

Dec. 10, 1963

E. C. ARMENTROUT ETAL

3,113,818

VERTICALLY ADJUSTABLE CABINET SHELF

Filed Feb. 13, 1962

5 Sheets-Sheet 1

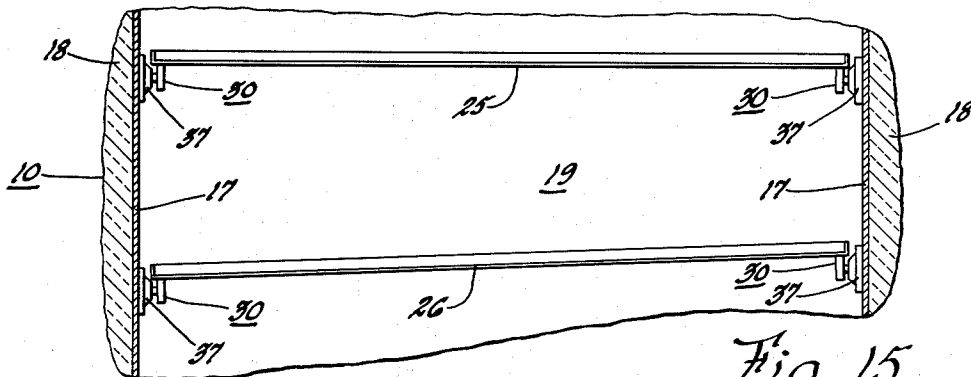


Fig. 15

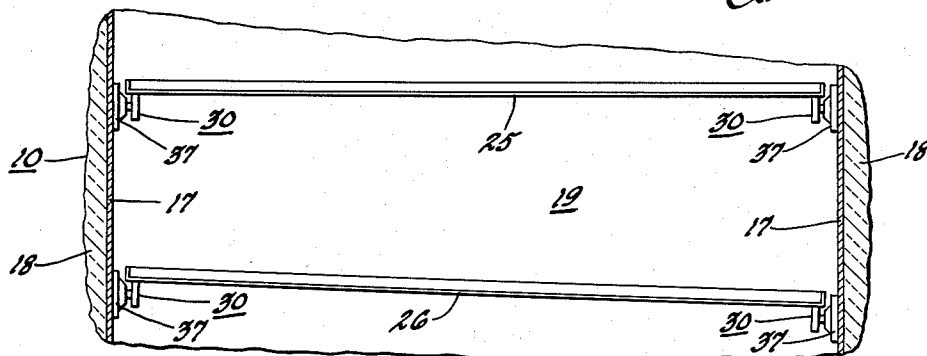


Fig. 16

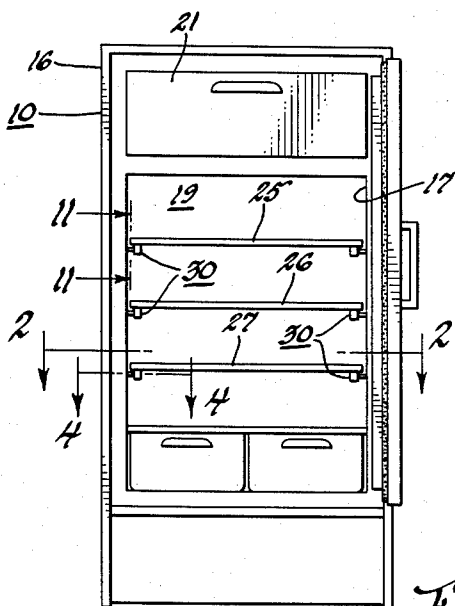


