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2,014,830

REFRIGERATOR DISPLAY CASE

Filed May 23, 1932

2 Sheets-Sheet 1

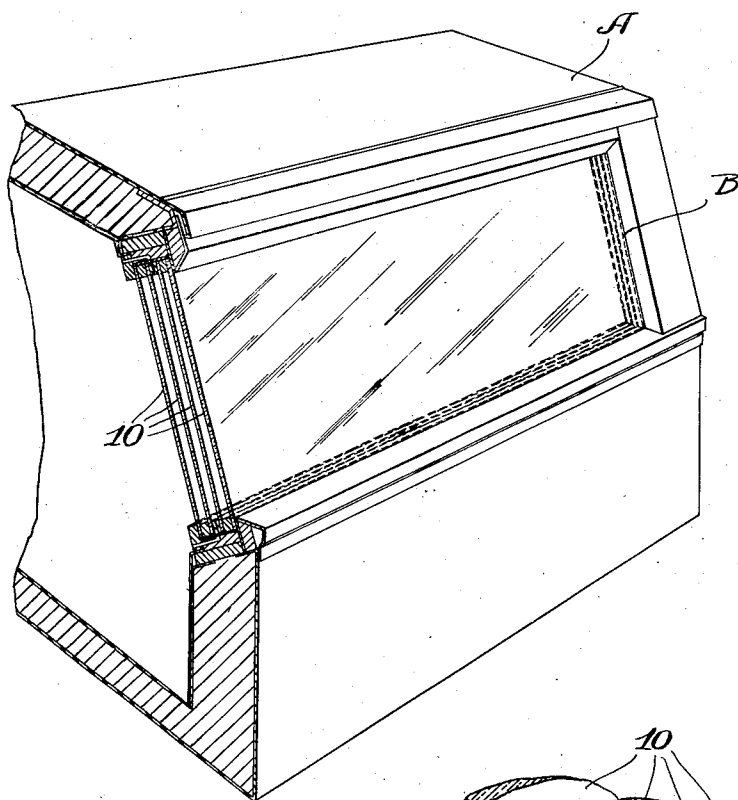


Fig. 1

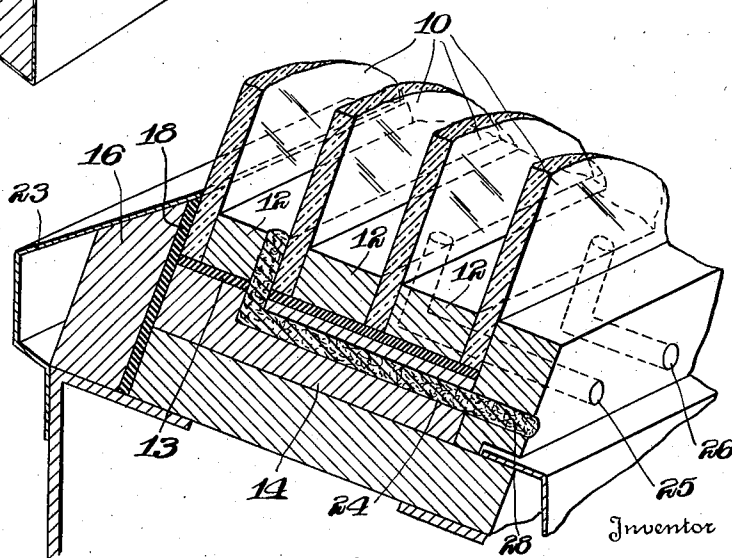


Fig. 2

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2 Sheets-Sheet 2

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REFRIGERATOR DISPLAY CASE

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6 Claims. (Cl. 62—37)

My invention relates to a refrigerator display case having a display window of a unitary nature which may be readily removed as a unit and replaced if it becomes necessary at any time. The display window is in the form of a unit frame which is secured to the display case in a manner to become a part thereof and this frame is sealed to the case so that refrigeration may be used in the case without air leakage around the unit frame.

It is also a feature to provide a display window frame of a unitary nature, having a series of spaced windows adapted to insulate the inside of the refrigerator case from the outside and yet provide a display window which will be maintained with a clear unobstructed vision through the window unit. Heretofore display windows have been provided with a multiplicity of spaced panes of glass or windows, however, no provision has been made to prevent dust from collecting between the windows. It is a feature of my invention to provide a means of preventing dust, dirt, or the growth of fungi between the window-pane, yet maintaining an equalization of moisture content between the window-panes and the inside of the refrigerator. I accomplish this in a simple and effective manner.

