Dec. 22, 1931. J. W. SANFORD 1,837,293

REFRIGERATOR

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FIG. 1.

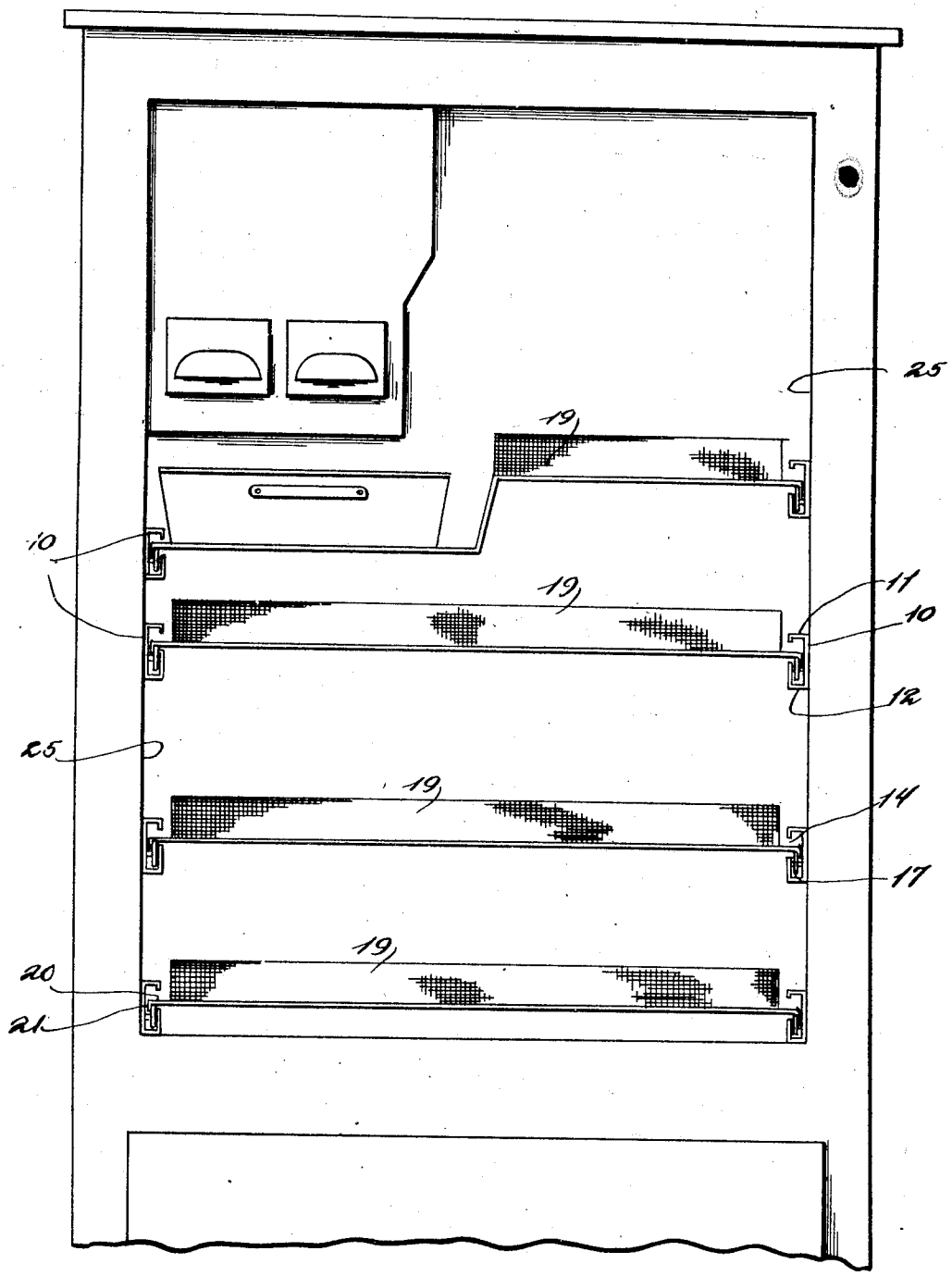

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FIG. 2.

