifunctional. If the compartment is well insulated from the rest of the refrigerator, it may be equipped with a heating means, so that the fan may circulate warm air. In that case, of course, the refrigerating medium is not required.

I find it desirable to have a separate shut-off valve or other means of control for the cooling coil over which the fan circulates air. With such an arrangement, the portion of the refrigerator used for cooling food, and the like, may be in operation while the coils used for circulating the cold air may be shut off. A refrigerator put into use in this manner may be termed as a domestic refrigerator. In case a circulation of uncooled air is desired in the space outside the refrigerator, the fan may be allowed to operate while the refrigerant is still shut off from the cooling coils adjacent to it.

Hereafter, the unit used for propelling air to space outside of the refrigerator will be termed as the air circulating system. Only one motor need be required for compressing the refrigerant in all of the coils, although a separate compressor can be used to take care of the coils of the air circulating system. In case an absorption type of refrigerator is employed, such as that shown in Figures 1, 2, and 3 of the drawing, the coil of the air circulating system may be a section or extension of other cooling coils in the refrigerator.

Compressed air may be substituted for the fan or other means for propelling the air in the air circulating system.

The following are a few variations of the many ways in which this invention may be utilized:

Figure 1 illustrates one type of refrigerator which may be used for the purpose disclosed herein, the details being shown in rear view (Figure 2), and the cross section (Figure 3).

Another type of refrigerator is shown in Figure 4. Figures 5, 6, and 7 indicate more explicitly the novel features involved.

A detailed description of these examples is as follows:

Figure 1 in the drawing shows one type of refrigerator (F) in which the compressing or absorbing unit for the refrigerating medium is located in section (1). Sections (2) and (3) are cooled compartments for food, ice, and the like. Upon the doors of these sections may be superimposed doors such as (4) and (5), which allow access to separate circular chambers equipped with cooling coils for lowering the temperature of the air to be circulated and/or heating coils if warm air is circulated. A switch (6) may be located nearby for supplying electric current to the various motors. A valve (7) may be used to supply the coils in (4) and (5) with the refrigerating medium. One such coil (13) is shown in the cut-away view of section (3).

Figure 2 shows a rear view of the upper portion of the refrigerator. Motor (8) propels fan (9) thereby circulating air over the coils and through the open door (5) in Figure 3. The opening (10) in the rear of the refrigerator may be equipped with suitable covers such as those comprising a series of insulated slats or panels which are shown in the open position at (11) and closed at (11b). These may be opened or closed by manipulating the rack and pinion operated by (12), producing apertures of one inch or so in width, serving as inlets for the air to be cooled. These may be covered with wire or cloth netting if desired, to serve as filters, for removing dust particles. A similar feature may be employed for the inner front section of openings (4) and (5).

Figure 3 is a cross section through A—A in Figure 1.

Figure 4 illustrates another method for carrying out this invention. In this case (1) is the cooled compartment in refrigerator (F) containing food, ice, and the like, while (2) is the com-

partment containing a coil for cooling the air to be circulated into the room. When door (6) is open half-way, the cooled air is forced upward toward the ceiling. Switches (10) operate the motors which motivate the fan and compressor.

The rear view of this particular refrigerator is shown in Figure 5. Here the motor (3) is mounted in aperture (4). When the air is to be circulated into some space outside the refrigerator, the panel (7) is lowered on slides by means of a device such as a rack and pinion operated by turn screw (8). A detailed illustration of the rack and pinion arrangement for opening and closing panels (11) by knob (12) is shown in Figure 7. Then door (6) (Figure 4) is opened, and fan (9) is put into motion by allowing the current to pass into motor (3) using switch (10). The air then passes over the coil in the chamber and leaves through the opening (6).

Figure 6 is a cross-section through B—B in Figure 4.

Other arrangements may also be used. For instance, the motor and fan may be located inside the refrigerator and air may be drawn from the bottom and forced through a duct into the cooled chamber, and thence into the surrounding space outside the refrigerator.

In case the refrigerator is located in a closet, or if other rooms are to be cooled, the discharge opening for the cooled air may be located on the top or rear of the refrigerator, and the cooled air may be piped by means of ducts to the space to be cooled directly. The refrigerator shown in Figures 4, 5, and 6 of the drawing is especially adapted for this purpose.

My invention is not to be limited to any examples which are given merely for the purpose of illustration, but only by the following claims in which it is my intention to cover the invention as broadly as the prior art permits.

I claim:

1. A domestic refrigerator containing contiguous compartments completely insulated from each other, each of said compartments being adapted for the storage of food, a cooling unit in each of said compartments, a closure for each of said compartments, an inlet and an outlet for air arranged in one of said compartments in such a manner that air passing from the inlet to the outlet passes over the cooling unit in said compartments, closures for said inlet and outlet adapted to be operated independently of the closure for said compartment and means for circulating air from the atmosphere to said air inlet over said cooling unit and out of said outlet back to the atmosphere when the closures for said inlet and outlet are open.

2. A domestic refrigerator comprising a compartment adapted for the storage of food and having an open front, a closure for said open front, a cooling unit arranged in said compartment, a casing surrounding said cooling unit having an open end, the edges of which are so arranged as to abut against the closure for said compartment when said closure is in closed position, whereby circulation of air from said food storage compartment to the interior of said casing is substantially prevented, an opening in the closure for said food storage compartment so arranged as to be substantially embraced within the periphery of the open end of the casing for said cooling unit when the closure for the food storage compartment is closed, and a second closure carried by said first closure, capable of operating independently thereof for closing the opening in said first closure when the first closure is closed, thereby allowing independent access to said cooling unit without exposing the remainder of the food storage compartment to the atmosphere.

3. A domestic refrigerator comprising contiguous compartments completely insulated from each other, each of said compartments being adapted for the storage of food, and being made up of side, back, top and bottom walls, and having its front open, a closure for the open front of each of said compartments, a cooling unit arranged in each of said compartments, a casing surrounding the cooling unit of one of said compartments, said casing being in the form of a conduit having one of its ends secured to a wall of said food storage compartment and having its other end open, said open end being adapted to engage the closure for said food storage compartment substantially in air-tight relation when said closure is closed, an opening so arranged in the closure of said food storage compartment as to be embraced within the periphery of the open end of said conduit when the closure for said food storage compartment is closed, a second closure, carried by the closure for said food storage compartment and capable of manipulation independently thereof when the closure for the food storage compartment is closed and adapted to close the opening in said first mentioned closure, an opening arranged in the wall of the food storage compartment which said conduit abuts, within the periphery of the conduit, a closure for said opening, and a fan arranged in said conduit adapted to circulate air from the atmosphere through said conduit when the closures for said conduit are open.

PETER J. WIEZEVICH.