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REFRIGERATOR

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2 Sheets-Sheet 1

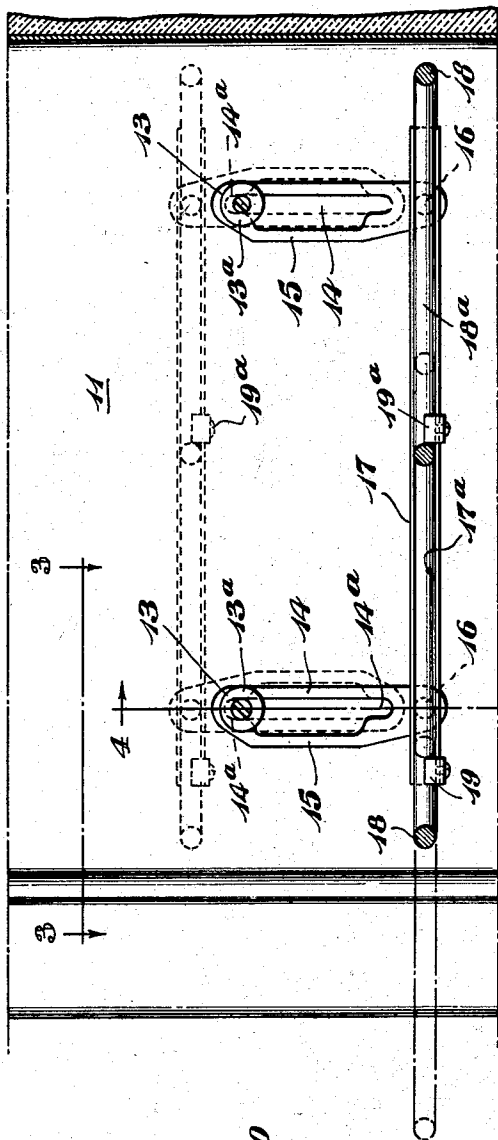


Fig. 1.

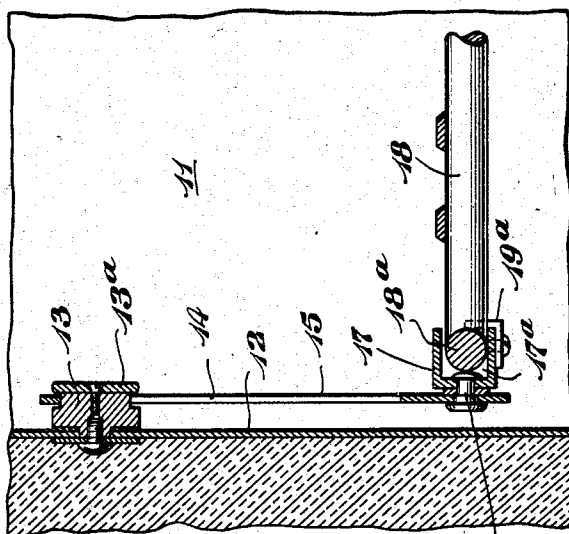


Fig. 4.

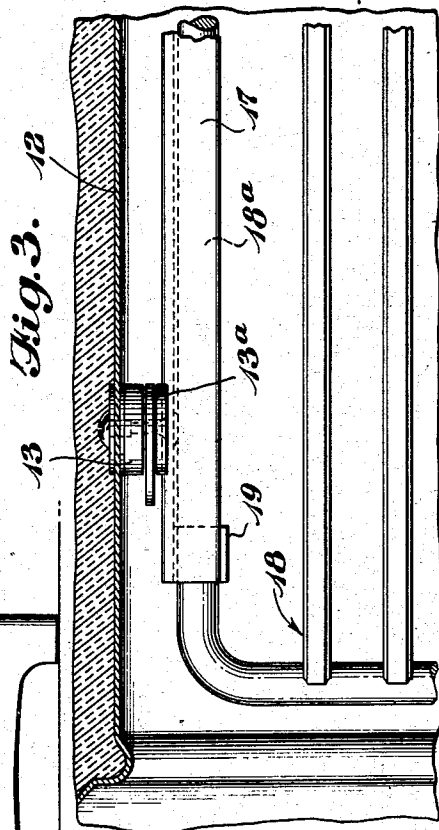


Fig. 3. 12

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REFRIGERATOR

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9 Claims. (Cl. 312-156)

This invention relates to refrigerators, and more particularly to improved shelf structure for a refrigerator cabinet.

An object of the invention is to provide an improved shelf structure for a refrigerator cabinet in which the shelf is slidable and also adjustable to different positions without removing the shelf from the cabinet.

The above and other objects and advantages of the invention will be better understood from the following description taken in conjunction with the drawings forming a part of the specification, and of which:

Fig. 1 is a front elevation of a refrigerator cabinet including shelf structure embodying the invention, the door being in its open position;

Fig. 2 is a sectional view of the shelf structure shown in Fig. 1, the shelf being shown in an upper position in dotted lines.

