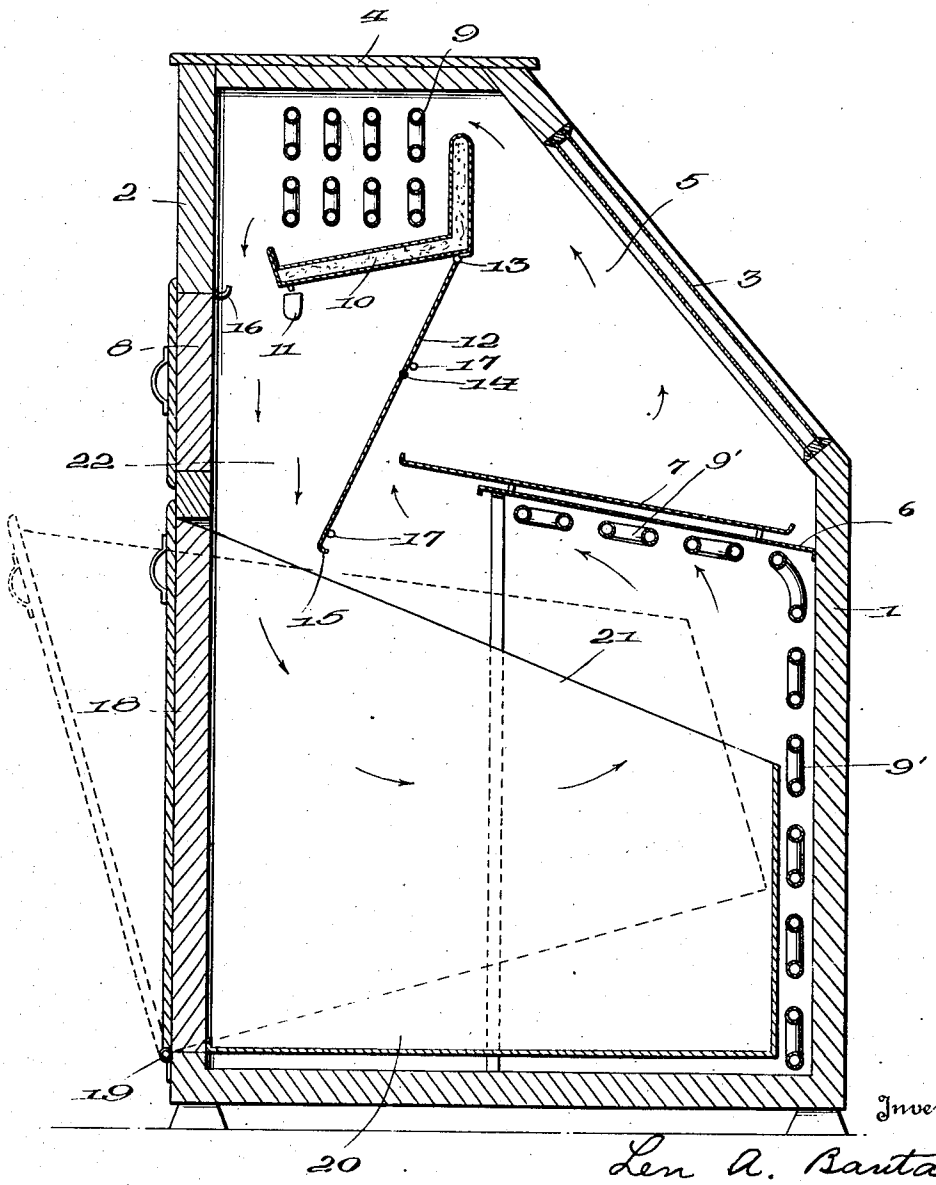
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REFRIGERATOR DISPLAY CASE

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Inventor

Len A. Banta

By Vernon E. Hodges

his Attorney

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REFRIGERATOR DISPLAY CASE

Len A. Banta, Clearfield, Pa., assignor of one-half to Hussmann-Ligonier Company, St. Louis, Mo., a corporation of Delaware

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This invention relates to an improvement in refrigerator display cases, and is designed primarily for the display and storage of frozen food products, such as meat, fruits, vegetables, etc.

With the coming in to use of packages containing frozen meats, it was found not to be practical to use the types of display cases which had been in use heretofore for the display of meats which had not been frozen and were not packaged.

It is desirable to provide a display space under or behind a glass wall wherein packaged frozen meats and other food products may be displayed in pans. This display space, however, is not designed as a service compartment but is to be used for display purposes only. The lower part of the case under the display portion is provided with storage compartments formed of a series of tilting bins, set close together, so as to occupy practically the entire area of the storage space. The bins are carried by hinged doors and are intended to contain the packaged frozen meats or the like for sale, and the packaged meats are sold from the bins and not from the display space.

