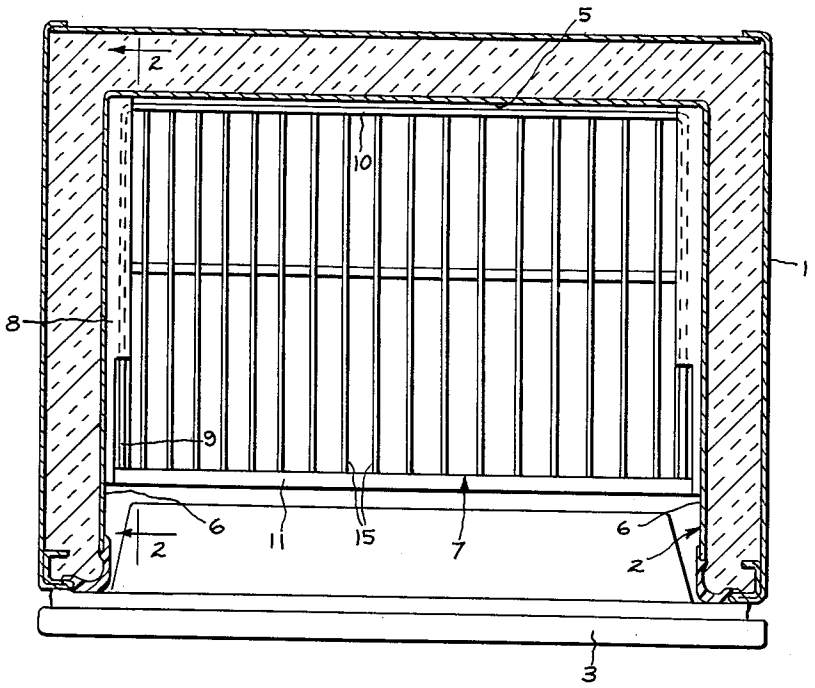
Aug. 22, 1961 D. E. HILLIKER ET AL 2,997,356

SLIDING SHELF

Filed April 1, 1959

FIG. 1



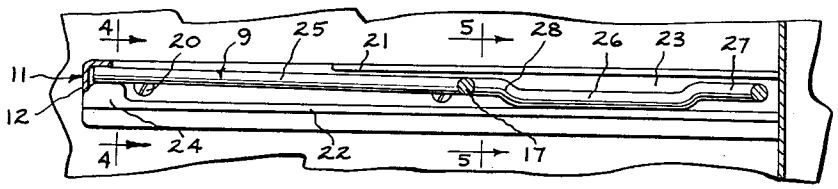


FIG. 2

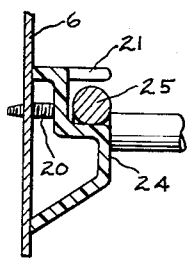


FIG. 4

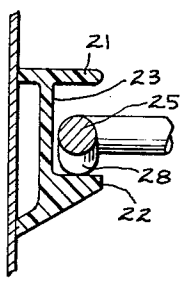


FIG. 5

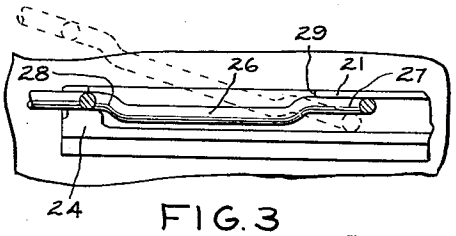


FIG. 3

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SLIDING SHELF

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The present invention relates to sliding shelves and is more particularly concerned with sliding shelves including means for limiting forward sliding movement thereof.

It is an object of the present invention to provide a simple and low cost sliding shelf arrangement including means for limiting sliding movement thereof.

It is another object of the invention to provide a sliding shelf arrangement which permits easy removal of the shelf from a cabinet when the shelf is in its extended position.

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

For a better understanding of the invention reference may be had to the accompanying drawing in which:

FIG. 1 is a horizontal sectional view of a refrigerator cabinet including a sliding shelf embodying the present invention;

FIG. 2 is a fragmentary side elevational view taken along line 2—2 of FIG. 1;

FIG. 3 is a view similar to FIG. 2 illustrating the relationship of the shelf and one of the supports when the shelf is in its extended position;

FIG. 4 is a sectional view along line 4—4 of FIG. 2; and

FIG. 5 is a detailed sectional view along line 5—5 of FIG. 2.

Referring to FIG. 1 of the drawing, there is illustrated a refrigerator cabinet including an outer wall 1 and an inner wall or liner 2. The walls are formed to provide an opening at the front of the cabinet closed by a door 3. The liner 2 forms a food storage compartment in the cabinet and is shaped to include a rear wall 5 and oppositely disposed side walls 6.