Fig. 1

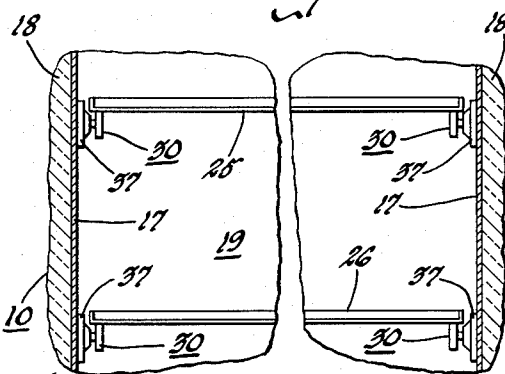


Fig. 17

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5 Sheets-Sheet 2

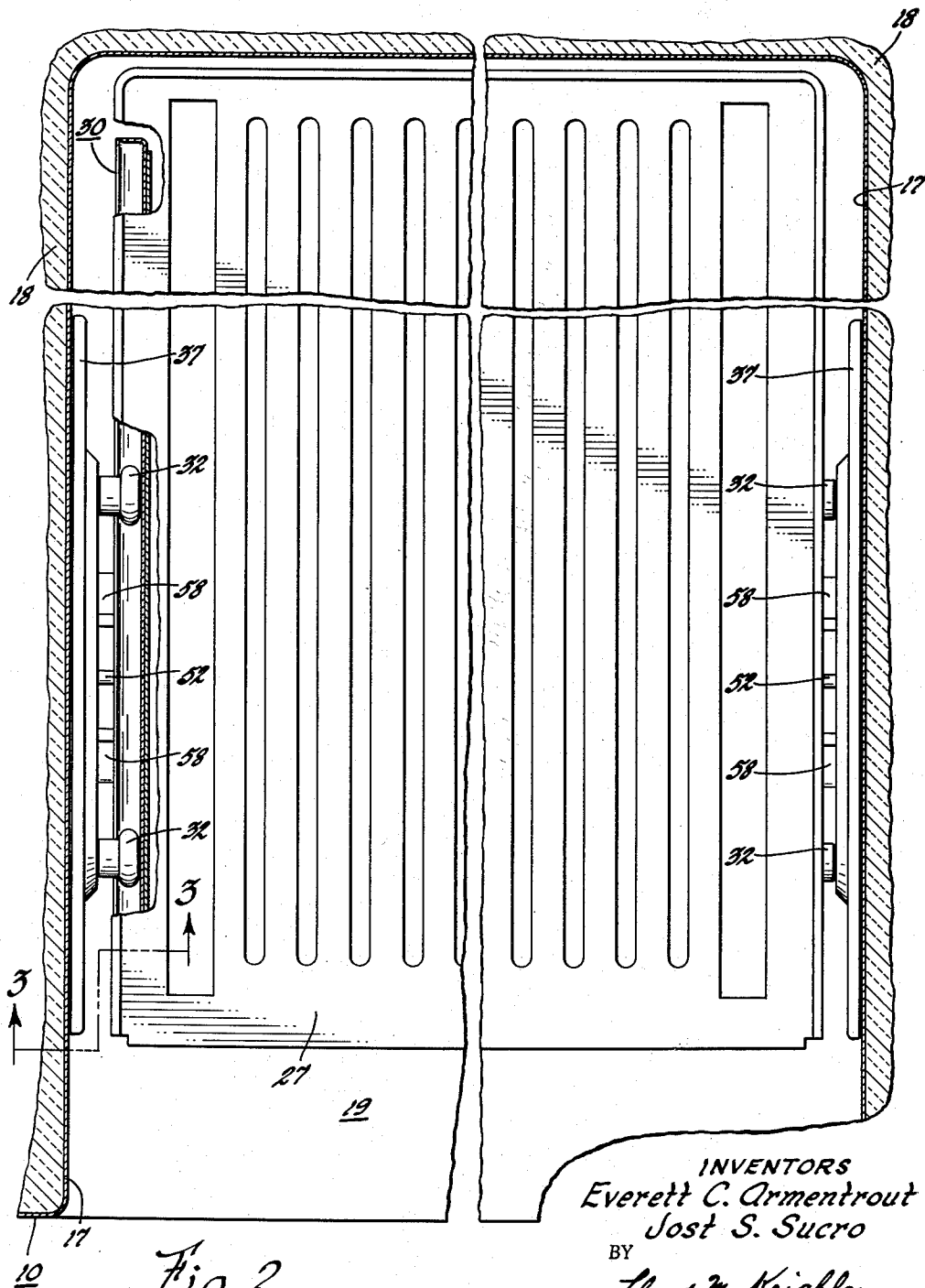


Fig. 2

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5 Sheets-Sheet 3

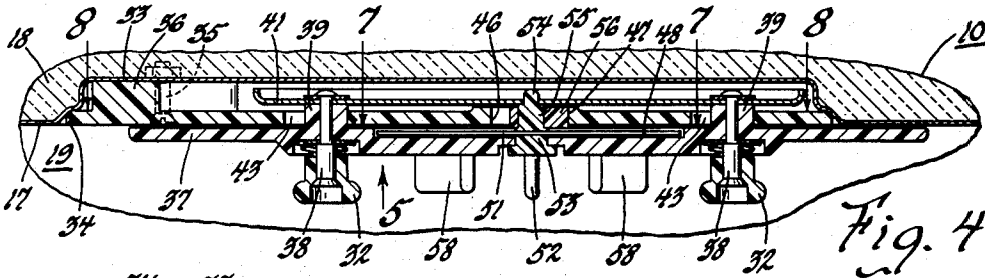


