March 24, 1936. G. F. FORSTHOEFEL 2,035,226

REFRIGERATOR CABINET

Filed Nov. 3, 1934 3 Sheets-Sheet 1

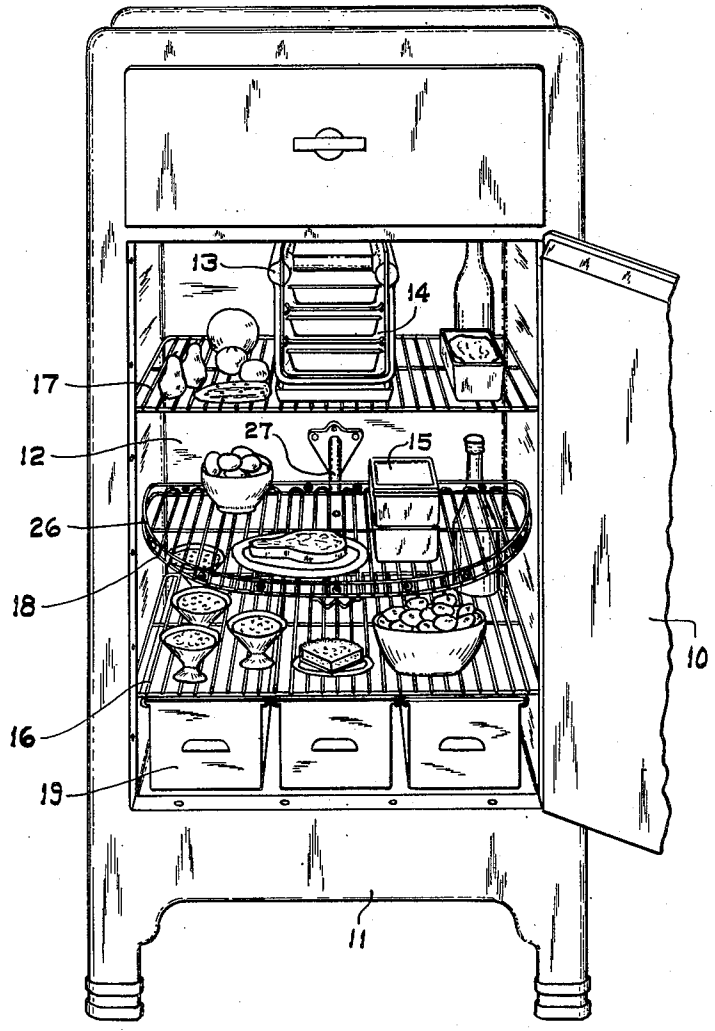


FIG. 1.

