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REFRIGERATED DISPLAY CASE

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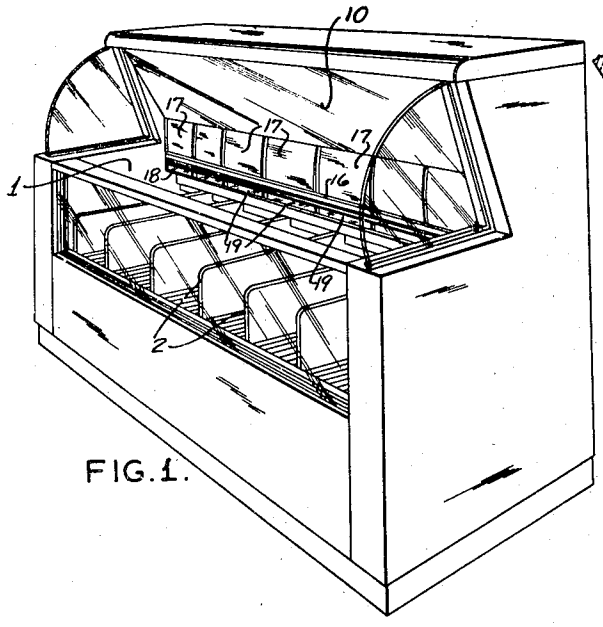


FIG. 1.

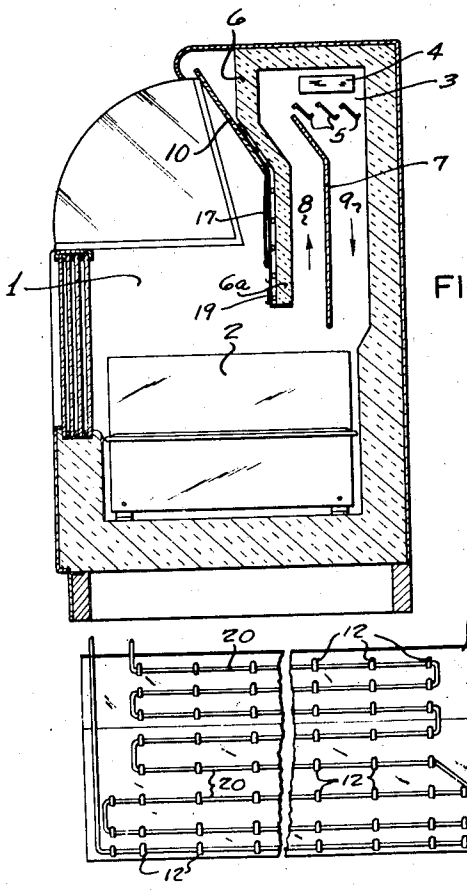


FIG. 2.

FIG. 4.

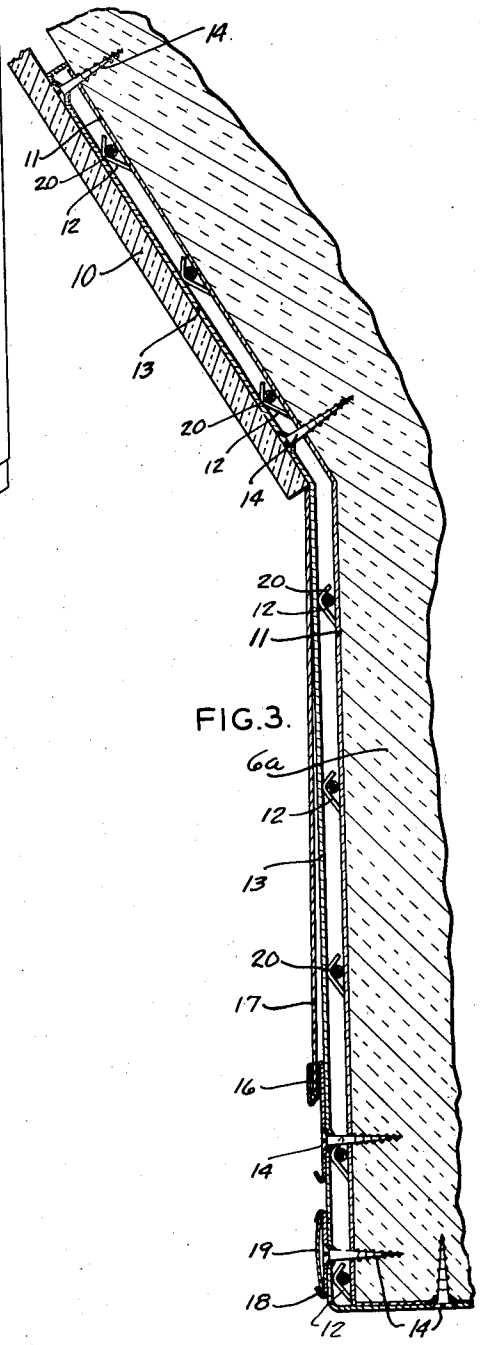


FIG. 3.

