Sept. 3, 1940. A. L. FLAMM 2,213,274

REFRIGERATOR

Filed Oct. 7, 1937

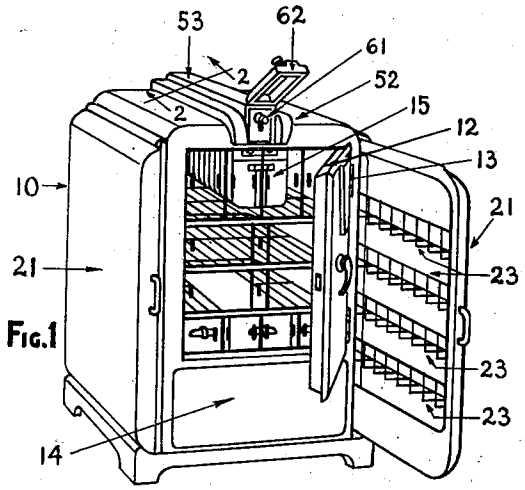


FIG. 1

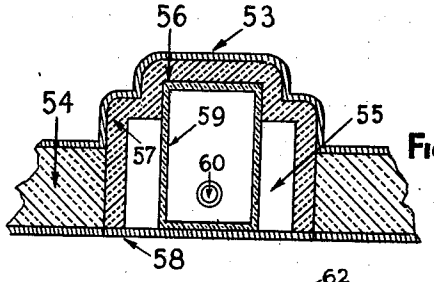


FIG. 2

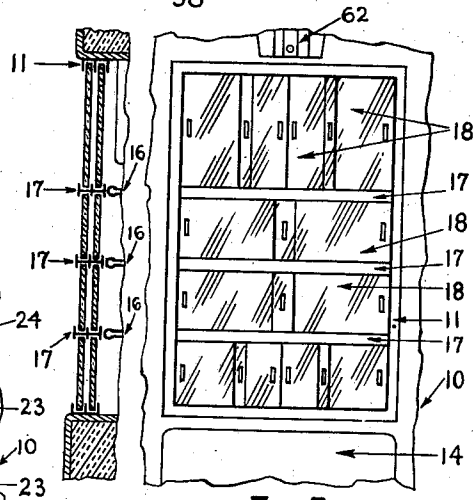


FIG. 3

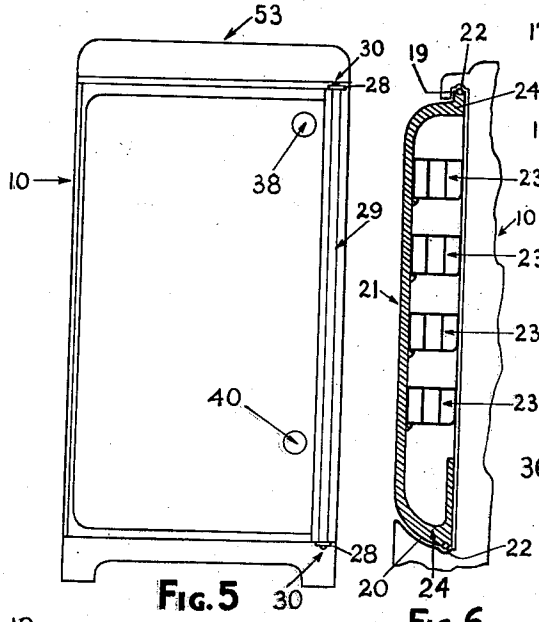


FIG. 5

FIG. 6

FIG. 4

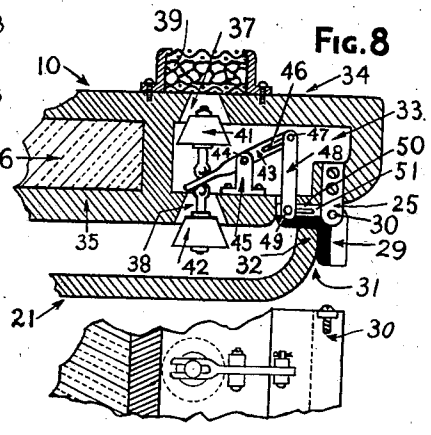


FIG. 8

FIG. 9

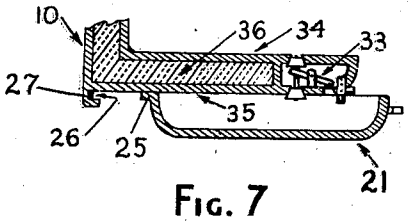


FIG. 7

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REFRIGERATOR

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9 Claims. (Cl. 62—89)

