Nov. 24, 1942. L. A. PHILIPP 2,303,137

REFRIGERATING APPARATUS

Filed Aug. 23, 1940

Fig. 1.

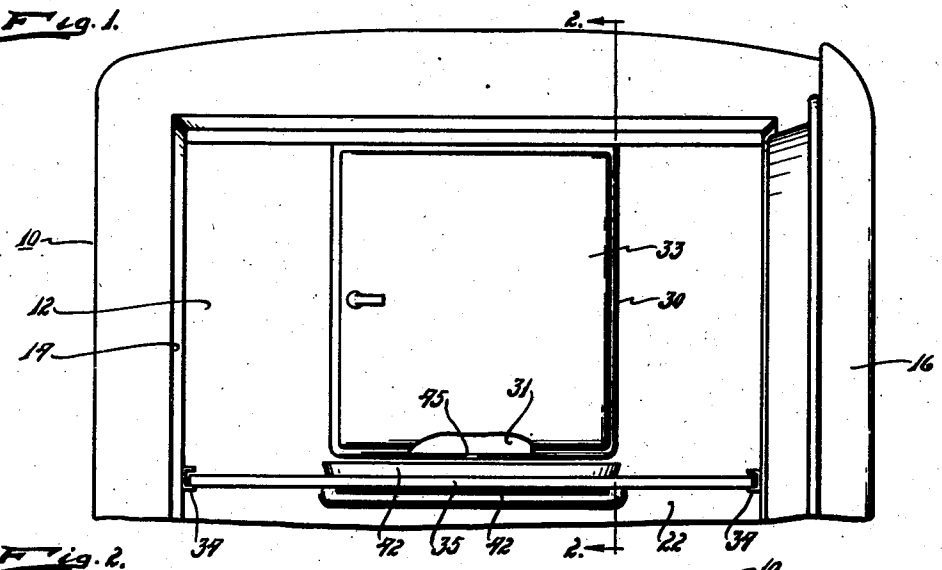


Fig. 2.

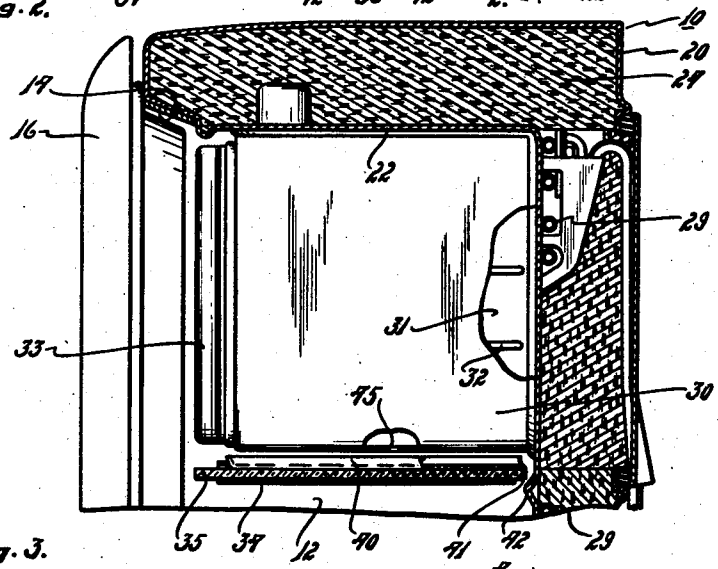


Fig. 3.

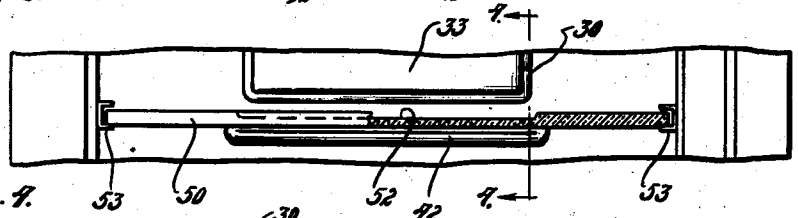
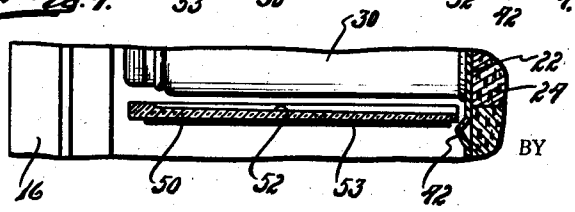


Fig. 4.