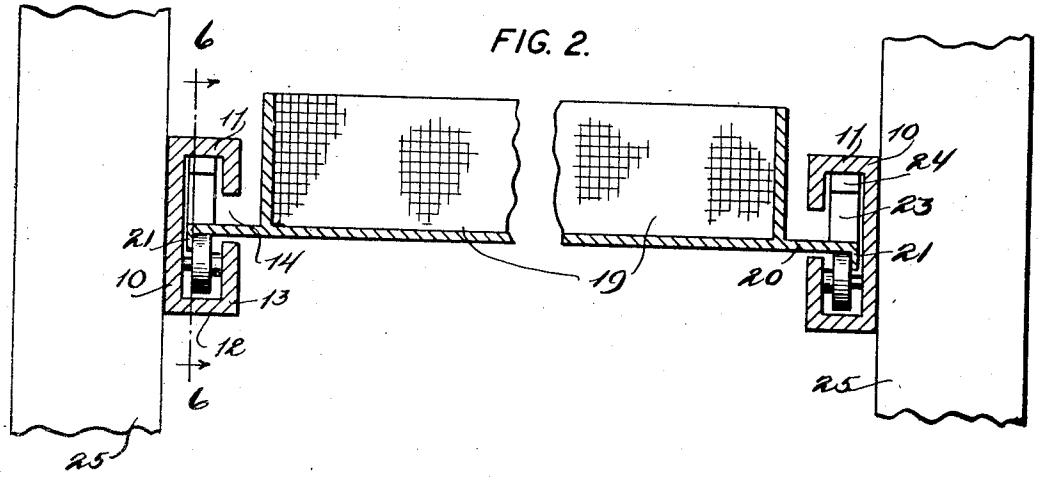

FIG. 3.

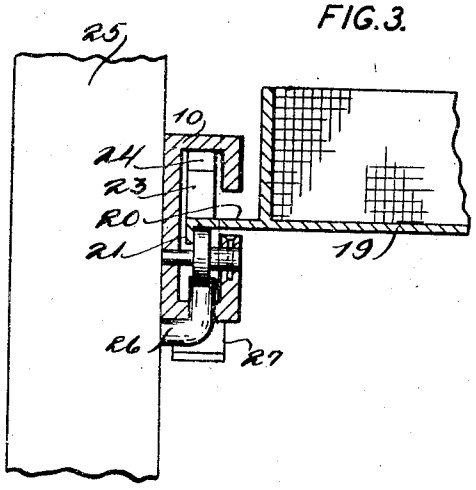

FIG. 4.

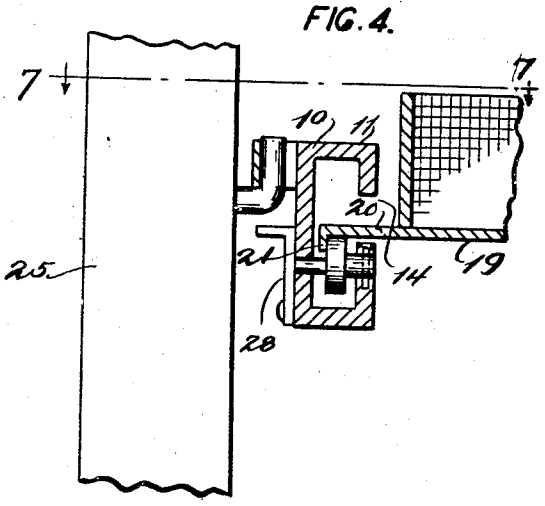

FIG. 5.

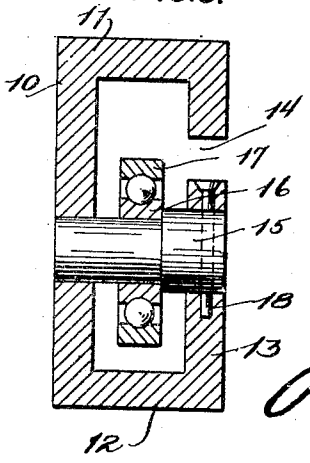

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FIG.6.