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REFRIGERATOR CABINET

Filed Nov. 3, 1934 3 Sheets-Sheet 2

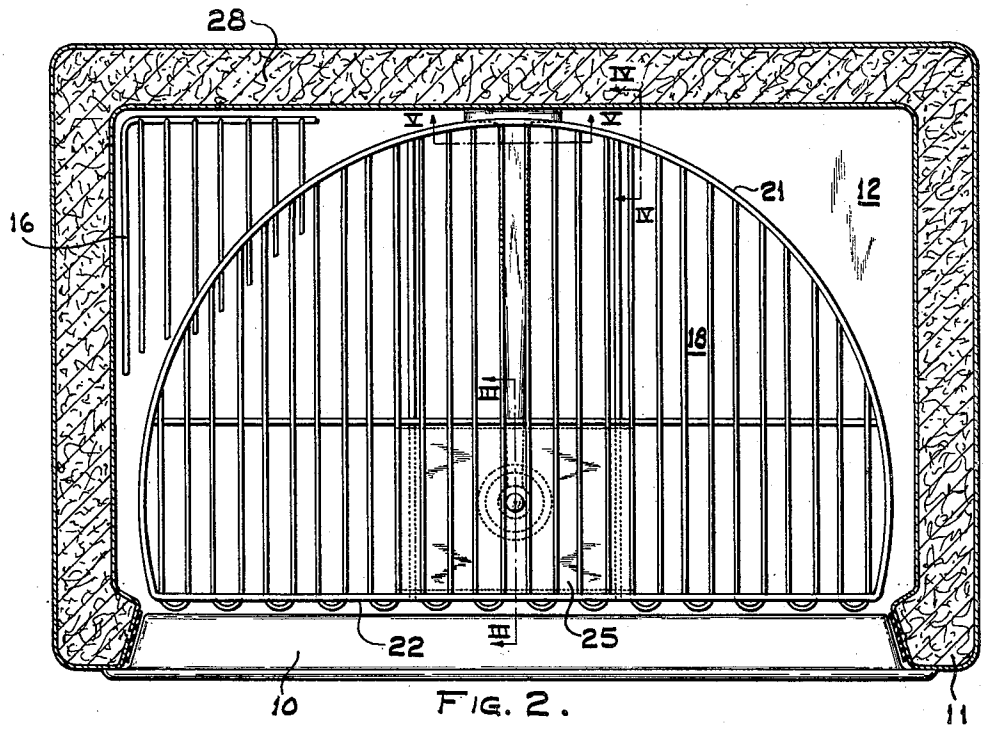


FIG. 2.

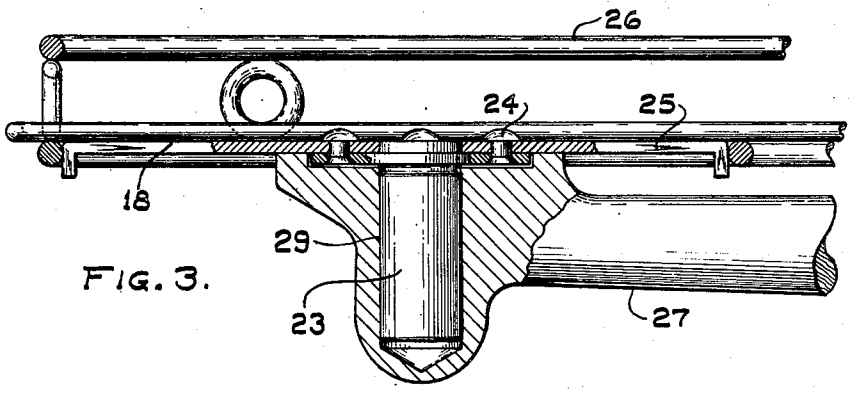


FIG. 3.

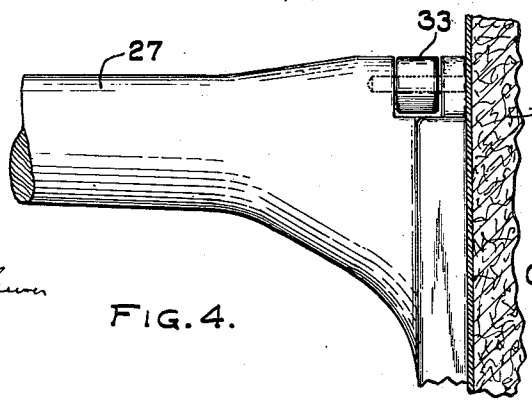


FIG. 4.

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REFRIGERATOR CABINET

Filed Nov. 3, 1934 3 Sheets-Sheet 3

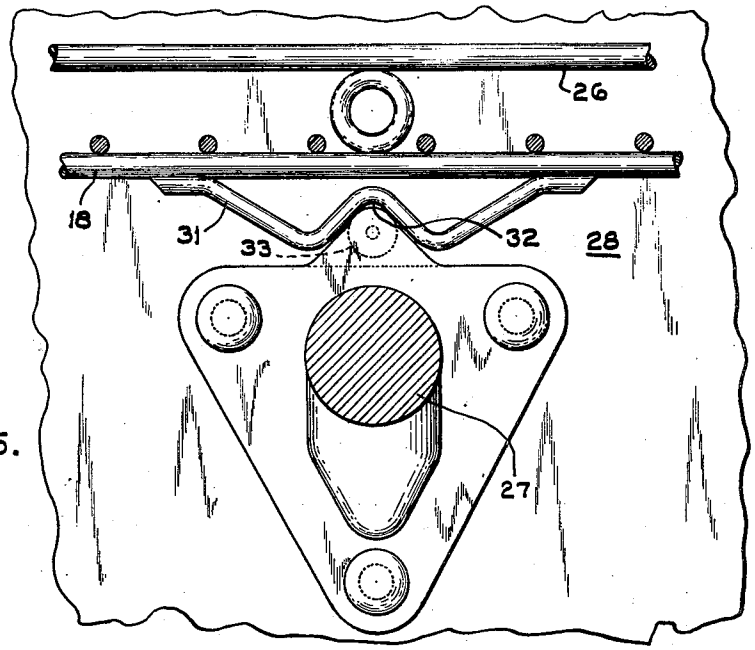


FIG. 5.