This invention relates to new and useful improvements in refrigerators and has particular relation to the domestic type electric refrigerators.

The objects and advantages of the invention will become apparent from a consideration of the following detailed description taken in connection with the accompanying drawing wherein a satisfactory embodiment of the invention is shown. However, it is to be understood that the invention is not limited to the details disclosed but includes all such variations and modifications as fall within the spirit of the invention and the scope of the appended claims.

In the drawing:

Fig. 1 is a perspective view of my improved refrigerator with certain parts in open or extended positions;

Fig. 2 is a transverse sectional view taken as along the line 2—2 of Fig. 1;

Fig. 3 is a view looking into the front of the refrigerator, the door and other parts of the refrigerator being omitted;

Fig. 4 is a vertical sectional view through the portion of the refrigerator shown in Fig. 3;

Fig. 5 is a side view of the refrigerator body, a side compartment being omitted;

Fig. 6 is a vertical sectional view through such compartment;

Fig. 7 is a sectional view showing valve means controlling a passage between the interior of the refrigerator body and one of a pair of similar compartments;

Fig. 8 is an enlarged detail sectional view showing the valve means of Fig. 7 open; and

Fig. 9 is a sectional view at right angles to Fig. 8.

Referring in detail to the drawing my improved refrigerator includes a body generally designated 10 having an open side adapted to be closed by an insulated door 12 hinged to the body at 13. The walls of the body are insulated as usual and within the lower portion of the body there is located any or the usual circulating mechanism for the cooling medium which is circulated through any or the usual coil (not shown) contained within the housing 15 receiving the usual trays for the making of ice cubes.

Within the body are vertically spaced shelves 16 and at the front ends of the shelves are guideways 17 mounted by a frame 11 and receiving glass or other transparent panels or closures 18. It is noted that in front of the upper and lower shelves four panels 18 are used and in such instances the entire four panels are slidable in the guideways, the intermediate panels being adapted to be moved in opposite directions to open them. But two relatively large panels are provided to close the front ends of the spaces above the intermediate shelves and such panels are to be slid back of one another to open them.

With this arrangement of the closures 18 at the front ends of the spaces above the shelves it will be apparent that when the door 12 is swung open the entire front end of the body is not open for the escape of cold air and the entrance of warm air. When door 12 is opened the user may see just which shelf contains the article wanted and the proper panel 18 to give access to such article is slid to open position and after the article is removed the panel is shifted to closed position. In connection with these panels it is noted that the same are preferably of glass or other transparent material whereby when the door 12 is open the user may readily see the entire contents of the refrigerator to readily locate the article wanted.

On each of its sides toward its upper and lower ends the body 10 is provided with guideways 19 and 20. Slidable in such guideways are compartments 21 each comprising a hollow body open only on its side toward the body 10. Such compartments may be slid on bearings 22 in the guideways 19 and 20 from closed positions as shown to the left in Fig. 1 to the open position shown to the right in such figure. Each compartment is provided with bins 23 for the reception of fruits, vegetables and the like.

The upper and lower edges of the compartments carry extensions 24 received in the guideways 19 and 20 as shown best in Fig. 6, whereby when the compartments are closed their upper and lower edges are sealed. When a compartment is closed a flange-like portion 25 on its rear edge is received in a groove 26 provided with a rubber or other yielding sealing means 27 whereby the rear edge of the compartment is sealed.

