

May 2, 1944.

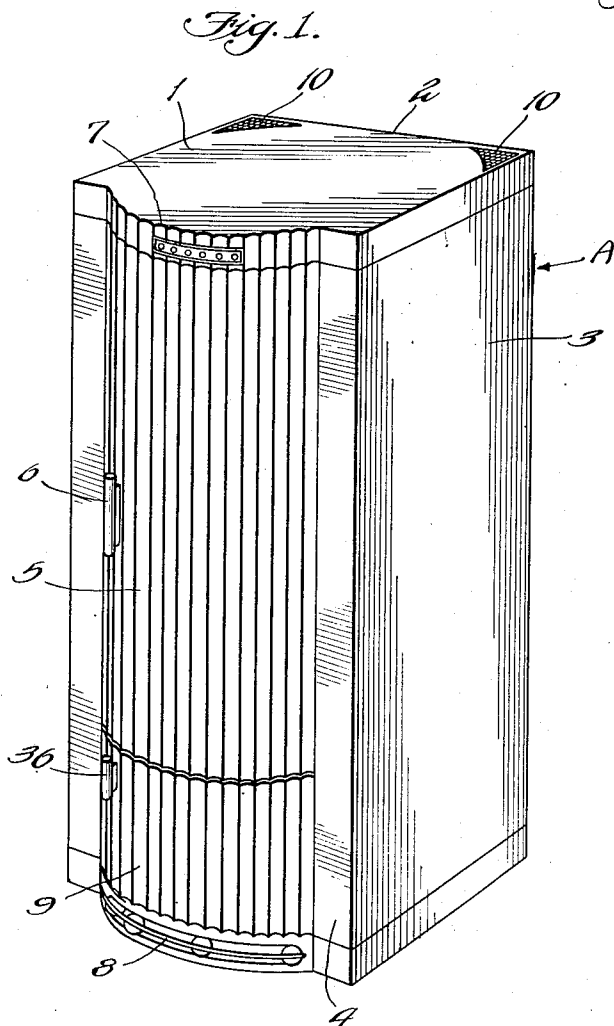
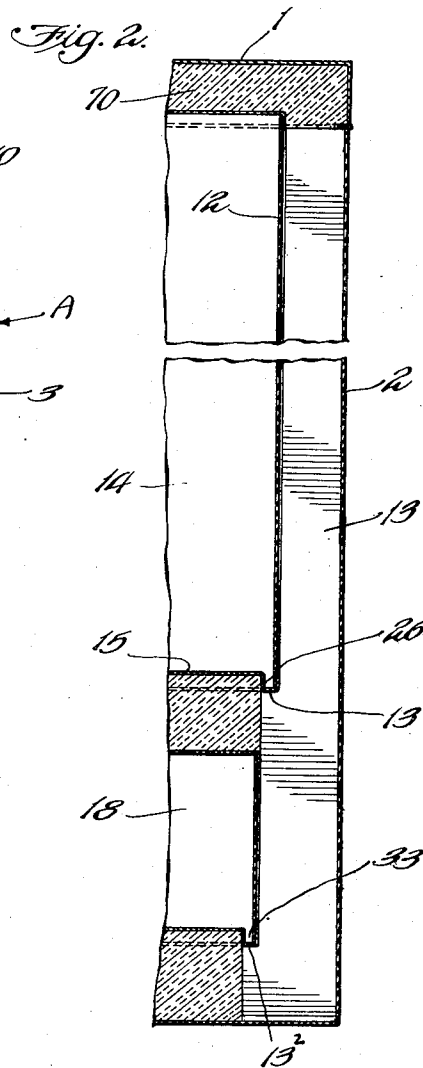
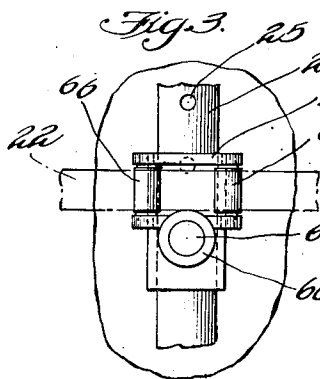
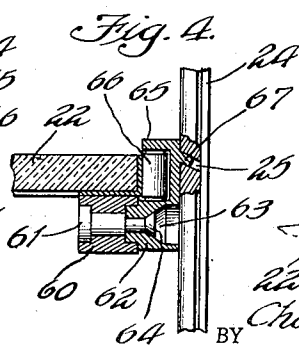
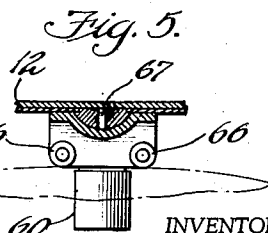
C. G. BEERSMAN

2,347,985

REFRIGERATOR

Filed Dec. 15, 1941

6 Sheets-Sheet 1



INVENTOR.
Charles G. Beersman
BY
Chas. L. Howard atty.

May 2, 1944.

