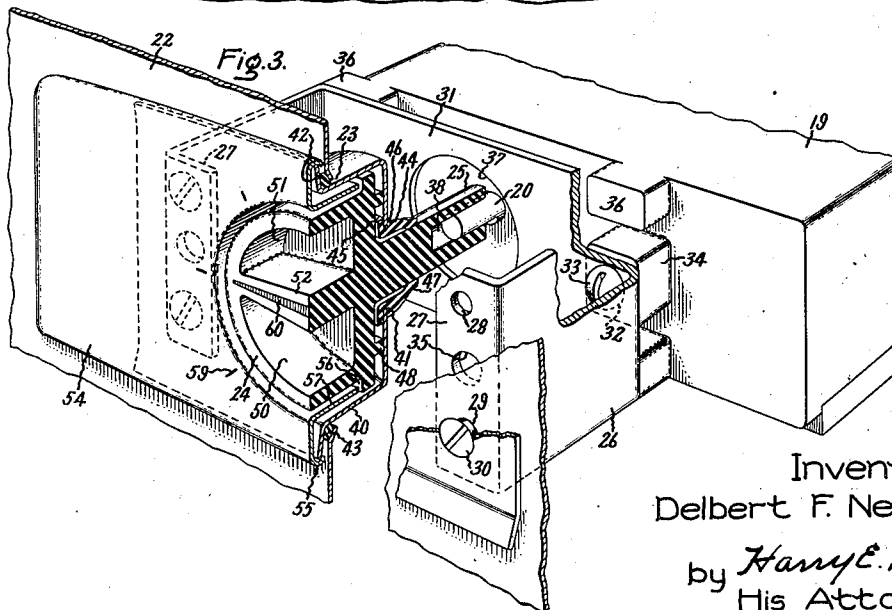
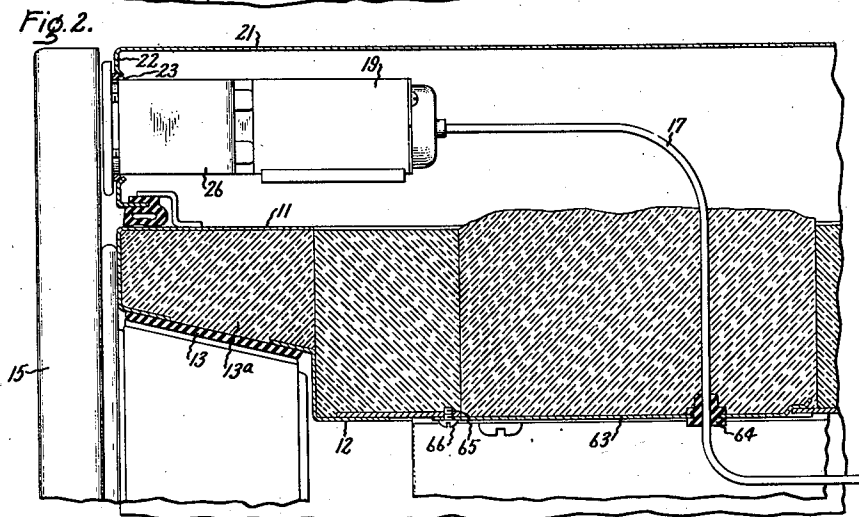
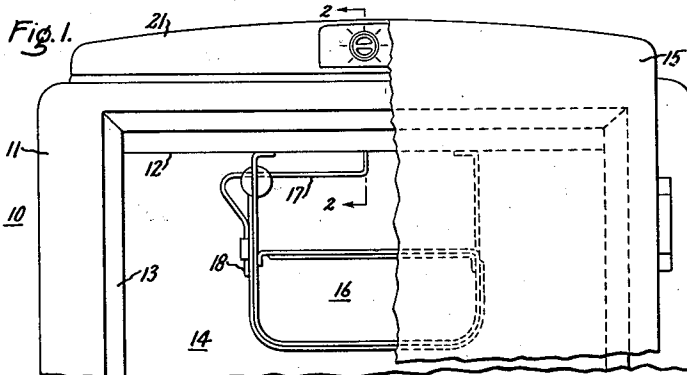


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D. F. NEWMAN
REFRIGERATOR CABINET

2,294,686

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REFRIGERATOR CABINET

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8 Claims. (Cl. 62—2)

My invention relates to refrigerator cabinets and more particularly to control means for refrigerator cabinets of the household type.