Upper and lower brackets 28 mount an angle member 29 at the front edge of each compartment 21 and such member is adapted to oscillate about or on pins 30 carried by the brackets, it being noted that the brackets are stationary on the body 10. On its inner face or side the angle member 29 carries a cushion of rubber or other yielding means 31 bearing against the forward edge of the compartment when the latter is closed as shown by the arrangement illustrated in Fig. 8.

There it will be noted that the forward edge 32

of the compartment is in engagement with the cushion or sealing means 31 whereby a seal is formed. From the above it will be appreciated that when a compartment is in closed position its forward and rear as well as its upper and lower edges are sealed in an air tight fashion.

The upper forward portion of each side wall of body 10 is left free of insulation at least to the extent necessary to provide a small chamber 33 (Figs. 7 and 8) between the inner and outer wall portions 34 and 35 the other portions of which are separated as by insulation 36. Wall portions 34 and 35 defining the sides of chambers 33 are provided with openings or ports 37 and 38 respectively. Port 37 communicates with the interior of the body 10 through a filter 39 of any desired type while port 38 places chamber 33 in communication with the interior of compartment 21. Thus it will be seen that through the ports and the chamber 33 the interior of the compartments may be placed in communication with the upper interior portion of the body 10 through the filter 39.

At the proper times port 37 is closed by a valve 41 and at such times the port 38 is closed by a valve 42. The stems of the valves are connected with a lever 43 pivoted intermediate its ends to a bracket 45 attached to a wall portion 35. The forward end of lever 43 is pivoted to a pin 47 passing through a slot 46 in the lever. The pin is carried by a link 48 the outer end of which carries a pin 49 received in a slot 50 in the arm 51 of the angle member 29.

A duplicate (not shown) of this valve arrangement is provided to control a similar arrangement of ports toward the lower end of the refrigerator. One of these duplicate ports is shown at 40 in Fig. 5 and with this duplicate construction it will be understood that with all ports open cold air from the lower portion of the interior of the refrigerator may pass through port 40 into compartment 21 while the warmer air from such compartment passes to the interior of the refrigerator through ports 38 and 37, being passed through filter 39 whereby food odors from the compartment are not carried to the interior of the body 10.

It is to be understood that the above described arrangements of ports and valves are duplicated at each side of the body to provide the same arrangement for each of the compartments 21. When the compartments are closed as in Fig. 8 the piston of the angle member 29 is such that the various valves are open and the interiors of the compartments are in communication with the interior of the body 10.

When a compartment is pulled or slid forwardly to expose its open side or to the open position as in Fig. 7 it rocks the angle member 29 on the pins 30 from the position of Fig. 8 to that of Fig. 7. Such movement of the angle member results in the link 48 being drawn outwardly with the result that the forward end of the lever 43 is also drawn outwardly, the lever rocking about its pivot 44 whereby the valves 41 and 42 are moved to positions closing the ports 37 and 38 as well as port 40 cutting off communication between any particular compartment and the interior of the body 10 as such compartment is moved to open position.

As the return or closing movement of the compartment takes place the forward edge 32 of the compartment engages the arm 51 of the angle member and rocks such members on pins 31 to return it to the position of Fig. 8. This causes link 43 to be rocked back to the position of Fig. 8 with the result that the valves are reopened. Also the member 29 being returned to normal position resumes its function as a seal for the forward edge of the compartment.

The top 52 of the refrigerator body 10 is built up intermediate its side edges as at 53 and the top insulation 54 within the top wall is stopped short of or at the edges of such built up portion whereby a chamber 55 is provided. The top and sides of such chamber are heavily insulated as at 56 and 57 but at the bottom thereof insulation is omitted whereby such chamber will be cooled due to the low temperature maintained at the under side of its thin bottom wall.