The disposition of cooling coils or the like in the upper portion of the case, above the storage space, causes the cold air to be directed down into the storage compartment from where it is recirculated back through the display compartment.

Provision is made to protect the display space from any inrush of warm air when the tilting bins are opened, thus preventing condensation on the glass of the case.

In display cases of this character, designed to carry temperatures well below the freezing point, it has been difficult to provide openings for service due to the extreme difference in the temperature between the inside of the case and the outside. The ordinary door openings soon become covered with sweat due to excessive interchange of temperature, and wooden doors soon swell up and will not fit properly. This is avoided in the present invention by protecting the case from any inrush of warm air to a substantial extent and by the supporting of the bins at the inside of the hinged dors.

The accompanying drawing is a sectional view through a display case showing the invention applied thereto.

The display case is provided with a front wall designated by the numeral 1, having the upper portion inclined toward the back wall 2 and having a transparent portion 3. The top 4 of the case may be removable if desired.

Arranged beneath and behind the transparent portion 3 is a display space or compartment designated generally by the numeral 5, having a bottom 6, which forms a partition in the case and which closes the bottom of the display space at the front, the bottom 6 extending from the front wall 1 toward the rear wall 2 and receives and supports display pans 7 slightly spaced from the bottom 6 to allow air circulation therebetween and which pans are arranged in the display space 5 to contain the packaged meat or other articles to be displayed. A door 8 is arranged in the rear wall 2 to gain access to the display space 5.

The usual cooling coils or other refrigerating means is arranged beneath the top 4 and is designated generally by the numeral 9, which shows refrigerating coils, although other means of cooling may be employed instead of these coils. Cooling coils 9' are arranged beneath the bottom 6 in close proximity thereto to cool the same and also along the front wall 1. An insulated coil pan 10 is arranged beneath and behind the coils 9 in the usual way with a cup 11 beneath the pan 10 to receive the condensation from the coils.

A folding baffle 12 forms a door for the back of the display compartment and has its upper edge hinged to the forward edge of the pan 10, as at 13, and the sections comprising it are hinged together as at 14, depending from the pan 10, as shown in the drawing. The lower end of the sectional baffle 12 may be provided with a hook 15 to engage a hook 16 secured within the back wall 2 above the door 8 to hold the baffle in an elevated position. Suitable stops, as shown at 17, may be arranged within the display case to hold the baffle 12 in its proper position.

The lower portion of the display case comprises a storage compartment or space. Doors 18 are hinged at their lower edges as at 19 to the back wall of the case, and supported by and extending forwardly from these doors 18 are bins 20 adapted to receive and contain packaged frozen meat or the like.

The bins 20 have the upper edges thereof inclined as at 21, so that as the doors 18 are tilted outwardly carrying the bins, the upper edges of the latter engage the upper edges of the door openings to limit the outward tilting of the bins.

The cold air from the cooling means 9 passes down through the chute 22 formed between the rear wall 2 and the sectional baffle 12. The baffle 12 deflects this cold air into and around the bins 20, which in turn forces up the warmer air on the opposite side out of the tilting bins, which air will be directed by the sheet metal bottom plate 6 of the display space under the pans and back between the rear edge of the bottom plate

6 and the sectional baffle 12 into the display space 5. The air rises along the back of the baffle 12 and along the inclined glass section 3 due to the heat absorption of the glass, passing over the insulated baffle pan 10 into the cooling space around the coils 9.

By reason of the fact that the cold air is directed down into the bins and the warm air is forced up through the display space of the case, thus preventing the colder air from coming in contact with the glass, any tendency of the glass to condense the moisture in the air is substantially reduced.

The sectional baffle 12 is preferably made of sheet metal, and that is also true of the tilting bins 20. As the doors 18 are opened, the upper edges 21 of the bins may engage the hook-shaped lower end 15 of the sectional baffle, which will prevent any sudden inrush of warm air into the display compartment or exit of cold air therefrom, while the cold air from the cooling space will continue to pass into the bins. The tilting of the doors and bins opens the lower compartment only sufficiently to gain access thereto, thus reducing to a minimum the escape of cold air. The attaching of the tilting bins to the doors causes the weight of the packaged meat to act on the bin to hold the doors tightly closed, thus substantially increasing the insulation of the case. The circulation of the air in contact with the sheet metal bottom wall 6 of the display space cools that space by radiation to a greater extent than it may be cooled by the circulation of air and also prevents the condensation on the glass 3. The cooling of the display space by radiation rather than circulation also reduces to a substantial extent the drying out and discoloration of the meat kept in the display space.