In making refrigerator display cases it is very desirable that no dust collect between the window-panes so that the contents of the display case may be clear and neatly displayed. In the making of these cases the moisture content of the air may be of a different nature when the unitary display window-frames are made up as compared to the moisture content of the refrigerator display case when it is in use to display perishable goods within the same. It is apparent that no open passageways may be provided for equalizing the moisture content between the window-panes of the display window of the refrigerator case, otherwise dirt and dust would collect between the window-panes and they could not be readily cleaned without taking the frame all apart. It is also apparent that through long use and the moisture involved as well as the refrigeration maintained within the case may act to stimulate the growth of fungi or other foreign matter between the panes of glass. All of these detrimental features I have overcome in providing a simple and effective means of replacement for the unitary window display frame of refrigerator display cases.

The features and objects of the invention will be apparent in a fuller and better description and

understanding of the same by means of the specification and drawings.

Figure 1 illustrates a perspective view of my refrigerator display case, a portion of which is broken away.

Figure 2 is an enlarged sectional detail of a portion of my refrigerator display case.

Figure 3 is an enlarged sectional detail through the unitary window display frame of my refrigerator display case.

The refrigerator display case A may be made of any size or construction as well as having any desirable shape, however, it is designed with a display window B which is of a unitary frame-like nature which is removable so as to be readily replaced when it is desired. It is important that the frame be easily replaced owing to the fact that the display window is made up of a series of window-panes or glass 10. To give the best results in the use thereof to be insured of accomplishing the features herein set forth, if any of the glass is broken the frame should be returned to the factory for repair, or, it should be repaired under the supervision of the factory knowing the nature of the construction so as to place the unit back in its original condition.

The window-panes 10 are adapted to be spaced apart by the members 12 which with the edge of the window-panes rest against the thick insulating material 13 which is made of rubber or other water-proof material having a nature like pure gum rubber, so as to be soft and yet tough and impregnable like pure gum rubber. The window-panes 10 are held by the frame member 14 which extends around the insulating sheet 13 and this frame member extends around the entire window-panes 10. The frame also includes the inner member 15 which extends marginally around the same on the inside of the same.

The insulating sheet 13 may be extended between the frame portion 15 and the inner glass 10, as illustrated. The glass panes 10 are clamped between the spacers 12 by the outer frame member 16 which is held by the screws 17 and a rubber sealing sheet 18 is positioned between the frame portions 14 and the outer glass 10 so that when the screws 17 are drawn tight, the panes of glass 10 are held together in the unit frame B which is ready to be attached to the case A.

The case A has a body portion with insulating walls 20 of any suitable nature. In the opening made to receive the window unit frame B, frame portions 21 are secured around the opening and when the frame B is slipped into place in this opening, the gasket 18 will bear against these

frame portions 21 and by means of the screws 22 the unitary removable frame B with the transparent panes 10 will be held in the refrigerator display case A as illustrated. The rubber sealing sheet 18 is sufficiently thick and pliable to seal the frame B air tight in operative position. When the frame B is in place, outer finishing molding portions 23 are secured in place to cover the outer frame member 16 of the unit B. These finishing moldings may be finished in any desirable finish and may have an enameled color similar to the outer finish of the body of the refrigerator display case A.

In making the display window frame B I provide a series of openings 24, 25 and 26, or as many openings as may be desired, extending from between the window-panes and through the inner frame member 15 to connect with the inner compartment of the refrigerator display case A. These openings or passageways provide a means of permitting the moisture content of the air between the window-panes 10 to be equalized with that of the moisture content of the inner chamber or refrigerating compartment of the display case A. These openings 24, 25 and 26 may be positioned at spaced intervals along the top and bottom or around the entire frame, so as to provide a multiplicity of the openings 24, 25 and 26 which will connect the spaces between the window-panes 10 with the inner atmosphere of the refrigerator case A. The passageways 24, 25 and 26 are not left open for the free circulation of air therethrough. This would be detrimental to the display window unit B as it would permit dust and dirt to enter between the window-panes in the same manner as has been objectionable with display windows for refrigerator cases heretofore. The passageways 24, 25 and 26 connecting the inner chamber of the display case are filled with packing or a wicking 28 which obstructs the free circulation of air through the passageways. This packing or wicking may be of any suitable nature and may be treated with formaldehyde or other disinfectant which is adapted to overcome and prevent fungi growth between the window-panes 10 and which will provide a disinfectant of a desirable nature if it is desired. Further, only that portion of the packing 28 adjacent the inner ends connecting with the spaces between the window-panes 10 may be treated with a disinfectant of any suitable material which will disinfect the air between the window-panes 10 and yet not be carried into the refrigerating compartment of the display case A. The filler 28 in these passageways is of a nature to permit the equalization of moisture content between the window-panes 10 without the free circulation of air from the refrigerator compartment of the case A to the space between the window-panes.