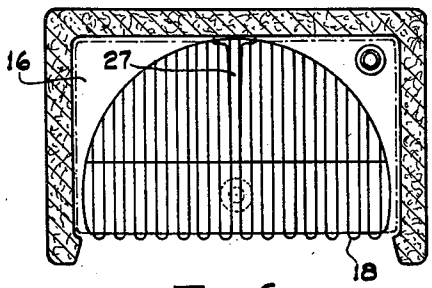


FIG. 6.

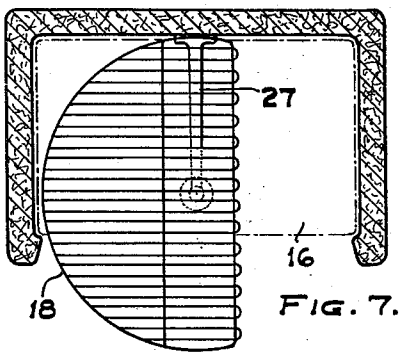


FIG. 7.

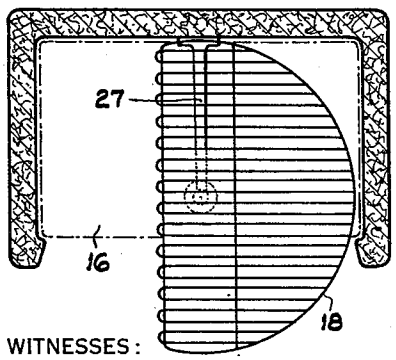


FIG. 8.

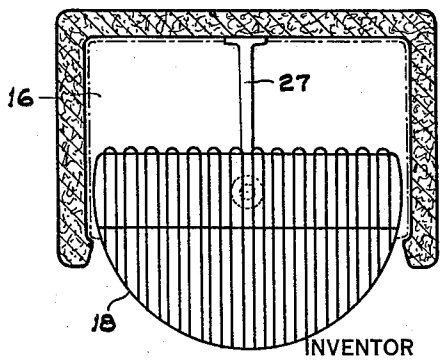


FIG. 9.

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Patented Mar. 24, 1936

2,035,226

UNITED STATES PATENT OFFICE

2,035,226

REFRIGERATOR CABINET

Gregg F. Forsthoefel, Springfield, Mass., assignor to Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa., a corporation of Pennsylvania

Application November 3, 1934, Serial No. 751,304

7 Claims. (Cl. 312—183)

My invention relates to refrigerator cabinets, and particularly to an improved shelf arrangement therefor.

It is an object of my invention to improve the arrangement of the interior of a refrigerator cabinet to increase the accessibility of the articles of food, etc., stored in the food storage compartment.

It is another object of my invention to provide a refrigerator cabinet embodying a novel form of rotatable shelf in which maximum food storage space is available with minimum external dimensions.

These and other objects are effected by my invention as will be apparent from the following description and claims taken in connection with the accompanying drawings, forming a part of this application, in which:

Fig. 1 is a perspective view of a refrigerator cabinet constructed and arranged in accordance with my invention;

Fig. 2 is a vertical sectional view of a refrigerator cabinet, showing my novel rotating shelf;

Fig. 3 is a sectional view of the front portion of the shelf and shelf support taken on line III—III of Fig. 2;

Fig. 4 is a sectional view of the rear portion of the shelf support taken on line IV—IV of Fig. 2;

Fig. 5 is a sectional view of the shelf, shelf support and shelf stop taken on lines V—V of Fig. 2; and

Figs. 6, 7, 8, and 9 are diagrammatic views showing the rotatable shelf in various positions, illustrating the accessibility to articles in the food storage compartment, and demonstrating the relatively large amount of usable space available for food storage.