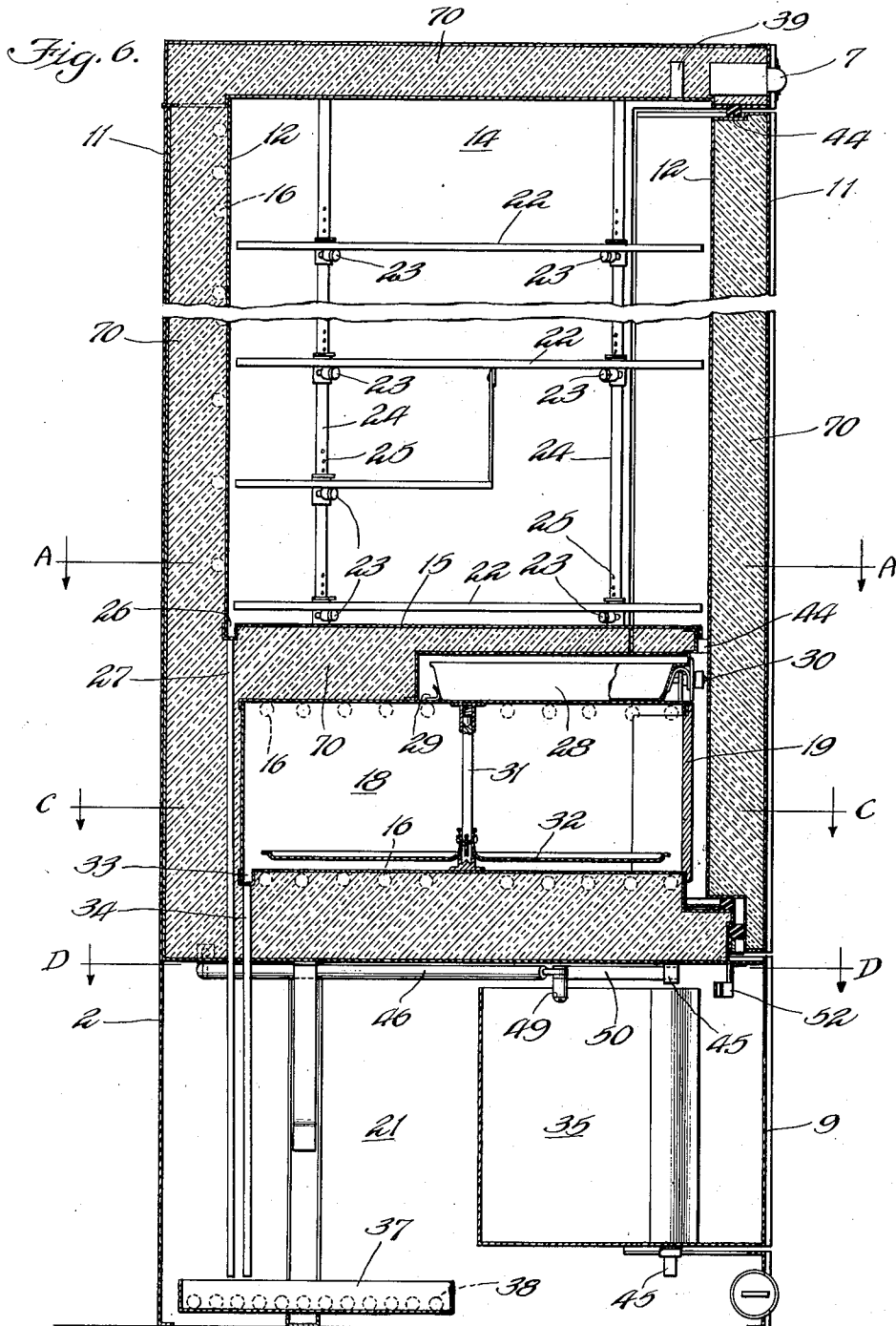
C. G. BEERSMAN

2,347,985

REFRIGERATOR

Filed Dec. 15, 1941

6 Sheets-Sheet 2



INVENTOR.

Charles G. Beersman

BY

Charles L. Howard atty.

May 2, 1944.

C. G. BEERSMAN

2,347,985

REFRIGERATOR

Filed Dec. 15, 1941

6 Sheets-Sheet 3

Fig. 7.