Fig. 4

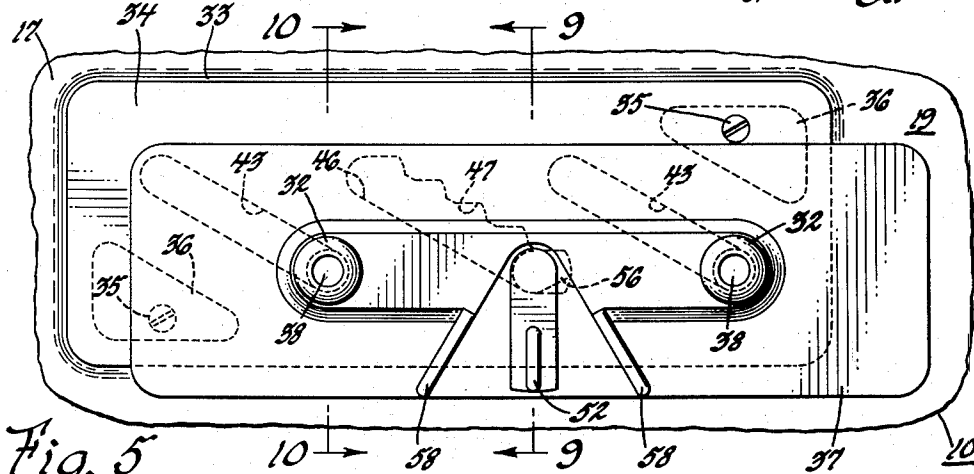


Fig. 5

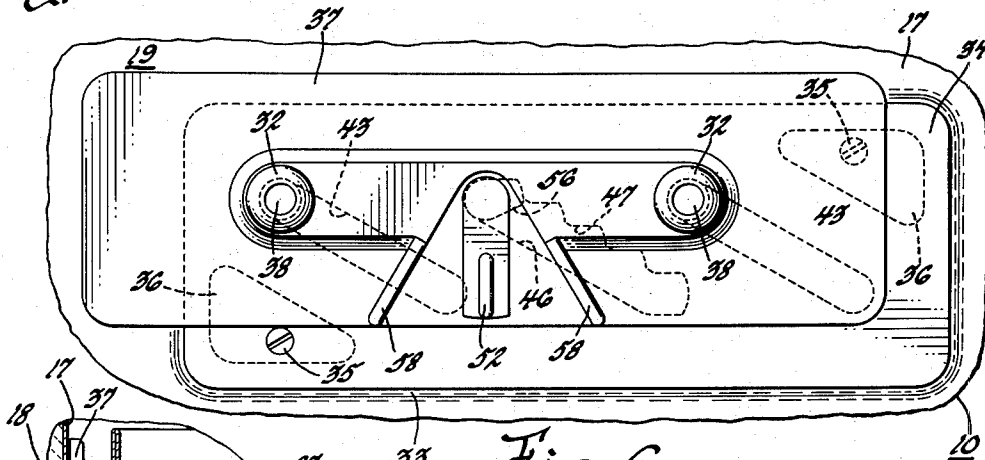


Fig. 6

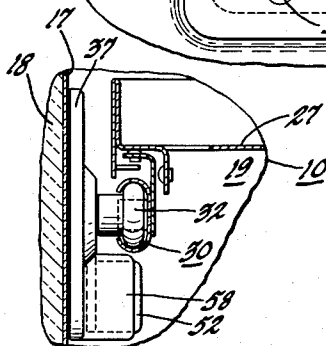


Fig. 3

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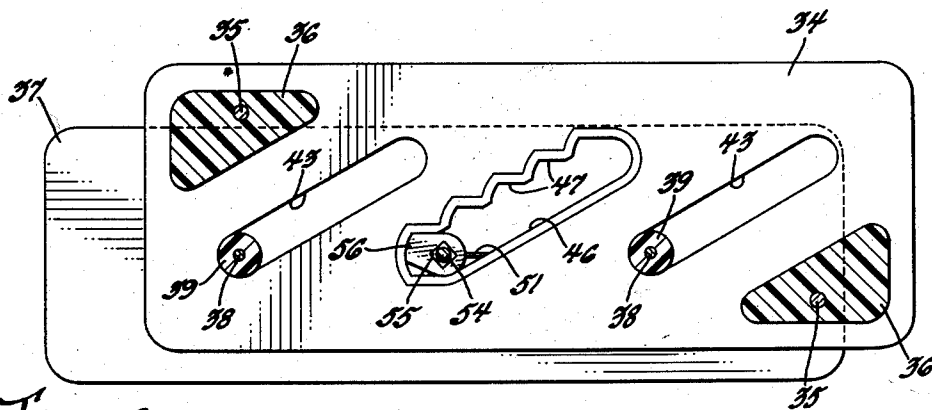


