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REFRIGERATED DISPLAY CASE FOR BUTCHER SHOPS AND THE LIKE

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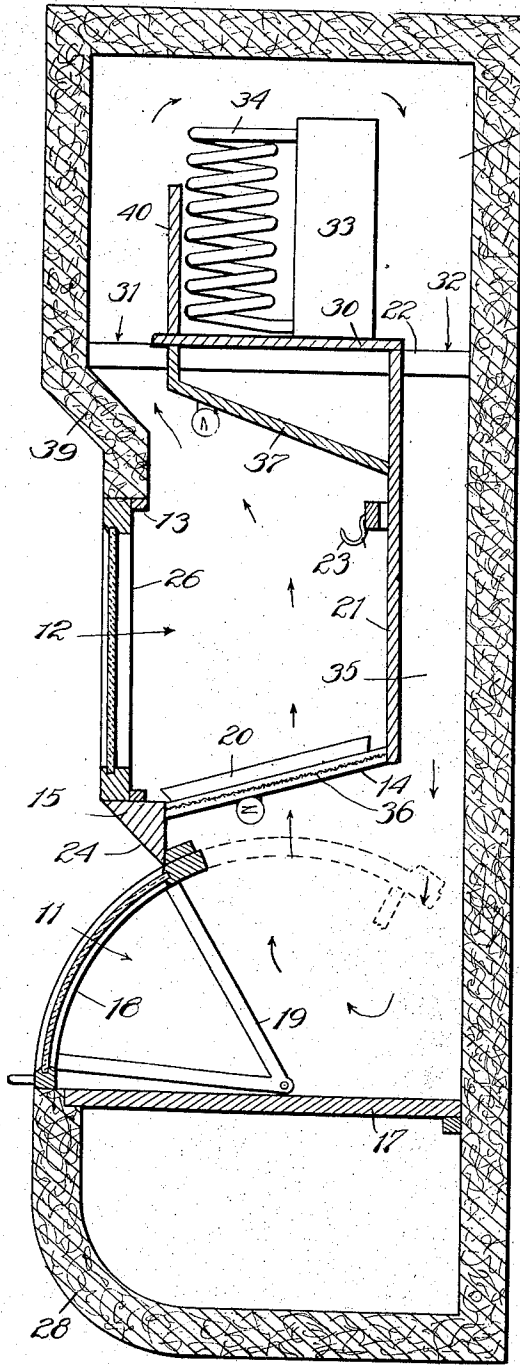


Fig. 2

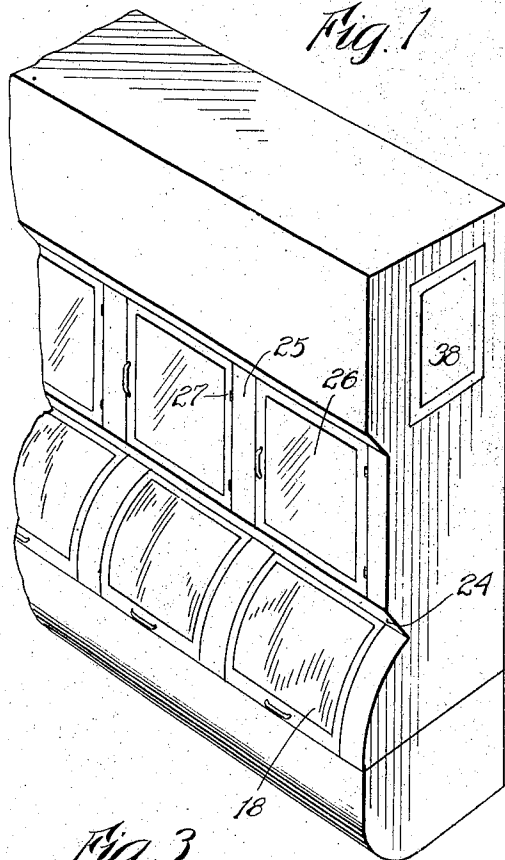


Fig. 1

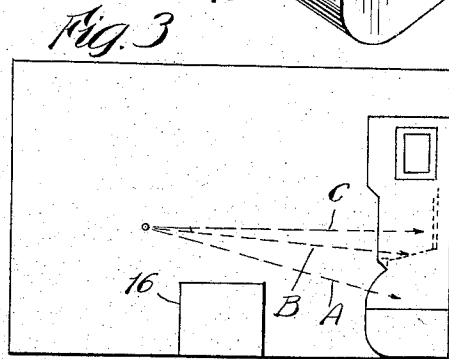


Fig. 3

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REFRIGERATED DISPLAY CASE FOR BUTCHER SHOPS AND THE LIKE

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9 Claims. (Cl. 62—89.6)

In butcher shops, delicatessen stores and the like, it has been customary in recent years to use transparent refrigerated display counters for showing the various cuts of meat or other foods.

