

July 9, 1957

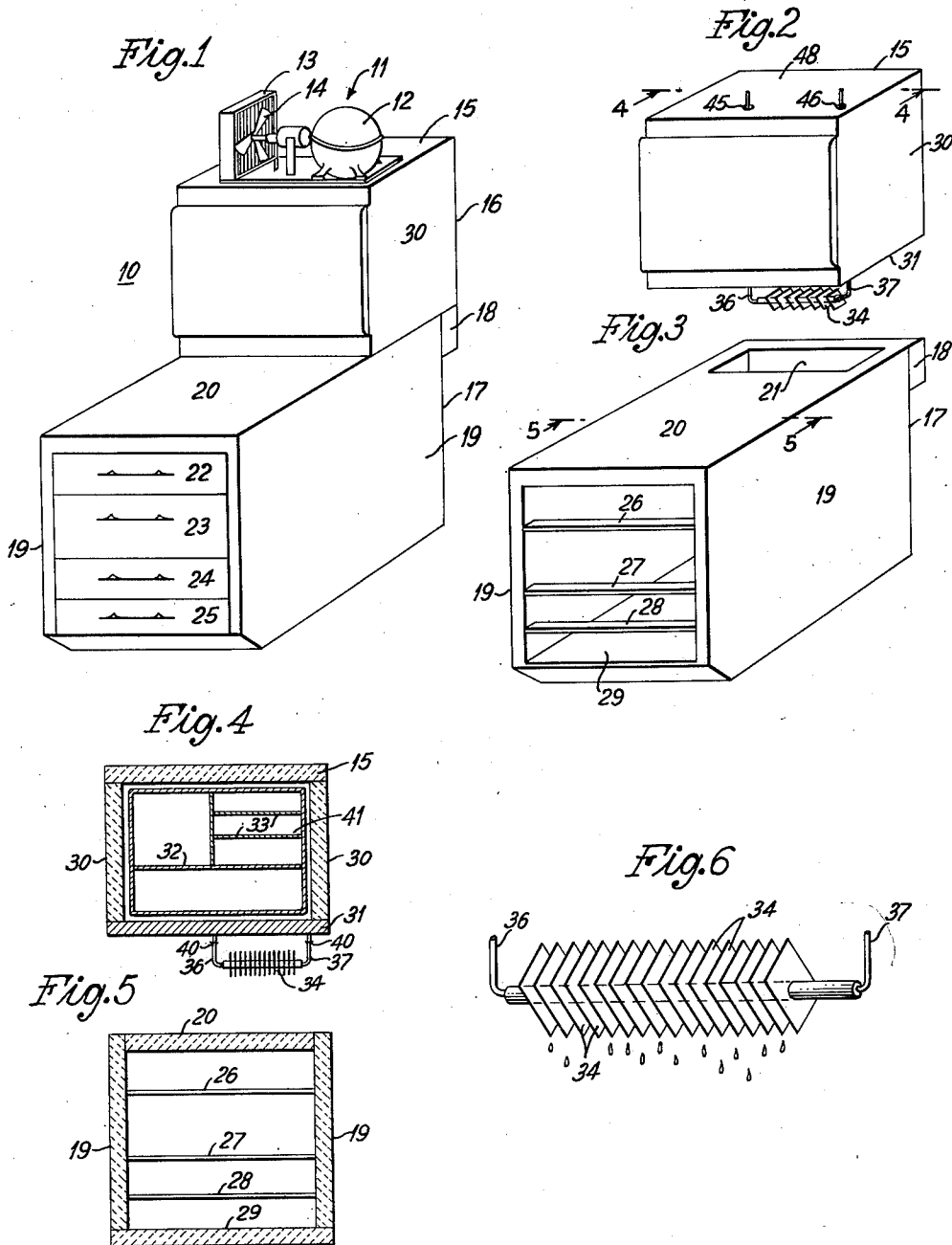
G. L. C. EARLE

2,798,367

"L" REFRIGERATOR ASSEMBLY

Filed Dec. 4, 1952

2 Sheets-Sheet 1



INVENTOR.
GUYON L. C. EARLE
BY
Hugh S. Warty
ATTORNEY

July 9, 1957

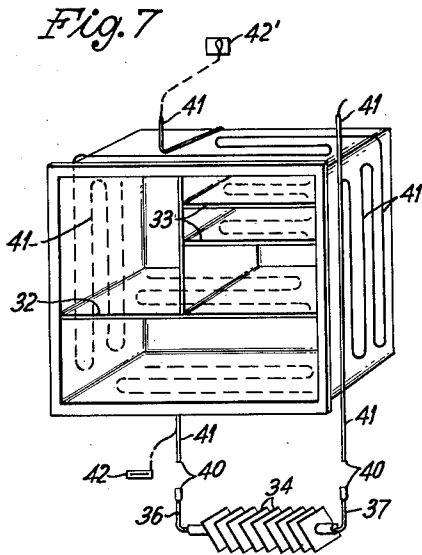
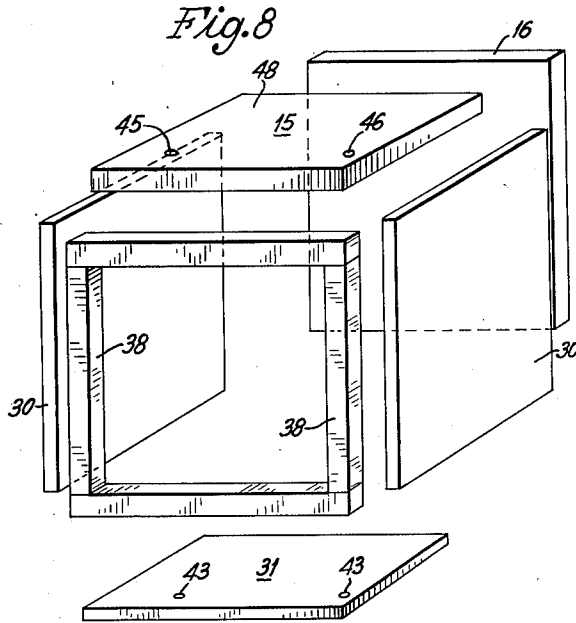
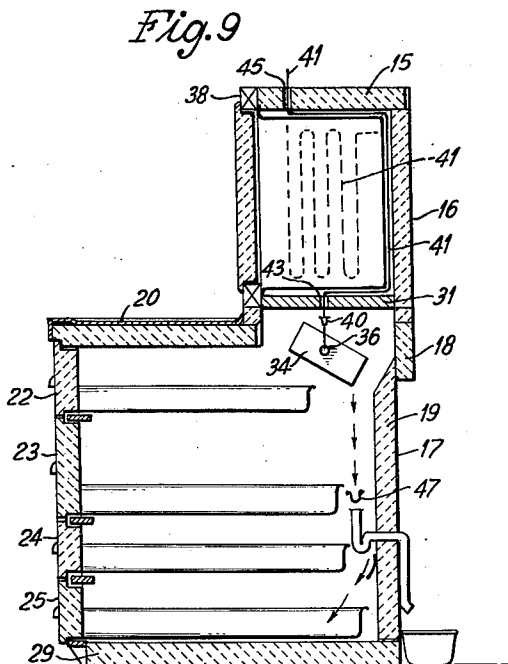
G. L. C. EARLE

2,798,367

"L" REFRIGERATOR ASSEMBLY

Filed Dec. 4, 1952

2 Sheets-Sheet 2



INVENTOR.
GUYON L. C. EARLE
BY
Hugh S. Wertz
ATTORNEY

1

2,798,367

"L" REFRIGERATOR ASSEMBLY

Guyon L. C. Earle, New York, N. Y.

Application December 4, 1952, Serial No. 324,070

2 Claims. (Cl. 62-117.3)

This invention relates to L-shaped refrigerators and to methods of assembling them. This application is a continuation-in-part of an application of Guyon L. C. Earle, Serial No. 288,293, filed May 16, 1952, now abandoned.

In a prior patent of the present inventor, 2,539,613, issued January 30, 1951, there is disclosed an assembly including a kitchen unit of the "set-back" or L-shaped type. This unit has a lower portion including the lower parts of a refrigerator and of a stove, a towel drier and a sink, an intermediate portion including the upper parts of the stove and of the refrigerator and a dish drier, and an upper portion comprising cabinets. A long table-top member is located on top of the lower portion and in front of the intermediate portion of the kitchen unit. The liquefying apparatus for the refrigerator is placed in a cabinet above the refrigerator and warm air therefrom is vented from the unit. The present invention, in one of its primary aspects, relates to an improved arrangement including a pair of evaporators for cooling the upper and lower refrigerated cabinets of a refrigerator of the L-shaped type employing drawers in the lower cabinet and to a method of assembling such a refrigerator.