The embodiment of my invention shown in the drawings generally comprises a rectangular refrigerator cabinet having a rectangular food storage compartment. Upper and lower shelves for supporting articles in the food storage compartment substantially conform to the shape thereof, while an intermediate shelf is preferably of a different shape and is pivotally mounted so as to be angularly movable in a horizontal plane. Proportioning of the size and shape of the rotatable shelf, and proper disposition for the pivotal mounting of the rotatable shelf, provides for access to the shelf or food support below and to all parts of the rotatable shelf as it is turned.

As will be more fully explained, my novel arrangement and construction combines the advantages of a rectangular refrigerator with the advantages of a rotatable shelf, and in addition to the new and useful results obtained by the above combination, I have provided a novel rotatable shelf and supporting structure by the use of which access is afforded to food articles stored below the rotatable shelf.

Referring specifically to the drawings for a detailed description of my invention, numeral 11 (Fig. 1) designates generally a refrigerator cabinet provided with a food storage compartment 12 and an access door 10 for the food storage compartment. A cooling unit 13, having a space 14 for freezing liquids, cools and causes thermo-syphonic circulation of air in the food storage compartment 12, whereby articles of food 15 stored in the food storage compartment are properly preserved.

The articles of food 15 are supported on upper and lower horizontal shelves or supports 17 and 16, respectively, which conform in shape with the rectangular food storage compartment 12, and on a rotatable shelf 18 disposed intermediately of the shelves 16 and 17. Suitable covered drawers 19 for the storage of certain articles of food may be disposed beneath the lower shelf 16.

Referring now to Figs. 2 to 5 for a detailed description of my rotatable shelf construction, the shelf is of segmental form, preferably semi-circular, having a circular portion 21 and a chordal portion 22. The shelf 18 is provided with a trunnion 23 on its under side, the trunnion being fastened to the shelf by means of rivets 24 fastened through a plate 25 welded to the bars of the shelf 18. A guard rail 26 is formed about the semi-circular portion 21 of the shelf 18 to prevent articles of food from sliding off the shelf.

A pivotal support is provided for the shelf 18 and comprises a cantilever supporting beam or arm 27 fastened to a rear wall 28 of the food-storage compartment 12, intermediately of the upper and lower shelves 16 and 17. The outer end of the arm 27 is provided with a bearing 29 for receiving the trunnion 23 and allowing it to rotate.

A stop mechanism is provided so that the shelf 18 always assumes its proper position in the food storage compartment 12. This stop mechanism may, for example, comprise a bar 31 bent to form a recess 32, the bar 31 being fastened to the shelf 18 preferably by welding. A roller mechanism 33 is provided at the rear

of the cantilever arm 27, which roller is positioned in the recess 32 when the shelf 18 is in its normal position in the food storage compartment 12. The shelf, when it is returned from a position other than normal, is prevented from over-swinging the normal position by the stop mechanism and is properly positioned in the food storage compartment 12 so that the door 10 may be closed.

Referring now to Figs. 1 and 6 to 9, for a description of how my invention may be used and the resulting advantages thereof, it will be noted that the shelf trunnion 23 is positioned adjacent the center of the chordal portion 22 of the shelf 18. The bearing 29 for the shelf trunnion 23 is positioned adjacent to the door 10 of the cabinet 11 and cooperates with the rotatable trunnion 23. The shelf 18, therefore, as it is rotated, assumes the positions shown in Figs. 6 to 9. In Fig. 6, the shelf 18 is shown in its normal position in the food-storage compartment. In Fig. 7 the shelf is rotated 90° in a counterclockwise direction or 270° in a clockwise direction so that access may be obtained to the lower shelf 16 on the right hand side thereof, or access may be obtained to the portion of the rotatable shelf 18 which extends out of the food-storage compartment. In Fig. 8, the shelf 18 has been rotated 270° in a counterclockwise direction, or 90° in a clockwise direction, so that access may be obtained to the lower shelf 16 on the left hand side thereof, or access may be obtained to the portion of the shelf 18 which extends out of the food-storage compartment. In Fig. 9, and in Fig. 1, the shelf 18 is shown rotated 180° in either a clockwise or counterclockwise direction so that a major portion thereof extends outside of the food-storage compartment, whereby access is obtained to all parts of the rotating shelf 18.