5 While such display of the foods is desirable and aids the customer to some extent in selecting the cuts of meat desired, it has not been entirely satisfactory because of the poor refrigeration of the counters and the small storage capacity thereof. 10 This has made it necessary to stock the counter frequently during the day and to remove all meats from the counter at night. Much time has also been lost in bringing various large cuts of meat from the storage cooler for cutting or for inspection by the customers.

15 By reason of the type of building usually occupied and because of the necessity for economy of floor and frontage space, the majority of shops of this kind are found in narrow and comparatively deep rooms with the counters and aisles arranged in substantially the same manner. The conventional and most efficient arrangement is provided by placing a counter lengthwise of the room to provide an aisle on one side for the customers and a work space for the salesmen behind or on the other side of the counter. The storage cooler is, in such cases, placed in the back end of the room so that the replenishing of the stock in the display counter or the carrying of meats to the front of the store for inspection involves considerable loss of time.

20 The primary object of the present invention is to increase the efficiency and economy with which stores of this character may be operated by providing a narrow refrigerated display case having substantially the efficiency of the storage coolers heretofore used and adapted to be positioned in the work space behind the counter so as to provide a large amount of space wherein the cuts of meat of various sizes may be supported in large quantities in full view of the prospective purchasers and at the same time readily available to the salesmen.

25 Another object is to provide such a display case having separate compartments disposed one above the other for the reception of the maximum quantity of cuts of meat of different sizes, the transparent forward walls being arranged to insure perfect visibility of the products therein from a point in the aisle outside of the counter and the doors of the compartment adapted for large cuts of meat being arranged so that the workmen may readily and easily remove such large heavy cuts from the compartment.

30 A more specific object is to provide a refrigerated display case with compartments disposed one above the other and having a new and improved door construction for the lower compartment which renders the products clearly visible from a point forwardly of and above the compartment, which permits the doors of laterally adjacent compartments to be opened at the same time, and which move, when opened, to an out-of-the-way position so as to facilitate removal of the foods from the compartment.

60 Another object is to provide such a display case arranged so that a rapid and positive circulation of cooled air is maintained within the compartments at all times, and further arranged so that the normal opening and closing of the doors promotes circulation of the air within the case and serves to prevent any increase in the temperature due to such opening of the doors.

65 Other objects and advantages will become apparent from the following description taken in connection with the accompanying drawing, in which:

70 Figure 1 is a fragmental perspective view of a display case embodying the invention.

75 Fig. 2 is an enlarged vertical sectional view of the case shown in Fig. 1.

80 Fig. 3 is an end view of a store showing the case positioned therein for use.

85 While the invention is susceptible of various modifications and alternative constructions, I have shown in the drawing and will herein describe in detail the preferred embodiment, but it is to be understood that I do not thereby intend to limit the invention to the specific form disclosed, but intend to cover all modifications and alternative constructions falling within the spirit and scope of the invention as expressed in the appended claims.

90 In the drawing, the invention is illustrated as embodied in a case having insulated walls designated generally by the numeral 10 defining a narrow elongated body of substantial height adapted to be positioned against the side wall of a narrow store as illustrated in Fig. 3 and providing a pair of compartments 11 and 12 disposed one above the other and opening through the forward wall of the case.

95 The two compartments 11 and 12 are accessible through a large rectangular opening 13 formed in the forward one of the insulated walls 10 and the two compartments are separated by a transverse wall 14 supported at its forward edge by a horizontal header 15 extending across the opening 13 intermediate its top and bottom edges.