It will be apparent that with the desirable construction of my display window B there will be no draft of air passing into and out of the space between the window-panes 10 every time the doors to the refrigerator case A are opened or closed, or during the cleaning of the refrigerator case A, and thus once the frame B is made up with the windows clean and sealed, they will be maintained in this manner throughout the use of the refrigerator display case A. This is very important and accomplishes a long desired result for cases of this nature.

The cold interior of the food compartment of the refrigerator is very dry, the moisture in the air being condensed upon the surface of the unit.

Any excess moisture in the passages 24, 25 or 26 or in the filler will be readily taken up by this dry air. The filler and dry air in the passages will absorb moisture from the spaces between the panes 10 until a balance is reached between the moisture content in the air between the panes 10 and the air within the cold compartment of the refrigerator.

The filling in the passageways 24, 25 and 26 does not retard the equalization of moisture content in the air between the glass 10 and that of the refrigerating compartment of the case A. The moisture equalizes itself in these respective compartments and spaces in a manner so as to prevent the collection of steam or fogging of the window-panes, thereby maintaining a clear transparent vision through the window frame B at all times, clearly displaying the goods within the refrigerator case A. This provides a refrigerator display case with a unitary removable display window frame which it is unnecessary to take apart to clean every little while, nor in fact, is it ever necessary to disturb the frame B in relation to the case A unless the glass 10 is broken, and then it is desirable that the same be placed in repair by the factory or at a place having facilities to replace the window-panes perfectly clean and sealed together in the manner hereinbefore set forth. I find my refrigerator display case to accomplish these very desirable results in a simple and effective manner.

In accordance with the patent statutes I have outlined the advantages and illustrated a particular construction, however, these are only suggestive and the invention may be applied to uses other than those above set forth and should be analyzed in accordance with the scope of the following claims.

I claim:

1. A removable unitary display window for refrigerator cases having a series of window-panes connected together, means for sealing said panes in relation to each other, tubular passageways extending from between each window-pane to the inside of said frame to connect with a refrigerating compartment to which said frame is attached, and a filler means filling completely said passageways to prevent dust and dirt from entering between said window-panes and permitting the equalization of moisture content between the same in respect to the moisture content of the refrigerator to which the frame is attached.

2. A display window for refrigerator cases including, a series of window-panes spaced apart to provide air spaces between the same, tubular passageways connecting the air spaces between the window-panes with the inside of a refrigerator display case, and a filler means entirely filling said passageways from end to end to prevent dirt and dust from being carried through said passageways to the air space between said window-panes.

3. A display window for refrigerators including, a multiplicity of window-panes, means for spacing said window-panes apart, tubular passageways leading to the space between said window-panes and connecting this space with the refrigerating compartment of a display case, and means entirely filling said passageways permitting equalization of moisture content of the air between the window-panes and the refrigerating compartment to maintain the window-panes clear and transparent without fog or moisture, or dust accumulation between the same.

4. A display window for refrigerator cases in-

cluding, a multiplicity of window-panes held spaced apart, means for sealing the edges of said window-panes in a rubber sheathing seal, a frame about said window-panes, means for sealing said 5 frame with a rubber sheathing seal to the body of a refrigerator display case to permit the removal of said frame and to seal the same when in operative position from the outer atmosphere, passageways connecting the air space between 10 the window-panes with the refrigerating compartment of a display case, and filler means in said passageways from the refrigerator compartment to the spaces between the window-panes to prevent the collection of dust between the win- 15 dow-panes, said filler means including a disinfectant means to prevent the growth of fungi between the window-panes.

5. A display window for refrigerator display cases including, a series of window-panes, means 20 for sealing the edges of said window-panes by cushioning means like sheet rubber, a frame for supporting said window-panes removable as a unit, means for sealing the unit with a heavy

rubber seal to the display case in operative position, and means for permitting the equalization of moisture content between the windows and the inner refrigerating compartment of the display case without the free passage of air between the window-panes and the refrigerating compartment. 5

6. A refrigerator display case having, a refrigerating compartment, a unitary display window, means for removably supporting said window, 10 said window including a series of spaced apart transparent window-panes, separate tubular passageways connecting the space between said window-panes with said refrigerating compartment, each passageway having a tubular filler 15 completely filling said tubular passageways to prevent the free passage of air and dust between the window-panes and to permit the equalization of moisture content between said refrigerating compartment and the space between said win- 20 dow-panes.

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