The objects and advantages of my invention will become apparent as the following description proceeds, and the features of novelty which characterize my invention will be pointed out with particularity in the claims annexed to and forming a part of this specification.

For a better understanding of my invention reference may be had to the accompanying drawing in which Fig. 1 is a partial view, partly broken away, of a refrigerator cabinet embodying the principles of my invention; Fig. 2 is an enlarged sectional view of a portion of the cabinet shown in Fig. 1 taken in the direction of the arrows 2—2 of Fig. 1; and Fig. 3 is an enlarged perspective view illustrating the control knob and the parts associated therewith.

In the drawing I have illustrated my invention as applied to a refrigerator cabinet 10. Refrigerator cabinets of the type illustrated are usually constructed with an outer sheet metal wall or casing 11 and an inner sheet metal liner or wall 12, the walls being spaced apart and the opening between the edges thereof being closed by a suitable thermally resistant non-hygroscopic breaker strip 13, such as is well known in the art. The space between the outer and inner walls is filled with suitable thermal insulation 13a.

In order to provide access to the food storage compartment 14, there is provided an access opening and a suitably thermally insulated door 15 is provided for closing the opening. In order to refrigerate the storage compartment, a suitable refrigerating system is used and may include, for instance, a suitable cooling element or evaporator 16 disposed in the upper portion of the food storage compartment. Inasmuch as details of the refrigerant circulating system form no part of my present invention, the details thereof have not been illustrated.

In order to permit the user of the refrigerator cabinet to select the temperature of the food storage compartment over a wide range of temperatures, it is customary to provide control mechanism which may be manually set by the user. I have illustrated a type of control including a tube 17 partially filled with a vaporizable substance and terminating in a bulb 18 which may be suitably secured in intimate thermal relationship with a wall of the evaporator 16. The other end of the control tube 17 communicates with a suitable switching device contained in a

control box 19. Inasmuch as the details of the control device per se form no part of my invention, the details thereof have not been illustrated. Means is provided for adjusting the point at which the control device will make or break an electric circuit to the motor device in the refrigerating system and such adjustable means commonly includes a shaft 20 extending from the temperature responsive means or control device 19.

In the form of my invention illustrated herein, the control box or temperature responsive means 19 has been disposed between that portion 21 of the outer wall which forms the top cover of the cabinet 10 and the flange 11 of the inner liner. The top cover is provided with a downwardly extending flange 22 and in the front portion of the flange 22 there is provided an opening 23. In this opening there is disposed a control knob 24 having a rearwardly extending boss 25. The control box may be supported from the rear side of the flange 22 as by means of a substantially U-shaped bracket 26 having opposed flanges 27 suitably attached to or integral with the free ends of the bracket and having a plurality of openings 28 aligned with openings 29 in the flange 22. The bracket 26 is preferably secured to the flange by threaded fastening members 30 extending through the openings 29. The openings 28 may be tapped, if desired, for engagement with the threaded means 30 or nuts and bolts may be employed.

The cross portion 31 of the bracket is provided with suitable openings 32 for the reception of threaded fastening means 33 which extend therethrough into threaded engagement with suitably tapped openings in bosses 34 attached to or integral with the control box 19. I have provided openings 35 aligned with the openings 32 so that a screw driver or other suitable tool may be extended therethrough for engagement with the fastening members 33. I have provided a plurality of bosses 36 on the control box for engagement with the bracket 26 in order to assist in the proper alignment of the control box. I have provided a centrally disposed opening 37 in the portion 31 of the bracket through which the shaft 20 extends.

