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CABINET SHELVING

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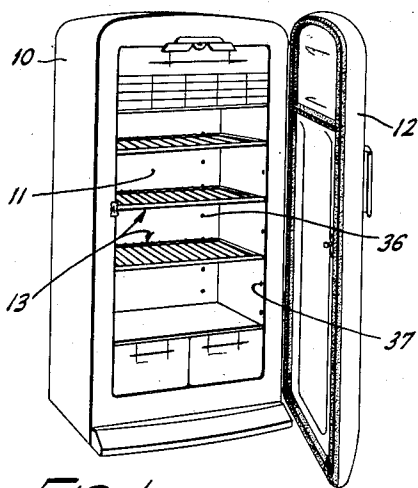


FIG. 1.

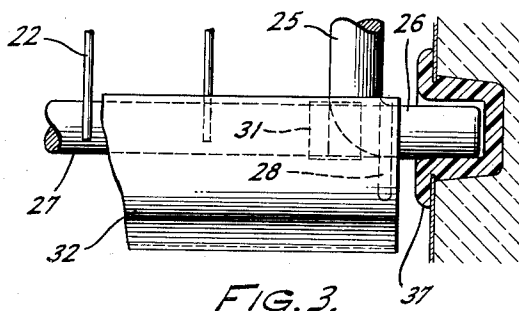


FIG. 3.

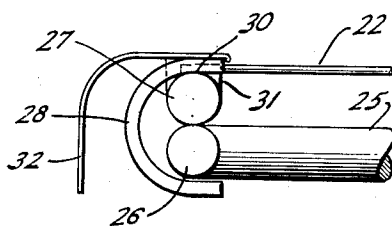
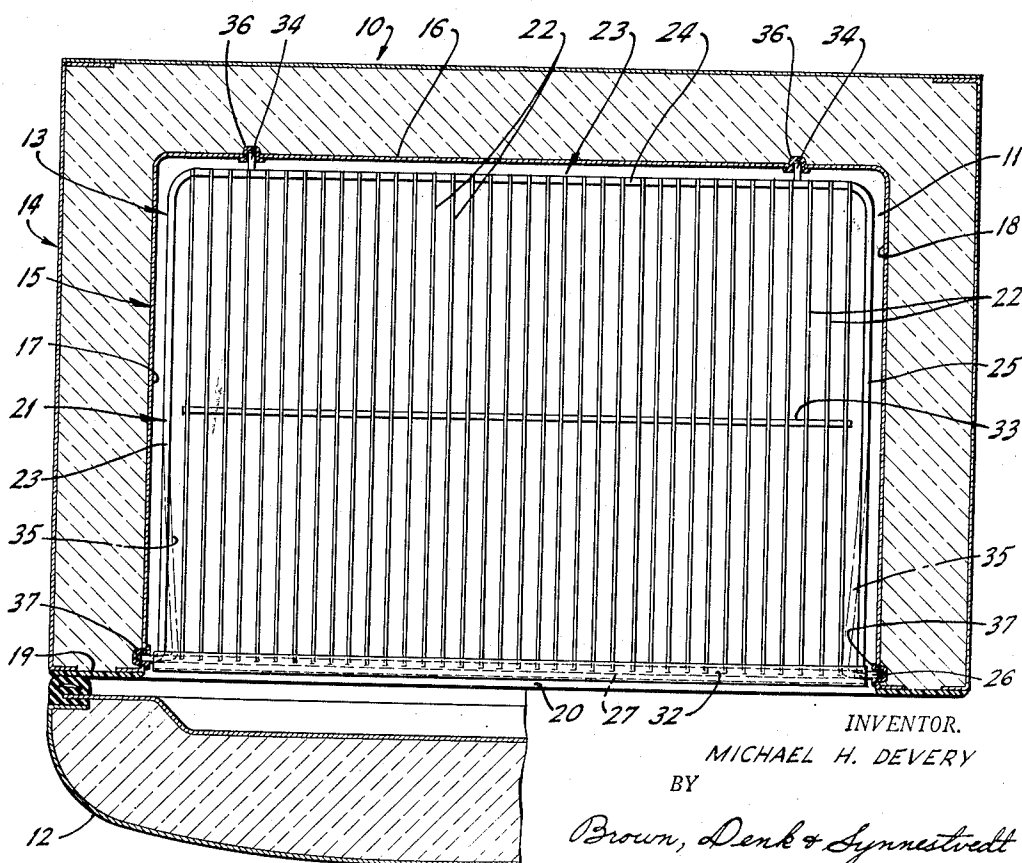


FIG. 4.