It is, accordingly, an object of the present invention to provide an improved two-evaporator cooling system for a refrigerator of the "set-back" or L-shaped type.

It is another object of the invention to provide a novel method of assembling such a two-evaporator cooling system in the L-shaped refrigerator.

The foregoing and related objects are attained in accordance with the invention by providing as a preferred embodiment thereof a novel cooling system for an L-shaped refrigerator in which the upper portion thereof (behind and above the table-top member) has a large cabinet at temperatures below freezing and the lower portion thereof contains a plurality of drawers at refrigerated temperatures but above freezing. Moreover, a novel method of constructing this cooling system is provided. The upper cabinet is usually higher and wider than it is deep so it makes possible the very efficient storage of a large quantity of food under low freezing conditions. The usual home-type refrigerator today has a very deep low freezing storage compartment and it is frequently necessary to remove much food in order to get at that required at the moment. Because of its relative dimensions, this disadvantage is not present in the upper refrigerated cabinet of the present invention. Moreover, it is very simple to load and unload this low freezing compartment because of its convenient location behind and above the table-top member. Below this latter member and the upper low freezing cabinet is the lower or base cabinet which contains a plurality of drawers and which is cooled to temperatures above freezing by a series of cold plates or members preferably connected in the same cooling system that cools the low freezing upper cabinet. The compressor, condenser and fan for this cooling system are located in a non-

2

refrigerated cabinet placed above the upper low freezing cabinet of the refrigerator (which low freezing cabinet constitutes the "intermediate" cabinet or portion of the whole refrigerator and cabinet unit). The water of defrosting, as more particularly disclosed in the parent application referred to above, is conducted outside the refrigerator by means of an appropriate system of ducts. The refrigerator is assembled in two major parts, the first comprising the upper refrigerator cabinet and the entire refrigerating system including the liquefying apparatus above this cabinet, the upper evaporator within it and the lower evaporator projecting below it, and the second major part including the lower refrigerated cabinet. This lower cabinet has a small opening in the upper portion thereof through which the upper evaporator can pass when the upper cabinet is placed on the lower cabinet for fastening one to the other.

The invention will be more readily understood by referring to the following description taken in connection with the accompanying drawings forming a part thereof, in which:

Fig. 1 is a perspective view of an L-shaped refrigerator assembled in accordance with the invention, with the cover for the upper operating unit left off;

Fig. 2 is a perspective view of the upper portion of the refrigerator of Fig. 1;

Fig. 3 is a perspective view of the lower portion of the refrigerator of Fig. 1;

Fig. 4 is a cross-sectional elevation view of the arrangement of Fig. 2 taken in a plane parallel to the front of the refrigerator;

Fig. 5 is a cross-sectional elevation view of the arrangement of Fig. 3 taken in a plane parallel to the front thereof;

Fig. 6 is an enlarged perspective view of the portion of the evaporator which is positioned, when completely assembled, in the lower portion of the refrigerator of Fig. 1;

Fig. 7 is a perspective view of the evaporators for the upper and lower portions of the refrigerator, respectively, before they are assembled in the refrigerator and connected to the liquefying unit;

Fig. 8 is a perspective exploded view of the upper cabinet of the refrigerator minus the closure member or members therefor; and

Fig. 9 is a cross-sectional elevation view of the assembled refrigerator of Fig. 1 before the liquefying unit is attached thereto, the view being taken in a plane at right angles to the front of the refrigerator.

Referring more specifically to the drawings, Fig. 1 shows, by way of example for purposes of illustration, a complete L-shaped refrigerator 10 assembled in accordance with the invention. The refrigerator 10 comprises a lower or base refrigerated cabinet 17 and an upper refrigerated cabinet 15 positioned above and set back from the front of the lower cabinet, and a table-top member (not shown for simplicity in the drawings) positioned above the member 17 and in front of the member 15. On top of the upper cabinet 15 is the liquefying unit 11 for the refrigerator comprising a compressor 12, a condenser 13 and a fan 14. The unit 11 is preferably enclosed within a suitable cabinet structure which has not been shown as it is not a part of the refrigerator proper. Moreover, for simplicity in the drawings, the doors for the upper refrigerated cabinet 15 have not been shown.