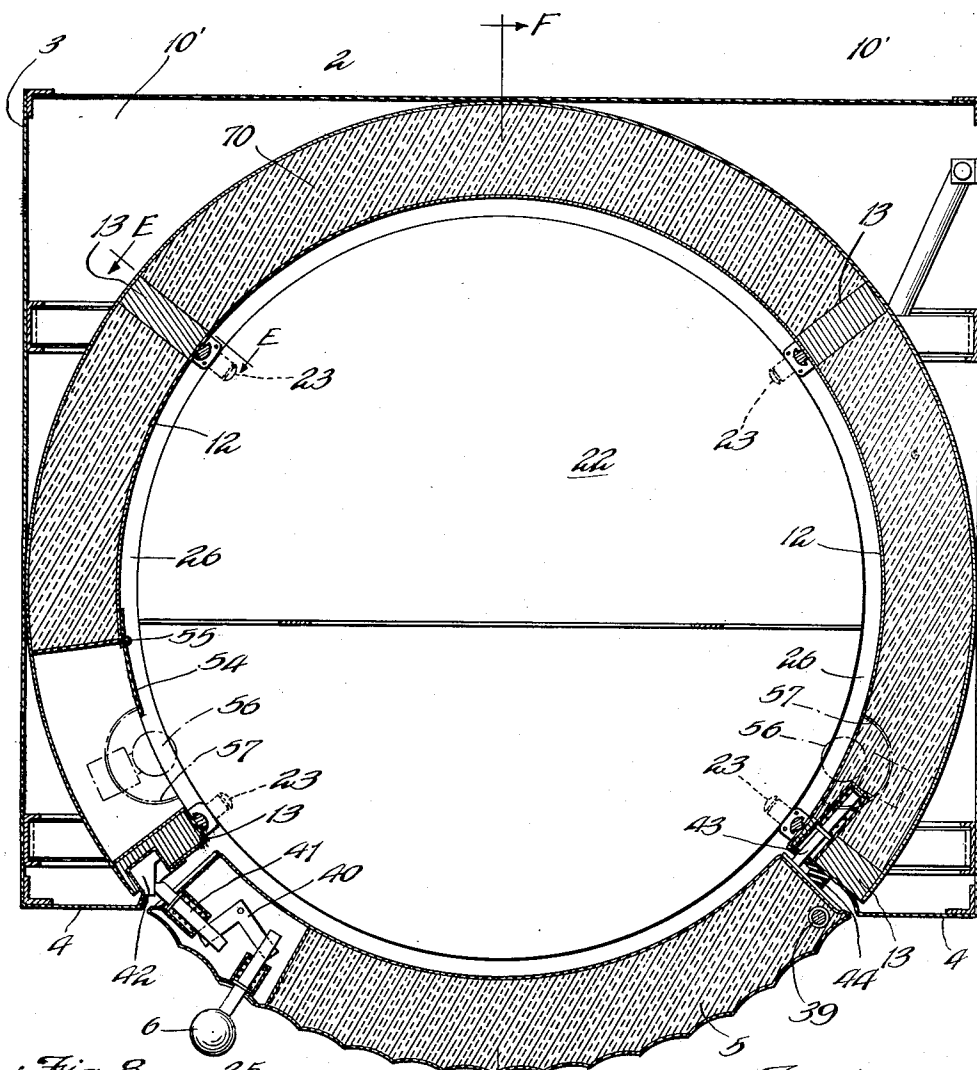


Fig. 8

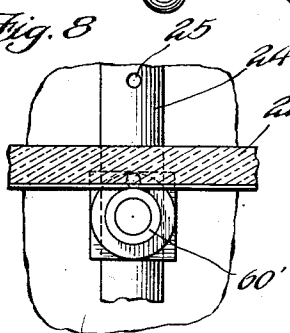


Fig. 9.

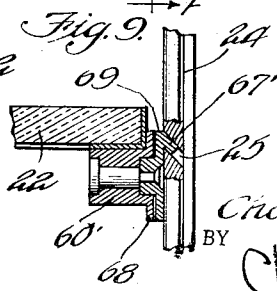
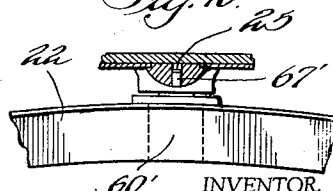


Fig. 10.



INVENTOR.
Charles G. Beersman
BY
Charles L. Howard Atty.

May 2, 1944.

