

J. W. RHEA.
REFRIGERATOR.
APPLICATION FILED JUNE 15, 1917.

1,297,910.

Patented Mar. 18, 1919.

2 SHEETS—SHEET 1.

Fig. 1

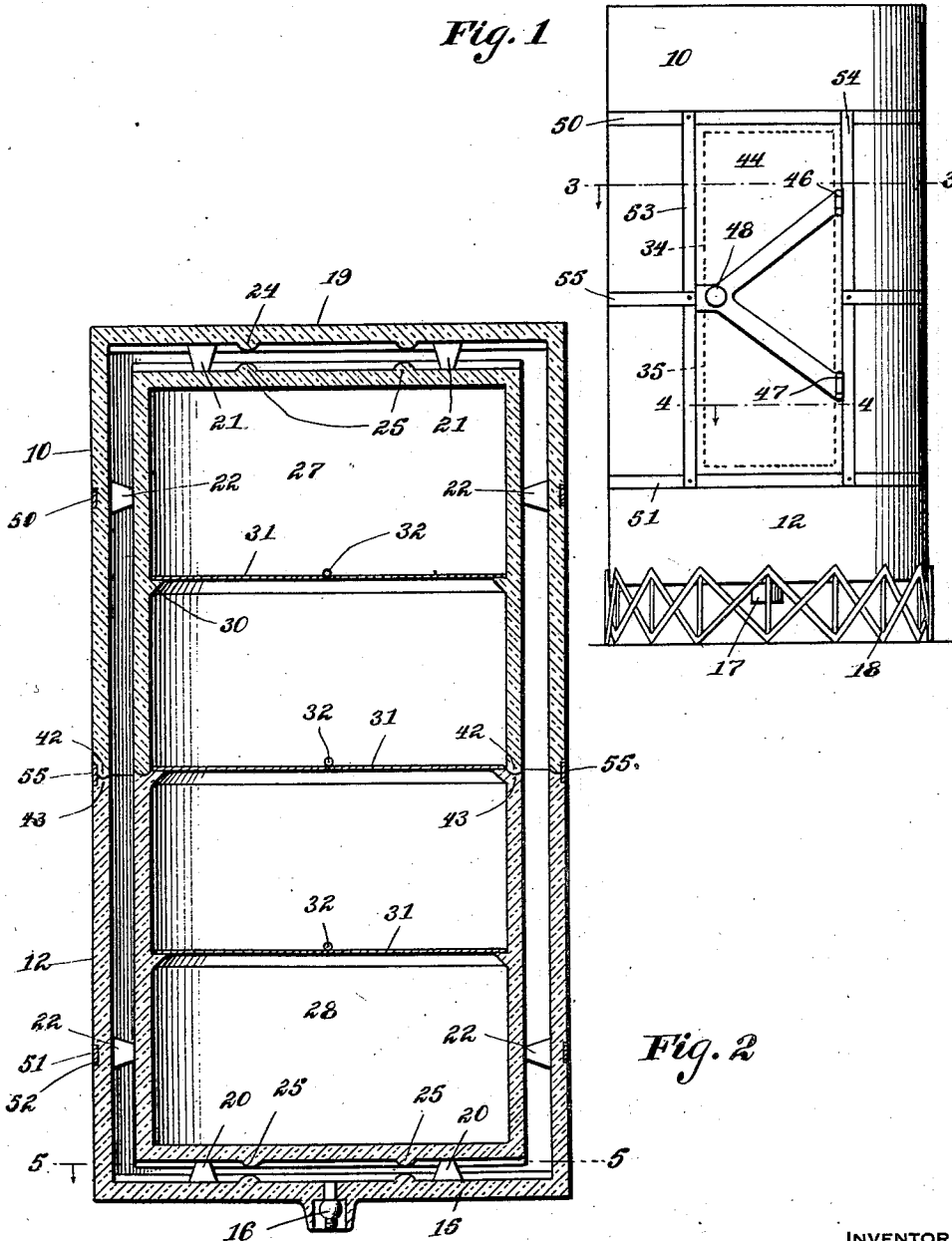


Fig. 2

WITNESSES

C. F. Rudolph
Ethel M. Springer

INVENTOR

James W. Rhea,

BY *Victor J. Evans*

ATTORNEY

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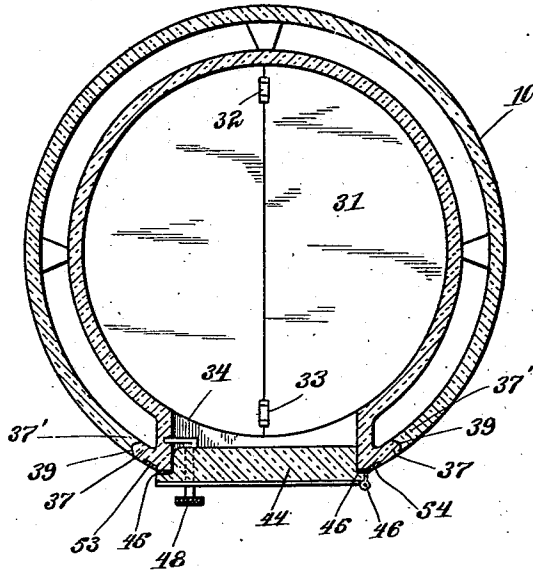


