

Oct. 15, 1940.

C. C. PAPE

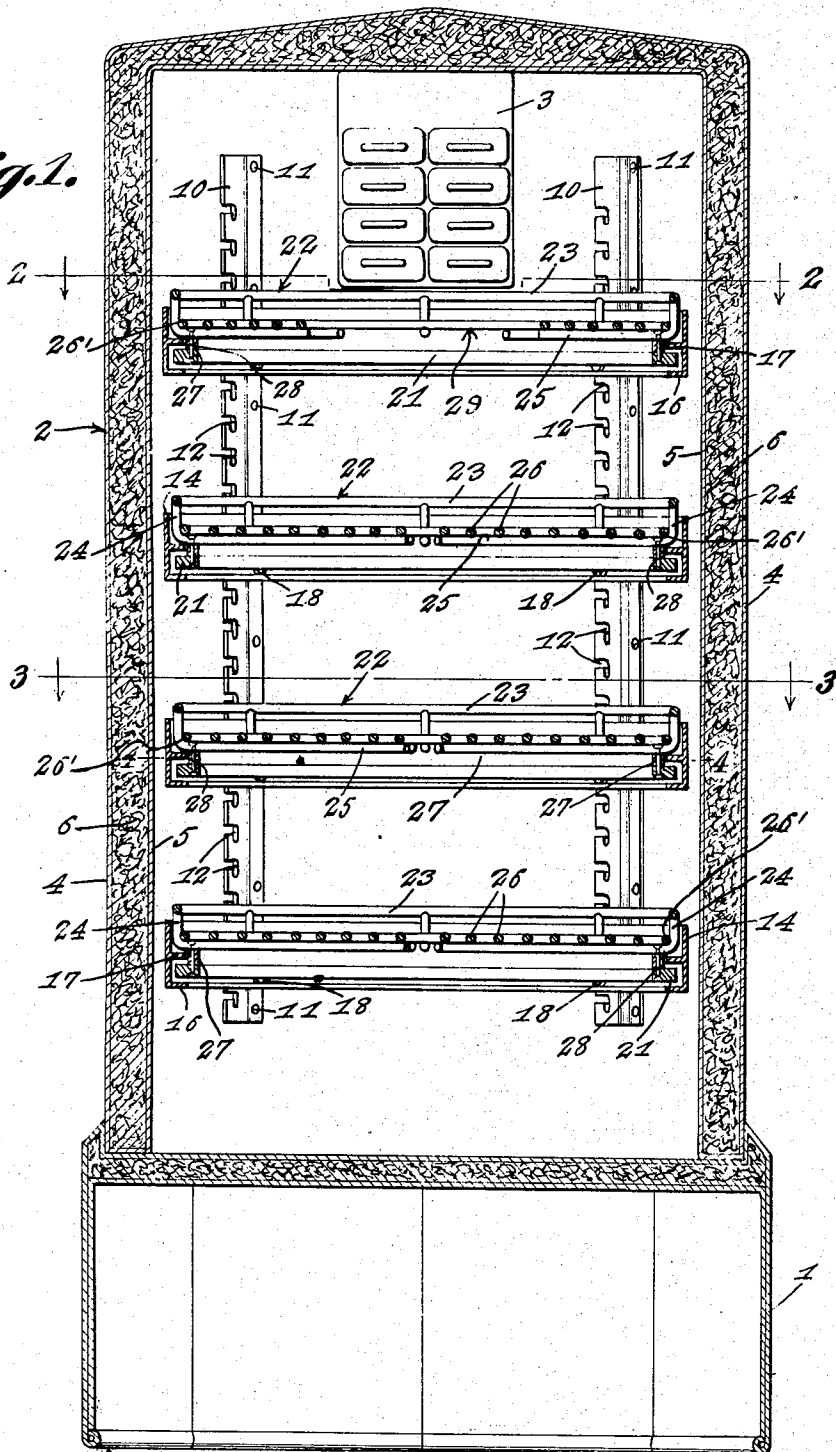
2,217,810

REFRIGERATOR AND SHELVING THEREFOR

Filed Oct. 21, 1938

3 Sheets-Sheet 1

Fig. 1.