In order frictionally to retain the knob 24, I have provided a longitudinally extending opening 38 in the boss 25 of the control knob for receiving the shaft 20. The cross sectional perimeters of the opening 38 and the shaft 20 should be irregular in order to prevent turning of the knob with respect to the shaft. In the arrange-

ment illustrated herein, this purpose is accomplished by providing a flat portion on the shaft and correspondingly forming the opening 33. By disposing the shaft 20 in central alignment with the opening 23, the knob 24 will be contained in the opening in the flange 22.

I have provided means for sealing the space between the knob and the edge of the opening 23 in order to prevent the passage of moisture into the insulation and also for minimizing heat leakage through the opening. In the form of my invention illustrated herein, this means includes a cup-shaped member or holder 40 which extends rearwardly through the opening 23 between the edges of the opening and the knob and is provided with a centrally disposed aperture 41 in the bottom of the recess portion of the cup-like member. The aperture should be aligned with the shaft 20 and the opening 23. In order to properly locate the member or holder 40, there is provided a laterally extending flange 42 around the outer marginal edge of the member 40 which overlies the flange 22 adjacent the opening 23, that is, the portion of the outer wall defining the opening 23. In order to seal the space between the member 40 and the outer wall of the cabinet, there is disposed between these members, a sealing member 43 which may be ring-shaped and of any suitable cross section and formed of any suitable material. I have provided an additional seal between the edges of the opening 41 and the boss 25 of the control knob in the form of a grommet-shaped member 44. The grommet-shaped member 44 is provided at the outer edge with a laterally extending flange portion 45 and a groove 46 for receiving and frictionally engaging the edge of the member 40. The lip 47 of the member 44 is constructed to closely engage the surface of the portion 25 of the knob.

In order to limit the rearward movement of the knob and thereby avoid friction between the flange 45 of the member 44 and the knob and also between the end of the rearwardly extending boss 25 and the front of the control box, there is provided a rearwardly extending shoulder 48 on the knob. Instead of providing the shoulder 48 on the knob, the cup-like member 40 may be provided with a projecting portion arranged as a stop for the knob.

In order to facilitate adjustment of the control device I have provided the outer face of the knob with a pair of depressions 50 and 51 on either side of a partition member 52. This arrangement provides spaces into which the fingers may be inserted in order to grasp the partition or handle portion 52.

In order to provide a pleasing appearance for the control knob assembly, there may be provided an escutcheon plate 54 on the front of the flange 22 and having a cylindrical rearwardly extending portion extending into the opening between the walls of the cup-shaped member 40 and the outer circumference of the knob 24 thereby providing a cylindrical opening into which the knob extends, the knob and the escutcheon being so constructed that the outer face of the knob lies in substantially the same plane as the face of the escutcheon. The escutcheon plate may be secured to the cabinet in any desired fashion but I have illustrated an arrangement in which the laterally extending portion or flange 42 of the holding member 40 is bent slightly outwardly of the flange 22 for snap en-

gagement with turned over rim 55 of the escutcheon plate.

In order to limit the outward movement of the knob 24 in the assembled positions of the parts, I have provided the knob 24 with a portion 56 extending laterally beyond the end of the cylindrical wall portion 57 of the escutcheon plate.

I have provided indicia means for indicating to the user of the refrigerator cabinet the setting of the control device. For this purpose I have provided indicia marks 59 on the face of the escutcheon plate and an arrow 60 on the partition portion 52 of the knob. If desired, the portion 52 of the knob may be tapered in one direction to provide an indicating member, as illustrated on the drawing.

In assembling the above-described parts, the control box is first attached to the bracket 26 by means of the threaded fastening members 33. This assembly may then be secured to the top cover before or after the top cover is secured to the cabinet. If the top cover has been previously fastened in place, the bracket and control box are passed upwardly through the hand hole 65 in the top wall of the inner liner or wall 12 and the member 40 is inserted through the opening 23 and the parts are secured to the flange 22 of the top cover by means of the threaded fastening members 30. If the control box was first secured to the top cover, the control tube 17 and bulb 18 are inserted downwardly through the hand hole as the top cover is placed in the assembled position. A bushing 64 attached to the cover 63 is then adjusted and the plate 63 secured as by suitable threaded fasteners 66. The knob 24 is then applied, the boss 25 being forced rearwardly through the opening in the grommet-like member into operative engagement with the shaft 20 of the control box. The escutcheon plate 54 is then snapped into position. As shown in the drawing, the door 15 may be extended to conceal the control knob and escutcheon plate.