C. G. BEERSMAN

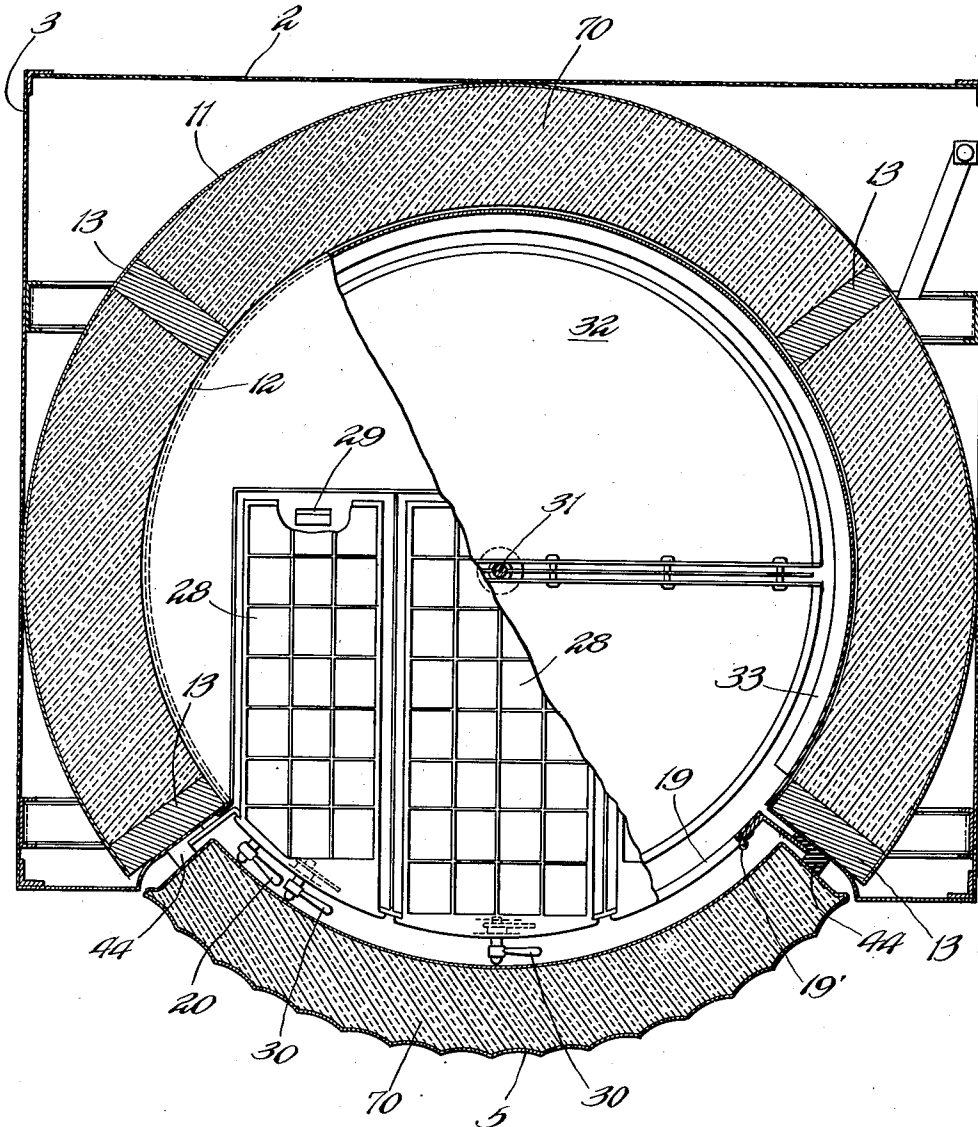
2,347,985

REFRIGERATOR

Filed Dec. 15, 1941

6 Sheets-Sheet 4

Fig. 11.



INVENTOR.
Charles G. Beersman
BY *Charles L. Howard* Atty.

May 2, 1944.