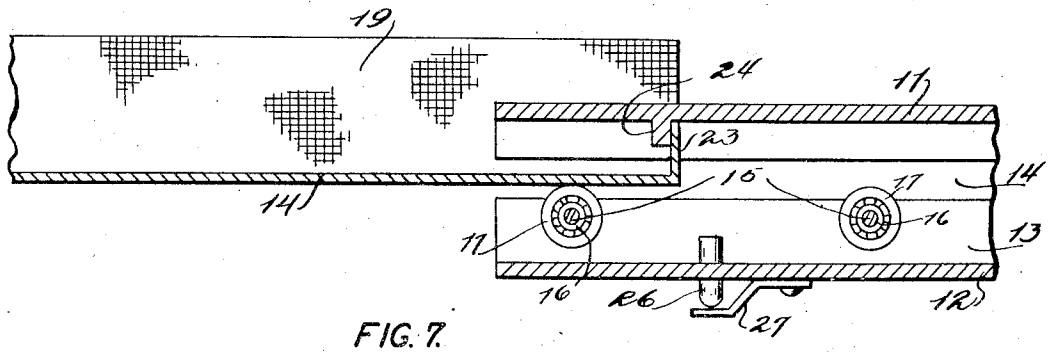


FIG. 7.

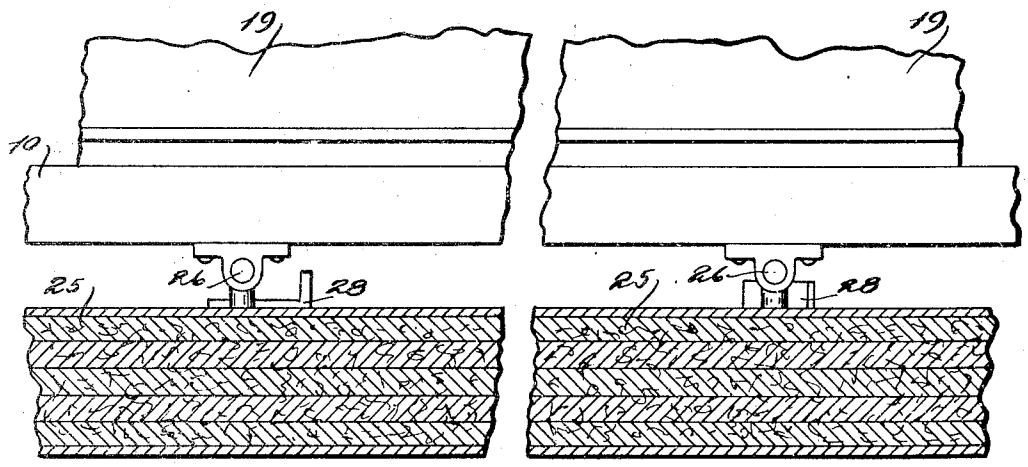


FIG.8.

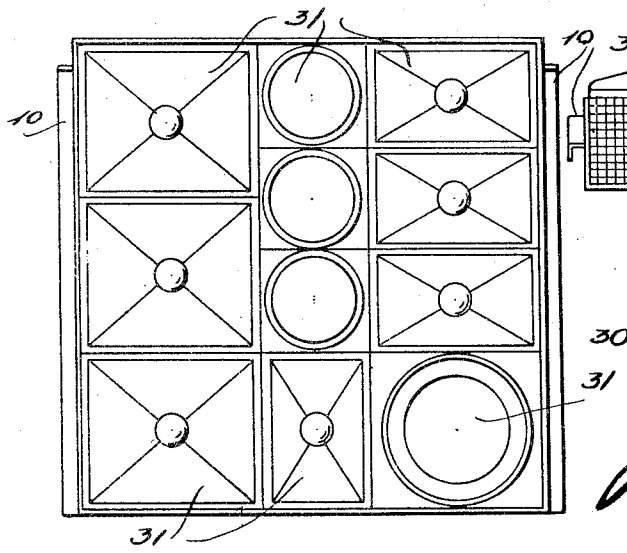
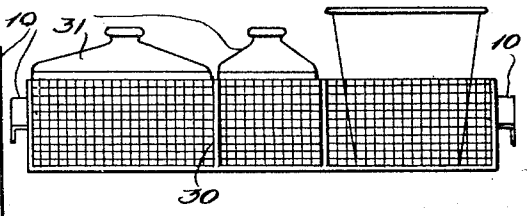


FIG.9.



