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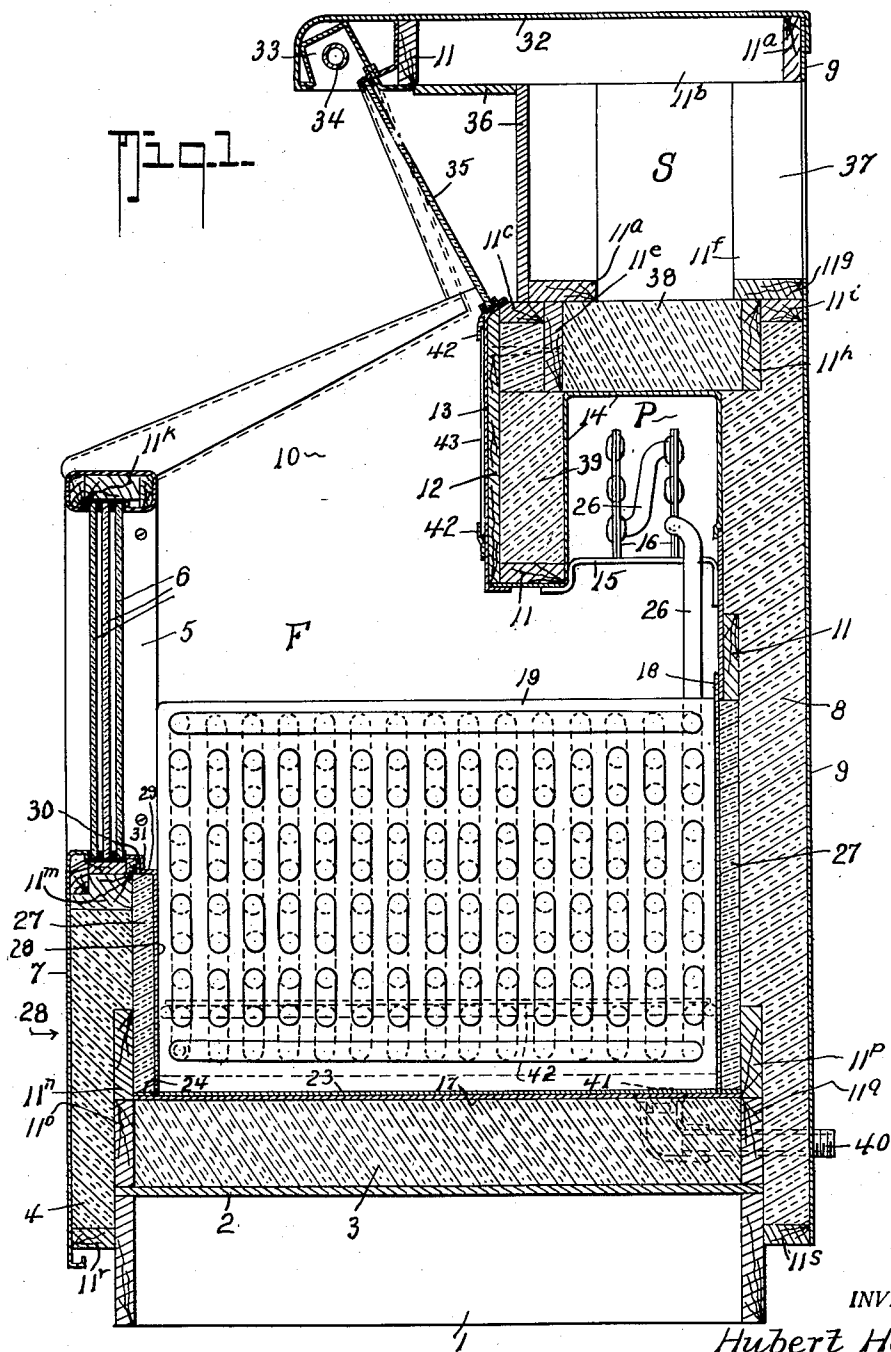
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2,495,327