FIG. 2.



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The invention hereinafter described and claimed has to do with shelf structures, and, in particular, to a removable shelf of the type adapted for use in the food storage compartment of a household refrigerator.

In refrigerators, or similar cabinet structures, it is sometimes desirable to alter the spacing of the shelves from time to time to accommodate objects of different heights. This, of course, has been long recognized and the prior art contains many types of adjustably mounted shelves. An important requirement of this type of shelf is that it be simply constructed, so that it may be moved from one position to another without difficult manoeuvring by the user, and so that when in position it cannot easily be dislodged. It is, therefore, the primary purpose of this invention to provide a novel shelf of this general character.

Another object of the invention is to provide a novel cabinet and shelf combination wherein the shelf may readily be adjusted to various positions within the cabinet.

It is also an object to provide a shelf including means serving both to support the shelf and to lock it in the cabinet in a manner preventing its accidental dislodgment.

A further object of the invention is to provide such a shelf construction which is inherently flexible to an extent adapting it for use in production cabinets not held to close tolerances.

A still further object of the invention is to provide a shelf of this type characterized by simple, clean-cut, and inexpensive construction, and which, when positioned in the cabinet, blends with the general design features thereof.

In keeping with these general objects, the invention contemplates a shelf construction including framing means, side portions of which may be flexed inwardly toward each other in a manner permitting the overall width of the shelf to be received freely between the side walls of a cabinet, and which side portions when released spring outwardly into engagement with wall structure of the cabinet, whereby to hold the shelf in place.

In the drawings, illustrating a preferred form of the invention:

Figure 1 is a perspective view of a refrigerator having therein a plurality of shelves embodying the invention;

Figure 2 is an enlarged transverse cross-sectional view taken through the refrigerator above the plane of one of said shelves;

Figure 3 is a magnified fragmentary plan view of a forward corner portion of the shelf; and

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Figure 4 is a side elevational view of the corner portion shown in Figure 3.

With detailed reference to the drawings and more particularly to Figures 1 and 2 thereof, the numeral 10 designates a refrigerator having an open front food storage space 11 normally closed by a door 12. Space 11 is provided with a plurality of article supporting shelves 13, the construction of each being in particular accordance with the present invention. As seen more clearly in Figure 2, the refrigerator 10 includes an outer wall or shell 14 and spaced liner 15, the latter including a rear wall 16 and two side walls 17 and 18 cooperating with top and bottom walls, not identified, to define the food storage compartment 11. A breaker strip 19 closes the opening between the outer wall and the inner liner adjacent the access opening 20 of the refrigerator.

Still with reference to Figure 2, it is seen that in this exemplary embodiment of the invention shelf 13 comprises, generally, a rectangular frame 21 of heavy gage wire and an article-supporting surface preferably formed by a plurality of cross rods 22 of somewhat lighter gage wire.

Frame 21 includes a substantially U-shaped member 23, the bottom of which forms the shelf back rail 24, while the parallel side portions form the side rails 25 of the shelf. The forward ends of the side rails are provided with outwardly projecting members 26, preferably formed by turning the ends of the rails, as is clearly shown in Figure 3. Completing the frame is a transverse rod 27 which spans the open front of the U-shaped member and forms the front rail of the shelf. The opposite ends of rod 27 overlap the out-turned ends 26 of side rails 25, but are not rigidly secured thereto. As shown in Figure 4 these ends 26 and 27 are retained in close adjacency by a C-shaped retaining loop 28 having its upper end suitably attached, as by welding, to front rail 27, as indicated at 30. Secured to the top of the front rail 27 at opposite ends thereof are pad elements 31 to which is attached in any suitable manner, and in spaced relation with the front rail, a facing plate 32 providing a finished appearance for the front edge of the shelf.

Bridging the space between back rail 24 and front rail 27 of the frame are the wire rods 22 which form the aforesaid article-supporting surface of the shelf. The ends of these wires are suitably secured to the tops of both rear rail 24 and front rail 27 as by welding, or otherwise. The ends secured to the front rail are disposed be-

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neath the face plate 32 to enhance the appearance of the shelf. If desired a wire rod 33, traversing the midportion of rods 22, may be provided to add strength and rigidity to the assembly. Attached to the rear rail 24 of the framing member is a pair of relatively spaced and rearwardly projecting lugs 34 for the purpose stated below.