C. G. BEERSMAN

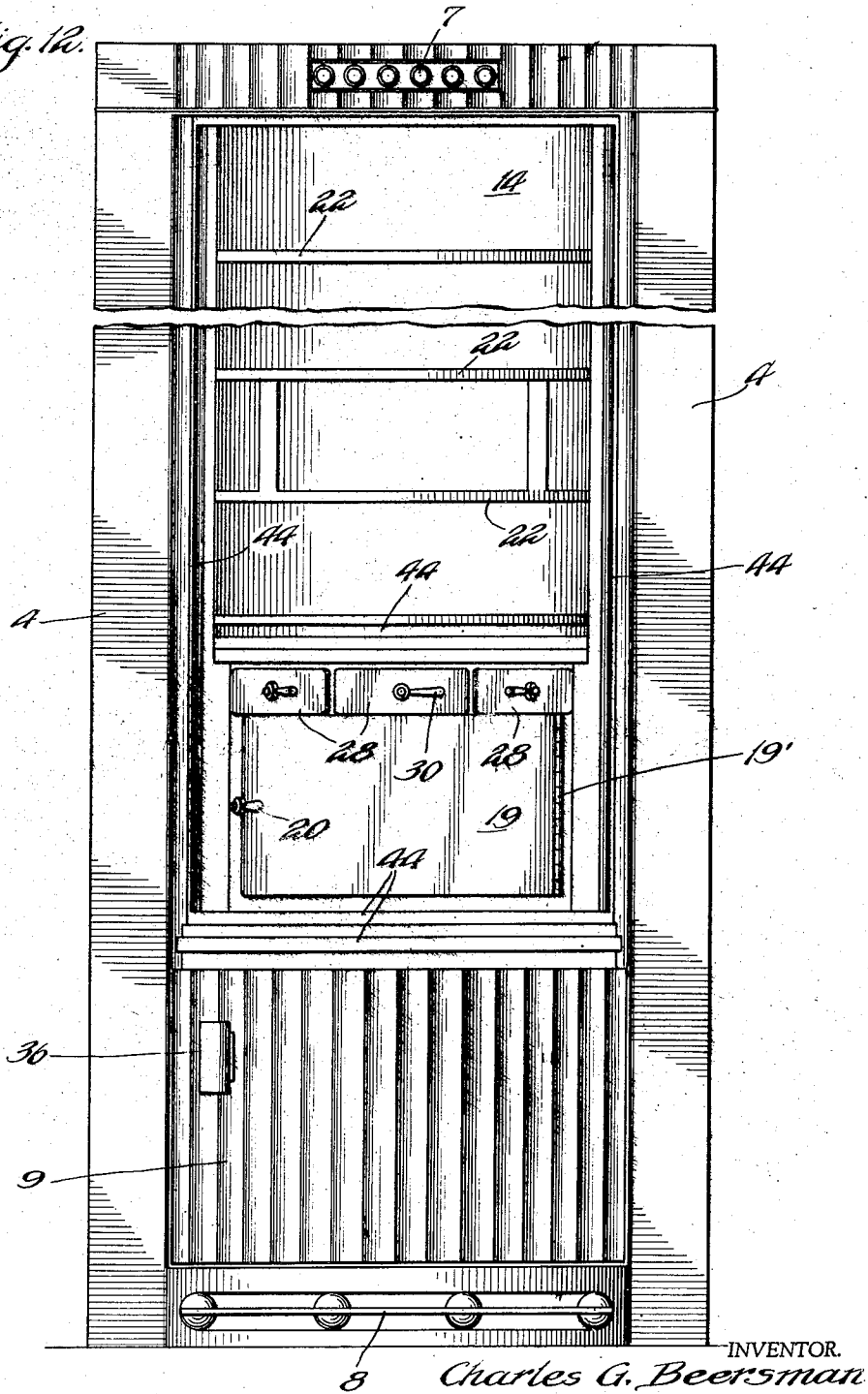
2,347,985

REFRIGERATOR

Filed Dec. 15, 1941

6 Sheets-Sheet 5

Fig. 12.



INVENTOR.

Charles G. Beersman

BY

Charles L. Horn atty.

May 2, 1944.

C. G. BEERSMAN

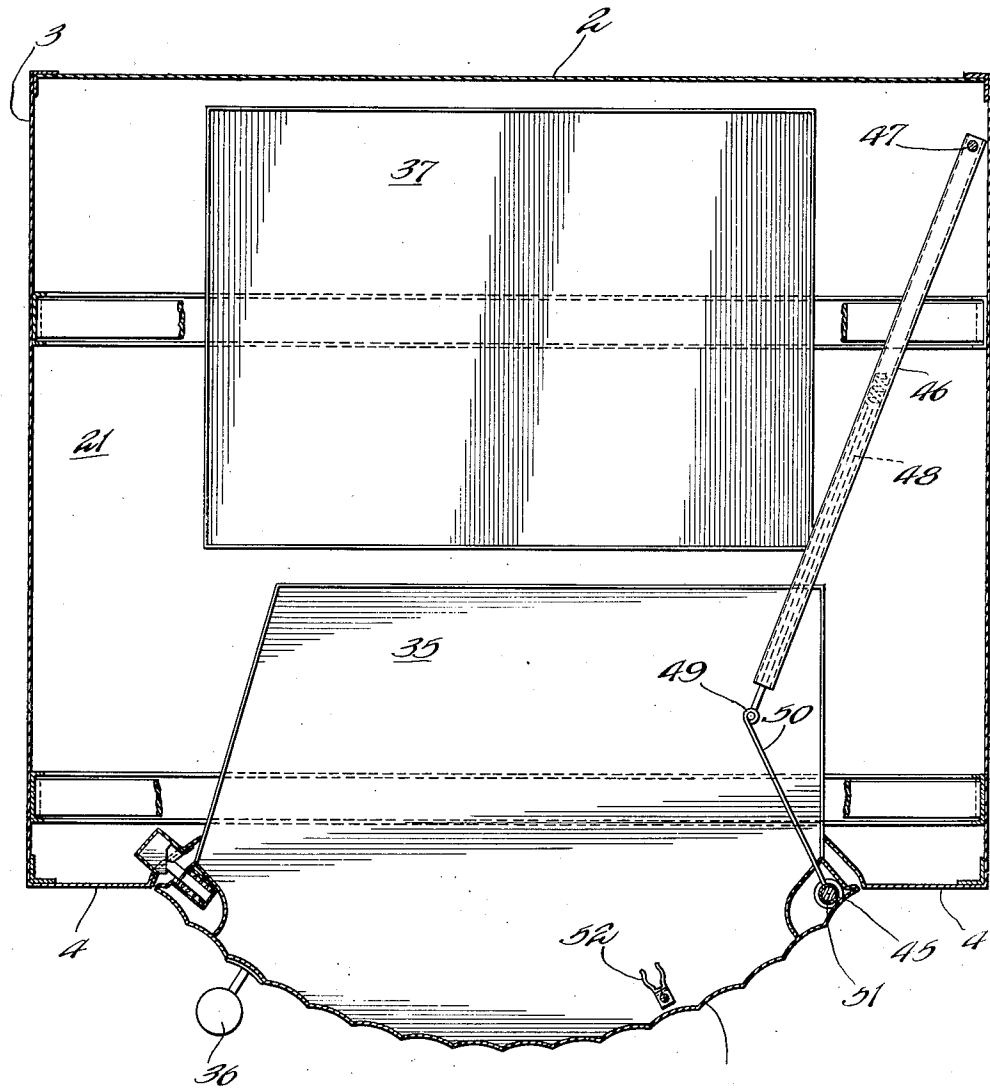
2,347,985

REFRIGERATOR

Filed Dec. 15, 1941

6 Sheets-Sheet 6

Fig. 13.