Fig. 3

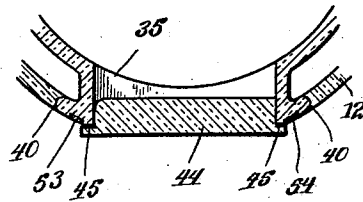


Fig. 4

Fig. 5

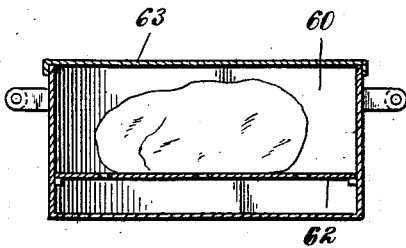


Fig. 6

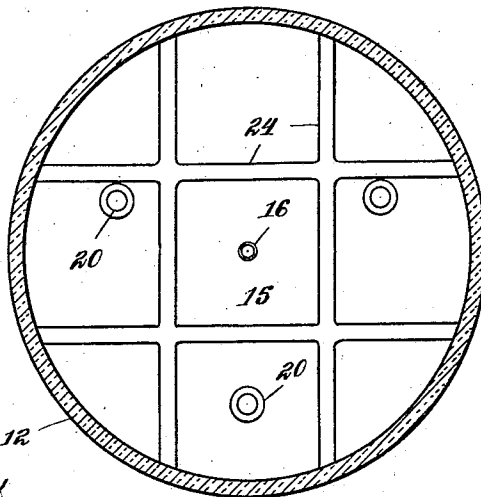
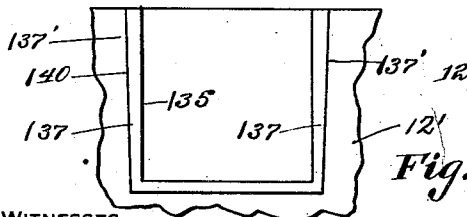


Fig. 7



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E. F. Rudolph
Ethel M. Springer

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BY *Victor J. Evans*
ATTORNEY

UNITED STATES PATENT OFFICE.

JAMES W. RHEA, OF KINGSFORT, TENNESSEE.

REFRIGERATOR.

1,297,910.

Specification of Letters Patent.

Patented Mar. 18, 1919.

Application filed June 15, 1917. Serial No. 174,941.

To all whom it may concern:

Be it known that I, JAMES W. RHEA, a citizen of the United States, residing at Kingsport, in the county of Sullivan and State of Tennessee, have invented new and useful Improvements in Refrigerators, of which the following is a specification.

This invention relates to refrigerators and one object is to provide a thoroughly sanitary construction in which no packing is employed, a plurality of receptacles being separated by a vacuum chamber for forming a non-conducting wall, and said receptacles being formed of glass or the like and the individual elements being constructed and assembled in a certain novel manner hereinafter described.

A further object is to provide a plurality of receptacles, each formed in sections and formed with means thereon whereby said sections will be properly spaced concentrically when the device as a whole is to be of cylindrical form, and with means permitting the parts to be properly secured together and permitting the door to be properly hung and operated.

In the accompanying drawings:

Figure 1 is a view of the refrigerator in front elevation,

Fig. 2 is a vertical section,

Fig. 3 is a transverse section on the line 3—3 of Fig. 1,

Fig. 4 shows a detail view in section on the line 4—4 of Fig. 1,

Fig. 5 is a section on the line 5—5 of Fig. 2,

Fig. 6 is a vertical section through the ice receptacle.

Fig. 7 shows the lower half of the doorway as formed with a beveled flange at the side thereof.

In the construction of a refrigerator in accordance with my invention I prefer to make use of a cylindrical casing and a cylindrical inner chamber but wish to be understood as not limiting myself to the configuration of the outer casing or the casing mounted therein. The outer chamber and the inner chamber may each be made of glass having a suitable thickness, said chambers being spaced apart to form a vacuum

chamber and each cylinder being formed in two sections secured along their meeting edges by means of glass cement. The outer chamber comprises a plurality of cylindrical members 10 and 12 each having formed integrally therewith an end portion, the top being designated 19 and the bottom 15. The bottom member 15 is provided with a tube 16 extending therethrough for the purpose of exhausting the air from the space between the walls, tube 16 being surrounded by a flange 17 for the purpose of protecting the latter from injury. The entire construction is mounted upon a suitable base portion which may be of ornamental character and is designated 18.

The sections 10 and 12 of the casing are provided with inwardly extending lugs 20 in the bottom, with similar lugs 21 in the top and with other lugs 22 spaced at suitable points around the interior. These members are cemented to the outer walls. The top 19 and the bottom member 15 are each provided with ribs 24 formed integrally with said walls and constituting reinforcing members. Similar ribs or ridges are provided on the outer sides of the top and bottom of the inner cylinder, these members being designated 25.