Figs. 3 and 4 are sectional views taken on the lines 3-3 and 4-4, respectively, Fig. 2.

Fig. 5 is a view in front perspective of the food compartment portion of a refrigerator cabinet including shelf structure of a modified form with respect to that shown in Figs. 1 to 4, inclusive;

Fig. 6 is a sectional view of the shelf structure shown in Fig. 5, the shelf being shown in an upper position in dotted lines;

Fig. 7 is a section taken substantially on the line 7-7, Fig. 6; and

Figs. 8 and 9 are detail perspective views of a releasable shelf stop forming part of the shelf assembly of Figs. 5, 6 and 7.

Referring to the drawings and first to Figs. 1 to 4 inclusive, a refrigerator cabinet 10 includes an inner metal shell 12 forming a food compartment 11.

The shelf structure embodying the invention comprises front and rear sets of shelf supports in the form of pivot studs or analogous members 13 each of which has an enlarged head 13a adapted to pass through a central opening 14 of a supporting arm 15. At opposite ends of the central opening in each arm 15 are formed narrow slots 14a to receive the supports 13 and lock the arms 15 in position. The central openings 14 permit angular movement of the arms 15 about the supporting studs 13 when the arms are moved to cause the slots 14a to clear the said studs.

U-shaped guides 17 having spaced horizontal sides defining guideways 17a are provided at the lateral sides of compartment 11. The guide at each side of compartment 11 is pivoted at 16 to the front and rear arms 15. The guideways 17a of the U-shaped guides 17 receive the lateral

sides 18a of a shelf 18 formed of bent wire or rod stock and having a plurality of ribs extending from the front to the rear of the shelf. The guides 17 may be provided with stops 19 to prevent the shelf 18 from being completely pulled out of the guides.

When it is desired to adjust the shelf to the upper position shown in dotted lines in Fig. 2 from its lower full line position, it is only necessary to raise the shelf a small distance until the arms 15 are no longer locked in the slots 14a. The shelf 18 is then moved forward and upward with the arms 15 making a full half turn. The shelf is then lowered so that the slots 14a in arms 15 receive the supports 13, whereby the shelf 18 is now locked in its upper position. To lower the shelf 18, the entire shelf is raised so that slots 14a at the upper ends of the central openings 14 clear the supports 13. The shelf is then moved forward and downward with the arms 15 making a full half turn. After the shelf has been lowered the supports 13 receive the slotted portions 14a of the arms 15.

The stops 19 and 19a are so positioned that shelf 18 can be withdrawn halfway out of compartment 11, the shelf being slidable in either its upper or lower position.

Referring to Figs. 5 to 9 inclusive, a modified form of shelf structure is therein illustrated and is shown mounted in a refrigerator cabinet generally indicated at 20 and having a food compartment liner 21 defining a food compartment 22.

The shelf structure in this instance is so constructed as to require only one set of supporting arms and coacting supports. Shelf supporting studs 23 having heads 23a are provided at each side of the food compartment, each of said heads being adapted to pass through a central opening 24 formed in a supporting arm 25 there being a pair of said arms and hooks for each shelf. At opposite ends of the opening 24, each arm is formed with narrow slots 24a to receive the studs 23 and lock the arms 25 in position. The central openings 24 permit angular movement of the arms 25 about the supporting studs 23 when said arms are moved to cause the slots 24a to clear the said studs.

U-shaped guides 26 having spaced horizontal sides defining guideways 26a are provided at opposite sides of the compartment 22. Each guide 26 is pivoted at 27 to the arms 15. The guideways 26a of the U-shaped guides 26 receive the lateral sides 28a of a shelf 28 formed of bent wire or rod stock and having a plurality of ribs

extending from the front to the rear of the shelf.

Instead of having studs and arms for supporting the rear end of the shelf 28, the rear wall of the food compartment liner 21 is formed with vertically spaced and aligned openings to receive sockets 29, 29', etc., each of said sockets being externally threaded to engage in an anchor or lock nut 30. The outer or exposed portion of the socket 29 is formed with an upset portion or flange 29a. Each of the guides 26 has connected thereto a projection 31 adapted to engage in a coacting socket 29.

The shelf 28 is slidable in the guideways 26a of the guides 26; and when it is desired to adjust the shelf from the lowermost position shown in full lines in Fig. 6 to the uppermost position shown in dotted lines in said figure, the guides 26 may be raised until the slots 24a of the arms 25 clear the studs 23, and simultaneously the guides may be withdrawn until the projections 31 clear their coacting sockets 29, whereupon the shelf together with the guides may be swung in a full half circle, bringing the projections 31 in registration with the sockets 29' and at the same time permitting the slots 24a to again engage the studs 23. It will be understood that the sockets 29 and 29' may be of a diameter such as will permit a certain amount of clearance with respect to the projections 31, to facilitate adjustment of the shelf.