The cooling coils 9' may be omitted if found desirable or cooling coils above the bottom 6 and under the display pans, or along the back of the display compartment may be provided if desired.

I claim:

1. In a refrigerator display case, a door, means for hinging the lower edge of the door to the case, a bin attached to the door and extending into the case therefrom, cooling means arranged within the case above the bin, and means for directing cooling air into cooling relation with the bin.

2. In a refrigerator display case, a door, means for hinging the lower edge of the door to the case, a bin carried by the door and extending forwardly therefrom into the case to be tilted by an opening of the door, and refrigerating means arranged above the bin and having means associated therewith for directing cooling air about the bin.

3. In a refrigerator display case, a storage compartment, a display compartment arranged above the storage compartment, means arranged approximately horizontally for dividing the display and storage compartments from each other, and having a circulating air opening therebetween, and a refrigerating compartment communicating with the upper end of the display compartment for receiving the warm air therefrom and communicating with the storage compartment for directing the cooling air into the storage compartment before it passes into the display compartment.

4. In a refrigerator display case, a storage compartment arranged in the lower portion of the case, a display compartment arranged above the storage compartment, a baffle wall separating the display and storage compartments from each other and permitting the circulation of cooling air therebetween, a refrigerating chamber communicating with the upper end of the display compartment for receiving the warmed air therefrom, refrigerating means within the refrigerating chamber, and means for directing the cooled air from the refrigerating chamber into the storage compartment before it passes into the display compartment.

5. In a refrigerator display case, a storage compartment arranged in the lower portion of the case, a display compartment arranged above the storage compartment, a baffle wall for separating the display and storage compartments from each other and allowing communication of cooling air therebetween, a transparent wall at the front of the display compartment and inclined toward the rear of the case, a refrigerating chamber communicating with the display compartment at the top thereof for receiving warmed air therefrom, refrigerating means within said refrigerating chamber, and means for directing the cooled air into the storage compartment before it has passed into the display compartment.

6. In a refrigerator display case, a refrigerating chamber, refrigerating means within said chamber, a baffle wall arranged about at least a portion of said refrigerating chamber, a storage compartment arranged in the lower portion of the case, and a baffle arranged at the lower edge of the baffle wall and extending downwardly therefrom toward the storage compartment for directing the cooling air from the refrigerating compartment into the storage compartment.

7. In a refrigerator display case, a refrigerating chamber, refrigerating means within said chamber, a door, means for hinging the lower edge of the door to the case, a bin carried by the door and extending forwardly therefrom into the case, and a baffle extending downwardly from the refrigerating chamber toward the bin for directing the cooling air from the chamber into the storage bin.

8. In a refrigerator display case, a refrigerating chamber in the upper portion thereof, refrigerating means within said chamber, a display space arranged at the front of the case, and a folding sectional baffle extending downwardly behind the display space forming a chute at the back thereof for directing the cooling air from the refrigerating chamber downward to a point below the display space.

9. In a refrigerator display case, a storage compartment arranged in the lower portion thereof, a display compartment arranged above the storage compartment and at the front of the case, a refrigerating chamber arranged in the upper portion of the case, refrigerating means within the refrigerator chamber, and a folding sectional baffle arranged between the refrigerating chamber and the storage compartment, and forming an air chute behind the display compartment for directing the cooling air from the refrigerating chamber and downward into the storage compartment.

10. In a refrigerator display case, a storage compartment arranged in the lower portion thereof, refrigerating means within said storage compartment, a display compartment above the storage compartment and communicating with the storage compartment, and refrigerating means arranged in the upper portion of the case and having a warm air communication with the

display compartment, and a cold air communication with the storage compartment.

11. In a refrigerator display case, the combination of a display chamber, a door at the back of the display chamber for gaining access thereto, and a baffle interposed between the door and the display chamber for directing cooling air about the display chamber and having at least a portion thereof movable out of the space between the door and display chamber.

12. In a refrigerator display case, the combination of a display chamber, a cooling chamber, a door at the back of the display chamber for gaining access thereto, and a baffle interposed between the door and the display chamber for directing cooling air downward from the cooling chamber and about the display chamber, said baffle having at least a portion thereof movable out of the space between the door and the display chamber.

13. In a refrigerator display case, the combination of a display chamber, a cooling chamber above and at the back of the display chamber, a door at the back of the display chamber for gaining access thereto, and a sectional folding baffle suspended from the cooling chamber behind the display chamber and between said display chamber and the door for directing cooling air downward and about the display chamber, said baffle normally preventing access to the display chamber through the door and being movable to permit access thereto.