100 A case of this character may be placed against

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the wall of a store as illustrated in Fig. 3 so that the goods within the compartments are viewed by customers standing outside of the usual counter 16 and the two compartments 11 and 12 are arranged to provide three distinct display zones disposed at different heights in the case so that goods in all three zones may be readily seen by the customers. The lower display zone is formed by the bottom compartment 11 which has a bottom wall 17 in horizontal position flush with the lower side of the opening 13. The bottom wall 17 of the lower compartment 11 is but a short distance above the floor, in the present case about two feet, so that a customer standing in front of the counter 16 must look downwardly at an angle into the compartment as indicated by the dotted line A shown in Fig. 3. To insure a clear view of the goods contained in the compartment 11, and to permit of convenient access thereto, a plurality of transparent doors 18 are provided for the lower compartment 11, the doors sloping upwardly and rearwardly so as to avoid reflection of light.

In the present case the doors 18 are of arcuate cross section as shown in Fig. 2 and in order that the opening of the doors will not interfere with the workmen, the doors are pivotally mounted on brackets 19 so as to be movable about a horizontal axis into an out-of-the-way position in the top portion of the lower compartment, as shown in dotted outline in Fig. 2. By this arrangement, any one of the doors 18 may be opened irrespective of the position of the adjacent doors and since the workman may reach downwardly at an angle into the compartment with both hands and may hold the door open with his upper arm or shoulder, he is able to lift large heavy cuts of meat from the compartment with the minimum of effort and loss of time.

The second and third display zones are formed by the upper compartment 12, one being provided by the bottom wall 14 of the compartment while the other is formed along the back of the compartment. In order that the foods, in both of these zones of display may be clearly seen by the customers, the header 15 which defines the lower front edge of the compartment 12, is positioned at a distance above the floor slightly less than the height of an ordinary observer's eye, and the bottom wall 14 slopes upwardly and rearwardly therefrom so that an observer standing in front of the counter 16 may look along the line B (Fig. 3) into the compartment to inspect foods positioned on trays 20 removably supported on the sloping bottom wall 14.

A division wall 21 extending downwardly from a plurality of cross beams 22 positioned above the compartment 12 serves to support the rear edge of the wall 14 and also provides a rear wall for the compartment 12 upon which suitable hooks 23 may be fixed for hanging various cuts of meat. The hooks 23 provide the third display zone which may be viewed by the customer by looking along the line C in Fig. 3.

Since the case is intended for holding comparatively large quantities of meat, the compartment 12 is made as deep as possible so that the trays 20 may be quite wide and of large capacity. Other considerations, however, limit the practical depth of the compartment since the meats supported at the rear of the compartment must be within convenient reach of the workmen and in order to give the maximum depth and still have the meat on the hooks 23 readily accessible, the forward wall of the compartment 12, is offset

forwardly from the upper rear edge of the doors 18 of the lower compartment. This construction, as clearly shown in Fig. 2, is provided by making the header 15 of triangular cross-section with the lower side 24 sloping upwardly and forwardly from the lower doors 18 so as not to interfere with the customer's view downwardly through the doors 18. Between the header 15 and the upper edge of the opening 13, a plurality of posts 25 extend to form separate openings for a plurality of transparent glass doors 26 which are, in the present case mounted along the upper forward edge of the header 15 on the posts 25 by hinges 27 so that they may be swung outwardly to provide access to the compartment 12.

Thus a workman may open one of the doors 26 and may remove meats from the trays 20 or from the hooks 23 and to enable the workman to stand exceedingly close to the case and thereby facilitate such removal of stock, the lower forward corner of the case is cut away or rounded as indicated at 28 in Fig. 2, so that the workman's feet may project under the case.

Within the case and above the upper display compartment, a cooling chamber 29 is formed by a wall 30 supported on the cross beams 22, the wall terminating short of the front and rear walls of the case so as to provide spaces 31 and 32 along the forward and rear edges respectively of the wall 30. The cooling means may be of any preferred character and in the present instance comprises a brine tank 33 and coils 34 supported by the horizontal wall 30 in the cooling chamber 29. The air cooled by the coils 34 and the tank 33 passes downwardly along the rear one of the insulated walls 10 through a duct or passage-way 35 formed between the division wall 21 and the insulated rear wall of the case. It will be noted that the passage-way 35 extends past the upper compartment 12 so that it is of considerable vertical length and the cooled air, therefore attains considerable velocity as it moves downwardly.

