

Oct. 2, 1934.

J. N. LONEY
REFRIGERATOR SHELF

1,975,327

Filed Dec. 20, 1933

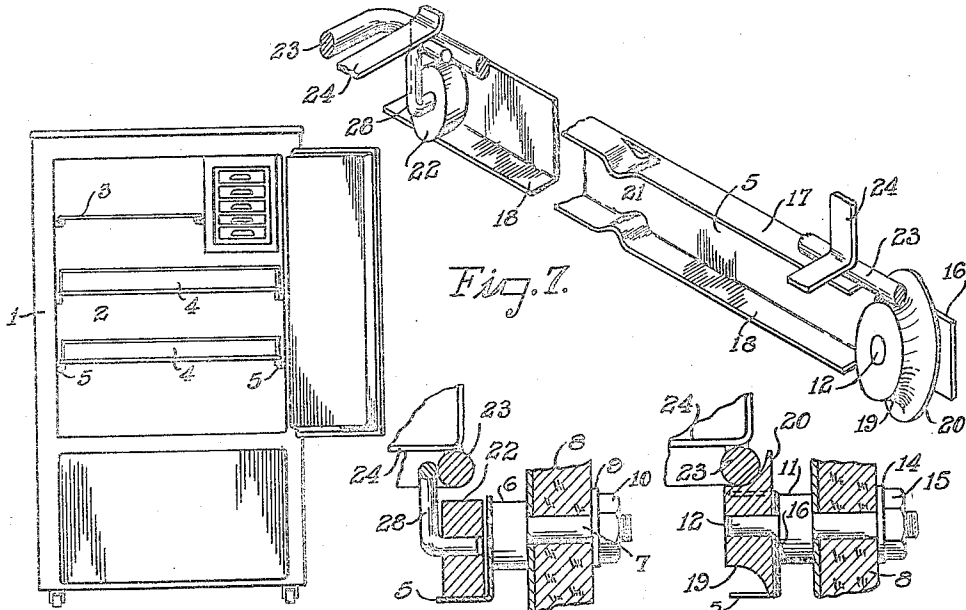


Fig. 1.

Fig. 7.

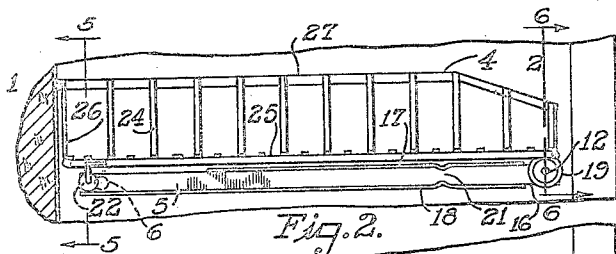


Fig. 2.

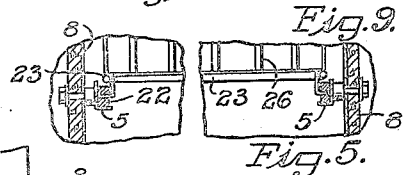


Fig. 5.

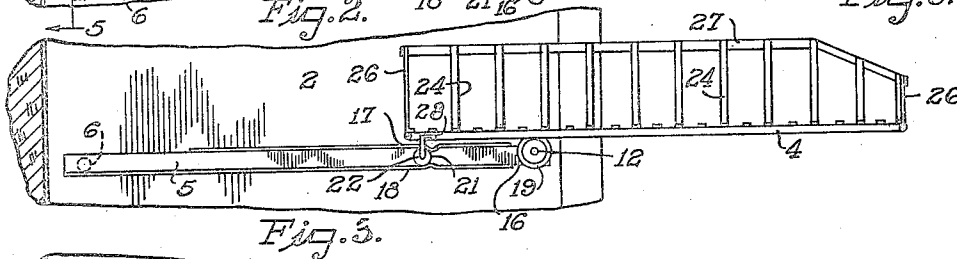


Fig. 3.

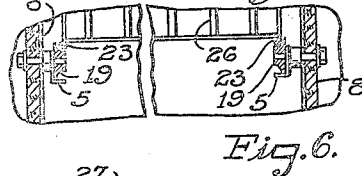


Fig. 6.

