

April 19, 1938.

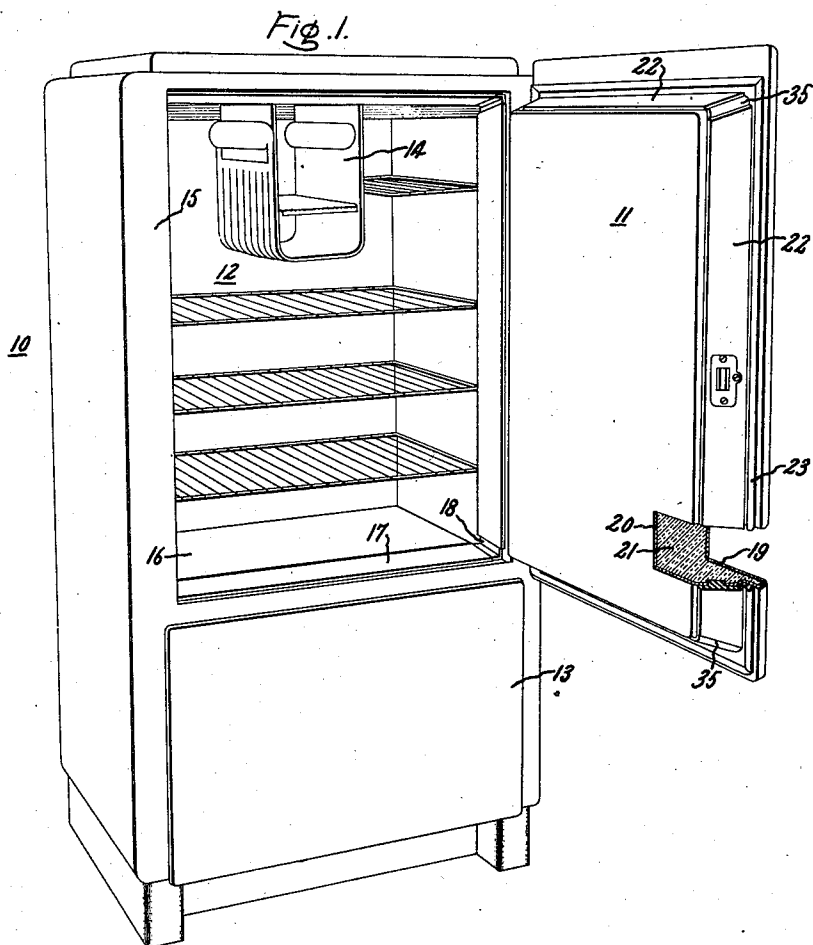
R. A. KING

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REFRIGERATOR CABINET

Filed Dec. 27, 1934

2 Sheets-Sheet 1



Inventor:
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by *Harry E. Dunham*
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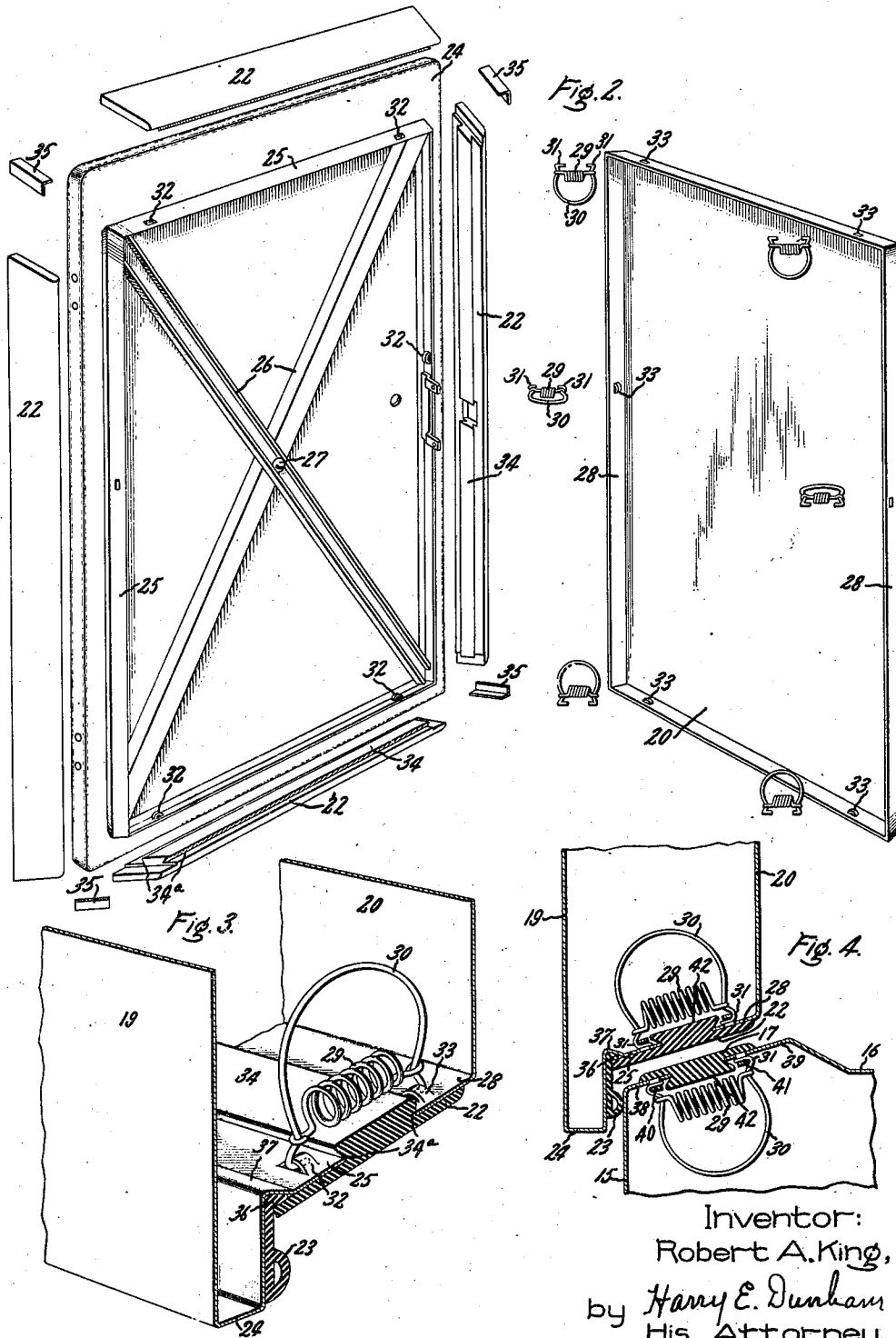
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UNITED STATES PATENT OFFICE