A removable shelf 7 is slidably supported within the compartment by two supports 8 which are respectively mounted on the oppositely disposed side walls 6. The shelf 7 comprises a rectangular frame in which the sides 9 and the rear portion 10 are formed of a U-shaped heavy wire member and the front portion 11 is in the form of a strip extending transversely of the shelf structure and having a downwardly extending flange portion 12. In order to provide a supporting surface for food stored in the cabinet, a plurality of wires 15 are provided extending between the front portion 11 of the shelf and the rear portion 10, these wires being secured thereto in any suitable manner. A bar 17 extending transversely of the shelf in the center portion thereof is provided for strengthening the shelf and providing additional support for the wires 15 adjacent the mid-sections thereof.

Referring now to the details of construction shown in FIGS. 2, 3, 4 and 5, each of the shelf supports or guides 8, which are secured to the side wall 6 of the cabinet by means of screws 20, extend substantially the width of these side walls and include an upper flange 21 and a lower flange 22 which cooperate to define a slot 23 adapted to receive one of the sides 9 of the shelf 7. A projection 24 provided at the front end of the lower flange 22 extends upwardly therefrom a distance which is approximately equal to the difference between the width of the space between the upper and lower flanges 21 and 22 and the diameter of the wire forming the shelf sides 9.

Each of the shelf sides 9 comprises a front section 25 which extends substantially one-half the depth of the shelf, an offset section 26 which is offset downwardly from the section 25 and extends substantially parallel to the front section and a rear section 27 which is in line with the front section 25. By this configuration, each shelf side 9 includes a shoulder 28 between the front section 25 and the offset section 26 which is adapted to engage the projection 24 when the shelf is moved forwardly to an extended position as shown in FIG. 3; this engagement limiting the forward movement of the shelf in order to prevent accidental removal thereof from the cabinet.

As shown in FIG. 2 of the drawing, when the shelf is in its normal or recessed position within the cabinet, the forward section 25 of the shelf rests on the projection 24 while the offset portion 26 is in engagement with the lower flange 22 thus providing a two-point suspension for each side of the shelf. Also, in this position of the shelf, the downwardly extending flange 12 on the front edge of the shelf contacts the projection 24 to limit rearward travel of the shelf.

As the shelf is slid forwardly to its extended position shown in FIG. 3, section 25 rides on the projection 24 and the offset section 26 rides on the lower flange 22 until such time as the center of gravity of the shelf moves beyond the projection 24. At this point, tendency of the shelf to tilt forwardly is limited by engagement of the rear section 27 of the shelf with the upper flange 21. Forward sliding movement of the shelf is limited by contact of the shoulder 28 with the projection 24.

To provide for removal of the shelf from the cabinet, the upper flange 21 of each slide is terminated short of the front of the cabinet, as indicated by the numeral 29, a distance substantially equal to the length of the offset portion 26 so that while the short rear section 27 of the shelf will remain in contact with the flange 21 to prevent forward tilting movement of the shelf when in its extended position, the shelf can be tilted upwardly and removed through the space between the projections and the shortened upper flanges to the dotted line position shown in FIG. 3. Also, for this purpose, the rear section 27 of the shelf sides 9 is relatively short and of a length such as to permit this upward tilting action without binding between the upper and lower flanges 21 and 22.

From the above description, it will be seen that the configuration of the shelf sides 9, the projection 24 on the guides or supports 8 and the shortened upper flange 21 cooperate to provide simple and low cost means for slidably supporting a shelf in both its extended and retracted positions, means for stopping the forward travel of the shelf and means for permitting removal and replacement of the shelf.

While the present invention has been described in connection with the particular embodiment thereof, it is to be understood that it is not restricted thereto and it is intended by the appended claim to cover all such modifications as come within the true spirit and scope of the invention.

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

In a cabinet having oppositely disposed side walls, a sliding shelf comprising a wire frame forming opposed sides of the shelf, said sides each comprising a front section extending substantially one half the depth of said shelf, an offset section offset downwardly from and parallel to said front section and forming a shoulder between said sections for normally supporting the rear portion of said shelf, and a rear section in line with said front section, shelf guides secured to and extending substantially the width of said side walls, said guides each including

upper and lower flanges defining a slot for receiving one of said opposed sides of said shelf, said lower flanges extending the full length of said guides and each having a projection at the forward end thereof extending upwardly therefrom to form a bearing surface for supporting the front sections of said shelf sides and to provide stops engaged by said shoulders when said shelf is slid forwardly from said cabinet to a forward position, said upper flanges terminating short of the front ends of said guides a distance substantially equal to the length of said offset sections whereby the rear sections of said shelf sides will maintain engagement with said upper flanges and prevent tilting of said shelf in its forward position, said rear sections being of a length such as to permit upward tilting of said shelf in its extended position a distance sufficient to clear said projection and permit removal of said shelf from said cabinet, said shelf including a downwardly extending flange on the front edge thereof for engaging said projections and limiting rearward movement of said shelf when the shelf is in its retracted position in said cabinet.

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