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REFRIGERATING APPARATUS

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Application August 23, 1940, Serial No. 353,926

7 Claims. (Cl. 62—103)

This invention relates to refrigerating apparatus, and more particularly to refrigerating apparatus of the household type.

One of the objects of my invention is to provide an improved arrangement for collecting drip water from the refrigerant evaporating element within a food storage compartment of the refrigerator.

Another object of my invention is to provide for separating the interior of the refrigerator cabinet into two compartments by a horizontally positioned shelf and to have provisions for supporting the shelf for receiving the drip water from a refrigerant evaporator and for conducting the drip water to wall of the refrigerator.

Another object of my invention is to arrange the aforesaid shelf in such a manner that it is in close proximity to the source of drip water so that the lost space immediately therebelow will be minimized.

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 fragmentary front elevational view of a refrigerator cabinet showing features of my invention;

Fig. 2 is a fragmentary cross sectional view taken along line 2—2 of Fig. 1;

Fig. 3 is a fragmentary front elevational view of a modified form of the invention with parts broken away and parts shown in section; and

Fig. 4 is a fragmentary cross sectional view taken along line 4—4 of Fig. 3.

In accordance with my invention I have provided a refrigerator cabinet wherein a casing is supported for dividing the cabinet into an ice freezing zone and air cooling zone. Refrigerant evaporating coils are positioned within the casing and arranged to cool the walls of the casing so that some cooling of air in the air cooling zone takes place by the refrigerating effect of the walls of the casing. The refrigerating coils operate below the freezing point of water and consequently sometimes require defrosting. Also, the walls of the casing collect moisture and like the defrost water from the coils must be collected and removed from the cabinet. I have also arranged for cooling the air cooling section by refrigerant coils secured to the back wall of the liner from approximately the top to the bottom thereof so that the circulating air is adequately cooled. During such cooling the moisture collects on the interior side the rear wall of the liner and tends to flow to the bottom wall of the liner. To get rid of this moisture a drain (not shown herein) is provided in the bottom wall of the liner for conducting the drip water outside of the food storage compartment. While the drain is not shown herein, such type of drain connection, as well as a full and complete disclosure of the refrigerator cabinet and refrigerant evaporating coils, are clearly disclosed in my copending application, Serial No. 353,924, for Refrigerating apparatus, filed August 23, 1940. The present invention deals with the collection and removal of moisture from the walls of the casing and refrigerating coils enclosed thereby. This is accomplished by having a horizontally positioned shelf which extends from front to rear and side to side of the refrigerator, dividing the interior thereof into upper and lower compartments and is an improvement over the aforesaid copending application and a divisional application thereof, Serial No. 403,354, filed July 21, 1941, for Refrigerating apparatus, which is copending and wherein broad claims to such subject matter are contained. In one embodiment of my invention I have placed a shallow pan upon the shelf, and in another embodiment I have recessed the horizontal shelf, which is preferably constructed of glass or plastic, for collecting the drip water from the casing and refrigerating coils. This shelf and the drip provision provided for therewith collects the drip water and conducts it to the rear liner where it joins with the moisture collected thereon and flows to the bottom wall of the refrigerator and through the drain. By this arrangement a very shallow drip collector is provided immediately below the refrigerating unit so that the space therebelow which is lost for the use of storage of foods, etc., is minimized.

Illustrated in the drawing is a refrigerator cabinet 10 of the household type having a food storage compartment 12. Access to the storage compartment 12 is through opening 14 closed by a swingably mounted door 16.

The cabinet 10 comprises an outer casing 20 and an inner shell or liner 22 between which is packed suitable heat insulation material 24 thereby forming the insulated top, bottom and side walls of the cabinet. The liner 22 forms the food storage compartment 12.

The storage compartment 12 is refrigerated by passage of refrigerant in coils 29 which extend substantially from top to bottom of the rear wall of liner 22. Secured within compartment 12 is a casing 30 forming chamber 31 within which are

provided suitable freezing units 32 for maintaining freezing and below freezing temperatures. Access to chamber 31 may be had by opening of door 33. The units 31 cool the walls of the casing to some extent and thereby aid in cooling the air in the compartment 12. Preferably frost does not collect on the exterior surfaces of the casing.

