March 23, 1937. C. M. HARTMAN 2,074,546

REFRIGERATOR TRAY

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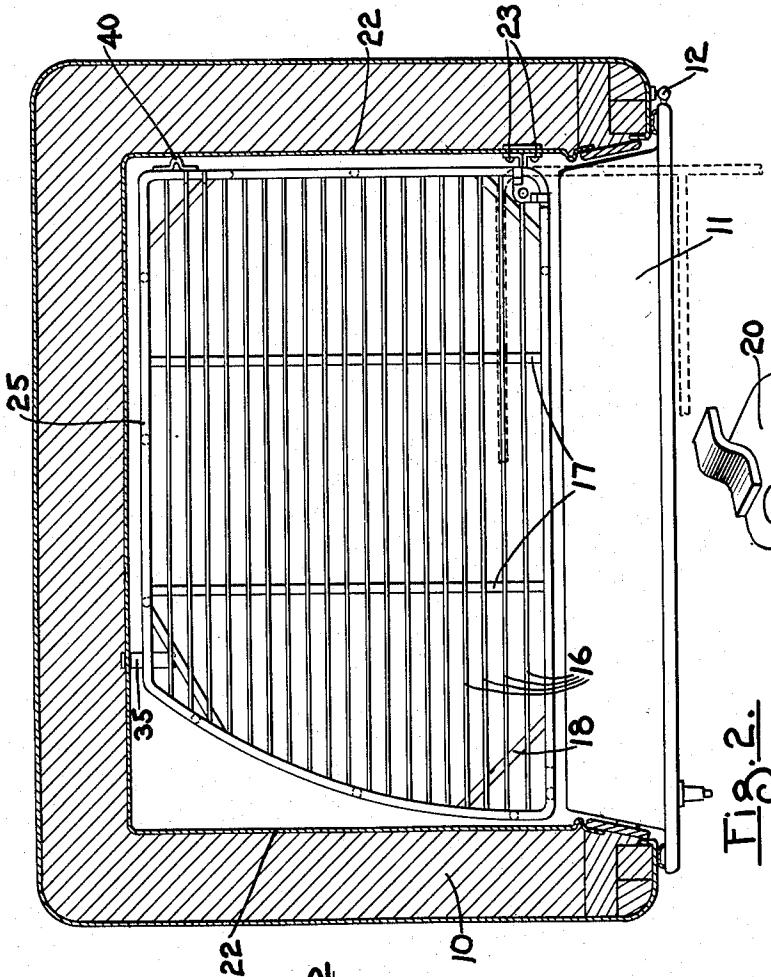


Fig. 2.

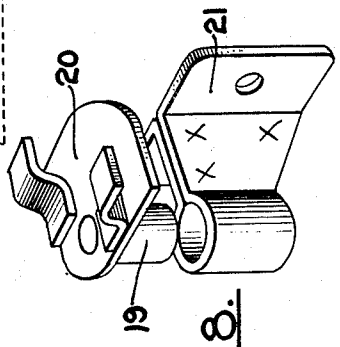


Fig. 3.

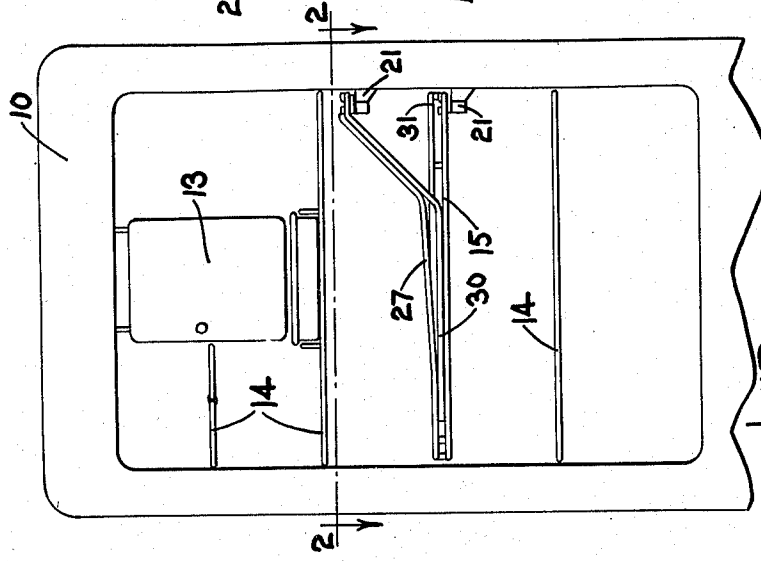


Fig. 1.

