

1

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DROP GUARDS FOR REFRIGERATOR DOOR SHELVES

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1 Claim. (Cl. 312—300)

This invention relates to shelves for the doors of refrigerators, freezers and the like and more particularly to a drop guard therefor.

It is the principal object of the present invention to provide a drop shelf guard for refrigerator door shelves which will be connected between the side ends of the door that can be pivoted outwardly and downwardly to provide easy placing of or removal of tall milk or soda bottles and the like articles as they are being placed upon or taken from the shelves and thereby make easy and more accessible these bottles and other articles that are ordinarily placed on the door shelves.

It is another object of the invention to provide a drop shelf guard for the shelves of refrigerator doors, freezers and the like that can be easily moved between vertical and horizontal positions and can be moved to any position therebetween and automatically made to stay in the position so as to free both hands of the user once the guard has been moved for placing the articles on the shelving or taking them therefrom the shelving thereby being left open and free until the guard is returned to its normal vertical position.

It is still another object of the invention to provide a shelf guard for refrigerator door shelves which when moved to its horizontal position may serve to provide temporary shelf space as when cleaning the refrigerator shelves, temporarily removing or rearranging any of the stored articles from the shelves proper and thereby eliminate the need for carrying such articles to a table or other flat surface while cleaning the shelf or rearranging articles on the refrigerator door shelves.

It is a further object of the invention to provide shelving for refrigerator doors with a guard which serves not only to retain the short stored articles in place upon the shelving but also the tall stored articles, such as bottles and the like, and yet renders both the tall and short articles equally accessible upon the shelves by merely tilting the shelf guard downwardly.

It is a still further object of the invention to provide a simple pivot structure for the securement of the ends of the shelf guard to the side ends of the door in which a spring can be supplied to the pivot structure to render it effective either as a mere compression spring to hold the guard in any of its adjusted positions or a spring arranged as a torsional spring that can render the device effective to cause the automatic return of the guard to its vertical or guard position if it is desired to have the guard arranged in this manner.

Other objects of the invention are to provide a drop shelf guard for shelving in refrigerator doors and the like structures, having the above objects in mind, but at the same time is simple in construction, inexpensive to manufacture, easy to assemble upon the refrigerator door, has a minimum number of parts, of pleasing appearance, compact, easy to operate, efficient and effective in use.

For a better understanding of the invention, reference may be had to the following detailed description taken in connection with the accompanying drawing, in which:

2

Figure 1 is a perspective view of a refrigerator with its door open and looking upon the door shelving and the drop guards of the present invention disposed thereover, one of the shelves being tilted down and serving as a temporary support for the articles,

Fig. 2 is an elevational view of the refrigerator with the door fully open and looking in elevation upon the shelves and the guards of the present invention,

Fig. 3 is a perspective view of the wire grid guard removed from the refrigerator door,

Fig. 4 is a vertical sectional view taken through the door shelf and guard and as viewed on line 4—4 of Fig. 2,

Fig. 5 is an enlarged sectional view taken through the pivot pin connection of one end of the guard with the inner shell of the refrigerator door and as viewed on line 5—5 of Fig. 4 and in which a compression holding spring is used, and

Fig. 6 is a view similar to Fig. 5 of a slightly modified form of the invention in which a torsion return spring is used.

