March 28, 1950 A. J. MAAS 2,502,163

SELF-SERVICE REFRIGERATED FOOD CASE

Filed Jan. 19, 1949

Fig. 1.

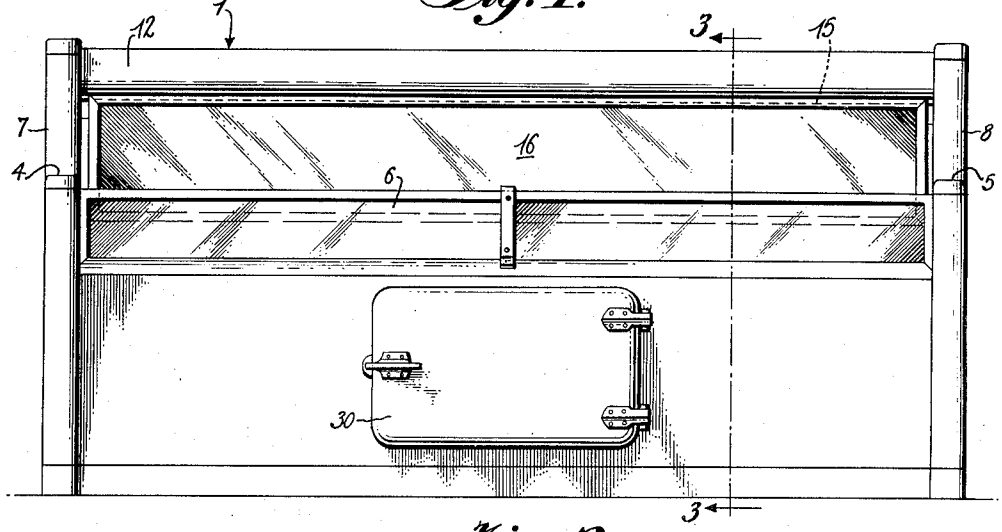


Fig. 2.

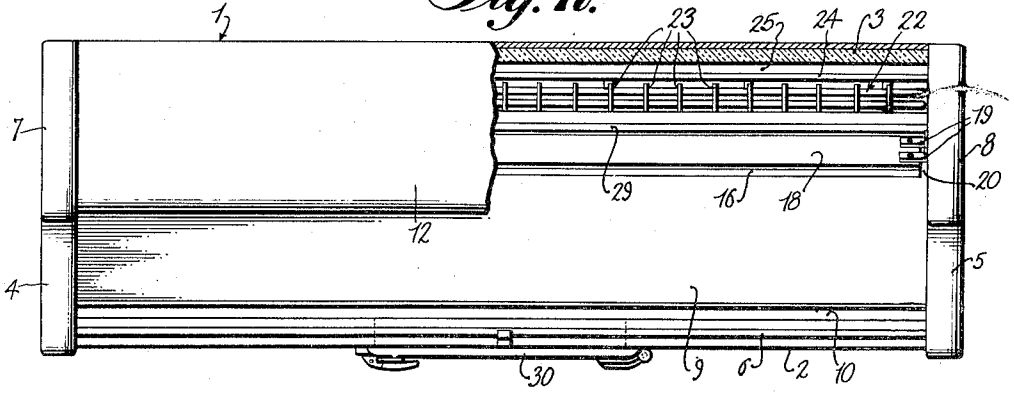
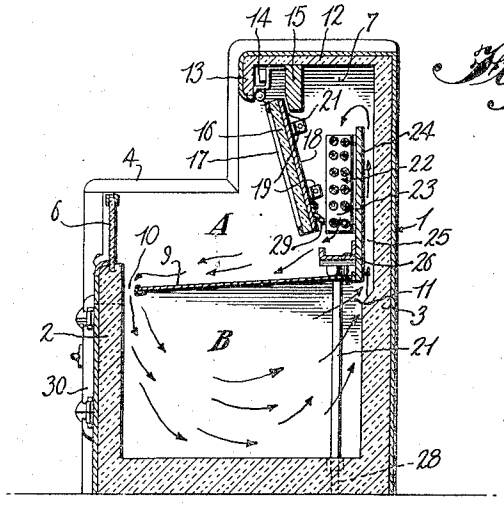


Fig. 3.



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SELF-SERVICE REFRIGERATED FOOD CASE

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5 Claims. (Cl. 62—89.6)

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This invention relates to a self service refrigerated food case of the general type, having an open compartment above for trays or baskets of meat or vegetables, and a normally closed storage compartment below with one or more doors, giving access to its contents, there being an inclined mirror in conjunction with the upper compartment for reflecting its wares, and a refrigeration system for recirculating chilled air in relation to the open and storage compartments, including a refrigerating coil above the open compartment and behind the mirror.

One of the objects of the present invention is to provide in a food case of the type described, means for entraining fresh air with its inherent humidity with the recirculating air at such point and in such manner that it passes through the coil and is chilled immediately prior to its discharge into the upper compartment, whereby the benefits of its humidity are imparted to the contents of the upper compartment.