Fig. 8

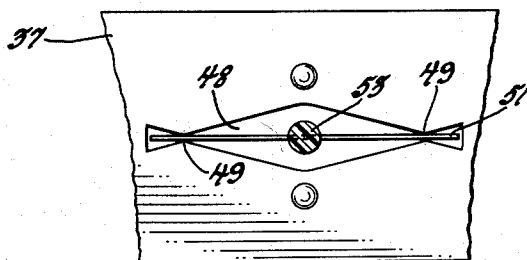


Fig. 7

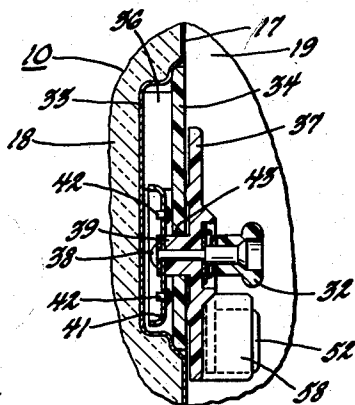


Fig. 10

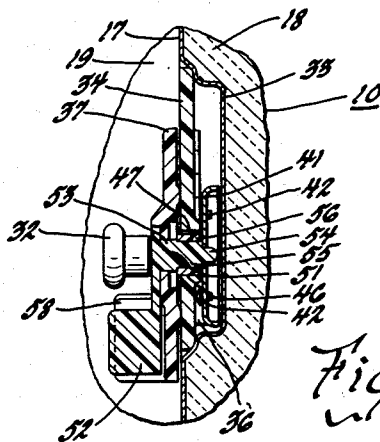


Fig. 9

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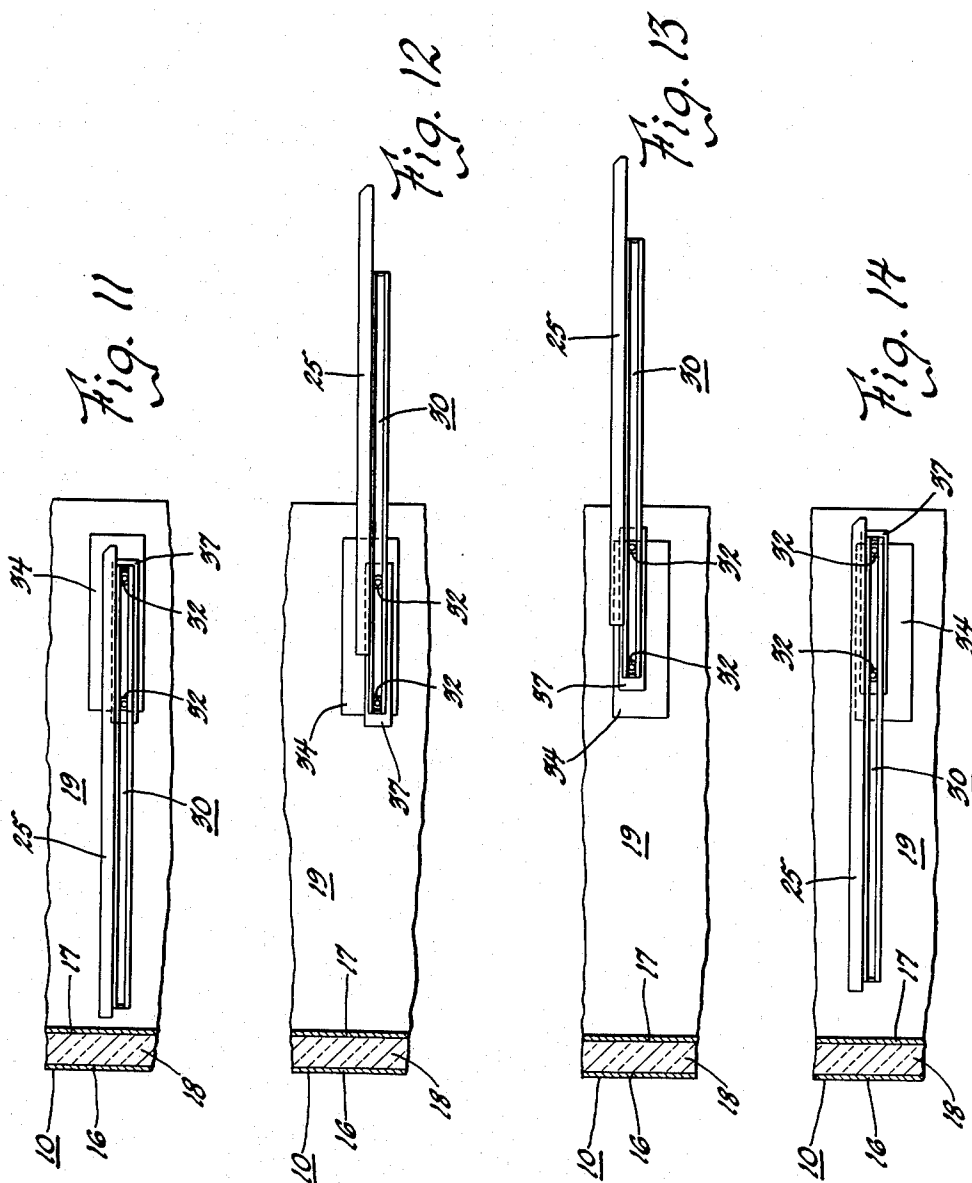
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5 Sheets-Sheet 5



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VERTICALLY ADJUSTABLE CABINET SHELF

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7 Claims. (Cl. 312-293)

This invention relates to cabinets and particularly to a shelf arrangement for household refrigerator cabinets.

It is well known that a shelf arrangement for a refrigerator cabinet especially a sliding or glidable shelf must fulfill various requirements to meet the desires of a user of the refrigerator and to this end, we contemplate the provision of a vertically adjustable gliding shelf for a household refrigerator cabinet which has features incorporated therein rendering it more practical and versatile in use over prior shelves of such character.

An object of our invention is to provide a novel, improved and low-cost vertical adjustable gliding shelf arrangement for cabinets particularly household refrigerator cabinets.

Another object of our invention is to improve the arrangement of glidable shelves in a food compartment of a refrigerator cabinet so as to make them adjustable relative to one another in various ways for augmenting versatility in use thereof and for facilitating storage of food in the compartment while at the same time increasing the accessibility of foods stored on the shelves.

A further object of our invention is to support a rectangular shelf on opposed upright side walls of a rectilinear shaped refrigerated compartment of a refrigerator cabinet for gliding movement a predetermined distance part way out of the compartment in a straight horizontal plane which shelf is adjustable vertically from a normal height thereof into an elevated position automatically in response to moving the shelf outwardly of the compartment beyond its predetermined distance of gliding movement so as to relocate the shelf within the compartment when returned thereto.

A still further object of our invention is to provide a vertically adjustable glidable shelf within a compartment of a refrigerator cabinet which is supported from opposed upright walls of the compartment by means separate from one another and unconnected to each other whereby either supporting means thereof can be adjusted independently of the other to tilt the shelf into an inclined position for changing the height of one side only of the shelf within the compartment without interfering with or impairing gliding movement of the shelf outwardly of the compartment while so tilted.

In carrying out the foregoing objects, it is a more specific object of our invention to provide an arrangement for supporting a glidable shelf from opposed upright side walls of a compartment in a cabinet which is adjustable vertically within the compartment with respect to its walls, that requires no tie means between the two opposed supports, that eliminates the necessity of making apertures in the compartment walls for the shelf adjusting means and of incorporating a spring biased latch device in the adjusting means that is rendered effective by moving the adjusting means to lock the shelf in a vertical adjusted position and which latch device is manually releasable from within the compartment to readjust the shelf therein.

Further objects and advantages of the present invention will be apparent from the following description, reference being had to the accompanying drawings wherein preferred embodiments of the present invention are clearly shown.