Modifications of the above invention will occur to those skilled in the art. For example, my invention is equally applicable to a refrigerator cabinet in which the top wall is integral with the vertical walls of the cabinet. Therefore, I do not desire my invention to be limited to the particular construction shown and described and I intend in the appended claims to cover all modifications within the spirit and scope of my invention.

What I claim as new and desire to secure by Letters Patent of the United States, is:

1. In a refrigerator of the type having spaced-apart inner and outer walls defining a food storage compartment, thermal insulation between said walls, refrigerating means for cooling the storage compartment, and temperature responsive means for controlling the temperature within said compartment, said temperature responsive means having a shaft extending therefrom for providing means for the manual adjustment of the temperature responsive means, said outer wall having an opening, said control means being disposed so that said shaft is aligned with said opening, a knob removably carried by said shaft, means for sealing the space between said knob and said outer wall in order to prevent the passage of moisture into said thermal insulation and for minimizing heat leakage through the opening, said means comprising a substantially cup-shaped member extending through said opening between the edges of said opening and

said knob and having an aperture aligned with said shaft and said opening, sealing means between said cup-shaped member and said outer wall, and additional sealing means between the edge of said aperture and a portion of said knob.

2. In a refrigerator of the type having spaced-apart inner and outer walls defining a food storage compartment and having thermal insulation therebetween, refrigerating means for cooling the storage compartment, and temperature responsive means for controlling the temperature within said compartment, said temperature responsive means having a shaft extending therefrom for providing means for the manual adjustment of the temperature responsive means, said outer wall having an opening, said control means being disposed so that said shaft is aligned with said opening, a knob removably carried by said shaft and disposed in said opening, means for sealing the space between said knob and said outer wall in order to prevent the passage of moisture into said thermal insulation and for minimizing heat leakage through the opening, said means comprising a substantially cup-shaped member extending through said opening between the edges of said opening and said knob and having a centrally disposed aperture aligned with said shaft and said opening and having a laterally extending portion around the outer marginal edge thereof overlying the portion of the outer wall defining said opening, sealing means between said portion and said outer wall, and additional sealing means between the edge of said aperture and a portion of said knob.

3. In a refrigerator of the type having spaced-apart inner and outer walls defining a food storage compartment and having thermal insulation therebetween, refrigerating means for cooling said food storage compartment, and temperature responsive means for controlling the temperature within the compartment, said temperature responsive means having a shaft extending therefrom for providing manual adjustment thereof, said outer wall having an opening, control means disposed with said shaft aligned with said opening, a knob for adjustably controlling the setting of said control means, said knob having a rearwardly extending boss removably and operatively joining said knob to said shaft, means for sealing the space between the knob and the outer wall in order to prevent the passage of moisture into said insulating material and for minimizing heat leakage through said opening, said means comprising a substantially cup-shaped member extending through said opening between the edges of said opening and said knob and having a central aperture aligned with said shaft and said opening and having a laterally extending portion around the outer marginal edge of said member and overlying the portion of the outer wall defining said opening, sealing means disposed between said flange and said outer wall, and additional sealing means between the edge of said opening and said rearwardly extending boss, said additional means being grommet-shaped and having an opening in the central portion thereof, the outer marginal edge of said grommet-shaped means being frictionally retained in said aperture and the lip portion of said grommet-shaped means adjacent said central opening engaging said boss.

4. In a refrigerator of the type having spaced-apart inner and outer walls defining a food storage compartment, insulating material disposed between said walls, refrigerating means for cool-

ing said compartment, and temperature responsive means for controlling the temperature within said compartment, said temperature responsive means having a shaft extending therefrom for providing manual adjustment thereof, said outer wall having an opening, control means disposed with said shaft aligned with said opening, a knob removably carried by said shaft and disposed in said opening, means for sealing the space between said knob and said outer wall in order to prevent the passage of moisture into said insulating material and for minimizing heat leakage through said opening, said means comprising a substantially cup-shaped member extending through the opening between the edges of said opening and said knob and having a centrally disposed aperture substantially aligned with said shaft and said opening and having a laterally extending portion around the outer marginal edge overlying the portion of said outer wall defining said opening, sealing means between said extending portion and said wall, additional sealing means between the edges of said opening and a portion of said knob, and an escutcheon plate constructed and arranged for frictional retention by said laterally extending portion.

