

[54] **ADJUSTING APPARATUS FOR REFRIGERATORS SUPPORTING SHELF**

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[22] Filed: **Dec. 5, 1973**

Primary Examiner—James T. McCall

[21] Appl. No.: **421,860**

[52] U.S. Cl. **312/306**; 108/110; 108/146; 211/176; 292/266

[51] Int. Cl. **A47b 57/08**

[58] Field of Search 312/312, 214, 350, 351, 312/306; 292/DIG. 47, 33, 34, 36; 70/DIG. 9, DIG. 64; 108/146, 110; 211/103, 176; 49/395, 450

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ABSTRACT

An adjusting apparatus for refrigerator's supporting shelf comprising the guiding rails disposed vertically at the interior sidewalls of refrigerator, on each of which the adapting holes are regularly provided in every definite distance; a lever means and a mechanical transmission means to transmit the tongue to disengage with said adapting holes through the operation of pushing said lever means.

1 Claim, 2 Drawing Figures

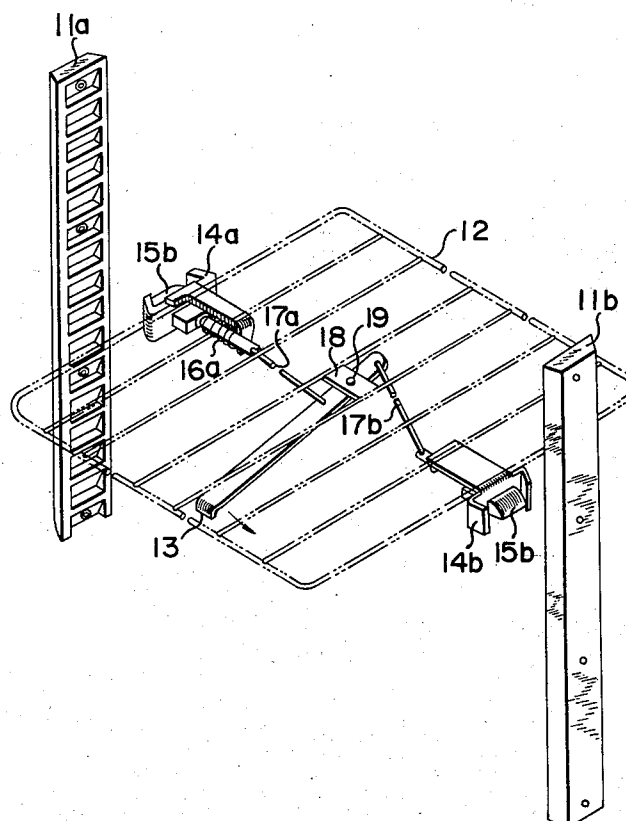
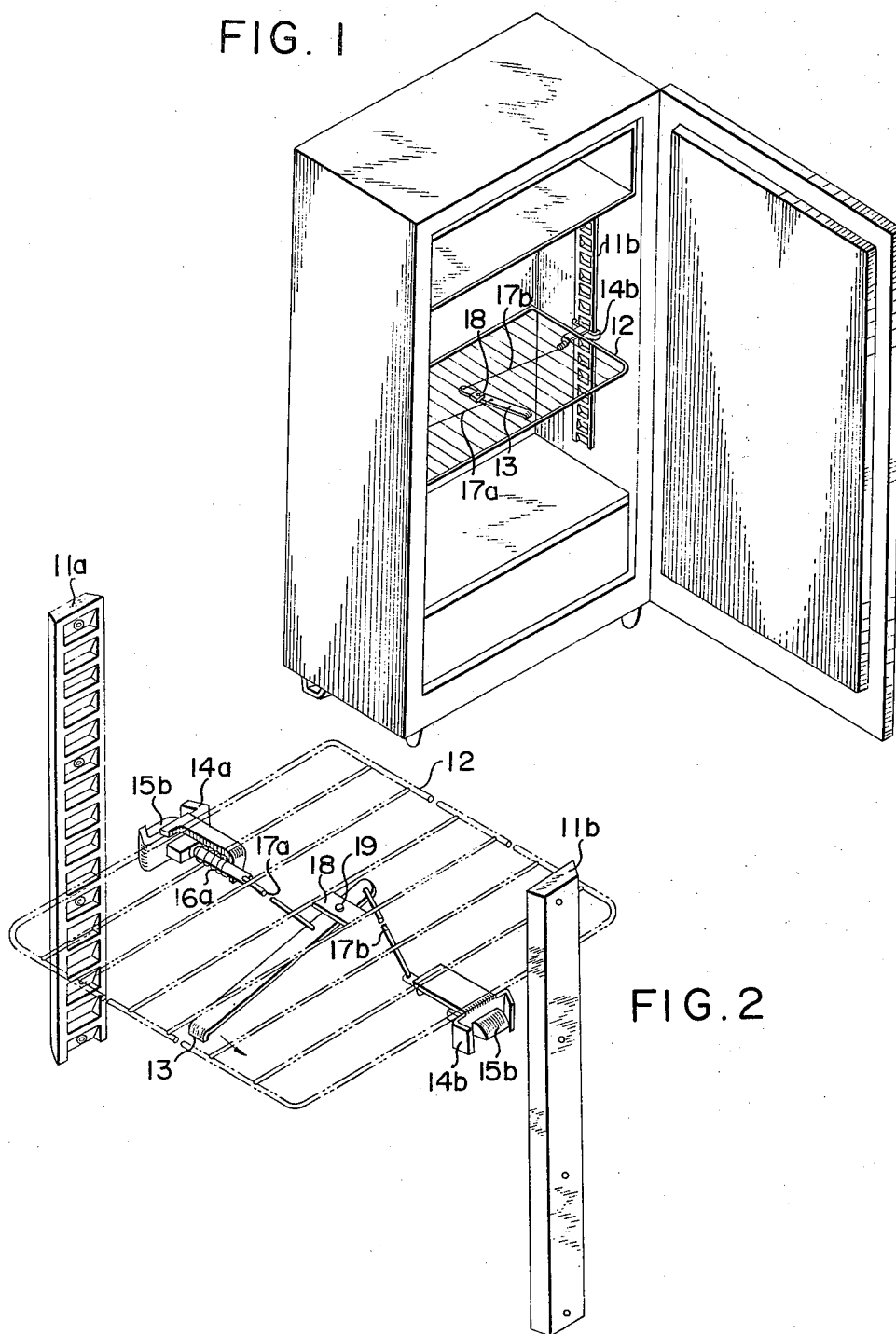