Another object of the invention is to provide a definite circulatory path for the refrigerated air sequentially downwardly across the upper compartment, through the storage compartment and upwardly to the refrigerating coil.

Other objects of the invention will appear as the following description of a preferred and practical embodiment thereof proceeds.

In the drawing throughout the several figures of which the same reference characters have been used to denote identical parts:

Figure 1 is a front elevation of a refrigerated food case embodying the principles of the invention;

Figure 2 is a plan view, part of the top wall and back wall being broken away;

Figure 3 is a cross-section taken along the line 3—3 of Figure 1.

Referring now in detail to the several figures, the food case comprises a cabinet in general designated by the numeral 1, having a front wall 2, back wall 3, and end walls 4 and 5. The upper portion of the front wall comprises the glass panel 6. The rear portions of the end walls 4 and 5 extend to a higher level than the front wall 6 toward the rear, the extensions being designated as 7 and 8.

A transverse partition 9 divides the chamber of the cabinet into two compartments, an upper open type display case A, Figure 3, and a lower storage chamber B. The partition 9 serves as a support for meat trays or vegetable baskets displayed in the upper compartment. The partition 9 terminates short of the front and back

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walls 2 and 3 of the cabinet, so as to leave front and rear air passages 10 and 11 communicating between the compartments.

The cabinet is provided with a top wall 12, extending between the end wall extensions 7 and 8, and joining the back wall. This top wall overhangs the rear portion of the upper compartment A and has a depending flange 13 at the front, behind which a lighting fixture 14 is arranged. A reinforcing member or beam 15 extends from end to end of the cabinet beneath the top wall 12 and in engagement therewith. Below the beam 15 is a mirror unit 16 comprising a mirror 17 on its forward side and a backing 18 of heat insulating material at its rear. The mirror unit is substantially planiform, and extends longitudinally of the cabinet, being secured to the end walls by the clips 19 Figure 2, so as to be slightly spaced from the end walls, leaving end passages 20, one of which is shown in Figure 2. The mirror unit is out of contact with the beam 15, leaving a longitudinal passage 21 between said beam and mirror unit and which inclines downwardly toward the coil 22.

The mirror unit, beam and the adjacent portions of the end, top and back walls of the cabinet form a hood to which fresh air has access through the end passages 20 and the air passage 21. Behind the mirror unit 16 and spaced therefrom, is the refrigerating coil 22, having the cross fins 23. Behind the coil 22 is an upright baffle 24, which extends from the rear side of the partition 9 to a point within the hood adjacent the top of the coil 22. Said baffle defines with the back wall of the cabinet a flue 25, communicating with the rear air passage 11, and discharging into the hood in the region of the top of the refrigerating coil. In the example shown, the baffle 24 extends from end to end of the cabinet, the refrigerating coil being substantially the same length. A drip pan 26 underlies the coil 22 and has a drain pipe 27 leading to the bottom of the storage compartment which itself is provided with a drain 28, leading to the exterior.

The mirror unit is inclined downwardly toward the coil 22 and carries a longitudinal baffle 29, which closes the space between the mirror unit and coil.

The upper compartment is open from the top of the glass panel 6 to the lower end of the flange 13, and the lower compartment has one or more doors, one of which, designated as 30, is shown by way of example.

Referring now to the operation of the food case, the position of the refrigerating coil 22

within the hood sets up a thermosiphonic recirculation of refrigerated air which falls through the coil, passes across the upper compartment A, descends through the front air passage 10 into the storage chamber, traverses the storage chamber generally from front to rear, and then having become somewhat warmed, it ascends through the flue 25 and spills over from the top of the flue entering the coil 22. The thermosiphonic recirculation of air entrains fresh air, which enters the hood through the passage 21 and the end passages 20. This air being derived from the atmosphere of the store, is more humid than the more or less dehydrated recirculation air. It is guided toward the coil by the inclined mirror unit and the baffle 29, where it is chilled, and from which it passes over the contents of the upper compartment A, condensing its water vapor upon the meat or vegetables therein openly displayed, or preventing them from losing their inherent moisture.

The thermosiphonic circulatory system provided by the invention has the advantage that the cold air sweeping over the contents of the trays or baskets upon the partition 9, is drawn through the front passage 10 into the storage chamber, instead of spilling over the glass panel 6, thus markedly increasing the refrigerating efficiency of the case.

While I have in the above description defined what I believe to be a preferred and practical embodiment of the invention, it will be understood by those skilled in the art that the details of construction and arrangement of parts, as shown and described, are by way of illustration and not to be construed as limiting the scope of the invention.