By utilizing a rotating shelf 18 disposed intermediately of upper and lower rectangular shelves, the rectangular shelf provides for maximum food storage space and the rotating shelf described affords complete accessibility to the lower shelf. Although the rear corners of the food-storage compartment adjacent the rotating shelf 18 have no supporting structure for food, the space is not wasted because articles of food of more than average height may be disposed on the lower shelf and extend above the level of the rotating shelf, as clearly shown in Figs. 1 and 6. The top shelf 17 may be a conventional shelf inasmuch as its vertical location is such that it is more accessible than the conventional bottom shelf. However, as will be apparent from the foregoing description, the latter shelf, because of the interposition of my new rotatable shelf structure, is given a degree of accessibility comparable with the top shelf 17.

Since a rectangular refrigerator is best adapted for maximum food-storage space with minimum outside dimensions it will be apparent that I have combined the advantages of a rectangular food storage compartment with the advantages of a rotatable shelf type refrigerator, which combination, by the use of a novel rotating shelf and support, provide for complete access to all parts of the refrigerator. It is obvious, however, that the invention may be advantageously applied to refrigerators of shapes other than rectangular, and I do not wish to be limited to such a refrigerator except as specifically set forth in the appended claims.

While I have shown my invention in but one form, it will be obvious to those skilled in the art that it is not so limited, but is susceptible of various changes and modifications, without departing from the spirit thereof, and I desire, therefore, that only such limitations shall be placed thereupon as are imposed by the prior art or as are specifically set forth in the appended claims.

What I claim is:

1. A refrigerator including polygonally disposed vertical walls defining a food storage chamber, an access door for the food storage chamber located in one of the vertical walls, a rotatable, substantially semi-circular shelf for receiving articles of food disposed in the food storage compartment and having its chordal portion normally disposed adjacent the door, a fixed mounting pivotally supporting said shelf extending from a vertical wall of the food storage compartment to a point adjacent the middle of said chordal portion of the shelf and forwardly of the vertical centerline of that portion of the food storage compartment closed by said access door, whereby said shelf is rotatable partly out of the food storage compartment when said door is open, and means disposed on the shelf and on the mounting cooperating to position the shelf when the shelf is rotated to its normal position within the food storage compartment.

2. A refrigerator including polygonally disposed vertical walls defining a food storage chamber, an access door for the food storage chamber located in one of the vertical walls, a rotatable shelf for supporting articles of food and disposed in the food storage chamber, said shelf having a front boundary normally disposed adjacent the door extending substantially across the food storage chamber and having converging side boundaries extending rearwardly and joined near the rear wall of the food storage chamber, and a mounting fixed with respect to the cabinet, pivotally supporting said shelf and extending from a vertical wall of the food storage chamber to a point near the middle of the front boundary of the shelf and forwardly of the vertical centerline of that portion of the food storage chamber closed by said access door, whereby said shelf is rotatable partly out of the food storage compartment when the door is open.

3. A refrigerator including polygonally disposed vertical front, side, and rear walls defining a food storage chamber, an access door for the food storage chamber located in the front vertical wall, a rotatable substantially semi-circular shelf for supporting articles of food and disposed in the food storage chamber having its chordal portion normally disposed adjacent the door, a fixed cantilever mounting pivotally supporting said shelf extending from the vertical rear wall of the food storage compartment to a point adjacent the middle of the chordal portion of the shelf and forwardly of the vertical centerline of that portion of the food storage chamber which is closed by said access door, whereby said shelf is rotatable partly out of the food storage compartment when the door is open.