FIG. 1



ADJUSTING APPARATUS FOR REFRIGERATORS SUPPORTING SHELF

BACKGROUND OF THE INVENTION

It is commonly known that adjustment of the refrigerator's supporting shelf in the receiving slots regularly preset in definite distance is rather inconvenient when lumps, voluminous or irregularly shaped food or material is to be put onto the shelves to be frozen or refrigerated, for the reason that said shelves should be firstly withdrawn out of the original receiving slots regularly formed on the interior wall of the refrigerator, and then be inserted into another slot, either upper or lower, as required to obtain the economically sufficient space for food and drink which is to be stored. For so many years, this conventional method of adjustment, however, prevails instead of being further improved.

SUMMARY OF THE INVENTION

The present invention relates to an adjusting apparatus for refrigerator's supporting shelves to obtain the economically desirable and sufficient space or rooms between each two adjacent shelves, more particularly to an adjuster comprising a lever means mechanically connected through a transmission means to a tongue which is engaged with corresponding holes of the shelf-supporting guiding rails vertically mounted upon the interior plain sidewalls of the refrigerator. By pulling or pushing said lever means sidewardly, the corresponding refrigerator's supporting shelf mounted thereon can be easily adjusted upwardly or downwardly to ensure economically proper space between two adjacent shelves for packing lumps of food, drink, and materials to be refrigerated on the shelves.

It is, therefore, the principal object of the present invention to provide an adjusting apparatus to easily adjust the supporting shelves, on which food or drink is to be refrigerated, to the desirable position to satisfactorily ensure proper space, rooms for food or drink and economically arrange and dispose the supporting shelves without conventionally taking the trouble to do the withdrawal and the re-insertion of the supporting shelves into receiving slots.

The above and other objects and features of the present invention will be more apparent when the illustration is made in accompanying with the attached drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 depicts the perspective view of the refrigerator, in which adjusting apparatus according to the proper invention is incorporated with one of the supporting shelves.

FIG. 2 shows the perspective view of the adjusting apparatus for refrigerator's supporting shelves.