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Fig. 2.

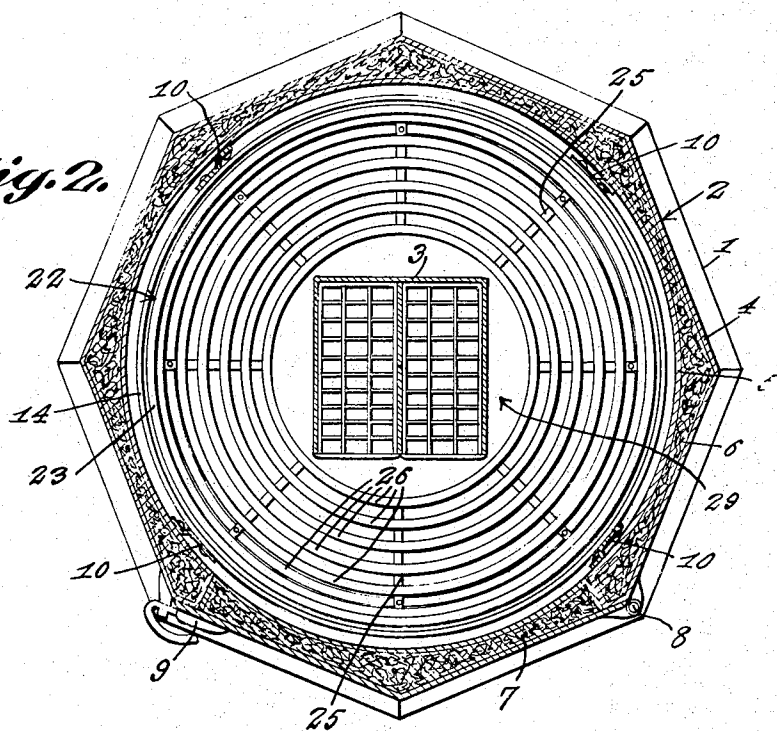
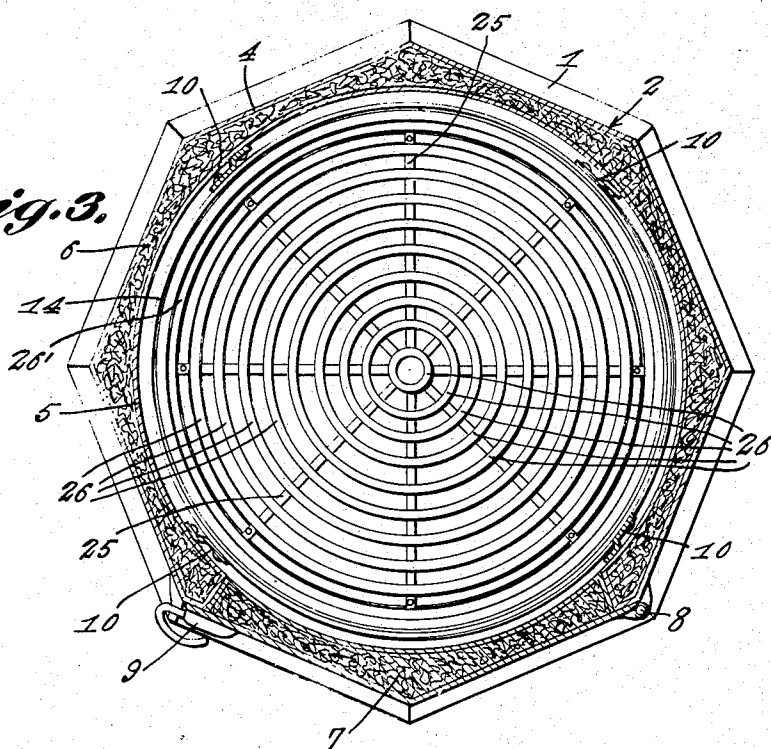


Fig. 3.



