June 23, 1942. G. C. HARBISON 2,287,611

SHELF

Filed July 25, 1940

Fig. 1.

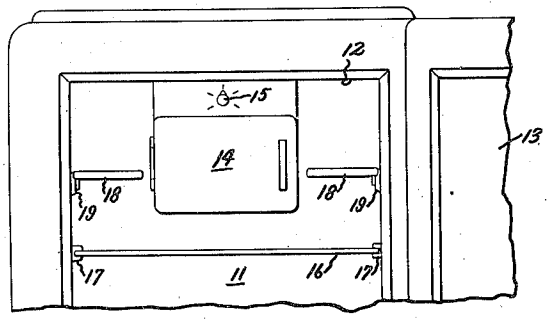


Fig. 2.

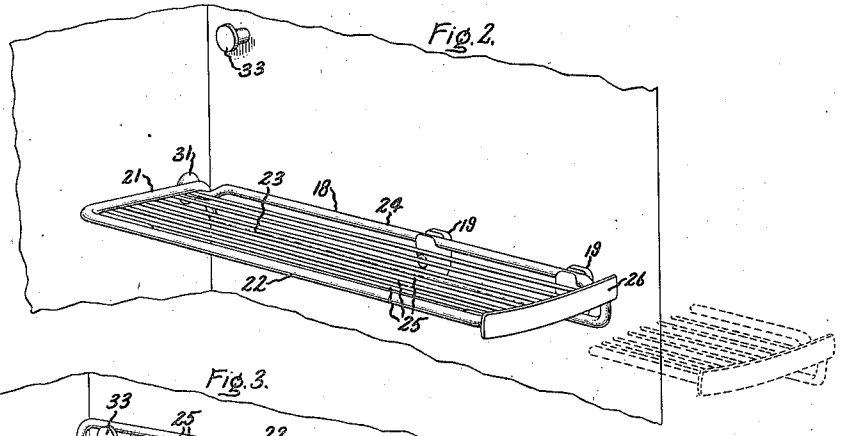


Fig. 3.

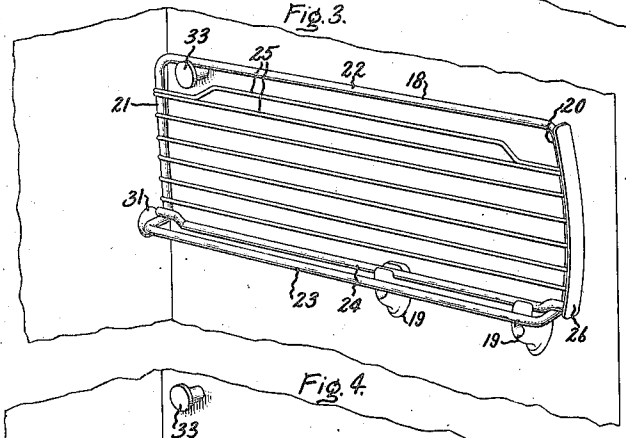


Fig. 4.

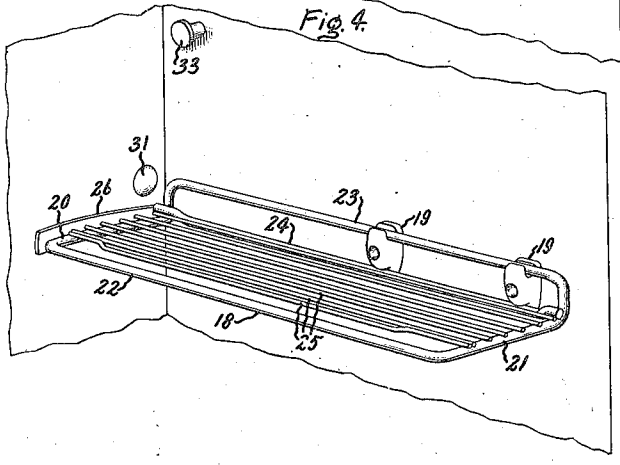
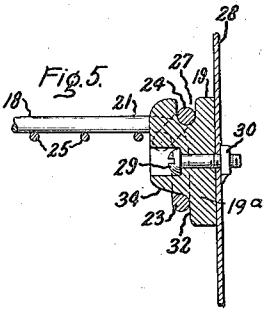


Fig. 5.



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2,287,611

SHELF

George C. Harbison, Erie, Pa., assignor to General Electric Company, a corporation of New York

Application July 25, 1940, Serial No. 347,456

6 Claims. (Cl. 211—150)

My invention relates to shelves for cabinets such as refrigerators and the like.

Shelves of relatively small area have hitherto been provided in refrigerators and disposed in the space between the cooling element or evaporator and one of the side walls, thereby utilizing this space for storage purposes as for the support of small articles. Such shelves have been removable or arranged to tip up or both in order to increase the storage space for tall articles, such as bottles, which may then be placed upright on the next lower shelf.