In the drawings:

FIGURE 1 is a front view of a household refrigerator

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cabinet having our invention incorporated in the food compartment thereof and showing the compartment door in open position;

FIGURE 2 is an enlarged fragmentary horizontal sectional view taken on line 2-2 of FIGURE 1 showing a vertically adjustable gliding shelf supported in the food compartment of the refrigerator with a portion of the shelf broken away to illustrate parts of its supporting means;

FIGURE 3 is a fragmentary sectional view taken on line 3-3 of FIGURE 2 showing tracks between the glidable shelf and its adjustable support means;

FIGURE 4 is an enlarged fragmentary sectional view taken on line 4-4 of FIGURE 1 showing adjustable parts of the shelf supporting means;

FIGURE 5 is a side view of the shelf supporting means taken in the direction of the arrow 5 in FIGURE 4 showing one position of vertical adjustment of the shelf;

FIGURE 6 is a view similar to FIGURE 5 showing the adjustable shelf supporting means in another adjusted position;

FIGURE 7 is a fragmentary sectional view taken on line 7-7 of FIGURE 4 showing the anchorage of a wire spring in the shelf adjusting means for the actuating handle thereof;

FIGURE 8 is a sectional view taken on line 8-8 of FIGURE 4 showing a ratchet latch device of the shelf adjusting means;

FIGURE 9 is a fragmentary vertical sectional view taken on line 9-9 of FIGURE 5 showing the actuating lever handle of the latching device of the shelf adjusting means;

FIGURE 10 is a fragmentary vertical sectional view taken on line 10-10 of FIGURE 5 showing bearing buttons on a part of the shelf adjusting means;

FIGURE 11 is an enlarged fragmentary sectional view through the food compartment of the refrigerator cabinet taken on line 11-11 of FIGURE 1 showing one of the shelves supported at a normal height within the compartment;

FIGURE 12 is a view similar to FIGURE 11 showing the shelf glided in its normal height a predetermined distance out of the cabinet food compartment;

FIGURE 13 is a view similar to FIGURES 11 and 12 with the shelf pulled a further distance outwardly of the compartment and having its height increased in response thereto;

FIGURE 14 is a view similar to FIGURE 11 with the shelf returned into the compartment at its raised height; and

FIGURES 15, 16 and 17 are views taken in front of the food compartment of the refrigerator cabinet showing various adjusted positions of shelves therein.

Referring to the drawings, particularly for illustrating our invention, we show in FIGURE 1 thereof a conventional household refrigerator cabinet 10 of rectilinear configuration comprising an outer shell or panels 16 and an inner metal liner member 17 having any suitable or desirable insulating material 18 (see FIGURE 2) disposed therebetween. Liner 17 of the insulated wall structure of cabinet 10 forms or defines the top, bottom, back and opposed upright side walls of a food storage compartment 19 within the refrigerator. Food compartment 19 has an open front or front access opening normally closed by an insulated door structure 20, shown in open position in FIGURE 1, hingedly mounted on cabinet 10 for swinging movement relative thereto. Compartment 19 may be cooled to a food preserving temperature by an evaporator of a refrigerating system (not shown) associated with cabinet 10 as is conventional in the art. The evaporator of the refrigerating system may be located behind a cover or door 21 therefor, in the upper portion of compartment

19, and the cooling effect produced thereby will chill and cause circulation of air throughout the compartment. Food storage compartment 19 of cabinet 10 has a plurality of vertically spaced apart shelves supported therein from opposed upright side walls of the compartment. These shelves are generally represented by the reference numerals 25, 26 and 27 and are mounted to be rollable and slidable in a straight horizontal plane a predetermined distance out of food compartment 19 through the access opening thereof and back therein, when door 20 is opened, while supported in the compartment. The gliding movement of shelves 25, 26 and 27 is preferably and substantially in accordance with the shelf arrangement disclosed in detail and more fully described in the C. F. Petkowitz Patent 2,719,772, dated October 4, 1955, and assigned to the assignee of this application. Our improvement is particularly directed to adjusting the height of these glidable type shelves in a multiplicity of ways within compartment 19 and for this reason, such shiftable shelves may be of any suitable or desirable construction such, for example, as constructed of reticulated sheet metal or constructed of a bounding frame without departing from the spirit of the present invention.

In accordance with this invention and in order to utilize compartment 19 of the refrigerator cabinet for the storage of food products compactly between or beyond shelves 25, 26 and 27 throughout the height of this compartment and to increase the versatility in use of the shelves, we provide a novel vertically adjustable supporting means therefor. Shelves 25, 26 and 27 are supported within compartment 19 from opposed upright side walls thereof without cutting or punching elongated apertures in metal liner member 17, which apertures must be effectively sealed against heat leakage into the compartment, and our arrangement provides for quick and easy adjustment of the shelves upwardly and/or downwardly within the food compartment. In the present disclosure the sides or ends of each of the superimposed spaced apart shelves 25, 26 and 27 are interlocked with opposite glider or track means, generally represented at 30, constructed as shown and described in the Petkowitz patent referred to hereinbefore. Each opposite glider or track means 30 is mounted or supported in compartment 19 on a pair of spaced apart rollers 32 forming a part of a subassembly partially located within a depression or counter sunk portion 33 provided in upright walls of metal liner 17 (see FIGURE 4). Each of these subassemblies comprises a horizontally elongated plate 34 preferably molded of plastic material which is rigidly or stationarily mounted or secured to depressed wall portion 33 of compartment liner 17 by screws or bolts 35 extended through holes provided in spacing boss portions 36 formed on plate 34. This stationary plastic plate 34 movably carries or has another preferably molded plastic horizontally elongated plate 37 shiftablely attached thereto. Rollers 32 are located on stub shafts 38 which pass through holes provided in round boss portions 39 formed integral on movable plate 37. A spring coiled about shafts 38 and interposed or biased between rollers 32 and plate 37 provides the rollers with some movement along their mounting shafts 38 to compensate for manufacturing tolerances in latitude of aligning sides of the shelves 25, 26 and 27 with the track means 30 and in aligning the track means with rollers 32. The shafts 38 each extend through a hole provided in a cupped metal plate 41 and are rigidly secured to this plate by being riveted thereto. Metal plate 41 has a plurality of non-metallic buttons 42 secured thereto (see FIGURE 10) and these buttons are in the form of snapped-in-place rivets constructed or molded of a polyamide plastic material. The buttons 42 are adapted to bear against plate 34 for the purpose of taking up clearance intermediate plate 34 and plate 41 and reducing friction therebetween during movement of parts of the shelf supporting means. Each stationary plate 34 is provided with a pair of spaced apart coextensive apertures or openings 43 therein which are elongated and inclined upwardly