The upper section 27 of the inner cylinder and the lower section 28 are each provided with inwardly extending annular flanges designated 30 for the purpose of supporting the shelves 31. These shelves may be three in number spaced apart at substantially equal distances, if desired, and made of metal, being formed in sections hinged together so that they may be folded and conveniently inserted through the door and then unfolded with their edges in contact with the aforesaid annular flanges 30. The hinge connections 32 and 33 of these shelves are so formed that the shelves may be folded in one direction and may then be unfolded to horizontal position and be retained in such position.

The inner receptacle is provided with an opening forming a doorway, one portion of which opening is designated 34 and is formed in the upper section, the other portion being shown at 35 and formed in the

lower section. The edges of the side walls adjacent the openings 34 and 35 are deflected in two directions for the purpose of forming flanged portions 37 which engage the walls 37' of corresponding openings 39 and 40 formed in the sections 10 and 12 of the outer casing.

The edges of the sections 10 and 12 and the corresponding edges of sections 27 and 28 of the two receptacles are formed so that they dove-tail, one edge of each section being convex as shown at 42 and the other edge 43 being concave, the adjoining sections being secured by glass cement as above indicated.

The door 44 may be formed of a solid plate of glass which contacts with the strip of rubber packing 45 surrounding the edges of the opening or doorway. The door is provided with hinge members 46 and 47, the respective hinges being so constructed and mounted that the door will close of its own accord when left open and when in position to permit of free movement. The door latch is designated 48 and is of the type permitting positive engagement and a given degree of compression of the packing material when the door is secured.

A plurality of bands 50 and 51 extend circumferentially of the outer casing and are partially embedded within channels 52 formed in the sections of the outer casing during the process of manufacture. These bands may be connected at the edges of the opening forming the doorway by means of vertically arranged strips or braces 53 and 54 the first of which provides means for mounting the catch to be engaged by the securing member and the second of which provides a mounting for the hinges. A third band 55 is located centrally of the outer casing and has connection at ends with said vertical strips 53 and 54, this band 55 passing around the outer casing at the point where the two sections thereof meet and are secured together in the manner previously indicated.

The ice receptacle comprises a metallic box of suitable configuration and capacity, this box being designated 60 and being provided with handles by which it may be placed within the refrigerator or removed therefrom. This box is provided with a false bottom 62 and with a cover 63, which cover may be closed when desired and especially if the door is to be kept open for a very brief time during the operation of removing certain of the articles within the inner receptacle. The water which collects in this box from the melting of the ice may be used for drinking purposes if desired, it being the intention that the box shall be kept in a perfectly sanitary condition in

order that it may be employed as a cool or cold water chamber for the purpose indicated. In cleaning the ice receptacle and water cooling receptacle, it is only necessary to remove the latter, and in cleaning the remainder of the structure it is then only necessary to take out the folding shelves after the articles have been removed.

In the process of assembling the device, the upper and lower sections of the inner receptacle are placed in proper relative position with the openings therein opposite each other for forming the doorway and the interlocking members along the adjacent edges of the sections being opposite each other. The sections are then cemented by the use of glass cement along the edges, for forming substantially continuous side walls. The complete inner receptacle is then placed in the lower section of the outer casing with the bottom thereof resting upon the spacing members 20. The flanged portion of the inner receptacle along the edges of the door passes over the edges of the doorway in the lower section of the outer casing. These parts may then be cemented for forming an air-tight joint at the doorway. The upper section of the outer casing being then placed in position and secured by means of the circumferential bands specified above, the door is mounted and the device is complete.

In the form illustrated in Fig. 7, the flanged portion 137 of the doorway 135 of the lower half of the inner receptacle has a beveled edge for engaging a correspondingly beveled portion 137' on each side of the doorway 140 of the lower half 12' of the outer casing. The cross section of flange 137 corresponds with the cross section of the flange of Fig. 3, flange 137 being beveled however, as stated.

I claim:—

1. In a refrigerator, an outer casing comprising a plurality of integrally formed members including side walls and end portions, spacing means carried by the inner walls of said casing, an inner receptacle formed of a plurality of sections having end walls and integrally formed sides, said sections being provided with edges constructed to inter-engage one another, and said inner receptacle and outer casing each being provided with an opening, the walls of the inner receptacle extending about the edges of the opening of the outer receptacle to form an air-tight connection and a substantially continuous insulated wall of uniform thickness about said opening, a door for closing said opening, and means permitting the exhaustion of air from a space between the outer casing and inner receptacle.

2. In a device of the class described, an

outer casing, a receptacle constituting a lining therefor, said receptacle comprising a plurality of sections each having side and end walls integrally formed and provided
5 with reinforcing ribs and with internally projecting flanges, one of said sections having its edge portion grooved circumferen-

tially and adapted to contact with the opposite section and the other of said sections being provided with a convex portion 10 adapted to engage said groove.

In testimony whereof I affix my signature.

JAS. W. RHEA.