Within the chamber 55 is a water receptacle 59 which preferably is of glass and if in the form of a permanent device may have a water supply pipe 60 communicating with the interior thereof. Obviously the receptacle 59 will be kept cool and at the front end of such receptacle is a faucet 61 through which drinking water may be withdrawn from the receptacle. The top insulation 56 is shaped to receive the upper portion of the receptacle to hold it against lateral movement and there is an air space about the sides of the receptacle to permit the cool air of the chamber to contact with the sides of the receptacle. Obviously if desired a cooling coil may be introduced into chamber 55.

The built up portion 53 of the top of the refrigerator body 10 gives an ornamental effect and such effect is continued down the upper front portion of the body as at 62. Portion 62 is really a door hinged at its upper end whereby it may be lifted or opened to expose the faucet 61. The door 62 is hollow whereby when closed it receives the faucet 61 and provides a cover for the same.

Having thus set forth the nature of my invention, what I claim is:

1. In a refrigerator, a body the front of which is closed by an insulated door, guideways on an outer surface of said body, a compartment on said guideways and open at its side toward the refrigerator body, and said compartment slidable on said guideways to expose said open side.

2. In a refrigerator, a body the front of which is closed by an insulated door, guideways on an outer surface of said body, a compartment on said guideways and open at its side toward the refrigerator body, said compartment slidable on said guideways to expose said open side, a passage placing said compartment in communication with the interior of the refrigerator, and means closing said passage when the compartment is in position exposing its open side.

3. In a refrigerator, a body the front of which is closed by an insulated door, a compartment having an open side closed by an outer wall surface of said body, means mounting said compartment on the refrigerator body, and said last means including means whereby said compartment may be shifted to expose its open side.

4. In a refrigerator, a body the front of which is closed by an insulated door, guideways on an outer surface of said body, a compartment on said guideways and open at its side toward the refrigerator body, said compartment slidable on said guideways to expose said open side, a passageway placing said compartment in communication with the interior of the refrigerator, means to close said passage when said compartment is in position exposing its open side, and means whereby said last means is operated by sliding movement of the compartment.

5. In a refrigerator, a body the front of which is closed by an insulated door, a compartment having an open side closed by a wall surface of said body, means mounting said compartment on the body, said last means including means whereby the compartment may be shifted to expose its open side, a passage placing said compartment in communication with the interior of said body, means to close said passage when said compartment is in position exposing its open side, and means whereby said last means is operated by such shifting of the compartment.

6. In a refrigerator, a body the front end of which is closed by an insulated door, guideways on an outer surface of said body, a compartment on said guideways and open at its side toward the refrigerator body, said compartment slidable on said guideways to expose said open side, said guideways forming seals at a pair of the edges of said compartment, and other means sealing the other edges of the compartment when the latter is in normal closed position.

7. In a refrigerator, a body the front of which is closed by an insulated door, a compartment having an open side closed by an outer wall of said body, means mounting said compartment on the refrigerator body, said last means including means whereby the compartment may be shifted to expose its open side, a passage placing said compartment in communication with the interior of the body, and filter means through which air moving from the compartment into the body must pass.

8. In a refrigerator, a body the front of which is closed by an insulated door, a compartment having an open side closed by a wall surface of the body, means mounting the compartment on the body, said last means including means whereby the compartment may be shifted to expose its open side, a passage placing said compartment in communication with the interior of the body, means sealing an edge of said compartment when the latter is in normal closed position, said seal shiftable to and from sealing position by the compartment as the latter is moved to and from closed position, means to close said passage when said compartment is in open position exposing its open side, and means whereby said last means is operated by shifting of said seal.

9. In a refrigerator, a body the front end of which is closed by an insulated door, guideways on an outer surface of said body, a compartment on said guideways and open at its side toward the refrigerator body, said compartment slidable on said guideways to expose said open side, said guideways forming seals at a pair of the edges of said compartment, other means sealing the other edges of the compartment when the latter is in normal closed position, said other means including a pivoted element rockable on its pivot by the compartment as the latter is slid on said guideways, a passage placing the compartment in communication with the interior of the body, means to close said passage when the compartment is in position exposing its open side, and means whereby the last means is operated by the rocking of said pivoted element of the seal as the compartment is slid on said guideways.

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