What I claim as my invention is:

1. In a self serve refrigerated food case, a cabinet having an intermediate transverse partition dividing said cabinet into an upper refrigerated open type compartment and a lower refrigerated storage compartment, said cabinet having front, back and end walls, the back and end walls extending higher than the front wall, said cabinet having front and rear air passages between said compartments, a top wall connecting said end and back walls overhanging the rear portion of said upper compartment, a front panel beneath said top wall defining with said top, back and end walls a hood, a refrigerating coil within said hood behind said front panel, a baffle extending upward from the rear of said partition behind said coil defining a flue communicating with said rear air passage and with said hood adjacent the top of said coil, whereby thermosiphonic air recirculation is established downward from said coil across said upper compartment, through said front air passage, said storage compartment, and upward through said flue, said hood having a longitudinal air passage through said front panel adjacent said top wall, and between said front panel and said end walls, said front panel being inclined downwardly toward said coil, whereby fresh air is induced through said longitudinal passage and through the passages between said front panel and said end walls by the thermosiphonic flow and guided to said coil by said front panel.

2. In a self serve refrigerated food case, a cabinet having an intermediate transverse partition dividing said cabinet into an upper refrigerated open type compartment and a lower refrigerated storage compartment, said cabinet having front, back and end walls, the back and end walls extending higher than the front wall, said cabinet having front and rear air passages between said compartments, a top wall connecting said end and back walls overhanging the rear portion of said upper compartment, a longitudinal beam beneath said top wall extending between said end walls, a mirror unit defining with said top, back and end walls, and beam, a hood, a refrigerating coil within said hood behind said mirror unit, a baffle extending upward from the rear of said partition behind said coil defining a flue communicating with said rear air passage and with said hood adjacent the top of said coil, whereby thermosiphonic air recirculation is established downward from said coil across said upper compartment, through said front air passage, said storage compartment, and upward through said flue, said mirror unit being spaced from said beam and inclined downwardly toward said coil, whereby fresh air is induced through the space between said mirror and beam by the thermosiphonic flow, and guided to said coil by said mirror unit.

3. In a self serve refrigerated food case, a cabinet having an intermediate transverse partition dividing said cabinet into an upper refrigerated open type compartment and a lower refrigerated storage compartment, said cabinet having front, back and end walls, the back and end walls extending higher than the front walls, said cabinet having front and rear air passages between said compartments, a top wall connecting said end and back walls overhanging the rear portion of said upper compartment, a longitudinal beam beneath said top wall extending between said end walls, a mirror unit defining with said top, back and end walls, and beam, a hood, a refrigerating coil within said hood behind said mirror unit and spaced therefrom, a baffle extending upward from the rear of said partition behind said coil defining a flue communicating with said rear air passage and with said hood adjacent the top of said coil, whereby thermosiphonic air recirculation is established downward from said coil across said upper compartment, through said front air passage, said storage compartment, and upward through said flue, said mirror unit being spaced from said beam and inclined downwardly toward said coil, a baffle between the lower portion of said mirror unit and said coil closing the space between them, fresh air being induced through the space between said mirror unit and beam by the thermosiphonic flow and guided to said coil by said mirror unit and baffle.

4. In a self serve refrigerated food case, a cabinet having an intermediate transverse partition dividing said cabinet into an upper refrigerated open type compartment and a lower refrigerated storage compartment, said cabinet having front, back and end walls, the back and end walls extending higher than the front wall, said cabinet having front and rear air passages between said compartments, a top wall connecting said end and back walls overhanging the rear portion of said upper compartment, a longitudinal beam beneath said top wall extending between said end walls, a longitudinally extending mirror unit beneath said top wall and spaced from said end walls, defining with said top, back and end walls, and beam, a hood, a refrigerating coil within said hood behind said mirror unit, a baffle extending upward from the rear of said partition behind said coil defining a flue communicating with said rear air passage and with said hood adjacent the top of said coil, whereby thermosiphonic air recirculation is established downward from

said coil across said upper compartment, through said front air passage, said storage compartment, and upward through said flue, said mirror unit being spaced from said beam and inclined downwardly toward said coil, whereby fresh air is induced through the space between said mirror unit and beam and the spaces between said mirror unit and said end walls by the thermosiphonic flow, and guided to said coil by said mirror unit.

5. In a self serve refrigerated food case, a cabinet having an intermediate transverse partition dividing said cabinet into an upper refrigerated open type compartment and a lower refrigerated storage chamber, said cabinet having front, back and end walls, the back and end walls extending higher than the front wall, said cabinet having front and rear air passages between said compartments, a top wall connecting said end and back walls overhanging the rear portion of said upper compartment, a longitudinal beam beneath said top wall extending between said end walls, a longitudinally extending mirror unit beneath said top wall and spaced from said end walls, defining with said top, back and end walls, and beam, a hood, a refrigerating coil within said hood behind said mirror unit and spaced therefrom, a baffle extending upward from the

rear of said partition behind said coil defining a flue communicating with said rear air passage and with said hood adjacent the top of said coil, whereby thermosiphonic air recirculation is established downward from said coil across said upper compartment, through said front air passage, said storage compartment, and upward through said flue, said mirror unit being spaced from said beam and inclined downwardly toward said coil, a baffle at the lower end of said mirror unit closing the space between said mirror unit and coil, fresh air being induced through the space between said mirror unit and beam and through the spaces between said mirror unit and end walls by the thermosiphonic flow, and guided to said coil by said mirror unit and baffle.

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