In positioning the shelf within the food storage compartment of the refrigerator the flexible side rails 25 are flexed inwardly toward each other as indicated by the broken line position 35 in Figure 2. The shelf is then moved into the compartment until lugs 34 are engaged in a pair of sockets 36 provided for that purpose in the rear wall 16 of the liner. Simultaneously the outwardly turned end portions 26 of the side rails register with sockets 37 provided in the side walls of the liner adjacent access opening 20 of the refrigerator. Release of the side rails permits the end portions 26 to engage sockets 37. It is by reason of the flexible side rails that this shelf is particularly adapted for use in production-line cabinets wherein tolerances are generous. These side rails also, in cooperation with the supports on the liner walls, serve the dual purpose of supporting the shelf and locking it in its supported position in a manner preventing its accidental displacement during normal use of the refrigerator.

Socket members 36 and 37 are employed as a matter of convenience and appearance, it being understood that apertures in the cabinet walls would also serve the purposes of this invention. Additionally, while these sockets are illustrated as being formed of a synthetic plastic material, other materials such as metal would serve as well.

As shown in Figure 1, the liner walls are provided with a plurality of the sockets 36 and 37 disposed in vertically spaced relation. It is this arrangement which affords ready adjustment of the space between shelves to accommodate various food products.

From the foregoing description it will now be understood that the invention provides a novel shelf structure of simple and inexpensive construction affording ease of adjustment, and assuring positive retention of the shelf in any position of adjustment.

I claim:

1. A shelf comprising: framing means, said framing means being substantially U-shaped and constituting rear and side rails of said shelf, said side rails being flexible in the plane of said shelf to provide for variation in the distance between the free end portions of said side rails; structure defining an article supporting surface secured to said framing means along said rear rail, said structure including a front rail extending between and supported at its ends by said end portions of said side rails; and means on said end portions for mounting said shelf in said cabinet.

2. A shelf construction in accordance with claim 1, wherein the ends of said front rail overlap said side rails adjacent said end portions thereof, and there is further included means retaining said overlapping ends in close adjacency with said end portions.

3. A shelf construction in accordance with

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claim 2, wherein said retaining means comprises a pair of C-shaped members each of which has one end attached to said front rail and its other end looped around the end portion of the underlying side rail.

4. A shelf construction in accordance with claim 1, wherein said mounting means comprises a member projecting outwardly from the free end of each of said side rails.

5. A shelf construction in accordance with claim 4, wherein said outwardly projecting members comprise outwardly turned end portions of said side rails.

6. A shelf comprising framing means, structure defining an article-supporting surface secured to said framing means, said framing means being generally U-shaped in plan form with the base of the U constituting the rear rail of said shelf and the sides of said U constituting the side rails of said shelf, and front rail means secured to said structure and extending between the free ends of said side rails, said side rails being flexible substantially in the plane of said shelf and each having at the outer end thereof a short outwardly projecting member displaceable in response to flexure of the associated side rail and serving as releasable means for supporting the shelf within a cabinet.

7. A shelf in accordance with claim 6, wherein said outwardly projecting members comprise outwardly turned end portions of said side rails adapted to be received within apertures formed in opposed side walls of a cabinet, and in which shelf said rear rail is formed to be supported by the rear wall of a cabinet.

8. In combination with a cabinet having a storage compartment including rear and side walls, a shelf comprising framing means generally U-shaped in plan form with the base of the U constituting the rear rail of said shelf and the sides of the U constituting side rails of said shelf, said shelf further including front rail means extending between the free ends of said side rails, and structure defining an article supporting surface secured to said framing means and to said front rail means, said side rails being flexible in the plane of said shelf and each having at the free end thereof a short outwardly projecting member, means on the rear wall of said cabinet supporting said rear rail of said shelf, and means forming recesses or depressions in forward portions of the side wall of the cabinet, said projecting members normally being received within said apertures to provide support for the forward portion of said shelf, and said members being displaceable, in response to flexure of the associated side rails, to permit withdrawal of said members from said apertures and removal of the shelf from the cabinet.

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