INVENTOR.

Charles G. Beersman

BY

Charles L. Howard atty.

UNITED STATES PATENT OFFICE

2,347,985

REFRIGERATOR

Charles G. Beersman, Evanston, Ill.

Application December 15, 1941, Serial No. 422,951

8 Claims. (Cl. 62-89)

This invention relates to refrigerators and more particularly to refrigerators for domestic use.

A chief object of my invention is to provide a circular refrigerator housed within a square or rectangular cabinet, said refrigerator containing compartments for the storage of food, compartment for ice cube making, compartment for frozen foods storage and a combined vegetable and compressor chamber with separate door arrangement.

Another object of my invention is to provide a novel construction in which the compressor chamber may be ventilated by vertical flues and at the same time be so arranged to permit the refrigerator to be placed flush against the wall.

Another object of my invention is to provide a circular food compartment with easily rotatable shelves, which shelves may be conveniently and quickly adjusted to different heights, one above the other.

Another object of my invention is to provide a main door which cooperates with my novel refrigerator construction, the door operating on top and bottom pivots and which door is self-opening and closing under touch control and which door cooperates with jamb breaker strips and gaskets attached to the refrigerator housing as distinguished from being attached to the door as is common practice.

Another object of my invention is to provide a gutter for the floor of the food compartment for the collection of condensation and spillage and provision for draining the gutter to a pan located in the bottom of the compressor chamber and evaporated by means of by-pass coils from the compressor to the condenser. Also similar gutter and drainage arrangement is provided for the frozen food compartment.

Another object of my invention is to provide an ice cube making compartment located below the food compartment, the ice cube making compartment having trays provided with cam lifting means for quick removal of the trays.

Another object of my invention is to provide all control means for the refrigerator and its mechanism upon the outside of the cabinet for greater convenience and efficiency in operation.

Another object of my invention is to provide a frozen food compartment with revolving and removable trays, which said compartment is located beneath the ice cube making compartment and which has a special door for additional protection for the food.

Another object of my invention is to provide a vegetable bin extending into the compressor

chamber, said bin being located upon an auxiliary door of the refrigerator.

Further objects and advantages of the present invention will be apparent from the following description, reference being had to the accompanying drawings, wherein a preferred form of my invention is shown.

In the drawings:

Fig. 1 represents a front perspective view of my novel refrigerator.

Fig. 2 represents a section taken along the line E-E, Fig. 7.

Figs. 3, 4 and 5 are detail views of tray supporting rollers.

Fig. 6 represents a cross-section thru F-F, Fig. 7.

Fig. 7 is a section taken along the line A-A, Fig. 6.

Figs. 8, 9 and 10 are detail views of modified tray supporting rollers.

Fig. 11 is one-half plan on section B-B of Fig. 6 and one-half plan on section C-C of Fig. 6.

Fig. 12 is a front elevation with the main door removed.

Fig. 13 is a cross-sectional plan view thru the line D-D, Fig. 6.

Referring to the drawings:

1 represents the refrigerator as a whole, 2 the top of the cabinet therefor, 3 the flat back portion, 4 the front portion. It is to be understood, however, that the back of the cabinet may be omitted. 5 designates the main door of the refrigerator and 6 the touch control for the door. 7 represents the control buttons at the top edge of the refrigerator and 8 a ventilating grille at the base of the refrigerator. 9 presents a vegetable bin door having an operating mechanism to be described later. 10 designates a pair of grilles located on the top of the refrigerator used in conjunction with a pair of uninterrupted vertical flues or air passages 10' located in the rear corners of the refrigerator between the outside surface of the rounded refrigerator and the inside surface of a square or rectangular cabinet for the ventilation of the compressor chamber, all of which will be described in detail further on. The outside wall of the circular refrigerator unit is designated by 11 and the inner wall of the refrigerator unit is shown by 12.

Spacing members 13 are located between the outer shell 11 and the inner shell 12 of the circular refrigerator. These spacing members are of a height and width for proper alignment of the two shells of the food, ice cube making and

frozen food storage compartments. These spacing members are suitably notched at 13' for vertical support of the food compartment and notched at 13² for support of the ice cube making and frozen food compartments. The spacing members may be suitably supported by braces located in the compressor compartment.