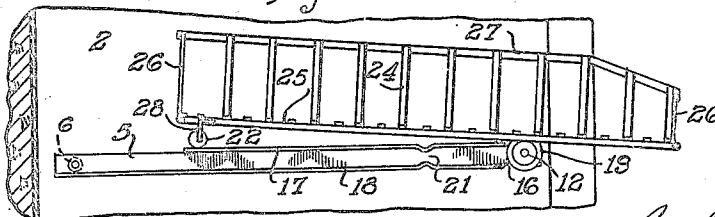


Fig. 4.

INVENTOR,
Jacob M. Loney,
BY
Howard S. Smith
ATTORNEY

UNITED STATES PATENT OFFICE

1,975,327

REFRIGERATOR SHELF

Jacob N. Loney, near Dayton, Ohio, assignor of
forty-eight per cent to Ralph E. Adamson and
Susan B. Adamson, near Dayton, Ohio

Application December 20, 1933, Serial No. 703,259

3 Claims. (Cl. 211—151)

This invention relates to new and useful improvements in refrigerator shelves, and more particularly to movable shelves and trays for mechanical refrigerators and the like.

5 It is one of the principal objects of my invention to provide a roller mounting for refrigerator shelves and trays that will permit their being withdrawn from within the refrigerator more than two-thirds their depth without binding in
10 their supports and without tilting.

Another object of my invention is to provide a roller mounting for movable shelves and trays that will permit their complete removal from the refrigerator when desired.

15 It is another object of my invention to provide a structure in which there is no metal to metal contact between its various movable parts, such as would destroy the galvanizing or electroplating employed to rust-proof them.

20 I have also provided a structure that may be easily removed for cleaning.

Other important and incidental objects of my invention will be set forth in the following specification and the claims subjoined thereto.

25 In the accompanying drawing illustrating my invention in its preferred form, Figure 1 is a front view of a conventional domestic refrigerator cabinet showing my movable shelves and trays therein. Figure 2 is a longitudinal, sectional view taken
30 through one of the movable trays and its mounting, while fully within the cabinet. Figure 3 is a view of the movable tray shown in Figure 2, when withdrawn from the cabinet and supported by the stationary members.

35 Figure 4 is another view of the movable tray shown in Figure 2, while in the process of being completely removed from the cabinet.

Figure 5 is a sectional view taken on the line 5—5 of Figure 2, showing the rear rollers. Figure 40 6 is a sectional view taken on the line 6—6 of Figure 2, showing the front rollers. Figure 7 is a fragmentary perspective view of one of the guide channels and associated parts. Figure 8 is a detail view of the rear mounting means, and
45 Figure 9 is a detail view of the front mounting means.

Referring to the accompanying drawing for a detail description of my invention, the numeral 1 designates a conventional refrigerator cabinet
50 having a food storage compartment 2. In this compartment I have shown a movable top shelf 3 and movable lower trays 4, although it is obvious that all may be either trays or shelves as desired. Each shelf 3 or tray 4 is independently mounted
55 upon oppositely disposed horizontal channel mem-

bers 5, 5 secured to the side walls of the compartment 2.

As shown in Figure 8, each channel member 5 has riveted, welded or otherwise secured to its outer face, at the inner end thereof, a shouldered
60 stud 6 whose reduced outer end 7 passes through the refrigerator lining and wall structure 8, receiving on its outer threaded end a washer 9 and nut 10.

At the forward end of each channel member 5, 65 I have secured a similar stud 11 to the outer face thereof. This stud has an axial extension 12 projecting inwardly between the channel flanges as shown in Figure 9.

The reduced outer end 13 of this stud 11 also
70 passes through the refrigerator lining and wall 8, there being applied to its outer end a washer 14 and nut 15. By means of these studs 6 and 11, the channel members 5 are rigidly and permanently attached to the opposite side walls 8 of the
75 compartment 2.

At the front end of each channel member 5, its web 16 projects slightly beyond the top and bottom flanges 17 and 18, respectively, to receive the stud 11 and a flanged composition roller 19
80 freely mounted on the axial extension 12. This roller is positioned with its flanged face 20 adjacent the inner face of the channel web 16. (See Figure 7).

Rearward of the roller 19, and at substantially
85 one-fourth the length of the channel members 5, the top and bottom flanges 17 and 18 of each, is formed inwardly to provide a restricted passage or stop 21 therein. Adjacent the rear end of each channel member 5, its top flange 17 is abbreviated
90 to permit the insertion between its flanges, of a rear cylindrical roller 22. (See Figure 7).