OPEN TYPE DISPLAY REFRIGERATOR

Filed Jan. 10, 1947

3 Sheets-Sheet 1



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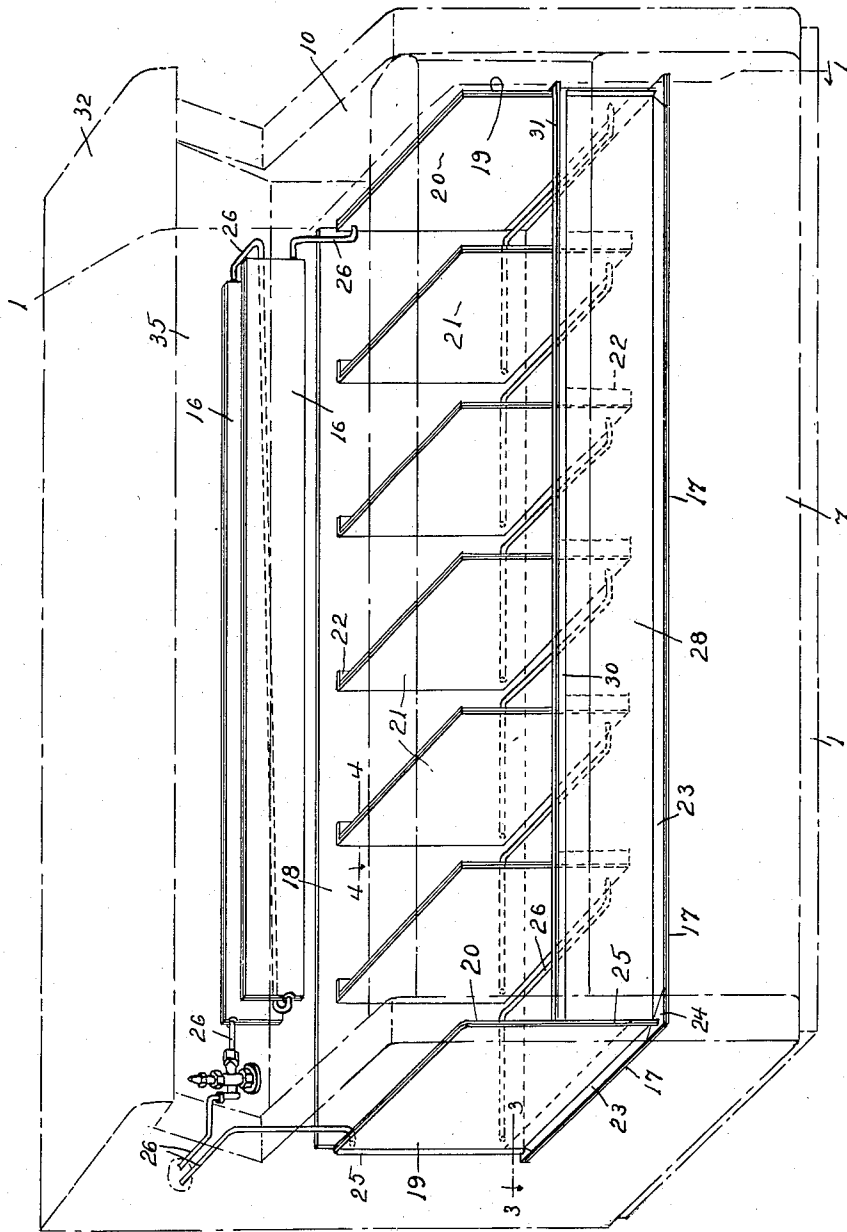
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Fig. 2.

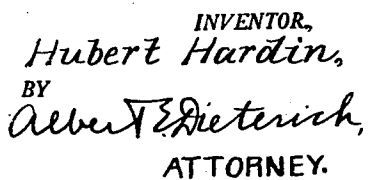


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UNITED STATES PATENT OFFICE

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OPEN TYPE DISPLAY REFRIGERATOR

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1 Claim. (Cl. 62—89.6)

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My invention relates to display refrigerators which are particularly useful for keeping articles of merchandise in a refrigerated condition and at the same time permit ready and free access to such merchandise by the customer.

Objects of the invention are, (1) to provide a refrigerator in which packaged frozen foods may be stored in full view of the customer through a transparent front wall, the packaged goods being well located below the top of the front wall in what may be termed a dead air chamber, (2) to provide a novel refrigerating coil unit which also serves as a partitioned receptacle for the packaged goods, (3) to provide means for effecting a layer of more or less quiescent cool air above the contents of the said receptacle, (4) and in general to provide an improved refrigerator of the type stated which will be neat and artistic in appearance as well as efficiently useful in the performance of its function.

Other objects will in part be obvious and in part become apparent hereinafter.

To the attainment of the aforesaid objects and ends invention further resides in the novel details of construction, combinations and arrangement of parts all of which will first be fully described and then be specifically pointed out in the appended claims, reference being had to the accompanying drawings in which:

Fig. 1 is an enlarged cross section on approximately the line 1—1 of Fig. 2.

Fig. 2 is a schematic perspective view of my refrigerator.

Fig. 3 is an enlarged detail sectional view of one corner of the combined food receptacle and cooling unit on about the line 3—3 of Fig. 2.

Fig. 4 is a view similar to Fig. 3 on the line 4—4 of Fig. 2.

Fig. 5 is a detail perspective section of the parts shown in Fig. 3.

In the drawing in which like numerals and letters of reference indicate like parts in all the figures, 1 represents the base of the refrigerator case, 2 the sub-floor on which is laid a layer or layers of insulation 3. The framing of the case is indicated by 11, 11^a, 11^b, 11^c, 11^d, 11^e, 11^f, 11^g, 11^h, 11ⁱ, 11^j, 11^k, 11^l, 11^m, 11ⁿ, 11^o, 11^p, 11^q, 11^r, 11^s.

The front wall comprises the insulation 4, the metal facing 7, window frame and sheathing 5, and the window panes 6.

The back wall of the cabinet includes the insulation 8 and metal facing 9. The side or end walls 10 are likewise formed of metal sheathing

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over insulation and present a similar cross-section to the back wall.