14. In a refrigerator display case, the combination of a display chamber having an opening in a side thereof, a door for gaining access to the display chamber through said opening, a cooling chamber located above the display chamber, and a baffle interposed between the door and opening for directing cooling air from the cooling chamber downward to a point below the display chamber and into the display chamber at the lower edge thereof.

15. In a refrigerator display case, the combination of a display chamber having an opening in a side thereof, a door for gaining access to the display chamber through said opening, a cooling chamber located above the display chamber, cooling means for said cooling chamber, and a movable baffle interposed between the door and opening for directing cooling air from the cooling chamber downward behind the display chamber and into the display chamber approximately at the lower edge thereof.

16. In a refrigerator display case, the combination of a storage compartment arranged in the lower portion thereof, a display compartment above the storage compartment and communicating therewith, and refrigerating means in the upper portion of the case and having a warm air communication with the display compartment and a cold air communication with the storage compartment.

17. In a refrigerator display case, the combination of a display compartment, a storage space beneath and communicating with the display compartment, a door for gaining access to the storage space and arranged adjacent and directly open to the communication between the storage and display compartments, and means for preventing an inrush of warm air into the display compartment upon substantial opening of said door.

18. In a refrigerator display case, the combination of a display compartment, a storage space beneath and communicating with the display compartment, a baffle for directing cooling air into the storage space, a door for gaining access to the storage space, and a bin carried by the door and engaging the baffle upon substantial opening of the door preventing an inrush of warm air into the display compartment.

19. In a refrigerator display case, the combination of a display compartment, a second compartment arranged adjacent and communicating with the display compartment, a baffle for directing cooling air into the second compartment, a door for gaining access to the second compartment, and a bin carried by the door and engaging the baffle upon substantial opening of the door preventing an inrush of warm air into the display compartment.

20. In a refrigerator display case, the combination of a display compartment having an opening at a side thereof, a door for gaining access to said display compartment and arranged approximately in horizontal alignment with said opening, and a movable baffle arranged between the door and opening.

21. In a refrigerator display case, the combination of a display compartment having an opening at a side thereof, a door for gaining access to said display compartment and arranged approximately in horizontal alignment with said opening, a second compartment arranged beneath the display compartment, and a baffle interposed between the door and opening and directing cooling air downward between the baffle and the door into the second compartment, said baffle being constructed and arranged to be moved aside to permit access to the display compartment through the door.

22. In a refrigerator display case, the combination of a display compartment having an opening in a side thereof, a second compartment arranged beneath said display compartment and communicating therewith through said opening, a door for gaining access to the second compartment, and arranged adjacent said opening, and a baffle arranged beside the opening in position to prevent an inrush of warm air through said opening into the display compartment upon substantial opening of the door.

23. A refrigerated case comprising a display compartment and a bulk storage compartment, a partition separating said compartments from each other, a door through which access may be had to the storage compartment and arranged for communication with the display compartment, means arranged to approximately close said display compartment against communication with the first-mentioned door when access is being had to said bulk storage compartment, and means for supporting said means for movement out of said position.

24. A refrigerated case comprising a display compartment and a bulk storage compartment, a partition separating said compartments from each other, refrigerating means arranged in close proximity to said partition and extending throughout an extended area of the undersurface thereof, and a supporting medium for articles displayed within said display compartment, said supporting medium being supported by said partition and being maintained in spaced relation with respect thereto to provide a passageway between said partition and said supporting medium for circulating air within the display compartment.

25. A refrigerating display case including a storage compartment having an opening in a wall thereof for permitting access to the interior of

the refrigerating display case, a closure for said opening, a display compartment provided with a transparent wall portion, said opening of the storage compartment and said transparent wall portion of the display compartment being in direct opposed relation, refrigerating means, and a movable baffle interposed between said opening and said transparent wall portion in a manner to prevent substantially all of the warm air which enters the case through said opening when the closure thereof is removed from passing into said display compartment.

26. A refrigerating display case including a storage compartment having an opening in a wall thereof for permitting access to the interior of the refrigerating display case, a closure for said opening, a display compartment provided with a transparent wall portion, said opening of the storage compartment and said transparent wall portion of the display compartment being in direct opposed relation, refrigerating means, and a hinged baffle interposed between said opening and said transparent wall portion in a manner to prevent substantially all of the warm air which enters the case through said opening when the closure thereof is removed from passing into said display compartment.

LEN A. BANTA.