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REFRIGERATED DISPLAY CASE

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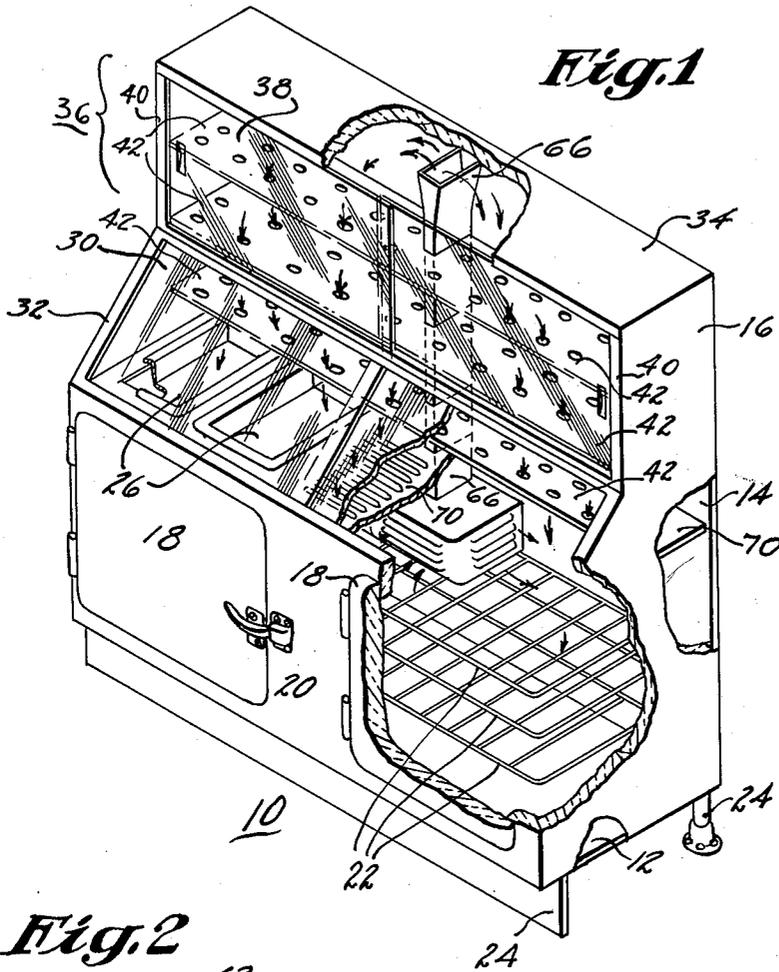


Fig. 2

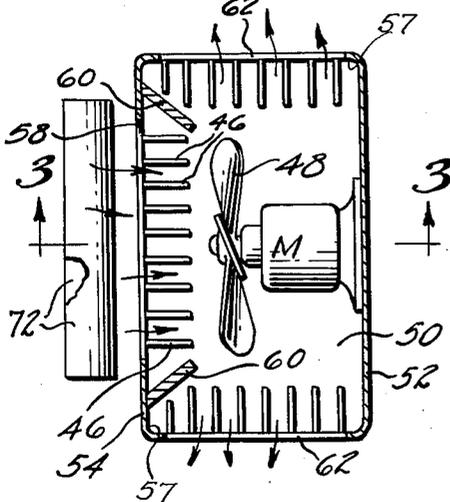
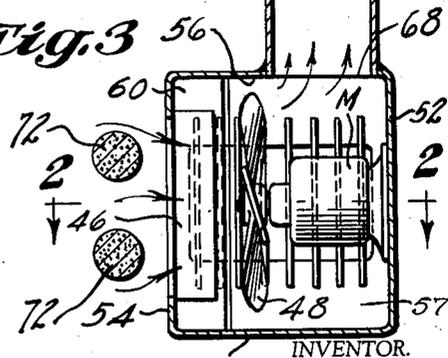


Fig. 3



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REFRIGERATED DISPLAY CASE

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3 Claims. (Cl. 62—89.5)

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This invention relates to a refrigerated display case of the type used in restaurants and other institutions for storing various kinds of foods.

One object of the invention is to produce an improved case of this type.

Different types of foods require different degrees of refrigeration and are best displayed in particular locations.

It is therefore a further object of the invention to produce an improved display case which provides various degrees of refrigeration and a variety of display locations so as to be "flexible" or versatile in its use.

A still further object is to produce an improved refrigerated case which provides ample storage and display space and in which the storage and display space are efficiently and adequately refrigerated by means of a single refrigerated unit located, out of view, within the storage space and operable to cool the storage space as well as the display space.

These and other objects are attained by my invention as set forth in the following specification and as shown in the accompanying drawings in which:

Fig. 1 is a perspective view of a refrigerated show case embodying the invention certain parts being broken away to show details of construction.

Fig. 2 is an enlarged, horizontal sectional view of the refrigerating unit, this view being taken on line 2—2 on Fig. 3.

Fig. 3 is a vertical sectional looking in the direction of line 3—3 on Fig. 2.

In the drawing there is shown a display case including a lower, elongated compartment 10 to which is formed a bottom wall 12, a back wall 14, end walls 16 and access may be had through one or more doors 18 provided in the front 20 of the cabinet. The interior of the cabinet is provided with storage shelves 22 which are made of wire or of perforated sheet metal so as to permit passage of air therethrough. The walls of the cabinet, as well as the doors, are suitably insulated and the entire cabinet rests on suitable legs 24.