in the direction of gliding movement of a shelf outwardly of compartment 19. The round boss portions 39 on plate 37 project into or pass through inclined apertures 43 in stationary plate 34 and the shafts 38 being secured to metal plate 41 thus shiftablely attach plates 37 and 41 to the stationarily mounted plate 34. Plate 34 is also provided, intermediate the elongated inclined apertures 43 therein, with an elongated inclined opening 46 notched or ratcheted along the uppermost side thereof as at 47. In the present disclosure, the notches or teeth 47 are elevated or spaced apart relative to one another approximately one-fourth inch but this spacing may be varied in accordance with any stepped or indexed distance desired to effect raising and lowering a shelf 25, 26 and 27 within compartment 19 as will become apparent hereinafter. Plate 37 has an undercut portion 48 in its back face which serves to retain a straight round wire spring 51 therein and provide opposed bearing wall points 49 therefor (see FIGURES 7 and 9). A lever handle 52 has an integral shaft thereon extending through a hole in plate 37 with rounded part 53 of this shaft bearing therein. The wire spring 51 passes through a hole provided in round shaft part 53 of lever handle 52 and a button-like end 54 on the shaft thereof is journaled in a hole in metal plate 41. That portion 55 of the shaft of lever handle 52 intermediate its rounded part 53 and the button-like end 54 thereof is squared (see FIGURE 8) and has a pawl 56 located thereon for rotation with the handle 52 and is held in place within the subassembly by being disposed between plate 37 and metal plate 41. Spring 51, lever handle 52, pawl 56 and the teeth or notches 47 of opening 46 cooperate and form a latch device incorporated in the subassembly portion of a supporting means for locking a shelf 25, 26 or 27 in adjusted positions. Each molded plastic plate 37 has formed integral thereon spaced apart opposed finger grip wings 58 projecting a distance therefrom toward the center of compartment 19, with the lever handle 52 disposed therebetween, and are utilized for a purpose to be hereinafter explained. The construction and arrangement of elements of the subassembly of that portion of the supporting means for a shelf 25, 26 or 27 just described is such as to render the supporting means capable of functioning to vertically adjust either or all three of the shelves in a multitude of fashions to accomplish the objects of our invention.

Referring now to FIGURE 11 of the drawings, we show one of the shelves such, for example, as upper shelf 25 in a normal position within the food compartment 19 and with pawl 56 on the shaft of lever handle 52 located within or engaging the lower tooth or notch 47 of the inclined opening 46 in plate 34 (see FIGURE 5). In this position of pawl 56 the shelf 25 is supported in compartment 19 on the shelf supporting means at its lowermost level therein with bosses 39 on plate 37 resting on the bottom of inclined apertures 43 in stationary plate 34. FIGURE 12 illustrates shelf 25 pulled or drawn, throughout a predetermined distance of rolling and sliding or gliding movement thereof, part way out of food compartment 19 while supported on the supporting means within the compartment. Shelf 25 is glided out of compartment 19 in a straight horizontal plane, without its height being changed, from which outward position the shelf may be glided back into the compartment at its normal lower height. If it is desired to raise shelf 25 for changing its height within compartment 19, while same is moved outwardly thereof as viewed in FIGURE 12, the operator merely pulls forwardly on the shelf to move same, beyond its predetermined outward gliding movement a sufficient distance to cause bosses 39 on the opposed plates 37 to rise or be cammed upwardly within the elongated inclined apertures 43 in the stationary plates 34 of the subassemblies of the shelf supporting means (see FIGURES 6 and 13). This forward pulling of shelf 25 also causes upward movement of opposed pawls 56 on lever handle 52 within the elongated inclined openings 46 in plates 37 and the pawls rotate, against the biasing action of wire springs 51, out of

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the lowermost teeth or notches 47 in plates 34. The pawls 56 ride past various teeth or notches 47 with a clicking noise, indicating the distance of vertical elevation of shelf 25, and are stopped in latching engagement with the uppermost tooth or notch (see FIGURE 6) to automatically lock the shelf in its elevated position (see FIGURES 6, 13 and 14) in response to moving same beyond the predetermined distance of gliding movement thereof. During this movement of bosses 39 within the elongated inclined apertures 43, plate 37 and consequently rollers 32 carried thereon are also elevated relative to the stationary plate 34 to elevate or adjust shelf 25. Shelf 25 is therefore raised a total of one inch from its normal supported position shown in FIGURES 5, 11 and 12 and remains locked in this uppermost raised position, by pawls 56, to increase the height thereof within compartment 19 when the shelf is glided back thereto as illustrated in FIGURE 14. As hereinbefore mentioned, the distances of spacing of teeth or notches 47 may be varied to alter the total elevation of a shelf or increments of adjustment thereof as desired. It is to be understood that elevation of shelf 25 can be terminated at any one of several points along the length of openings 43 between their top and bottom by counting the clicking noise of pawls 56 and releasing the shelf thereat whereby the pawls will latch, under the influence of biasing springs 51, into engagement with intermediate teeth or notches 47. On the other hand, if shelf 25 is elevated into its uppermost position by the forward pulling thereof and then returned to compartment 19 in this position, the latching device can be manually released to lower the shelf. To accomplish this, the operator grips the wing 58 on opposite sides of and within compartment 19 with a finger of his or her hands, grips the hand lever 52 with other fingers and swings the lever for releasing pawl 56 from the uppermost teeth or notches 47 to unlatch the locking device and permit shelf 25 to move down, under its own weight or weight of objects thereon, into any desired intermediate position before letting hand lever 52 loose. While the present arrangement is such as to raise a shelf and lock same in an elevated position, automatically in response to moving it forwardly of compartment 19 beyond the predetermined distance of gliding movement thereof, shelf 25 can be raised and/or lowered within the compartment in another or optional fashion. This optional fashion includes the use of releasing pawls 56 and elevating the shelf by manually lifting same or permitting the shelf to shift downwardly as the pawls are released. Either of the other shelves 26 or 27 can be adjusted and readjusted in these same fashions.