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REFRIGERATED DISPLAY CASE

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10 Claims. (Cl. 62—89.5)

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This invention relates to refrigerated display cases of the open-top, self-service type having a lower, upwardly opening display chamber, an upper chamber opening downwardly into said display chamber at the back thereof, a cooling unit in said upper chamber, and sometimes also a cooling unit in said display chamber when it is desired to maintain a sub-zero temperature therein for frozen merchandise.

In the above type of case, the upper chamber has an insulated front wall whose lower edge is disposed adjacent to or below the level of the top of the lower display chamber; and the front face of this insulated front wall is covered by a sheet metal covering or facing on which is exhibited printed cards or pictures for conveying information concerning the food or other merchandise in said display chamber. This metal display panel is kept cold by radiation from the cold food display chamber located therebelow and is exposed to surges of the warmer room air created by persons passing by the case or taking food from the display chamber, thereby causing condensation of moisture on said display panel and the pictures and/or cards, etc., thereon to become saturated with moisture and present an unsightly appearance and to fall off said panel when they are adhesively secured thereto. This moisture also drips from the lower edge of the metal display panel onto the food in the display chamber; and it also forms into icicles on the lower edge of said display panel when the display chamber is held at a sub-zero temperature.

The principal object of the present invention is to provide the upper chamber of a case of the above type with a front wall construction that will overcome all of the disadvantages hereinbefore referred to. Other objects are simplicity and cheapness of construction and compactness of design. The invention consists principally in associating with the front wall of the upper chamber an electric heater which will maintain the temperature of the metal covering and display panel portion of said wall above the dew point of the surrounding air and thus prevent condensation of moisture on the said display panel and the pictures or cards thereon.

The invention also consists in heating said display panel by means of electric resistance wires or cables; it also consists in the manner of supporting said heating cables; and it also consists in the parts and in the combinations and arrangements of parts hereinafter described and claimed.

In the accompanying drawings, which form part of this specification and wherein like symbols refer to like parts wherever they occur,

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Fig. 1 is a perspective view of a refrigerated display case embodying my invention.

Fig. 2 is a vertical cross-sectional view through said case,

Fig. 3 is an enlarged fragmentary vertical cross-sectional view through the front wall of the upper chamber of said case; and

Fig. 4 is a front elevational view of the sheet metal facing for said front wall, showing the electric resistance wire mounted on said facing.

In the accompanying drawings, my invention is shown embodied in an open-top, self-service refrigerated display case comprising a lower, upwardly opening food display chamber or compartment 1, a series of upright plate type refrigerating coils 2 forming partitions in said chamber, an upper chamber or compartment 3 opening downwardly into said lower, food display chamber at the back thereof, a fin-type cooling coil 4 in the upper portion of said upper chamber, and gutters 5 disposed beneath said fin-coil. The upper chamber 3 has an insulated front wall 6 with a rearwardly offset lower portion 6a that extends downwardly into the lower, food display chamber 1, and an upright longitudinal partition wall 7 that divides said upper chamber below the gutters 5 therein into front and back flues 8 and 9, respectively. With this arrangement, there is a continuous circulation of refrigerated air downwardly from the upper fin coil cooling unit 4 through the back flue 9 into the lower display chamber 1 and a return flow of said air from said display chamber upwardly through the front flue 8 to said upper fin coil cooling unit, thereby maintaining the temperature in said display chamber low enough for the preservation of the frozen foods contained therein. Secured to the front face of the front wall 6 of the upper chamber is a mirror 10 which inclines rearwardly and downwardly from the top of said chamber to the rearwardly offset lower end portion 6a of said front wall.

As shown in the drawings, the front face of the rearwardly offset vertical lower portion 6a of the front wall 6 of the upper chamber 3 is covered by a sheet metal facing 11 having a multiplicity of upwardly and outwardly inclined tongues 12 struck therefrom, these tongues being preferably arranged in vertically spaced horizontal rows. A metal display panel 13 covers the facing panel 11 and is spaced therefrom by the outstanding tongues 12 thereon. The facing panel 11 and display panel 13 are secured to the lower portion 6a of the insulated front wall 6 of the upper chamber 3 by means of screws or other fastening devices 14. As shown in the drawings,

the display panel 13 may be provided with a suitable clip or molding 16 for supporting pictures 17 and a suitable supporting clip or molding 18 for price tags 19 or, if desired, such matter may be adhesively or otherwise secured to the outer face of said display panel. The metal facing 11 and display panel 13 may be extended upwardly back of the lower portion of the inclined mirror 10.