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1,837,293

UNITED STATES PATENT OFFICE

JOSEPH W. SANFORD, OF WASHINGTON, DISTRICT OF COLUMBIA

REFRIGERATOR

Application filed September 20, 1929. Serial No. 394,076.

This invention relates to refrigerators.

More particularly the invention relates to a novel arrangement of tray or rack support for such refrigerators and to a novel tray or rack for use in connection therewith.

One important object of the invention is to provide improved means for supporting the trays or racks of refrigerators in such manner that they can be readily drawn out of the refrigerator to afford access to the food supported or carried by such tray or rack.

A second important object of the invention is to provide a novel arrangement of such tray support so constructed that it may be applied to existing refrigerators.

A third object of the invention is to provide an improved form of such device so arranged as to prevent the tray or rack being drawn too far out.

A fourth important object of the invention is to provide an improved arrangement of this sort having novel means for preventing tilting longitudinally of the rack when drawn out.

A fifth important object of the invention is to provide a novel form of tray for refrigerators especially adapted to hold food containers and to prevent such containers from moving around on the tray.

With the above and other objects in view, as will be later set forth, the invention consists in general of certain novel details of construction and combinations of parts hereinafter fully described, illustrated in the accompanying drawings, and specifically claimed.

In the accompanying drawings like characters of reference indicate like parts in the several views, and:—

Figure 1 is a front elevation of the upper part of a refrigerator, the doors being omitted the better to show the present invention;

Figure 2 is a cross-section through the supporting means and tray and showing the same in its relation to the refrigerator walls;

Figure 3 is a view somewhat similar to Figure 2 but showing a modification of the invention;

Figure 4 is a view similar to Figure 3 but showing a second modification of the invention;

Figure 5 is a cross-section through one of the tray supporting rails showing the application of a ball bearing roller thereto;

Figure 6 is a detail section on the line 6—6 of Figure 3;

Figure 7 is a detail section on the line 7—7 of Figure 4;

Figure 8 is a plan view of a special form of tray adapted to be used herewith; and

Figure 9 is a side elevation of this special tray.

In each form of the invention herein illustrated, there is provided for each food tray or rack a pair of supporting rails. Each of these supporting rails is of flat rectangular tubular form having its longest cross-sectional dimension vertical so that each rail has a back or outer side portion 10, a top 11, bottom 12 and inner side portion 13, the latter being provided with a longitudinal slot extending from end to end of the rail and located somewhat above the vertical center of such rail. Thus each rail has a relatively deep lower channel and a relatively shallow upper channel. Extending between the sides of the lower channel are short shafts or pins 15 whereon are mounted the inner races 16 of ball bearings having outer races 17. These pins or shafts are shouldered (see Fig. 5) to support the inner races against lateral movement toward the inner side of the rail and are secured against movement by any suitable means, best indicated as a pin 18.

Each tray or rack used herewith has a reticulated body 19 from the sides of which project the flanges 20 which enter the tubular rails through the respective slots 14 to rest on the outer ball races 17 so that the trays may roll freely in and out of the refrigerator door opening. Each flange 20 has a downwardly turned lip 21 which engages the outer sides of the respective races 17 so that the tray is prevented from moving laterally to rub the flanges against the rail racks 10. At the rear of each tray the flanges are turned up as at 23 to form stop members which cooperate with stops 24, fixed in the upper channels

of respective rails, to limit outward movement of the tray so that it cannot be pulled out so far as to drop on the floor and can only be intentionally removed from the rails.

In the form of the invention shown in Figures 1 and 2, the rails have their backs 10 permanently fixed to the sides 25 of the food compartment, this form being best adapted for use with refrigerators built expressly to include the present invention and where it is not desirable to provide loose rails and racks.