The base cabinet 17 comprises insulated sides and back 19, an insulated top 20 having an opening 21 at the back thereof and an insulated base 29. The member 17 contains a plurality of drawers 22, 23, 24 and 25 supported by the insulated bottom panel 29 of the member 17 and the mullions 26, 27 and 28 by any appropriate means,

3

This base cabinet is adapted to be refrigerated by a cooling member 34 (called the lower evaporator) to a temperature above freezing (such as, for example, about 38 degrees F). The member 34 comprises a number of spaced apart metal plates mounted so that one corner of each is at the lowermost point thereof. This ensures that water droplets from the plates will be directed into a gutter 47 (see Fig. 9) to be conducted out of the refrigerator during defrosting in a manner which is described in the parent application identified above. The input suction line 36 and the output suction line 37 therefor are in contact with the metal plates of the evaporator 34 and these are connected by means of appropriate junction points 40 with upper suction lines 41 which are either looped to form the upper evaporator (in the upper cabinet 15) or are placed in contact with a cold plate serving this purpose.

The upper refrigerated cabinet 15 has insulated side walls 30, back 16, front frame 38, bottom 31 and top 48. The member 15 is adapted to rest on the rear portion of the member 17 and on an extension 18 thereof. The upper evaporator 41 is positioned within this upper cabinet and the space within its confines is divided by shelves 32 and 33.

The top 48 of the cabinet 15 is pierced by holes 45 and 46 through which the coils 41 protrude on their way to the liquefying unit 11 on top of the member 15. Associated with the coils 41 is a cold control bulb or coil 42.

The assembly of the refrigerator 10 will now be described. The lower or base cabinet 15 is constructed as shown in Fig. 3 but the upper cabinet 15 is constructed around the evaporator 41 which preferably comprises a plurality of coils 41 as shown in Fig. 7. The individual parts of the upper cabinet 15 shown in Fig. 8 are placed around the evaporator 41, preferably set in mastic, and screwed together. The lower suction lines of the evaporator 41 project through holes 43 in the bottom panel 31. These suction lines are connected at joints 40, preferably by sweating, to the suction lines 36 and 37 of the lower evaporator 34. The cold control bulb 42 and the cold control 42' above the refrigerator can then be installed. The upper suction lines 41 project through the holes 45 and 46 of the top panel 48 and are connected to the liquefying unit 11 in such a way that a hermetic hook-up is formed. It is preferred that the entire hermetic hook-up be made before the upper cabinet 15 is

4

placed on the lower cabinet 17, with the lower evaporator 34 projecting down through the hole 21 in the top 20 of the lower cabinet and the rear of the upper cabinet 15 resting on the extension 18, and the two cabinets joined together in air-tight manner, preferably by gaskets.

If desired, the upper cabinet 15 with the two evaporators and liquefying unit can be shipped separately from the lower cabinet 17.

Obviously, various modifications can be made in the embodiment described above without departing from the spirit of the invention.

What is claimed is:

1. An L-shaped refrigerator comprising a deep lower refrigerated portion having a plurality of drawers therein placed one above another below an insulated top member, an upper shallow refrigerated portion the front of which is to the rear of the front of the lower refrigerated portion, a liquefying unit above the upper refrigerated portion, an upper evaporator member in said upper refrigerated portion, a lower evaporator member in said lower refrigerated portion at least a part of which projects below the bottom of said insulated top member and is above the upper one of said drawers whereby said upper drawer acts as a horizontal deflecting member for cold air from said lower evaporator, and means for connecting the two evaporators in a hermetic hook-up with said liquefying unit.

2. An L-shaped refrigerator comprising a deep lower refrigerated portion having a horizontal cold-deflecting member in the upper portion thereof below an insulated top member, an upper shallow refrigerated portion the front of which is to the rear of the front of the lower refrigerated portion, a liquefying unit above the upper refrigerated portion, an upper evaporator member in said upper refrigerated portion, a lower evaporator member in said lower refrigerated portion at least a part of which projects below the bottom of said insulated top member and is above said horizontal cold-deflecting member, and means for connecting the two evaporators in a hermetic hook-up with said liquefying unit.

References Cited in the file of this patent

UNITED STATES PATENTS

2,539,613 Earle Jan. 30, 1951