4. A refrigerator comprising a substantially rectangular food storage chamber, an access door for the food storage chamber, a rotatable shelf for supporting articles of food and disposed in the food storage chamber, said shelf having a front boundary normally disposed adjacent the door and extending across the food storage

chamber and having converging side boundaries extending rearwardly and joined near the rear wall of the food storage chamber, a fixed mounting pivotally supporting said shelf and engaging the latter near the middle of the front boundary and forwardly of the vertical centerline of that portion of the food storage chamber closed by said access door, means spaced sufficiently below said shelf for supporting additional articles of food beneath said shelf, means spaced above said shelf for also supporting articles of food, said shelf being rotatable in a horizontal plane about said fixed mounting when said door is open to uncover said lower supporting means so as to afford access from above to the articles of food supported thereon and so as to afford movement of said shelf partly out of the food storage chamber, and means cooperating with said shelf to provide a food storage space, the horizontal extent of which is between the rearwardly extending side boundaries of said shelf and the rear corners of the food storage chamber, and the vertical extent of which is the distance intervening between the lower supporting means and the upper supporting means.

5. A refrigerator comprising a polygonal food storage chamber, an access door for the food storage chamber, an upper horizontal shelf for supporting articles of food and occupying the rear corners of the food storage chamber, a rotatable shelf spaced sufficiently below said upper shelf to support articles of food thereon in the food storage chamber, said rotatable shelf having a front boundary normally disposed adjacent the door and extending across the food storage chamber and having converging side boundaries extending rearwardly and joined near the rear wall of the food storage chamber, a mounting fixed with respect to the cabinet, pivotally supporting said rotatable shelf and engaging the latter near the middle of the front boundary and forwardly of the vertical centerline of that portion of the food storage chamber closed by said access door, said shelf being rotatable in a horizontal plane about said fixed mounting when said door is open so as to afford movement of said shelf partly out of the food storage chamber, and a horizontal member disposed below said rotatable shelf and extending beyond the rear boundary thereof to provide a food storage space, the horizontal extent of which is between the rearwardly extending side boundaries of said rotatable shelf and the rear corners of the food storage chamber and the vertical extent of which is the distance intervening between the lower horizontal member and the upper shelf.

6. A refrigerator comprising a substantially polygonal food storage chamber, an access door for the food storage chamber, a rotatable shelf for supporting articles of food disposed in the food storage chamber, said shelf having a front boundary normally disposed adjacent the door, extending across the food storage chamber and having converging side boundaries extending rearwardly and joined near the rear wall of the food storage chamber, a mounting fixed with respect to the cabinet, pivotally supporting said shelf and engaging the latter near the middle of the front boundary forwardly of the vertical centerline of that portion of the food storage compartment closed by said access door, a horizontal member spaced sufficiently above said shelf so as to not interfere with articles of food normally disposed on said shelf, said shelf being rotatable in a horizontal plane about said fixed mounting when the door is open to afford movement of said shelf partly out of the food storage chamber, and a horizontal member spaced below said shelf for supporting foodstuffs, said lower supporting member extending beyond the rear boundary of the rotatable shelf to provide a food storage space, the horizontal extent of which is between the rearwardly extending side boundaries of said rotatable shelf and the rear corners of the food storage chamber and the vertical extent of which is the distance intervening between the lower food supporting member and the upper horizontal member.

7. In a refrigerator cabinet, a food storage chamber embodying polygonally arranged rear and side vertically extending walls, an access door for the front of the food storage chamber, horizontally extending flat structural members connecting the ends of the side walls, a plurality of additional, horizontally extending flat structural members located intermediate of the end members and spaced vertically from each other and from the end members, all of said structural members except the upper end member being arranged for supporting articles of food, one of said intermediate structural members being rotatable and the remaining intermediate structural members being normally fixed and occupying the rear corner portion of the food storage chamber, said rotatable structural member having a front boundary normally disposed adjacent the door and extending across the food storage chamber and having converging side walls extending rearwardly and joined near the rear wall of the food chamber and spaced from the rear corners of the food storage chamber, a mounting fixed with respect to the cabinet, pivotally supporting said rotatable member and engaging the latter near the middle of the front boundary and forwardly of the vertical centerline of that portion of the food storage chamber closed by said access door, said rotatable structural member being angularly movable in a horizontal plane partly out of said cabinet on either side of said fixed mounting when said door is open to provide access to said rotatable structural member and to provide access to the rear corner portions of a normally fixed structural member below said rotatable member and readily releasable means for retaining said rotatable structural member in a fixed normal position when the door is closed.

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