The present disclosure includes, in addition to raising and simultaneously locking any one of the shelves 25, 26 and 27, in an elevated position automatically in response to moving a shelf forwardly of cabinet 10 beyond its predetermined distance of gliding movement, another feature for increasing versatility in the use of these shelves. By virtue of the fact that both sides of shelf 25 are elevated substantially simultaneously and uniformly when the extra forward pulling force is applied thereto, the opposed elevating or adjustable supporting means therefor need not be tied, coupled or interlocked together. The omission of such interlocking or tying means presents a further advantage in the shelf arrangement herein disclosed. For example, either one of the separated unconnected opposed shelf supporting means in the present disclosure can be adjusted upwardly and/or downwardly along an upright wall of compartment 19 for raising and/or lowering one side only of a shelf to tilt and support same in an inclined position within the compartment while being glidable in such position outwardly of and back into the compartment. This feature satisfies a desirability of increasing or decreasing the height of one side of a shelf within compartment 19 without necessarily changing the height of the other side of the shelf and without impairing or interfering with gliding movement of a shelf. To illustrate such feature, we show in FIGURE 15 of the drawings upper shelf 25

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supported in a horizontal plane by its supporting means and one only of the adjustable supporting means for the spaced lower shelf 26 adjusted upwardly relative to its opposed adjusting means. This adjustment tilts shelf 26 into an inclined supported position within compartment 19 and increases the height of the right-hand side of shelf 26 with respect to the right-hand side of shelf 27, below shelf 26, for the storage therebetween along one side of the compartment of food products taller than those that can normally be stored intermediate shelves 26 and 27. In FIGURE 16 of the drawings we show shelf 25 supported in a horizontal plane and the right-hand supporting means only of shelf 26 adjusted downwardly relative to its opposed adjustable means. This adjustment tilts shelf 26 into an opposite inclined supported position within compartment 19, as compared to that shown in FIGURE 15, and increases the height of the space between shelves 25 and 26 on the right-hand side of compartment 19. It is to be understood that while we illustrate the right-hand side of shelf 26, as viewed in FIGURES 15 and 16, being adjusted as described, the left-hand side thereof only may be so adjusted to accomplish the feature of increasing the food storage space between either of the shelves 25, 26 or 27 along one side of compartment 19. FIGURE 17 illustrates both sides of one of the shelves, either shelf 25 or shelf 26, uniformly adjusted away from the other to increase the height of the space therebetween entirely across the interior of compartment 19 and this adjustment is accomplished automatically or manually as hereinbefore described.

From the foregoing, it should be apparent that we have provided an improved shelf arrangement for a refrigerator cabinet. In our present arrangement, the food supporting shelves may be glided or moved outwardly and inwardly of the food storage compartment through its front opening to thereby render foods on the rear portion of the shelves readily accessible to the user of the refrigerator cabinet and the height of a shelf within a compartment may be quickly and easily increased automatically in response to a forward movement of a shelf beyond a predetermined gliding movement thereof outwardly of the compartment. Manual adjustment of the shelf upwardly and downwardly within the food compartment can be carried out without disassembling any parts of the shelf supporting means and while food products are supported on a shelf. In the present disclosure, all of the movable mechanism of the adjustable shelf supporting means is within the food compartment of the cabinet and this eliminates provision of elongated apertures in walls of the compartment for movement of shelf elevating parts of the mechanism. The manually actuated means for releasing the latching or locking device portion of the adjustable shelf supports is accessible only from within the food storage compartment and, therefore, there is no necessity of projecting any parts of the shelf supports to the exterior of the cabinet. Adjustable features incorporated in the glidable shelves of our disclosure increase versatility in the use thereof as well as utility of the refrigerator.

While the embodiments of the present invention as herein disclosed constitute preferred forms, it is to be understood that other forms might be adopted.