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Fig. 4.

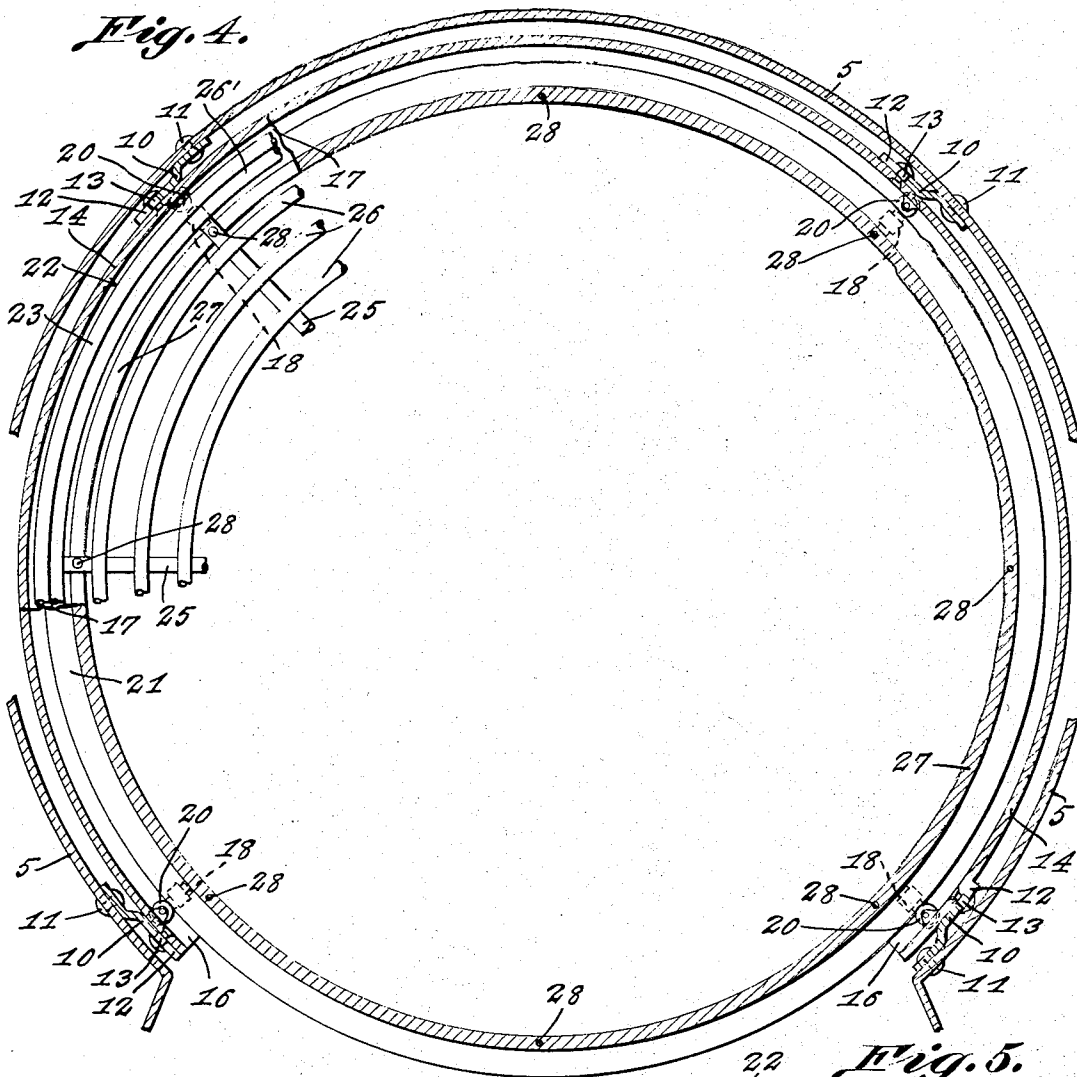


Fig. 6.