In many instances, however, refrigerators already on the market or in service may be desired to be equipped with this invention. Also, even with refrigerators manufactured to include the invention it may be desirable to have the rails removable for the purpose of repair, replacement, cleaning the refrigerator or the like. In such cases forms like those shown in Figures 3 and 4 may be used and in Figures 3 and 6 it will be seen that the food compartment wall 25 is provided with the hooks 26 often used in modern refrigerators to hold the food racks. These hooks pass through openings formed in the bottoms 12 of the rails and thus support the rails but permit them to be lifted off so that the rails and trays may be entirely removed from the refrigerator. In order to prevent the rails from tilting as the trays are drawn out, and also to prevent accidental displacement of the rails from the hooks, suitable stops 27 are pivoted to the under sides of the rails to be swung into position below the hooks or to be swung free therefrom according as the rails are to be held in position or removed.

In the form shown in Figures 4 and 7, lugs 28 are fixed on the backs 10 of the rails and engage over the hooks 26. In this form also stops 29 are provided for preventing accidental displacement of the rails from the hooks. Obviously the forms of these lugs may vary in accordance with the type of support 26 with which the refrigerator is equipped.

In the form of tray shown in Figures 8 and 9, the body 19 is divided by portions 30 so that food receptacles 31 may be placed in the compartments or pockets thus formed.

Then has thus been provided simple and efficient devices of the kind described and for the purposes specified.

It is obvious that minor changes may be made in the form and construction of the device without departing from the material principles involved. I do not, therefore, desire to conform the invention to the exact forms herein shown and described but I wish to include all such as properly come within the scope claimed.

Having thus described the invention, what is claimed as new is:—

1. In a refrigerator, a pair of spaced tubular rails having longitudinal slots in their confronting faces, supporting rollers mounted in the lower parts of said rails, an article supporting tray having longitudinally extending flanges projecting laterally from its sides through said slots to rest on said rollers, downturned lips on the free edges of said flanges engaging the sides of the rollers to prevent lateral movement of the tray relative to said rails, an upturned stop at the rear end of each flange, fixed stops within said tubular rails engageable by the stops on the flanges to limit forward movement of said tray, rail supporting means on the walls of said refrigerator, and movable cooperating means on the rails engaging beneath said rail supporting means removably in one position to prevent disengagement of the rails from the supporting means and being free from the supporting means in another position to permit such disengagement.

2. In a refrigerator, a pair of spaced tubular rails having longitudinal slots in their confronting faces, supporting rollers mounted in the lower parts of said rails, an article supporting tray having longitudinally extending flanges projecting laterally from its sides through said slots to rest on said rollers, rail supporting means on the walls of said refrigerator, cooperating means on the rails engaging said rail supporting means removably, and stops pivoted on the under sides of said rails for swinging movement into and out of engaging position with the rail supporting means to prevent and permit disengagement of the rails from the rail supporting means.

3. In a refrigerator, a pair of spaced tubular rails having longitudinal slots in their confronting faces, supporting rollers mounted in the lower parts of said rails, an article supporting tray having longitudinally extending flanges projecting laterally from its sides through said slots to rest on said rollers, downturned lips on the free edges of said flanges engaging the sides of the rollers to prevent lateral movement of the tray relative to said rails, rail supporting hooks on the walls of said refrigerator, cooperating means on the rails engaging said rail supporting hooks removably, and stops pivoted on the under sides of said rails for swinging movement into and out of engaging position with the rail supporting means to prevent and permit disengagement by the rails from the rail supporting means.

4. In a refrigerator, a pair of spaced tubular rails having longitudinal slots in their confronting faces, supporting rollers mounted in the lower parts of said rails, an article supporting tray having longitudinally extending flanges projecting laterally from its sides through said slots to rest on said rollers, downturned lips on the free edges of said flanges engaging the sides of the rollers to prevent lateral movement of the tray relative

to said rails, an upturned stop at the rear end of each flange, fixed stops within said tubular rails engageable by the stops on the flanges to limit forward movement of said tray, rail supporting means on the walls of said refrigerator, cooperating means on the rails engaging said rail supporting means removably, and stops carried by said rails for movement into and out of engaging position with the rail supporting means to prevent and permit disengagement by the rails from the rail supporting means.

Signed at Washington, D. C., this sixteenth day of September, 1929.

JOSEPH W. SANFORD.