It is an object of my invention to provide a new and improved shelf of this type which shall be easily positioned in one of a plurality of vertically spaced-apart positions, or moved to a position permitting the upright storage of tall articles whereby the maximum flexibility of arrangement is obtained.

It is another object of the invention to provide a shelf of the above described type which is slidable and has selective vertical positions.

Further 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 of a refrigerator provided with a shelf embodying the principles of my invention; Fig. 2 is an enlarged perspective view of the shelf shown in Fig. 1 in one position thereof; Fig. 3 is a perspective view of the shelf of Fig. 2 in its tipped up position; Fig. 4 is a perspective view of the shelf of Fig. 2 in its inverted position; and Fig. 5 is an enlarged cross sectional view illustrating details of the means for supporting the shelf.

Referring to the drawing, in Fig. 1 I have shown a refrigerator 10 of the household type provided with a heat-insulated, refrigerated compartment 11 having an access opening 12 in the front wall thereof and a heat-insulated door 13 for closing the opening 12. The cabinet is cooled by a refrigerating machine including a refrigerant evaporator or cooling element 14 arranged in the upper portion of the compartment 11. Inasmuch as the refrigerating machine is not a part of my invention, the complete details thereof are not shown as any suitable refrigerating device may be employed. A suitable thermal control arrangement is provided including a temperature adjusting device 15 mounted on the evaporator 14 and associated with the refrigerating machine in order that any given average temperature over a predetermined range of temperatures can be maintained in the refrigerated compartment 11. A shelf 16 is supported from a side wall of the compartment 11 below the evaporator 14 as by means of supports 17.

In order to utilize the upper part of the space between the evaporator 14 and the side walls of the compartment 11, I have provided a pair of shelves 18 supported on either side of the cooling element from the side walls by means of brackets or supports 19.

Each of the shelves 18 comprises a border frame comprising end portions 20 and 21 and side portions 22 and 23. The side portion 23 is displaced out of the plane of the shelf 18 for a purpose to be hereinafter described. The frame in the plane of the shelf 18 is completed by a portion 24 suitably secured at the ends thereof to the border frame as by welding. In order to provide an article supporting surface, a plurality of spaced-apart longitudinally extending members 25 is provided, the members being secured to the end portions 20 and 21, respectively, in any suitable manner as by welding, for example. In order to provide a neat and distinctive appearance, a decorative strip 26 has been applied to the frame portion 20. If desired, a similar decorative strip may be applied to the other end portion 21.

In order to support the shelf 18, I have provided a pair of brackets or supports 19. Each of the brackets 19 is provided with a guide slot 27 therein for slidably receiving one of the side members 23 or 24, these side members thus forming cooperating supporting portions for the shelf. The brackets are secured to the side wall 28 of the food compartment 11 by suitable means such as a screw 29 threaded through apertures in the bracket 19 and wall 28 into threaded engagement with a nut 30 welded to the outside surface of the wall 28. In order to obtain a quiet smooth sliding action between the border frame of the shelf and the brackets, the supporting brackets are preferably formed of some non-metallic substance, such for example as a resinous condensation product having a suitable filler, for example, the material obtainable on the market under the trade name of "Textolite."

In order to limit the outwardly sliding movement of the shelf 18, the brackets 19 are placed near the front of the side wall 28 so that engagement between an end border frame and the rear bracket will prevent further outward movement.

In order to protect the finish on the rear food compartment wall I provide a buffer member 31 of some suitable material, as rubber for example, so arranged as to engage the shelf at the end of its inward sliding movement.

In order positively to maintain the shelf 18 in a horizontal position I have provided each bracket with a depending portion 19a as by cutting away a portion of each of the brackets 19 to provide a bearing surface 32 or stop against which one of the shelf supporting portions 23 or 24 is adapted to bear. Thus, when the shelf is in the position shown in Figs. 2 and 5, the supporting portion 24 serves to support the shelf from the brackets 19 while the portion 23 cooperates with surface 32 to maintain the shelf 18 in a horizontal position. In the shelf position shown in Fig. 4, the supporting portion 23 engages the slots or grooves 27 while the supporting portion 24 performs the function of maintaining the shelf in the horizontal position. It will be readily seen that this construction renders the shelf readily movable and it will also be seen that the shelf may be rotated or pivoted about the supporting member disposed in the slot 27. If it is desired to store relatively tall articles on the shelf 16, the shelf 18 may thus be removed or tilted into the position shown in Fig. 3. In order to retain the shelf 18 in its tilted or tip-up position, I have provided a suitable retaining member, such as a headed stud 33, so positioned as to engage the side frame portion 22 as shown in Fig. 3. The ends of the article supporting rod adjacent the side portion 22 are displaced at each end thereof to permit passage of the headed stud.