Secured to each of the opposite side walls of compartment 12 are supports 34 for supporting therebetween a sheet type shelf 35 preferably formed of glass, plastic, metal or the like. The shelf 35 is positioned beneath and in close proximity to the bottom of casing 30. Set on shelf 35 beneath casing 30 is a tray 40 provided with a downwardly depending drain lip 41 which is adapted to overhang and terminate over a ledge or protuberance 42 formed by pressing inwardly a portion of the liner 22 forming the rear wall of the compartment 12. The drain lip 41 is also adapted to engage the rear edge of the shelf 35 to provide a stop to prevent forward sliding of the tray.

During the period of use of the refrigerator some moisture of the circulating air within the storage compartment tends to form on the cooled sides of casing 30. Also frost collects on the freezing unit within chamber 31. Periodically this frost is melted off to drain into the tray or pan 40. The melted frost from chamber 31 draining through opening 45 provided in the bottom wall of casing 30 into the tray 40. The water collected in the tray flows rearwardly flowing over the drain lip 41 onto the ledge 42 from where it flows down along the rear wall of the liner to a drain (not shown) provided in the bottom of the food storage compartment.

In the modified form shown in Figs. 3 and 4 a sheet type shelf 50 preferably of glass, plastic or the like is supported on brackets 52 secured to each of the opposite side walls of the compartment. The shelf 50 is formed with a recess or trough 52 in the section that lies beneath the casing 30 to receive the melted frost therefrom. The recess or trough 52 is formed with a rearwardly extending downward slope to drain the collected water rearwardly onto the ledge 42 provided on the rear wall of the compartment 12.

While I have illustrated and described the preferred form of my invention I do not wish to limit myself to the precise details as shown but wish to avail myself of such variations and modifications as may come within the scope of the appended claims.

I claim:

1. Refrigerating apparatus comprising a cabinet having a liner arranged to form walls of a food storage compartment, a refrigerant evaporating element positioned in said compartment, and means supported by side walls of said liner and positioned horizontally below said element and having provisions for collecting drip water from said element and conducting it to said liner, said means and said liner being so arranged with respect to each other that said drip water is discharged from said means on to said liner.

2. Refrigerating apparatus comprising a cabinet having a liner arranged to form walls of a food storage compartment, said liner having a protuberance, a refrigerant evaporator above said protuberance and means supported by side walls of said liner and positioned below said evaporator for collecting the drip water therefrom and having provisions for conducting it to said protuberance.

3. Refrigerating apparatus comprising a cabinet having a food storage compartment, a refrigerant evaporating element positioned in said compartment, and a solid glass shelf having a dished out portion for receiving the drip water from said element, said shelf extending substantially from one side to the other of said compartment and carried by the side walls of the cabinet below said element and in close proximity thereto.

4. Refrigerating apparatus comprising a cabinet having a food storage compartment, a refrigerant evaporator positioned in said compartment and an imperforate horizontally positioned article supporting and moisture collecting one piece shelf extending substantially from front to rear and side to side of said compartment in close proximity to said element and having provisions for collecting the drip water from said element.

5. Refrigerating apparatus comprising a cabinet having a food storage compartment, a refrigerant evaporator positioned in said compartment and an imperforate horizontally positioned one piece shelf extending substantially from front to rear and side to side of said compartment in close proximity to said element and having provisions for collecting the drip water from said element and for conducting the drip water to a wall of said compartment, said shelf and said wall being so arranged with respect to each other that said drip water is discharged from said shelf on to said wall.

6. Refrigerating apparatus comprising a cabinet, an imperforate one piece shelf dividing said cabinet into upper and lower compartments, and a refrigerant evaporating element in said upper compartment, said shelf being positioned for receiving the drip water from said element and having provisions for conducting said water to the lower compartment.

7. Refrigerating apparatus comprising a cabinet, an imperforate one piece shelf dividing the interior of said cabinet into upper and lower compartments, a refrigerant evaporating element positioned in said upper compartment, and a drip collector positioned between said shelf and said element for collecting the drip water therefrom and for conveying said water to a wall of said upper compartment, said wall being adapted to receive and conduct said water to said lower compartment.

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