5. In a refrigerator cabinet of the type having spaced-apart inner and outer walls defining a food storage compartment, thermal insulating material disposed between said walls, refrigerating means for cooling said compartment, a temperature responsive means for controlling the temperature within the compartment, said temperature responsive means having a shaft extending therefrom for providing manual adjustment thereof, said outer wall having an opening, said control means being disposed with said shaft aligned with said opening, a knob removably carried by said shaft and disposed in said opening, a cup-shaped member extending through said opening between the edges thereof and said knob and having a centrally disposed aperture aligned with said shaft and said opening and having a laterally extending portion around the outer marginal edge overlying the portion of the outer wall defining the opening, said knob having a rearwardly extending shoulder constructed and arranged for cooperation with said cup-shaped member to limit movement of said knob in a rearward direction.

6. In a refrigerator cabinet of the type having spaced-apart inner and outer walls defining a food storage compartment, thermal insulating material disposed between said walls, refrigerating means for cooling said compartment, a temperature responsive means for controlling the temperature within the compartment, said temperature responsive means having a shaft extending therefrom for providing manual adjustment thereof, said outer wall having an opening, said control means being disposed with said shaft aligned with said opening, a knob removably carried by said shaft and disposed in said opening, a cup-shaped member extending through said opening between the edges thereof and said knob and having a centrally disposed aperture aligned with said shaft and said opening and having a laterally extending portion around the outer marginal edge overlying the portion of the outer wall defining the opening, the outer face of said knob having a depression providing means for grasping and turning the knob in order to adjust said control means.

7. In a refrigerator cabinet of the type having spaced-apart inner and outer walls defining a

food storage compartment, thermal insulating material disposed between said walls, refrigerating means for cooling said compartment, a temperature responsive means for controlling the temperature within the compartment, said temperature responsive means having a shaft extending therefrom for providing manual adjustment thereof, said outer wall having an opening, said control means being disposed with said shaft aligned with said opening, means for supporting said control means from said outer wall, a knob for adjusting said control means and having a rearwardly extending boss for removably and operatively joining said knob to said shaft, means for sealing the space between the knob and the outer wall in order to prevent the passage of moisture into said insulation and to minimize heat leakage through said opening, said means comprising a cup-shaped member extending through said opening between the edges thereof and said knob and having a centrally positioned aperture aligned with said shaft and said opening and also having a laterally extending portion around the outer marginal edge overlying that portion of said outer wall defining said opening, sealing means between said portion and said wall, additional sealing means between the edge of said opening and a portion of said knob, and an escutcheon plate carried by said cup-shaped member and having a portion extending into said opening between the walls of said cup-shaped member and said knob, said knob having a por-

tion extending laterally beyond said extending portion of said plate for limiting the outward movement of said knob.

8. In a refrigerator cabinet of the type having spaced-apart inner and outer walls defining a food storage compartment, thermal insulating material disposed between said walls, refrigerating means for cooling said compartment, a temperature responsive means for controlling the temperature within the compartment, said temperature responsive means having a shaft extending therefrom for providing manual adjustment thereof, said outer wall having an opening, said control means being disposed with said shaft aligned with said opening, a knob removably carried by said shaft and disposed in said opening, a cup-shaped member extending through said opening between the edges thereof and said knob and having a centrally disposed aperture aligned with said shaft and said opening and having a laterally extending portion around the outer marginal edge overlying the portion of the outer wall defining the opening, an escutcheon plate constructed and arranged for frictional retention by said portion of said cup-like member, the outer face of said knob lying in substantially the same plane as said escutcheon plate, and indicia carried by said escutcheon plate and said knob for indicating the setting of said control means.

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