Stops 32 are provided in connection with each guide 26 and are preferably disposed at an intermediate point along the latter and also at the front of the guides. These stops are preferably hinged as at 33, to permit the stop portion 32a of each member 32 to be raised clear of the guideways 26a whenever desired so that the shelf may be withdrawn either half way out of the food compartment or substantially completely therefrom. The hinges 33 may be formed by striking out a pair of ears 33a from the walls of the guides 26, said ears having a hinge pin projected therethrough, note particularly Figs. 8 and 9.

It will be obvious that certain changes in construction and design may be adopted without departing from the spirit or scope of the invention as defined by the appended claims.

What is claimed is:

1. For use in a food compartment of a refrigerator cabinet, shelf structure including members fixed to the wall of said compartment, arms having slots at different vertical positions and an enlarged opening communicating with said slots whereby said arms may be readily rotated around said members, and a shelf supported by said arms, said shelf being adjustable to different vertical positions in said compartment by releasing the slots from said members and rotating said arms about the latter and then engaging other slots over said members.

2. A shelf mounting for a refrigerator cabinet having an inner wall or liner defining a food compartment, comprising a pair of substantially horizontally disposed shelf carrying members, one at each side of said compartment, a shelf carried by said members, hooks or analogous hangers projecting outwardly from said liner within the region of the front of the compartment, arms having slots adapted to engage said hooks, said slots being located in different vertical positions in said arms, an enlarged opening communicating with said slots, means pivotally connecting said arms to said shelf carry-

ing members, sockets carried by the rear wall of said liner, and projections on said shelf carrying members adapted to engage in said sockets, the shelf being adjusted to different vertical positions in the food compartment by withdrawing the shelf outwardly to cause the projections to clear said sockets and moving said arms in a manner such as to cause different slots to engage the hooks.

3. A shelf mounting for a refrigerator cabinet having an inner wall or liner defining a food compartment, comprising a pair of substantially horizontally disposed shelf-carrying members having guideways therein, one at each side of the compartment, a shelf slidably mounted in said guideways, means for supporting the front extremity of the shelf including arms pivotally connected to said members and having slots located at different vertical positions in the arms, an enlarged opening communicating with said slots, shelf hooks projecting outwardly from the sides of said liner adapted to engage in said slots, sockets carried by the rear wall of the liner, projections on said members adapted to engage in said sockets to thereby provide a support for the rear extremity of the shelf, the shelf being adjusted to different vertical positions by drawing the guides and shelf outwardly to cause the projections to clear said sockets and swinging said arms about said hooks to bring the latter into registration with different slots and said projections into registration with different sockets.

4. In a refrigerator cabinet having an inner wall or liner defining a food compartment, a pair of substantially horizontally aligned supports one at each side of said compartment, shelf brackets one for each supporting member slidably and pivotally mounted on said supports, a shelf pivoted at its front extremity to said brackets, and whereby the shelf may be supported on said supports in one position and may be swingably suspended from said supports by said brackets when moved to a second position, sockets carried by the rear liner, and means associated with said shelf adapted to engage said sockets and removably support the rear extremity of said shelf in any one of its adjusted positions.

5. In a refrigerator cabinet, a liner defining a food compartment, pivot members located in the front area of the food compartment on opposite side walls of the compartment, a shelf, means pivotally connected to the shelf and swingably supporting the front extremity of the latter from said pivot members, sockets carried by the rear wall of the liner, and projections carried by said shelf and adapted to engage in said sockets.

6. A refrigerator cabinet having a vertical wall, a supporting member pivotally and slidably secured to the wall, a shelf, said supporting member being connected to said shelf in pivotal relation whereby said shelf may be supported on said wall in one position and may be moved to a second position by pulling said shelf forwardly and upwardly and then pushing the same rearwardly and effecting a pivotal action between the supporting member and the shelf and a combined pivotal and sliding action between the supporting member and the wall.

7. A refrigerator cabinet including vertical wall members, supports mounted on said wall members, shelf hangers mounted on the said supports in pivotal relation thereto, a shelf pivotally connected to said hangers, said hangers having a slidable connection with said supports, the slid-

able and pivotal connection of said hangers with respect to said supports providing adjustment of the shelves to different distances from said supports.

8. In a refrigerator cabinet, a shelf, a mounting for the shelf comprising substantially horizontally aligned supports, means mounting the shelf on said supports including swingable shelf brackets slidably and pivotally connected to said supports whereby the shelf may be adjusted to different elevations, said supports and brackets being provided with coacting means for securing the brackets in relatively fixed adjusted position with respect to said supports.

9. Cabinet structure comprising opposed side

walls and a rear cross wall, a shelf adapted to be supported between said side walls, coacting supporting members swingably and slidably connecting the front portion of the shelf to said side walls, means pivotally suspending said shelf from said supporting members, and whereby the front portion of the shelf may be adjusted to different elevations, while maintaining the shelf in its normal horizontal position, the rear wall of the cabinet and the rear portion of the shelf being provided with inter-engaging means for supporting the rear portion of the shelf at different elevations corresponding to the adjustment of the front portion of the shelf.

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