Because of the above-described construction, it will be seen that the provision of the spaced-apart supporting portions of the shelf 18 serve to provide selective, vertically spaced-apart positions of the shelf by inversion of the shelf. Thus, if it is desired to provide more storage space between the shelf 18 and the top wall of the storage compartment, the shelf may be placed in the position shown in Fig. 4. On the other hand, if more room is desired for storage purposes between the shelf 16 and the shelf 18, the shelf may be inverted and replaced in the position shown in Figs. 1 and 2. Of course, additional space may be provided by removing or tipping the shelf, as described.

While I have shown a particular embodiment of my invention, other modifications will readily be apparent to those skilled in the art. For example, instead of employing a pair of spaced-apart brackets 19, one bracket of sufficient length to rigidly support the shelf may be used. I do not therefore 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 combination, a shelf for use in the food storage compartment of a refrigerator cabinet, said shelf having two different surfaces either of which may be used as an article supporting surface, shelf supporting means including a bracket on said wall and a pair of vertically spaced-apart supporting portions extending longitudinally of said shelf along a marginal edge thereof, said portions serving to selectively position the shelf in one of two vertically spaced-apart positions by inversion thereof, said means being arranged and constructed for engaging and retaining one of said supporting portions in order to permit the selective pivotal movement of said shelf between a substantially horizontal and a substantially vertical position thereof, and also being constructed and arranged to slidably engage said shelf.

2. In combination, a shelf for use in the food storage compartment of a refrigerator cabinet, said shelf having two different surfaces either of which may be used as an article supporting surface, shelf supporting means including a bracket on said wall and a pair of spaced-apart supporting portions extending longitudinally of said shelf along a marginal edge thereof, said means being constructed and arranged to permit inversion of the shelf for selectively positioning said shelf in one of two vertically spaced-apart positions, said means also being arranged and constructed for engaging and retaining one of said supporting portions in order to permit the selective pivotal movement of said shelf between a substantially horizontal and a substantially vertical position thereof, said means also being constructed and arranged to slidably engage said shelf.

3. In combination, a shelf for use in the food storage compartment of a refrigerator cabinet, said shelf having two different surfaces either of which may be used as an article supporting surface, shelf supporting means including a bracket on said wall and a pair of spaced-apart supporting portions extending longitudinally of said shelf and adjacent the marginal edge thereof, said portions serving to selectively position the shelf in one of two vertically spaced-apart positions by inversion thereof, said means being arranged and constructed for engaging and retaining one of said supporting portions in order to permit the selective pivotal movement of said shelf between a substantially horizontal and a substantially vertical position thereof, said means also being constructed and arranged to slidably engage said shelf, means for retaining said shelf in the substantially horizontal position, and means for holding said shelf in the substantially vertical position.

4. In combination, a shelf for use in the food storage compartment of a refrigerator cabinet, said shelf having two different surfaces either of which may be used as an article supporting surface, shelf supporting means including a bracket on said wall and a pair of vertically spaced-apart supporting portions extending longitudinally of said shelf and adjacent the marginal edge thereof, said portions serving to selectively position the shelf in one of two vertically spaced-apart positions by inversion thereof, said means being arranged and constructed for engaging and retaining one of said supporting portions in order to permit the selective pivotal movement of said shelf between a substantially horizontal and a substantially vertical position thereof, said means also being constructed and arranged to slidably engage said shelf, a portion of said bracket being arranged to receive one of said supporting portions for supporting said shelf from said wall and another portion of said bracket being arranged to cooperate with the other of said supporting portions for positively maintaining said shelf in a horizontal position.

5. In combination, a shelf for use in the food storage compartment of a refrigerator cabinet or the like, said shelf having two different sur-

faces, either of which may be used as an article supporting surface, a pair of vertically spaced apart supporting portions extending along a marginal edge of said shelf, one of said portions lying substantially in the plane of said shelf, means carried by a wall of said storage compartment for supporting said shelf from one of said supporting portions, said means including a support having a longitudinally extending groove in the upper surface thereof for slidably retaining one of said supporting portions, said support having a depending portion providing a stop for the other of said supporting portions in order to maintain said shelf in a horizontal position when said shelf is placed in association with said support.

6. In combination, a shelf for use in the food storage compartment of a refrigerator cabinet or the like, said shelf having two different surfaces, either of which may be used as an article supporting surface, a pair of vertically spaced apart supporting portions extending along a marginal edge of said shelf, one of said portions lying substantially in the plane of said shelf, means carried by a wall of said storage compartment for supporting said shelf from one of said supporting portions, said means including a support having a longitudinally extending groove in the upper surface thereof for slidably retaining one of said supporting portions, said support having a depending portion providing a stop for another supporting portion in order to maintain said shelf in a horizontal position when said shelf is placed in association with said support, said groove and said supporting portions being constructed and arranged for engaging and retaining one of said supporting portions in order to permit pivotal movement of said shelf between a substantially vertical and a substantially horizontal position of said shelf, and means for holding said shelf in the substantially vertical position.

GEORGE C. HARBISON.