The effective vertical length of the passage-way 35 is materially increased by positioning the brine tank 33 so that one side thereof forms in effect, a continuation of the wall 21. The passage-way 35 therefore, may be considered as extending from substantially the top of the cooling chamber 29 past the upper compartment 12 and into the lower compartment 11 and obviously the rapid movement of the air downwardly there-through aids in drawing the air from the front of the cooling chamber 29 over the tank 33 and into the passage-way.

The bottom wall 14 of the upper compartment 12 is formed in sections which are spaced from each other to provide air circulation openings in which screens 36 are positioned as shown in Fig. 2, and the cooled air in the lower compartment 11 passes upwardly through the screens 36 into the upper compartment. In the upper compartment 12, the upwardly moving air is directed forwardly to the space 31 at the front of the compartment by a sloping baffle wall 37 supported beneath the wall 30 and connected to the rear wall 21 of the compartment. The baffle wall 37 sloping downwardly to meet the rear wall 21 a short distance above the hooks 23 imparts a finished appearance to the interior of the compartment and also serves as a drain board to catch condensate formed on the coils and the brine tank.

Access to the cooling chamber 29 is provided by a door 38 in one of the end walls of the case and in order that sufficient working space 150

may be provided within the chamber 29 about the coils and brine tank 33 the forward wall 10 of the chamber is offset forwardly above the compartment 12 as shown at 39 in Fig. 2. By this arrangement the chamber 29 is made of considerable width without increasing the amount of floor space occupied by the case.

Since the upper compartment 12 does not communicate directly with the cold air passageway 35 and is closed at its upper rear corner by the baffle walls 37 and 21, the opening and closing of the doors 26 does not effect the downward movement of the cold air therein and does not materially effect the temperature in the back of the upper compartment 12, and any warm air which enters through the open doors 26 moves directly up through the space 31 at the forward side of the compartment into the cooling chamber. This serves to force more cooled air down the passageway 35 and accelerates the circulation of air so as to improve the operation of the case. The circulation of the air is further accelerated by the slamming of the doors 26 and as a result it has been found that repeated opening and closing of the doors does not materially effect the temperature within the case.

If desired, a vertical baffle wall 40 may be positioned in front of the coils 34 along the rear edge of the space to offset any tendency of the cooled air about the coils 34 to move downwardly through the space 31.

With a case constructed in accordance with the present invention it has been found that two workmen are able to handle a volume of business which has heretofore necessitated the employment of at least three men. This result may be attributed to the convenience of the arrangement of display compartments which enables the customers to select the particular cut of meat desired before the workman has finished putting up the orders of the preceding customer. It also results from the fact that the meats are all within convenient reach of the workmen and the storage capacity of the compartments is quite large so as to obviate all necessity for the workman to leave his particular station behind the counter during rush periods.

The efficiency with which the case may be cooled renders it unnecessary to transfer the meats from the compartments to a storage cooler at the end of the day so that it will be seen that the use of the case is far more simple and satisfactory than the display counters heretofore used.

I claim as my invention:—

1. A display and storage case of the refrigerated type adapted for use in small stores, said case comprising a narrow elongated body of substantial height and providing a lower display compartment in said body positioned a short distance above the floor, transparent doors for said compartment in the forward side thereof sloping upwardly and rearwardly so as to provide a clear view of the products in said compartment from a point in front of the case and above the compartment, said doors being movable so as to permit of access into said compartment, said case also providing a second compartment above said lower compartment, said second compartment having transparent doors in its forward side offset forwardly from the upper edge of the doors of said lower compartment so as to provide a compartment of substantial depth, and cooling means in said case adapted to induce a circulation of air through said compartments.

2. A display case of the refrigerated type comprising a narrow elongated body of substantial height and providing a lower display compartment a short distance above the floor, a transparent door for said compartment in the forward side thereof sloping upwardly and rearwardly so as to provide a clear view of the products therein from a point in front of the case and above the compartment, said door being movable to permit of access to said compartment, lower and rear division walls within said body forming a second display compartment above said first compartment, the lower wall of said second compartment being inclined upwardly and rearwardly and positioned at such a distance above the floor that customers may view meats thereon along a downwardly inclined line of vision, a plurality of hooks in said second compartment adjacent to the rear wall thereof for supporting various cuts of meat, transparent doors forming the forward wall of said second compartment, and means for cooling said case.