The top of the cabinet is in the nature of a frame defining a plurality of openings for receiving pans or trays 26 only two of which are shown in the drawings but it will be understood that substantially the entire top of the cabinet is covered with pans. The pans are provided with rims which engage the edges of the respective openings detachably to mount the pans in position.

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The space above the pans 26 is enclosed by extension of the rear wall 14 and the end walls 16 and by slanted, horizontally slidable panels 30 mounted for movement in a front, slanted frame 32.

The end walls 16 and the back wall 14 are extended further upwardly to form, in conjunction with the top 34, a vertical substantially rectangular cabinet 36 which overlies the rear, or distal portions of the pans, as shown in Fig. 1. The front of this cabinet is closed by horizontally sliding panels 38 mounted in a front frame 40. The panels 30 and 36 are preferably made of glass or other transparent material.

This interior of the cabinet 36 is provided with vertically spaced, horizontal shelves 42 which are perforated, as shown, or which are otherwise formed to permit full passage therethrough.

Within the lower cabinet 10, there is a refrigerating unit including an evaporator coil 46, supplied with refrigerant in the well known manner which need not be shown or described, and a blower 48 actuated by a motor M. The coil and blower are enclosed by a bottom wall 50, a back wall 52, a front wall 54, top wall 56, and end walls 57. The front wall 54 is provided with an air intake opening 58 having deflecting vanes 60 and the opposite end walls are provided with air outlet openings 62. Assuming that the top wall 56 is imperforate, the rotation of the blower will pull air in through the intake opening 58 and between the turns of the portion of the coil corresponding thereto, and will force the air out through the end outlets 62 and between the turns of the portion of the coil corresponding thereto. The cold air will be thus circulated only in the interior of the lower cabinet 10 so as to cool food placed on shelves 22 and so as to cool the bottoms of the pans 26 which depend into the cabinet.

In order to cool the food stored on shelves 42 and in the upper cabinet 36, I provide a duct or flue 66 which leads from an opening 68 formed in the top wall 56 of the refrigerating unit, through the top of lower cabinet 10 and through perforated shelves 42, to a point near the top wall 34 of the upper cabinet 36. It will be noted that the portion of the top of the lower cabinet adjacent the flue 66 is formed of perforated or louvered sheet metal 70 so as to permit air movement therethrough. Also, the duct 66 preferably flares upwardly as shown in Fig. 1.

The operation is as follows:

The food to be stored is placed on lower shelves 22 and the food to be displayed is placed in pans 26 at the top of lower cabinet 10 and on shelves

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42 in upper cabinet 36. The various foods are placed in the pans 26 or on one or the other of shelves 42 according to the refrigeration requirement. For example foods which need to be kept relatively cold are placed in pans 26 the bottoms of which are cooled by the air forced through the evaporator coil, or such foods may be placed on the uppermost shelf 42 so as to be subjected to the action of cold air flowing out through the top of duct 66. Other foods which need relatively less refrigeration can be placed on the remaining shelves 42. When the motor M is energized the blower 48 draws air inwardly through the front opening 58 and forces the air out through end outlets 66 and through duct 66. The air moving out through end openings 62 cools the food stored in the lower cabinet 10 and cools the bottoms of the pans 26. The air flowing through duct 66 cascades downwardly over the food on the uppermost shelf 42 and, by flowing through the perforations in this shelf and in the shelves therebelow, the air comes in contact with the foods on the intermediate and lower shelves, until, finally, the air flows over the surfaces of the pans 26.

The action of blower 48 creates reduced pressure in the front portion of lower cabinet 10 and this causes air from the space above pans 26 to flow downwardly through the perforated or louvered coverpiece 70. By this arrangement, the air which flows upwardly through duct 66 is, except for leakage, returned into the cabinet and recirculated through the refrigerating coil.

By flaring the duct 66 upwardly, or by giving it a Venturi effect, the circulation of the air is facilitated.

In order to eliminate or minimize contamination of one food by odors from another food, one or more cartridges 72 of activated charcoal, or other suitable deodorant may be placed in the path of the circulated air, such for example, as in front of intake opening 58.

What I claim is:

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1. A refrigerated display case including a lower storage compartment and an upper storage compartment, a horizontal partition located between said compartments and having its center portion perforated, a perforated shelf located above said partition and extending horizontally across said upper compartment at a point below the top wall of said upper compartment, a refrigerating unit within said lower compartment, a casing enclosing said refrigerating unit and having an air inlet in one side wall thereof, an air outlet in another side wall thereof, and an air outlet in the top wall thereof, a blower for drawing air from the interior of said lower compartment into contact with said refrigerating unit, to cool the same, and for discharging the cooled air through said outlets, and a flue leading from the outlet in the top wall of said casing to a point above said perforated shelf.

2. The structure recited in claim 1 in which the upper end of said flue has a larger flow capacity than the lower end thereof.

3. The structure recited in claim 1 in which said refrigerating unit and said casing are located substantially centrally of said lower compartment, and said flue is located substantially centrally of said upper compartment.

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