The refrigerator food compartment 14 has a floor 15. Compressor coils are shown represented by 16.

An ice cube making compartment is shown by 17 and a frozen food compartment is designated as 18. The frozen food compartment has an additional door 19 with a handle 20, the door being hinged at 19'.

The compressor compartment generally is designated by 21.

In the food compartment 14 are a number of revolving shelves 22, which shelves are supported by rollers generally designated as 23 and shown in detail by Figs. 3, 4, 5, 8, 9 and 10. These rollers are supported upon vertical strips 24, these strips having perforations 25 to permit up and down adjustment of the rollers. In the floor of the food compartment is a gutter 26 having a drain pipe 27.

In the ice cube making compartment 17 are trays 28 and back-stops 29 and each tray has a cam lifter designated by 30.

In the frozen food compartment 18 is a suitably supported shaft 31 adapted to be rotated and upon this shaft are secured trays 32. In this frozen food compartment there is also a gutter 33 having a drain pipe 34.

The compressor compartment 21 has a door 9, which door supports a vegetable bin 35. A handle for the door is designated by 36. In the compressor compartment is a pan 37 in which are located by-pass coils 38 from compressor to condenser. Both the aforementioned pipes, 27 and 34, drain condensation into the pan 37 and by means of the by-pass coils 38 the condensation is evaporated.

Referring to the main door 5, this door is hung on top and bottom pivots 39 and is self-closing by means of touch control 6, this door cooperating with pivoted angle 40 in connection with spring bolt 41 and keeper 42 located on refrigerator body. Also, there is a spring plunger 43 adapted to afford easy opening of the door. Also the refrigerator cabinet has door jamb breaker strips or gaskets 44 attached thereto as distinguished from the usual strips secured to the door itself.

The door 9 which supports the vegetable bin 35 is hinged upon pivots 45. This door is self-closing through spring and toggle mechanism comprising a tube 46 pivoted at 47 to bottom of frozen food compartment in which is located a spring 48 pivoted to the toggle joint 49 and strap 50 which is pivotally attached to the door at 51. 52 represents a catch to hold the knuckle joint, 49 when door is open.

In Fig. 7 is shown a temperature controlled sealed compartment 53 for butter storage, this compartment being separated from the food compartment by door 54 hinged at 55. Also, in Fig. 7, a lamp 56 is shown with its reflector 57 housed into the inner shell of the food compartment.

As already stated, an important object of my invention is to provide a food compartment of my refrigerator with circular walls in which revolve circular shelves 22. To permit of easy revolution and support and centering of the shelving, I provide a roller arrangement generally designated by 23. A preferred form of roller construction is shown by Figs. 3, 4 and 5 in which 60 represents a horizontal roller journaled upon bearing 61, there

being a supporting portion 62 for the roller, which portion has a cavity 63 in which a spreader 64 at the end of the journal 61 is located. The portion 62 has a housing 65 in which are supported two vertical rollers 66. The housing 65 has an integral pin 67 directed downwardly at an angle, which pins of a plurality of roller constructions 23 when inserted in openings 25 of the vertical strips 24, support the outer edge of shelves 22 and thus permit them to be easily and safely revolved.

A modification of supporting roller construction is shown by Figs. 8, 9 and 10. In these figures vertical rollers are omitted, there being only a horizontal roller 60' having a flange 68 against which the outer edge of the shelves contact. With this type of roller construction there is a supporting portion 69 for the roller, this portion having an integral downwardly projecting pin 67' which cooperates with openings in vertical strips 24 for the same purpose as pin 67 of Figs. 3, 4 and 5.

Insulation throughout the construction is, designated by 70.

From the preceding description it will be evident that I have provided a refrigerator construction of exceedingly high efficiency and simplicity in which, by means of the revolving shelves, the necessity of the user of removing food from the front of the ordinary stationary shelves to obtain the desired food in the rear of the shelves, is eliminated. Moreover, by the use of the revolving shelves of my invention there is no binding of the shelves as is the case of the "pull out" type of shelves. In addition, the revolving shelves permit all food located thereon to be visible at a time when a particular food is needed. It will also be seen that my novel refrigerator construction permits it to lie flush against a wall, thus eliminating inaccessible dust accumulation.

Also, through employment of a rectangular cabinet with the revolving shelf arrangement, rear corner ventilating flues are provided for the compressor compartment.

Another advantage of my refrigerator construction is the location of the ice cube making compartment beneath the food storage compartment. In thus locating the ice cube making compartment no spillage is permitted to fall into the food compartment at a time when defrosting takes place or otherwise.

A further advantage of my construction is the provision of gutters and drains for the food storage compartment and frozen food compartment, thus eliminating the use of drip pans commonly used.

An additional advantage of my construction is the location of the gaskets upon the refrigerator housing as distinguished from being located upon the doors themselves. In placing the gaskets as heretofore described they are out of the way of the hand of the user of the refrigerator and, consequently, cannot be affected by such contact.