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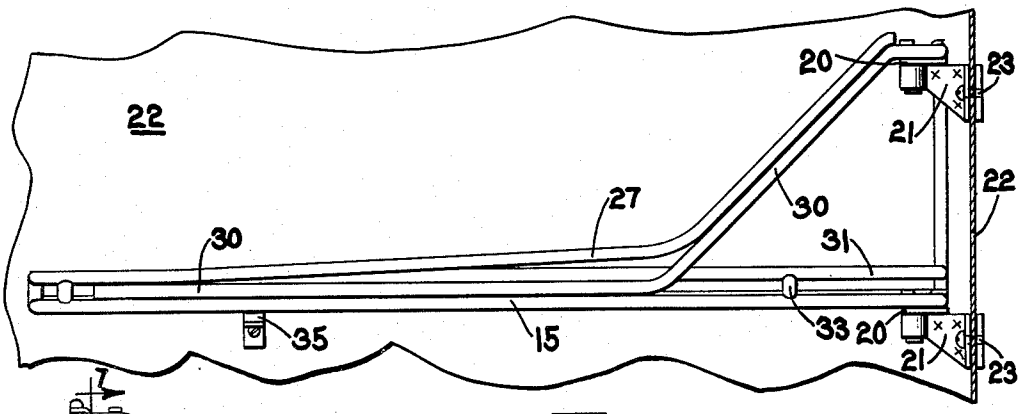


Fig. 3.

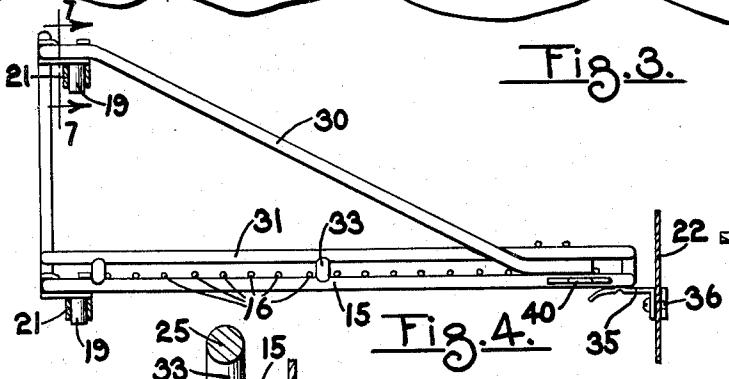


Fig. 4.

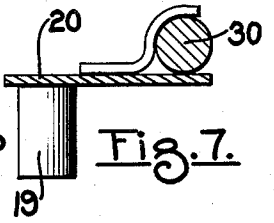


Fig. 7.

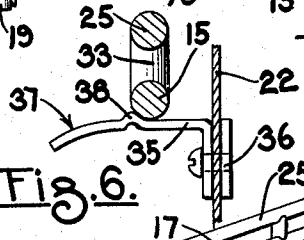


Fig. 6.

Fig. 5.

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UNITED STATES PATENT OFFICE

2,074,546

REFRIGERATOR TRAY

Charles M. Hartman, Grand Rapids, Mich., assignor of forty per cent to E. M. Jenkins, Grand Rapids, Mich.

Application November 23, 1935, Serial No. 51,196

3 Claims. (Cl. 312—184)

This invention relates generally to a swinging shelf and more particularly to the application of the swinging shelf to a refrigerator or the like.

Briefly described, the shelf is pivotally mounted within the storage space of a refrigerator, the pivot of the shelf and the pivot of the swinging door for the storage space being parallel and rather closely adjacent.

One of the main advantages of my invention lies in the fact that not only may the swinging shelf support its full share of articles thereon to a maximum depth but its removal from the storage space permits the shelf therebelow to carry articles to a maximum depth thereon. In other words, the fact that the swinging shelf is moved outwardly, renders it accessible whereby it may be fully loaded with articles and provisions of any desired kind. Also, the shelf or space immediately below the swinging shelf is readily accessible through the space formerly occupied by the swinging shelf.

Another feature is the arcuate shape of the end of the swinging shelf whereby it will expediently swing through the door opening and this provides, when the shelf is in its inner position, with a space between the arcuate edge and the side of the refrigerator, whereby tall articles may be accommodated. For instance, bottles of milk may be positioned in this space.

Another feature is the specific construction of the shelf itself. The shelf is inventively formed of a number of wire units which render it very stout and sturdy. Also the two pivots of the shelf are vertically alined whereby strength of the pivotal support is secured. Also, the shelf is formed with a guard rail extending entirely thereabout. Furthermore, the wire members adjacent the upper pivot of the shelf serve as a handle for the shelf and pressure upon these members, more or less accidentally as oscillation is caused, does not cause any great effect upon the bearing proper, inasmuch as the same are relatively close to the pivot of the shelf and the leverage is minimized.

Another advantage resides in the automatic camming device whereby the shelf is supported at its inner side when it is retained in its inner position.

Other advantages will become apparent as the description proceeds.

In the drawings:

Fig. 1 is a front view of a refrigerator equipped with my novel swinging shelf, the door being deleted.

Fig. 2 is a sectional view through Fig. 1, this view being taken on the line 2—2 of Fig. 1.

Fig. 3 is an enlarged front view of the shelf, the inner lining of the refrigerator being shown in section.

Fig. 4 is an end view of the swinging shelf.

Fig. 5 is a perspective view of the shelf.

Fig. 6 is an enlarged sectional view of the construction shown at the right-hand side of Fig. 4.

Fig. 7 is a sectional view taken along the line 7—7 of Fig. 4.