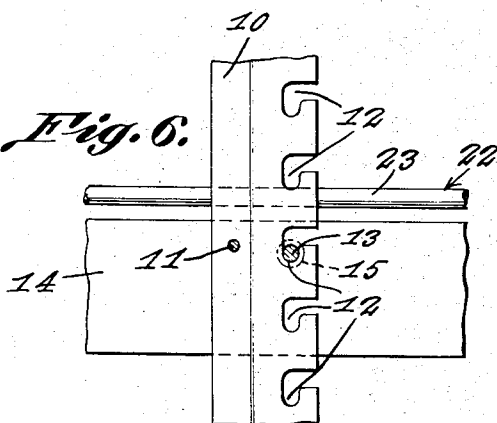
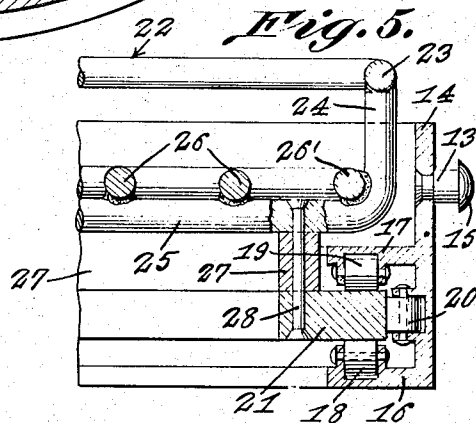


Fig. 5.



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2,217,810

REFRIGERATOR AND SHELVING THEREFOR

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Application October 21, 1938, Serial No. 236,316

2 Claims. (Cl. 312-183)

This invention relates to refrigerators, and more particularly to the shelving thereof. It has also to do with the general form of the housing body or casing.

5 One object is to improve the housing body or casing structure and also the external form so as to enhance the fanciful appearance thereof. The prime object of the invention, however, is to provide a practical and efficient rotatable shelf structure for the interior of the body housing or casing, which is simple and compact, yet strong and durable, and at the same time is easily cleaned and maintained in a sanitary condition.

10 With the foregoing and other objects and advantages to be attained, as will hereinafter more fully appear, the invention consists in the novel, general structure and particular parts and combinations and arrangement of parts thereof as hereinafter described and set forth in the appended claims, reference being had to the accompanying drawings illustrating a practical adaptation of the invention and in which—

15 Figure 1 is a vertical sectional view of the housing body or casing and interior shelving arrangement;

Figure 2 is a horizontal section on the line 2-2 of Figure 1;

Figure 3 is a horizontal section on the line 3-3 of Figure 1;

20 Figure 4 is a fragmentary view, on an enlarged scale, said view being mainly in horizontal section taken substantially on the line 4-4 of Figure 1;

Figure 5 is a fragmentary section, on a further enlarged scale, showing details of the frame structure of a shelf unit; and

Figure 6 is a fragmentary view, in elevation, illustrating a portion of the supporting means for the respective shelf units.

40 Referring now to the drawings, the numeral 1 designates the hollow base portion which supports the main body housing or casing 2 of a mechanical or electrical refrigerator having a conventional freezing unit 3 in its upper portion, the base portion 1 being obviously adapted to contain the motor, compressor and other parts (not shown) usually provided in mechanical or electrical refrigerators.

As shown, the housing or casing 2 is octagonal in external form, but, obviously, it may be made in any other desired polygonal form and even cylindrical. In any case, however, the interior of the housing or casing 2 is preferably cylindrical so as to provide equal annular spaces between 55 the inner wall lining of the housing or casing

and the respective circular shelves to be presently more fully described.