I have herein shown and described what I now consider to be a preferred manner of carrying out my invention but the same is for illustrative purposes only and I contemplate all changes and modifications that come within the scope of the claims appended hereto.

I claim:

1. A refrigerator comprising a rectangular shaped cabinet, spaced inner and outer circular walls supported therein, a food storage compartment, circular shelves adapted to revolve within said compartment, an ice cube making compartment located beneath said storage compartment,

a frozen food compartment located beneath said ice cube making compartment, said compartment also having circular shelves adapted to revolve therein, each of said compartments defined in part by said inner circular wall, a compressor compartment located beneath said aforementioned compartments, a vertical flue in each rear corner of said cabinet leading from the compressor compartment, a door for said compressor compartment and a vegetable bin supported upon said door and extending within said compressor compartment.

2. A refrigerator comprising a rectangular shaped cabinet, spaced inner and outer circular walls supported therein, a food storage compartment, a plurality of vertical spacing members each having notches for the support of said storage compartment, an ice cube making compartment located beneath said food storage compartment, a frozen food storage compartment located beneath said ice cube making compartment, a second series of notches in said spacing members for the support of the last two mentioned compartments, each of said three compartments being defined in part by said inner wall and a door in said cabinet for said compartments.

3. A refrigerator comprising a rectangular shaped cabinet, spaced inner and outer circular walls supported therein, a food storage compartment, a plurality of vertical spacing members each having means for the support of said storage compartment, an ice cube making compartment located beneath said food storage compartment, a frozen food storage compartment located beneath said ice cube making compartment, a second series of means in said spacing members for the support of said last two mentioned compartments, each of said three compartments being defined in part by said inner wall and a door in said cabinet for said compartments.

4. A refrigerator comprising a rectangular shaped cabinet, spaced inner and outer circular walls supported therein, a food storage compartment, circular shelves adapted to revolve within said food storage compartment, a plurality of vertical spacing members each having notches for the support of said food storage compartment, an ice cube making compartment located beneath said food storage compartment, a frozen food storage compartment located beneath said ice cube making compartment, a second series of notches in said spacing members for the support of the last two mentioned compartments, each of said three compartments being defined in part by said inner wall and a door in said cabinet for said compartments.

5. A refrigerator comprising a rectangular-shaped cabinet, spaced inner and outer circular walls supported therein, a food storage compartment, circular shelves adapted to revolve within said food storage compartment, a plurality of vertical spacing members each having notches for the support of said food storage compartment, an ice cube making compartment located beneath said food storage compartment, a frozen food storage compartment located beneath said ice cube making compartment, circular shelves adapted to revolve within said frozen food compartment, a second series of notches in said spac-

ing members for the support of the last two mentioned compartments, each of said three compartments being defined in part by said inner wall and a door in said cabinet for said compartments.

6. A refrigerator comprising a rectangular-shaped cabinet, spaced inner and outer circular walls supported therein, a food storage compartment, circular shelves adapted to revolve within said food storage compartment, a plurality of vertical spacing members each having notches for the support of said food storage compartment, an ice cube making compartment located beneath said food storage compartment, a frozen food storage compartment located beneath said ice cube making compartment, circular shelves adapted to revolve within said frozen food storage compartment, a second series of notches in said spacing members for the support of the last two mentioned compartments, each of said three compartments being defined in part by said inner wall and a door in said cabinet for said compartments.

7. A refrigerator comprising a rectangular-shaped cabinet, spaced inner and outer circular walls supported therein, a food storage compartment, a gutter in the floor of said compartment, a drain pipe for said gutter, circular shelves adapted to revolve within said food storage compartment, a plurality of vertical spacing members each having notches for the support of said food storage compartment, an ice cube making compartment located beneath said food storage compartment, a frozen food storage compartment located beneath said ice cube making compartment, said frozen food compartment having a gutter in the floor thereof, a drain pipe for said gutter, circular shelves adapted to revolve within said frozen food storage compartment, a second series of notches in said spacing members for the support of the last two mentioned compartments, each of said three compartments being defined in part by said inner wall and a door in said cabinet for said compartments.

8. A refrigerator comprising a rectangular shaped cabinet, spaced inner and outer circular walls supported therein, a food storage compartment, a plurality of vertical spacing members each having notches for the support of said food storage compartment, circular shelves adapted to revolve within said compartment, an ice cube making compartment located beneath said food storage compartment, a frozen food compartment located beneath said ice cube making compartment, a second series of notches in said spacing members for the support of the last two mentioned compartments, said frozen food compartment also having circular shelves adapted to revolve within said compartment, each of said compartments defined in part by said inner circular wall, a compressor compartment located beneath said aforementioned compartments, a vertical flue in each rear corner of said cabinet leading from the compressor compartment, a door for said compressor compartment affixed to said cabinet, a vegetable bin supported upon said door and extending within said compressor compartment and a second door affixed to said cabinet for the food storage and frozen food compartments.

CHARLES G. BEERSMAN.