Referring now particularly to Figs. 1 to 5, 10 represents a refrigerator proper on which there is hinged a refrigerator door 11 having internal storing shelves 12, 13 and 14 vertically spaced from one another and adapted to support the usual food articles such as baby bottles, packages, cartons of milk, butter and tall glass milk and soda bottles. Elevated sufficiently above the respective shelves 12, 13 and 14 in the door and pivotally connected between an inner shell 15 of the sides thereof, are respective downwardly tiltable drop shelf guards 16, 17 and 18. The inner shell 15 is disposed within an outer shell 19 of the door and there is an insulating space 20 disposed therebetween to accommodate locking nuts of pivot pins 30 that support the wire guards. As best shown in Fig. 3 the wire guard 16 has vertically-spaced, horizontally-running, lower and upper portions 21 and 22 and wire grill work 23 disposed therebetween. Wire end portions 24 and 25 are bent downwardly and rearwardly to provide L-shaped horizontal pivot extension or hinge arms 26 and 27 having respective pivot pin openings 28 and 29. These arms are of a rearward length equal to the distance between the center of pivot pin 30 and the shelf surface so as to allow the arms to be pivoted onto the shelf 12 and without the lower portion 21 interfering with the stored articles on the shelf proper and in the manner illustrated in Fig. 1 and by the dash lines at 16' of Fig. 4. The top surface of the shelf will accordingly provide support of the grid-like guard or structure so that it may serve as a temporary shelf when rearranging the food items on the door shelves. The rigid shelf proper will assume the weight of the guard when in this position, the guard hinge arms then pressing downwardly on the top thereof and the lower portion 21 lying outwardly and adjacent to the forward edge of the shelf. The pivot pins 30 as best seen in Fig. 5 are in the form of a screw bolt which is secured to the door lining 15 by lock nuts 31 and 32. The pivot hinge arms 26 and 27 of the end portions of the grid structure are pivoted on the bolts between washers 33 and 34 lying outwardly thereon and are maintained in tight gripping relationship with the arms of the guard by a compression spring 35 lying in front thereof and reacting against screw head 36. The compression spring 35 and the washers will thus frictionally hold the guard in any of its tilted down positions as well as in its vertical position when it is elevated to serve as a guard for the food articles lying on the shelves.

In Fig. 6, there is shown a torsion spring 37 which may be applied to the bolt 30 so as to serve to return the guard automatically to its elevated position after it has been lowered to remove the food articles from the shelves.

To effect this the torsion spring 37 is anchored at 38 in the head 36 of the bolt and has at its other end an extension 39 that is engaged by the guard extension arm.

The guard 16 when used with these torsion springs 37 is held against inward displacement by the engagement of its upper horizontal portion 22 with bottles or any of the elevated food items lying on the shelves or inwardly over the shelf and against the lining of the door to provide, due to the shape of the guard member, a multiple shelf arrangement, if desired, where short articles such as egg cartons and butter packages are placed on the shelf. Access can still be had to the shelf proper from under the guard and at the same time the guard extending horizontally and overlying the shelf may serve as a shelf thereabove.

It will be seen that when the guard is in its vertical position its lower horizontal member 21 is sufficiently elevated to provide sufficient space thereunder to permit the entire shelf to be easily cleaned from thereunder and to the full extent thereof since the wire end portion hinge arms 26 and 27 are elevated therefrom with the guard in its vertical position.

While various changes may be made in the detail description, it shall be understood that such changes shall be within the spirit and scope of the present invention as defined by the appended claim.

What is claimed is:

In a refrigerator, freezer or the like structure, a hollowed door having opposite side ends, a shelf proper fixed within the door and extending between the door side ends, a shelf guard having depending and rearwardly

extending L-shaped hinge arms at the opposite ends thereof adapted to horizontally overlie the shelf when the guard is in its elevated position, means for respectively pivotally connecting the ends of said hinge arms to the respective side ends of the hollowed door, said pivot connecting means being elevated above the shelf a distance equal to the rearward length of the depending and rearwardly extending L-shaped hinge arms so that upon the guard being lowered to its horizontal position the depending parts of the hinge arms rest upon the top of the shelf, said guard having its lower edge elevated above the shelf so that the contents thereof may be viewed from thereunder, and spring means reacting between the depending hinge arms of the shelf guard and the pivot connecting means for holding the shelf guard in at least one of its positions to which it may be moved, whereby the guard may serve as a temporary support for articles as they are being arranged on the shelf proper and so that they may be viewed from under the guard when on the shelf.

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