The body housing or casing 2 is obviously provided with an outer metal shell 4 which may be enamelled or otherwise suitably coated and colored in keeping with the usual present day color scheme and character of ornamentation, said outer shell being spaced from an inner lining 5 with a suitable insulative filler 6 therebetween, the general structure being in accordance with any approved practice. The housing or casing 2 is obviously provided with a door opening or openings in the usual or desired location and of a desired height, the door being indicated at 7 in Figures 2 and 3, with hinges indicated at 8 and latch means as at 9.

The shelving provision will now be described: As shown, elongated vertical plates 10 are disposed on the inner lining 5 of the body housing or casing at four crossed diametrically opposite points, said plates being of an off-set cross sectional form, as shown more clearly in Figure 4, one longitudinal portion of each plate being riveted, as at 11, or obviously welded to the face of the lining 5. The opposite longitudinal portion of the plate 10, which is off-set a slight distance inwardly from the lining 5, is provided with a series of open-ended right angular or bayonet slots 12. The slots 12 are provided to receive stud-like buttons 13 which are riveted or otherwise secured on a semi-circular supporting member 14, said buttons projecting radially from the circumference of said member near its upper edge portion, as shown more clearly in Figure 5; the cylindrical body portions of said buttons being of a diameter to slide readily into said slots 12 of the vertical supporting plates 10 and they may or may not be provided with heads 15 at their outer ends, as desired. However, the heads 15 are preferably provided, as shown, in order to afford a more rigid attachment for the semi-circular member 14 on said vertical supports 10.

The gap between the ends of the semi-circular supporting member 14, one of which is obviously provided for each shelf unit, is of a width approximately that of the door opening of the body housing or casing 2, preferably slightly wider so that the end portions of said member 14 terminate in close proximity to the vertical sides of the door opening whereby to afford ample supporting length for the rotatable shelves, to be presently described, and at the same time avoid any transverse obstruction in the doorway. This also permits convenient access to the rotatable shelf frame, to be later described, so as to turn 55

it on said semi-cylindrical supporting member 14. Each semi-circular member 14 is provided on the inside with a spaced pair of horizontal flanges 16, 17, which extend the entire length thereof, the lower flange 16, as shown, being flush with the bottom edge of the member 14.

At four or more or less crossed diametrically opposite points, the semi-circular member 14 is provided with correlated sets of three anti-friction rollers, one set being located near each end of the member 14 and the two other sets of rollers being located equi-distant between the two sets located at the respective ends of the member 14. Each set of rollers includes a roller 18 journaled on a pair of upstanding ears on the lower flange 16 and an opposed roller 19 is likewise journaled on a pair of depending ears formed on the upper flange 17, while the third roller 20 is journaled to rotate on a vertical axis on a pair of ears projected horizontally inward from the body of the member 14 midway between the rollers 18 and 19.

Mounted between the rollers 18 and 19, with its periphery contiguous to the roller 20, is a ring member 21 which carries a circular shelf frame designated generally by the numeral 22, said shelf frame being positioned above the ring member 21 with its peripheral portion overhanging the upper flange 17 of the semi-circular supporting member 14 and being circumferentially contiguous to the upper body portion of said semi-circular member 14 (see Figure 5). As shown, the respective shelf frames are fabricated from round rods or wires, the several pieces of which are obviously welded together or otherwise suitably attached, each frame including an upper ring member 23 constituting a guard rail which is supportedly attached to the upper ends of up-turned outer end portions 24 of radial base members 25, which latter have secured thereon a plurality of spaced concentric ring members 26 constituting the open bottoms of the shelf frames 22, the outermost bottom ring 26' being located in the angle where the extensions 24 are turned up from the radial base members 25 whereby to augment the upper ring member 23 in giving rigidity to the peripheral portion of the shelf frame.

The spacing support between the ring member 21 and the shelf frame 22 may comprise a continuous ring member 27, as shown in Figures 4 and 5, or, obviously, separate strut blocks or members may be provided at intervals on the ring member 21 directly beneath each of the radial base members 25 of the shelf frame, and in either case the parts may be rigidly fastened together by tie-bolts or pins 28 which are inserted through aligned openings provided therefor in the members 21, 25 and 27, said bolts or pins 28 being riveted at their opposite ends (see Figure 5). In this connection it is also obvious that instead of bolting or pinning the parts together, as just above described, the attachment may be effected by a welding process as well as the other parts of the fabricated shelf structure.