Above the level of the top of the front wall of the case and extending horizontally forwardly therefrom between framing boards 11^c, 11^d is a block of insulation 38 while a vertical wall of insulation 39 extends from the front of the block and board 11^c downwardly a substantial distance below the top of the window frame 5, thus providing an air space P open only at the bottom. A front board 12 secured between two framing boards 11^c, 11^j and faced with a metallic plate 13 forms the front of the vertical wall. The bottom of the vertical wall and the inside of the space P are provided with a metal sheathing 14 that extends down over the framing board 11 that is located in the back wall below the level of the vertical wall as best shown in Fig. 1.

Brackets 15 secured to the vertical wall and the back wall in any approved way constitute supports for auxiliary cooling plate-coils 16 located in parallel vertical positions within the chamber.

Within the food chamber F is located a combined cooling or freezing plate coil and food container unit which comprises an essential part of the present invention. This unit is best shown schematically in Fig. 2 and in end elevation and part cross section in Fig. 1. As will be seen this unit comprises a metal base plate or floor plate 17, a back wall plate 18, a front wall plate 28 and end plates 19, the latter being the outer plates of the end plate-coils whose inner plates are indicated by 20. The plates 18, 28 and 20 have bent over bottom portions 23 which are seam welded, as at *sw*, to the bottom plate 17. The vertical corner edges of the plates 18, 28 and 20 are bent so as to lie together as at 25 and seam welded together also. Intermediate partition plate coils 21 are provided and have front and back flanges 22 spot welded, as at 20 Fig. 4, to the plates 18, 28. The partition plate-coils 21 do not extend down to contact the plate 17 but are spaced a suitable distance from the same to allow drainage to the drain 40, when stopper 41 is removed.

The flanges 23 are bevel cut at the corners and corner pieces 24, slotted to fit over the parts 25, are inserted and gas-welded to the flanges 23, as at *gw*, and seam welded to the plate 17 as at *sw*, Fig. 5.

The several plate coils 19, 20, 21 and 16 are connected together, preferably in series, and to an outside source of refrigerant circulator, by pipes 26 as best shown in Fig. 2.

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The combined cooling or freezing and food holder unit includes outside insulation blocks 27 which rest on the flanges 23. This self-contained unit is set into the food chamber F of the cabinet and rests on the floor insulation 3.

It is to be noted that the front wall 28 of the unit does not extend above the level of the bottom of the window but is bent over the insulation block as at 29 on 30, the edge 30 being protected by the strip 31 of the window structure.

Spaced above the horizontal wall formed by the insulation 38 and adjacent framing boards 11 is a top composed of framing boards 11 and a metal cover plate 32. The top overhangs the horizontal wall as a canopy and contains along its front a box 33 for a tubular light tube 34.

A mirror 35 is mounted beneath the canopy to reflect the contents of the food chamber F to the outside.

"Celotex" or other suitable boards 36 behind the mirror 35 cooperate with the top and the horizontal wall to provide a chamber S which is open at the back, as at 37, and may be used to hold or store any articles desired.

The articles of food to be preserved (such as packaged frozen food) are piled in the spaces between the plate-coil-partitions 20, 21 to the level of the top of the said partitions. This makes them visible through the window as well as reflection from the mirror.

Clip-strips or similar strips 42 serve to support signs 43 illustrative of the products serviced, the signs being supported against the sheathing 13, when they are in place.

It is to be observed that no means is provided to effect any definite circulation of air in the cabinet, it being desired to maintain as quiescent a volume of cold air in the chamber F as possible. Any warm air which may enter chamber F while removing a package of frozen food is promptly displaced by cold air from space P, the warm air passing under the vertical wall 39, etc. into space P and there cooled. In this way little or no warm air reaches the food in the combined plate-coil-food-receptacle unit.

Suitable adjustable shelves 42 are located in each food compartment.

From the foregoing description taken in connection with the accompanying drawings it is thought that the construction, uses and advantages of my invention will be clear to those skilled in the art.

What I claim is:

In an open-type display refrigerator; a case

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including a front wall in the upper portion of which is a window, a back wall extending to a substantially higher level than said front wall and its window, a horizontal canopy top extending forwardly from said back wall at the top thereof, side walls connecting said front and back walls, a horizontal bottom at a level substantially below the level of the bottom of the window, an insulation partition extending horizontally-forwardly from said back wall at a level substantially below said canopy top and above the level of the top of the window, said insulating partition extending forwardly from said back wall a substantially lesser distance than the canopy top, an insulation wall extending vertically downward from the front end of said horizontally disposed insulation partition to a level below that of the top of the front wall window to provide a space between the back wall and said vertically downwardly extending insulation wall, said space being open only at the bottom, a metallic lining for said space; a combined cooling and food receptacle unit within said case below said space and including horizontally spaced vertical cooling plate coils the tops of which extend above the bottom level of the window and terminate a substantial distance below said space; and an auxiliary cooling plate unit located in said space and operatively connected to said first mentioned unit, said plate coil unit comprising two operatively connected parallel plate coils disposed in vertical position in said space; an inclined member connecting the front ends of said horizontally-forwardly extending insulation partition with said canopy top adjacent its front end; there being a space above said canopy top and the last named partition.

HUBERT HARDIN.

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