What is claimed is as follows:

1. A cabinet comprising in combination:

- (a) a plurality of walls defining a compartment in said cabinet provided with an access opening,
- (b) a shelf in said compartment,
- (c) means on opposed upright side walls of said compartment supporting said shelf at a normal height therein for gliding movement in a straight-line plane a predetermined distance part way out of the compartment through the access opening thereof while the shelf is supported within the horizontal plane of its normal height upon said means,
- (d) said shelf supporting means being adjustable upwardly along said compartment upright side walls,

- (e) a portion of said adjustable supporting means being elevated relative to another portion thereof and simultaneously locked at said elevated position automatically in response to moving said shelf outwardly of the compartment beyond its said predetermined distance of gliding movement for raising the shelf, and
- (f) said raised shelf being glidable back into the compartment in its said locked elevated position to increase the height thereof within said compartment above its normal height therein.
2. A cabinet comprising in combination:
- (a) a plurality of walls defining a compartment in said cabinet provided with an access opening,
- (b) a shelf in said compartment,
- (c) means on opposed upright side walls of said compartment supporting said shelf at a normal height therein for gliding movement in a straight-line plane a predetermined distance part way out of the compartment through the access opening thereof while the shelf is supported within the horizontal plane of its normal height upon said means,
- (d) said shelf supporting means being adjustable upwardly and downwardly along said compartment upright side walls,
- (e) a portion of said adjustable supporting means being elevated relative to another portion thereof and simultaneously locked at said elevated position automatically in response to moving said shelf outwardly of the compartment beyond its said predetermined distance of gliding movement for raising the shelf,
- (f) said raised shelf being glidable back into the compartment in its said locked elevated position to increase the height thereof within said compartment above its normal height therein, and
- (g) said portions of said adjustable supporting means being unlockable from one another after the shelf has been glided back into said compartment to lower the height of said shelf therein and relockable to each other for supporting the shelf in its lowered position.
3. A cabinet comprising in combination:
- (a) a plurality of walls defining a compartment in said cabinet provided with an access opening,
- (b) a shelf in said compartment,
- (c) means supporting said shelf at a normal height within the compartment for gliding movement a predetermined distance outwardly of said compartment through its access opening and rearwardly back therinto while the shelf is supported on said means,
- (d) said outward and said rearward gliding movements of said shelf both being in a straight-line plane within the horizontal plane of its normal supported height in the compartment,
- (e) said shelf supporting means including first plates stationarily mounted on opposed upright side walls of said compartment and having spaced-apart coextensive elongated apertures therein inclined upwardly in the direction of gliding the shelf outwardly of the compartment,
- (f) said shelf supporting means also including second plates separate from the first plates thereof each having projections thereon extending into the apertures in said first plates and movable therealong for moving said second plates relative thereto,
- (g) said projections on said second plates being shiftable upwardly within the inclined apertures in said first stationary plates automatically in response to moving said shelf outwardly of the compartment beyond said predetermined gliding distance thereof for raising the shelf,
- (h) means actuated by the upward shifting of said projections on said second plates in the inclined apertures of said first plates for locking said shelf in an elevated position after being raised, and

- (i) said shelf being glidable into the compartment with said locking means holding it in said elevated position whereby the height of the shelf is increased above said normal height thereof within said chamber.

4. The combination defined by claim 3 wherein a manually operable means located within the cabinet compartment in association with the locking means is accessible and operable only from the interior of said compartment for unlocking said locking means to lower the shelf therein.

5. A cabinet comprising in combination:

- (a) a plurality of walls defining a compartment in said cabinet provided with an access opening,
- (b) a shelf in said compartment,
- (c) means supporting said shelf at a normal height within the compartment for gliding movement a predetermined distance outwardly of said compartment through its access opening and rearwardly back therinto while the shelf is supported on said means,
- (d) said outward and said rearward gliding movements of said shelf both being in a straight-line plane within the horizontal plane of its normal supported height in the compartment,
- (e) said shelf supporting means including first plates stationarily mounted on opposed upright side walls of said compartment and having spaced-apart coextensive elongated apertures therein inclined upwardly in the direction of gliding the shelf outwardly of the compartment,
- (f) said shelf supporting means also including second plates separate from the first plates thereof each having projections thereon extending into the apertures in said first plates and movable therealong for moving said second plates relative thereto,
- (g) said projections on said second plates being shiftable upwardly within the inclined apertures in said first stationary plates automatically in response to moving said shelf outwardly of the compartment beyond said predetermined gliding distance thereof for raising the shelf,
- (h) a spring-biased latch device interposed between said first and said second plates of the shelf supporting means,
- (i) said latch device being actuated by the upward shifting of said second plates with respect to said first plates for locking said shelf in said raised position, and
- (j) said shelf being glidable into the compartment with the latch device holding it locked in said raised position whereby the height of the shelf is increased above said normal height thereof within said compartment.
6. The combination defined by claim 5 wherein a manually operable means located within the cabinet compartment in association with the locking device is accessible and operable only from the interior of said compartment for unlocking said device to lower the shelf therein.
7. A cabinet comprising in combination:
- (a) a plurality of walls defining a compartment in said cabinet provided with an access opening,
- (b) a shelf in said compartment,
- (c) means on opposed upright side walls of said compartment supporting said shelf at a normal height therein for gliding movement in a straight-line plane a predetermined distance part way out of the compartment through the access opening thereof while the shelf is supported within the horizontal plane of its said normal height upon said means,
- (d) said shelf supporting means being adjustable along said upright compartment side walls,
- (e) a portion of said supporting means being vertically adjusted relative to another portion thereof and simultaneously locked thereto at said adjusted position.

tion automatically in response to moving said shelf outwardly of the compartment beyond its said predetermined distance of gliding movement for changing the elevation of the shelf, and
 (f) said shelf being glidable back into the compartment at its said changed elevation whereby the height thereof within said compartment is varied from its normal height therein. **5**

References Cited in the file of this patent

UNITED STATES PATENTS

851,659	Gaaikema	-----	Apr. 30, 1907
898,970	Cook	-----	Sept. 15, 1908
2,050,810	Scheuer	-----	Aug. 11, 1936
2,069,707	Herman	-----	Feb. 2, 1937
2,137,717	Feldman	-----	Nov. 22, 1938
2,719,772	Petkwitz	-----	Oct. 4, 1955