3. A refrigerated display case having a pair of forwardly opening display compartments disposed one above the other, the lower one of said compartments having transparent doors in the open forward side thereof sloping upwardly and rearwardly, a header abutting the upper edge of said doors, the forward side of said header being formed to slope upwardly and forwardly from its point of contact with said doors so as to permit of an unobstructed view angularly downwardly into the lower compartment and provide a larger effective opening thereinto, transparent doors disposed along the upper forward edge of said header serving to close the upper compartment, and means for cooling said compartments.

4. A refrigerated display case adapted for use in small stores, said case comprising a narrow elongated body providing a pair of display compartments in the lower portion thereof, a cooling chamber formed by said walls in the upper portion of said body, said chamber communicating with said compartments, and cooling means in said chamber, the forward wall of said cooling chamber being offset forwardly with respect to the forward walls of said display compartments whereby to provide working space about said cooling means without increasing the floor space occupied by the case.

5. A refrigerated display case comprising walls defining a narrow comparatively high case with two forwardly opening display compartments therein disposed one above the other and a cooling chamber above said compartments, said compartments communicating with each other to permit air to pass from the lower into the upper compartment, means providing a passage along the upper forward corner of the upper compartment to permit air to pass upwardly into said cooling chamber, imperforate baffle means providing a narrow vertical passageway along the rear wall of the case from the cooling chamber downwardly past said upper compartment into the lower compartment, and cooling means in said chamber including a brine tank positioned in the rear portion of said chamber so as to increase the effective vertical length of said passageway.

6. A refrigerated display case having walls defining a pair of forwardly opening display compartments disposed one above the other and a cooling chamber above said compartments, transparent doors closing the open forward sides of said compartments, said compartments communicating with each other to permit passage of air

and having means for supporting foods on the bottoms thereof, means for supporting food at the back of the upper compartment, means providing a rear wall for the upper one of said compartments and defining a cold air passageway back of the upper of said compartments to conduct the cooled air from said cooling chamber to the lower compartment and means defining an opening along the upper forward corner of said upper compartment to permit warm air to pass upwardly into said cooling chamber, the upper rear corner of said upper compartment being closed so as to provide an air pocket tending to prevent passage of warm air from the doors to the back of the upper compartment.

7. A display case of the refrigerated type comprising a narrow elongated body of substantial height and providing a lower display compartment a short distance above the floor, a transparent door for said compartment in the forward side thereof sloping upwardly and rearwardly so as to provide a clear view of the products therein from a point in front of the case and above the compartment, said door being movable to permit of access to said compartment, lower and rear division walls within said body forming a second display compartment above said first compartment, the lower wall of said second compartment being inclined upwardly and rearwardly and positioned at such a distance above the floor that customers may view meats thereon along a downwardly inclined line of vision, supporting means in said second compartment adjacent to the rear wall thereof for supporting various cuts of meat above the sloping bottom wall of said compartment and adjacent to the rear wall thereof, transparent doors forming the forward wall of said second compartment, and means for cooling said case.

8. A refrigerated display case having a pair of forwardly opening display compartments disposed one above the other, the lower one of said compartments having transparent doors in the open forward side thereof sloping upwardly and rearwardly, a header abutting the upper edge of said doors, the forward side of said header being formed to slop upwardly and forwardly from its point of contact with said doors so as to permit of an unobstructed view angularly downwardly into the lower compartment and provide a larger effective opening thereinto, transparent doors disposed along the upper forward edge of said header serving to close the upper compartment, a cooling chamber formed on said case above said upper compartment and having a forward wall offset forwardly from the plane of the transparent doors of the upper compartment, and means in said chamber for cooling said compartments.

9. A refrigerated display case comprising walls defining a narrow comparatively high case with two forwardly opening display compartments therein disposed one above the other and a cooling chamber above said compartments, said compartments communicating with each other to permit air to pass from the lower into the upper compartment, means providing a passage along the upper forward corner of the upper compartment to permit air to pass upwardly into said cooling chamber, imperforate baffle means providing a narrow vertical passageway along the rear wall of the case from the cooling chamber downwardly past said upper compartment without communication with the upper compartment and into the lower compartment, and cooling means in said chamber.

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