DESCRIPTION OF THE PREFERRED EMBODIMENT

In order that the invention may be more fully understood, a preferred embodiment will now be described, by way of illustration, with reference to the accompanying drawings, in which each different element is individually designated by a respective number while the same number is used to denote the same component.

In FIG. 1, the adjusting apparatus for the refrigerator's supporting shelves of the present invention is respectively shown. Being adjustable along guiding rails

vertically provided upon both corresponding plain sidewalls of the refrigerator to obtain the economically sufficient and desirable space for food or drink to be refrigerated, the present adjusting apparatus substantially comprises a plurality of guiding rails 11a, 11b vertically provided on the two opposite but corresponding sidewalls so as to guide and support the shelves 12—12 on which food or drink is to be stored and refrigerated; a lever means 13 to be manually operated to adjust the whole shelf 12 either upward or downward, through a mechanical transmission means along said guiding rails 11a, 11b as shown in FIG. 2.

Actually, said mechanical transmission means, as shown in FIG. 2, comprises a fork-like members 14a, 14b with two fork-tips converging to each other to ensure firmly engaging with the corresponding guiding rails 11a, 11b while end portion of said members extends under the shelves 12—12 to support the shelves and is connected with the shelf by means of proper bonding or welding method; tongues 15a, 15b, triangle in side view, protruding through the respective rectangular duct between two fork-tips of said fork-like member; said fork-tips being slightly and smoothly curved into slope surface firmly engaging with said guiding rails; spring means, one of which is shown at 16a are set around said rod-like end of said tongues 15a, 15b to ensure elastic restoration after being pressed due to the disengagement of said tongues with said corresponding holes of guiding rails when adjustment of refrigerator's supporting shelves is required; transmission rods 17a, 17b or wires, one end of which is engaged with the holes provided at the very end of said rod-like end of said tongue, while the other end of which is engaged with the respective hole of said lever means. Also, a plate 18 firmly fixed to the shelf 12 is used to pivotally engage with said lever means through joining means 19, such as screw of rivet or something else, to ensure pivotal action thereupon when push said lever means as the direction shown by arrow to adjust the desired positions of shelves 12.

Configurational speaking, said guiding rails have a trapezoid cross-sectional configuration, in other words, the distance between rails clinging to the inside walls of refrigerator is relatively narrower while that between the other side rails is relatively wider; within said rails a plurality of adapting holes of triangular shape are longitudinally and regularly formed in every definite distance so that said tongues 15a, 15b can be inserted within and firmly engaged with each other. In a sense, said guiding rails ensure further stability of said refrigerator's supporting shelves being mounted upon said rails.

When any shelf 12 is desired to be adjusted for an economically and properly sufficient space, just push said lever means 13 rightwardly so that the tongues 15a, 15b, through the mechanical transmission of said pivotal joining means 19 mounted on the plate 18 is transmitted to withdraw from engagement with said corresponding holes of said guiding rails, therefore, no problems in slideably adjusting said supporting shelf either upward or downward.

It is apparent that the adjustment of the supporting shelf for economically and properly sufficient rooms for food or drink is accomplished by pushing said lever means instead of laboriously withdrawing and inserting said shelf as conventional.

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However, the present invention may be embodied into other specific forms besides the preferred one illustratively described above without departing from its spirit of essential characteristics.

We claim:

1. An adjusting apparatus for supporting shelves of a refrigerator from the interior sidewalls thereof, comprising:

a pair of guiding rails disposed in facing relationship on oppositely spaced sidewalls, said sidewalls having a cross section of a trapezoid configuration and being vertically disposed, said guiding rails each having a plurality of adapting holes;

a pair of fork-like members mounted on opposite side edges of the shelf and slidingly engaging and being retained on a respective guide rail, each of said fork-like members having a tongue slidably

disposed therein and spring biased to a position where a tip portion of said tongue normally extends into an adapting hole in the associated guide rail; a manually actuated mechanical linkage arrangement for simultaneous retracting said tongues, against the spring biasing force, from said holes in said side rails so as to permit guided slidable movement of the shelf along said side rails, said mechanical linkage arrangement having a handle disposed beneath the shelf to be manually grasped at one end and being pivotally mounted on the shelf adjacent the opposite end, and a pair of force transmitting means being connected on opposite sides of the pivotally mounted and extending to and being connected to a respective tongue.

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