Fig. 8 is a perspective view of one of the hinge members for the shelf.

Like numerals refer to like parts throughout the several views.

Referring to Figs. 1 and 2, numeral 10 indicates the container or refrigerator proper, 11 the door therefor, pivoted at 12, and 13 the refrigerating unit. Shelves 14 are located within the storage space of the refrigerator as shown in Fig. 1.

Referring now to Fig. 5, numeral 15 indicates a rectangular frame formed of wire, this frame having a plurality of spaced parallel elements 16 and cross bars 17 whereby a supporting grid surface is secured. Corner braces 18 are positioned as shown and the several elements described are welded in position. A bearing construction, having a journal 19 and a plate 20 therefor, has L-shaped clips attached thereto, the frame 15 extending underneath and being fastened to the clips. The journal 19 is received in a bearing support (see Fig. 8) which is attached to the inner lining 22 of the refrigerator as at 23. See Fig. 2. The far end of the frame 15 is concentrically formed about the journal 19.

A wire element 25 of substantially U-shape, is welded at 26 to a wire element 30 and then continues along above one side of the frame 15 then along above the curved end of the frame 15 and terminates in the upwardly extending portion 27, joining onto the member 30 as clearly shown in Fig. 5 of the drawings.

The member 30, welded at 26 as aforesaid, has its adjacent end located between member 25 and frame 15. Its other end is similarly positioned and its bight supports a second bearing construction having journal 19 in bearing support 21. An L-shaped element 31 is welded to member 30 opposite the weld 26 and its other end is similarly attached at 32. Uprights 33 extend upwardly from the frame 15 as shown.

Referring to Fig. 6, 35 is a bracket attached at 36 to the support 22. A cam surface 37 is provided for sliding contact with the underside of the frame 15, see Fig. 4, whereby a supporting

means is provided for the shelf when in its normal and inner position. Detent 38 frictionally locks the shelf in its retracted position. A stop 40, see Figs. 2 and 4, prevents excessive inward movement.

Operation

The door 11 is first swung open and then the swinging shelf construction is moved outwardly about its vertical axis, the two journals 19, by pulling movement. The adjacent portions of the frame elements 27 and 30 may serve as a handle for this movement.

After the swinging shelf is rotated outwardly, more or less to the dotted line showing of Fig. 2, the same is accessible from above and can be loaded over its full area to a maximum depth. And then, whenever desired, any chosen one of the stored foods or articles can be individually removed quickly and expediently from the shelf by oscillatory movement thereof. The members 25 and 31 form a guard rail for the articles. Of course, if desired, the stored articles may be stored and removed without movement of the shelf.

Additionally, the shelf below the swinging shelf may be utilized to a full area and to a full depth inasmuch as the space thereabove the storing space is accessible for removing and replacing foods whenever the swinging shelf is swung outwardly. Thus the swinging shelf serves at least two novel and useful functions.

Furthermore, the shelf may be released from its pivotal mounting by a slight upward movement and then bodily removed as desired.

Having thus revealed the invention, I claim as new and desire to secure the following combinations and elements, or equivalents thereof, by Letters Patent of the United States.

I claim:

1. A pivotally mounted shelf of the class described, comprising, a substantially rectangular frame formed of a single rod of material, bent to rectangular form, a second rod of substantially U-shape extending in parallelism along the longer side of the rectangular frame, then across one end and then along the other longer side and upwardly to its terminal, a third extending in parallelism and adjacent to the last mentioned portion of the second rod and then extending downwardly to the initial end of the second mentioned rod and being welded thereto and a bearing located at the side of the third mentioned rod and adjacent the terminal end of the second mentioned rod and a second bearing located on the frame immediately below the first bearing for the purpose described.

2. In a refrigerator construction having a plurality of shelves the combination of a pivotally mounted refrigerator shelf comprising, a lower substantially rectangular frame formed of rod means bent to rectangular form, a guard rail construction including a second frame of similar dimensions and vertically positioned uprights rigidly attached between the two frames to maintain them in spaced relationship, a bearing located on one corner of the said combined frame construction, a second bearing and means for rigidly mounting the second bearing on said combined frame construction at a point directly above the first bearing and at a distance therefrom which is only slightly less than the vertical distance between the several refrigerator shelves, said mounting means being located relatively close (with respect to the length of the shelf) to the axis of oscillation of the shelf whereby access to the space above the shelf is expediently had.

3. In a refrigerator construction having a plurality of shelves the combination of, a pivotally mounted refrigerator shelf comprising, a lower substantially rectangular frame of perforate construction, a bearing construction including a journal mounted at one corner of the frame, a second bearing construction including a journal, one elongated member fastened to said last mentioned journal and extending downwardly toward the end of said frame and being welded thereto, a second elongated member fastened to said journal and extending downwardly to an intermediate point of the adjacent longer side of the said frame and fastened thereto and a third elongated member rigidly attached to an intermediate portion of the second elongated member and extending to the adjacent longer side of the frame for the purpose described.

CHARLES M. HARTMAN.