From the foregoing it is clearly apparent that a practical, light weight, yet strong and durable sanitary shelf structure is produced which is readily placed at the desired elevation within the refrigerator and at the same time, in addition to affording maximum storage space and convenient access to the articles on the shelf, is removable, all without interfering with the proper air circulation within the housing or casing of the refrigerator.

In placing the respective shelf units, including the semi-circular members 14, in the refrigerator,

it is only necessary to first insert the units edge-wise and substantially vertically through the door opening and then turn the unit to a horizontal position, at the desired elevation, and then turn the unit to engage the buttons 13 in the respective bayonet slots 12 of the vertical supports 10, with the gap between the ends of said semi-circular member 14 adjacent the opposite sides of the door opening, as indicated in Figure 4. With the member 14 thus supported in the position shown, the shelf frame is rotatable to any desired position on the sets of supporting rollers 18, 19 and 20, so as to conveniently place articles upon the shelf or remove the articles therefrom, as the case may be.

As shown, the shelf frame 22 of the uppermost unit is provided with an enlarged central opening 29 (see Figures 1 and 2), in order that said unit may be positioned at an elevation on the upper portions of the vertical supporting members 10 to surround the freezing unit 3, should it be so desired. The lower shelf frames 22 have their series of concentric bottom rings 26 continue to the immediate centre of the shelf, in which case, of course, the radial base members 25 have their inner ends extended accordingly and secured to the innermost ring member (see Figure 3).

While a practical adaptation of the present invention is illustrated in the accompanying drawings, it is obvious that considerable modification and alteration may be made therein without departing from the spirit and scope of the invention as defined in the appended claims. The invention, therefore, is not limited to the specific construction and arrangement shown.

What is claimed is:

1. In a refrigerator, including a housing body having an entrance in its side wall, shelving provision comprising elongated vertical supports located in spaced parallel relation on the inner side wall portions of the housing body, said vertical supports having offset portions extending the length thereof and provided with longitudinal series of bayonet slots, and shelving units each comprising a circular shelf frame having an open supporting bottom, a circumferential supporting member, a plurality of roller elements arranged at intervals on the inside of said supporting member in separate sets of three rollers each, each set including a pair of spaced vertically opposed rollers and a peripheral thrust roller located outwardly from said spaced pair of rollers and rotatable on a vertical axis in a horizontal plane between said pair of rollers, a horizontal ring member located with its peripheral portion between the vertically opposed pair of rollers of each set and circumferentially contiguous to the respective peripheral thrust rollers of the several sets, means fixedly supporting the shelf frame upon said ring member in spaced relation thereabove, and radially projected buttons on the periphery of said circumferential supporting member for engagement in the bayonet slots in said vertical supports.

2. A shelving unit for refrigerators, comprising a circumferential support having provision on its periphery for detachably mounting it on supporting means within the refrigerator housing body, a plurality of roller elements arranged on the inside of said circumferential support in co-operatively spaced sets of three rollers each, each set including a pair of spaced vertically opposed rollers and a peripheral thrust roller located outwardly from said spaced pair of rollers and ro-

tatable on a vertical axis in a horizontal plane between said pair of rollers, a horizontal ring member located with its peripheral portion between the vertically opposed pair of rollers of each set and circumferentially contiguous to the respective peripheral thrust rollers of the several sets, a circular shelf frame mounted on said horizontal ring member in spaced relation

thereabove, said shelf frame comprising radial base members having up-turned outer end portions, concentric ring members secured on said radial base members and constituting an open bottom for the shelf, and a ring member secured on the upper ends of said up-turned end portions of the radial base members. 5

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