In order to prevent the condensation of moisture on the display panel 13 and on the pictures and price cards displayed on the outer surface thereof, means is provided for maintaining said display panel at a temperature above the dew point of the surrounding air. Such temperature is maintained by an electrical heater which preferably comprises an electric resistance wire or cable which is looped back and forth from end to end of the lower portion 6a of the front wall 6 of the upper chamber 3 between the metal facing 11 and the metal display panel 13. The horizontal stretches of this electric resistance wire or cable 20 are held in place by the outstanding metal tongues 12 whose free upper end portions are bent rearwardly over the tops of said stretches and clamp them to the front face of said display panel.

By the arrangement described, the electric heater serves to maintain the display panel 13 at a temperature above the dew point of the surrounding room air, thus preventing moisture from condensing on the front face of said display panel and on the pictures and price cards thereon and causing said cards to become saturated with moisture and present an unsightly appearance and become loose from or drop off of said display panel when adhesively secured thereto. This arrangement also eliminates drippage of moisture from the lower edge of the display panel 13 onto the food in the display chamber 1; it also prevents the formation of icicles on said lower edge of said display panel; and it also prevents moisture from condensing on the lower portion of the mirror 10. The tongues 12 serve to space the display panel 13 away from the facing sheet 11 for the front wall 6 of the upper chamber; and they provide means for quickly and easily securing the resistance wires or cable 20 to said wall and for maintaining the loops thereof in proper position.

Obviously, the hereinbefore described construction admits of considerable modification without departing from the invention. Therefore, I do not wish to be limited to the precise arrangements shown and described.

What I claim is:

1. In a refrigerated display case having a refrigerated chamber and a wall disposed in heat exchange relationship to said chamber and having an exposed surface with display cards mounted thereon, the combination of heating means associated with said wall for maintaining said exposed surface and the display cards thereon at a temperature which will prevent moisture in the room air from condensing on said surface and display cards, a metal panel secured to said wall and forming said exposed surface of said wall, said heating means comprising an electric resistance wire interposed between said wall and said metal panel.

2. The combination set forth in claim 1 wherein a metal facing covers the panel opposing face of said wall and said electric resistance wire is located between said metal panel and facing.

3. The combination set forth in claim 1 wherein a metal facing covers the panel opposing face of said wall, said electric resistance wire is interposed between said metal panel and said metal facing has outstanding tongues thereon for supporting said resistance wire.

4. The combination set forth in claim 1 wherein said wall is made of insulating material, a metal panel forms the exposed surface of said wall, a metal facing covers the panel opposing face of said wall, said electric resistance wire is looped back and forth between said metal panel and facing and said facing has tongues struck therefrom that are bent around said wire to support and position it on said facing.

5. In a refrigerated display case of the kind having a lower, upwardly opening refrigerated food display chamber, and a depending wall above the rear portion thereof in position to be chilled by the cold air therefrom, the combination of heating means associated with said wall for maintaining the exposed front surface thereof at a temperature which will prevent moisture in the room air from condensing on said surface.

6. The combination set forth in claim 5 wherein a mirror inclines downwardly and rearwardly in front of said wall and terminates above the bottom thereof, said exposed front surface of said wall is adapted to support display cards below said mirror and said heating means comprises an electric heating element embodied in said wall back of said display card supporting surface and the lower portion of said mirror.

7. The combination set forth in claim 5 wherein a metal panel forms the exposed surface of said wall and said heating means comprises an electric resistance wire interposed between said wall and said metal panel.

8. The combination set forth in claim 5 wherein a metal panel forms the exposed surface of said wall, a metal facing covers the panel opposing face of said wall and the heating means comprises an electric resistance element located between said metal panel and facing.

9. The combination set forth in claim 5 wherein a metal panel forms the exposed surface of said wall, a metal facing covers the panel opposing face of said wall, the heating means comprises an electric resistance wire interposed between said metal panel and said metal facing has outstanding tongues thereon for supporting said resistance wires.

10. The combination set forth in claim 5 wherein said wall is made of insulating material, a metal panel forms the exposed surface of said wall, a metal facing covers the panel opposing face of said wall, the heating means comprises an electric resistance wire looped back and forth between said metal panel ad facing and said facing has tongues struck therefrom that are bent around said wire to support and position it on said facing and to space said metal panel from said facing.

DONALD E. RUTISHAUSER.

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