My movable shelves 3 and trays 4 are similarly formed with a rectangular frame 23 of round stock whose ends are welded to provide a continuous bottom member, and to whose top face,
95 narrow rectangular members or bars 24 are welded in transversely spaced relation to form a reticular bottom 25. When used in the construction of a tray 4, alternate bars 24 of the bottom are formed
100 upwardly, perpendicular to the bottom, at the point of intersection with the frame 23, to provide the tray sides.

The short members 26 are also welded perpendicular to the front and rear ends of the frame 23
105 to form the ends of the trays, the top free ends of these perpendicular members 24 and 26 being joined, by welding, to a continuous band 27, likewise of rectangular shape. (See Figures 2, 5 and 7).

Secured to each side of the frame 23 and adjacent its rear end, is a depending bracket member 28 formed outwardly from the side of the tray, to receive, the roller 22, which is freely mounted thereon and is supported on the lower flange 18. The rollers 22 project beyond the ends of the bracket members 28 on which they are mounted to prevent the engagement of the latter with the channel webs 16. (See Figures 7 and 8).

The completed tray or shelf is then galvanized or given a rust-proof electro-plating before installation in the refrigerator.

In each case I desire to use non-metallic rollers 19 and 22 of non-absorbing material such as a phenolic-condensate compound. By using rollers of this type, metal to metal contact is eliminated, thus assuring quiet operation as well as a long life of the rust proofing of the metal.

When my trays or shelves are inserted in the cabinet, the rear rollers 22 are applied to their respective mounting brackets 28, and the rollers 19 are positioned on the axial projections 12 of the front studs 11. The tray or shelf is now placed in the compartment 2 with the rear roller 22 on top of the top flange 17 as shown at Figure 4. When the tray or shelf is fully inserted, the rear rollers will assume a position on the bottom flange 18 as shown at Figure 2, and the front end of the frame 23 will be received on the flanged periphery of the front rollers 19, 19.

Now, as the tray or shelf is withdrawn from the compartment, the rear rollers 22, 22 will roll on the top face of the bottom flanges 18, 18 between the top and bottom flanges of the channel members 5, 5 and the frame 23 will be supported at the front of the compartment by the oppositely disposed rollers 19, 19.

When the shelf or tray has been withdrawn its maximum distance, the rollers 22 will engage the restricted passages or stops 21, 21 formed in the flanges of the channel members 5, 5. The stationary front rollers 19, 19 will now serve as a fulcrum for the projecting portion of the tray or shelf, and the top flanges 17, 17 will engage the rear rollers 22, 22 to maintain the tray or shelf in a horizontal position, even when filled with the articles customarily stored in a refrigerator. (See Figure 3.)

When it is desired to completely detach and remove a shelf or tray, its inner end is lifted until its rollers 22, 22 occupy a position on the

top flanges 17, 17 of their respective channels as shown in Figure 4. The tray or shelf may now be completely withdrawn without engaging the stops 21, 21.

It is thus seen that I have provided a simple, frictionless, roller-mounted shelf or tray structure that will render accessible the storage space provided at the rear of the compartment, and thus permit a more efficient and satisfactory use of the entire shelf area.

Having described my invention, I claim:

1. In a tray-receiving compartment, oppositely disposed horizontal members, top and bottom inwardly projecting flanges on said members, rollers freely mounted at the front ends of said members, oppositely disposed flanges formed on said rollers, a movable tray positioned on said rollers, roller-mounting members secured to the rear of said tray, rollers on said mounting members and movable between said flanges, and restricted stop portions formed on the flanges of said horizontal members for engagement by the rear rollers to limit the outward movement of the shelf.

2. In a tray-receiving compartment, oppositely disposed horizontal members, spaced flanges on the latter, rollers freely mounted at the front ends of said horizontal members, a movable tray supported at its front end by said rollers, and rear rollers carried by said tray for movement between said flanges during the normal movement of said tray, and adapted to clear the rear ends of said horizontal members for placement upon the top flanges of the latter to roll outwardly thereon when the tray is withdrawn from said compartment.

3. In a tray-receiving compartment, oppositely disposed horizontal members supported therein, top and bottom inwardly projecting flanges formed on said members, the top flanges being shorter than the bottom flanges, a roller freely mounted at the front end of each horizontal member, a movable tray supported by said rollers, rear rollers movable between said flanges, and bracket members secured to the rear end of said tray to receive the rear rollers, the latter adapted to be raised above the rear ends of the short flanges of the horizontal members for a forward movement thereon to permit a complete withdrawal of the tray.

JACOB N. LONEY.