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REFRIGERATOR CABINET

Robert A. King, Erie, Pa., assignor to General Electric Company, a corporation of New York

Application December 27, 1934, Serial No. 759,356

7 Claims. (Cl. 220-10)

My invention relates to refrigerator cabinets. It is an object of my invention to provide an improved refrigerator cabinet of the type having inner and outer metal shells provided with heat insulation therebetween, and a strip of thermally resistant material connecting the shells about the door opening.

Another object of my invention is to provide a refrigerator cabinet and door structure including strips of thermally resistant material arranged about the door and door opening which may be assembled and securely held together without the use of screws or similar devices in the strips for securing them to the cabinet walls.

A further object of my invention is to provide a refrigerator cabinet which shall be of simple construction, easy to assemble and of pleasing appearance.

Further objects and advantages of my invention will become apparent as the following description proceeds, and the features of novelty which characterize my invention will be pointed out with particularity in the claims annexed to and forming a part of this specification.

For a better understanding of my invention reference may be had to the accompanying drawings in which Fig. 1 is a perspective view of a household refrigerator cabinet embodying my invention; Fig. 2 is a perspective view of the several parts of the door shown in Fig. 1 prior to assembly; Fig. 3 is a sectional detail perspective view of the door structure, and Fig. 4 is a detail sectional view of the door and cabinet adjacent the door opening.

Referring now to the drawings, in Fig. 1 is shown a refrigerator cabinet 10 provided with a hinged door 11 for closing a food compartment 12. A motor and compressor unit compartment is arranged below the food compartment and is provided with a removable panel or door 13. The compressor within the lower compartment supplies refrigerant to an evaporator 14 which cools the compartment 12 by absorption of heat therefrom. The cabinet 10 comprises an outer metal wall or casing 15 and an inner metal wall or liner 16 spaced apart and provided with thermal insulation therebetween, the shells being connected about the door opening by strips 17 of thermally resistant material. The strips 17 are made as thin as practicable and consistent with the requisite strength to minimize conduction of heat into the cabinet. The thermally resistant material employed should be moisture impervious, and may comprise a filler provided with a suitable binder such as rubber or a resinous con-

densation product. Metal finishing corners 18 are provided to present a pleasing appearance. The door 11 comprises a relatively thin outer metal wall or sheet 19 and a relatively thin inner metal wall or sheet 20 spaced apart and provided with heat insulation 21 therebetween. Strips 22 of thermally resistant material are provided to connect the sheets 19 and 20 about the edge of the door and a gasket 23 of some suitable material, such as rubber, is provided to seal the door opening when the door is closed.

The thermally resistant strips 17 and 22 about the door opening and the edge of the door respectively are secured in place without the use of screws or other securing devices in the strips. In accordance with my invention I accomplish this by securing together the inner and outer metal shells of the refrigerator cabinet, and also the inner and outer sheets or walls of the door by resilient clamps which secure the metal walls together and retain the thermally resistant strips in place. In Fig. 2 I have shown the several parts of the door structure embodying my invention. The edges of the outer sheet 19 are bent back toward the center of the sheet to form a hollow door flange or frame 24 and an upturned flange 25 is formed about the inner edge of the flange 24. A cross-brace comprising channels 26 arranged back to back and fastened together by a bolt 27 is secured to the corners of the flange 25 to provide a rigid structure. The inner sheet 20 of the door is provided with a flange 28 which, when the door is assembled, lies in substantially the same plane as the flange 25 on the outer sheet.

In order to assemble the door the thermal insulation 21 is placed between the sheets 19 and 20, and the sheets are secured resiliently together by springs 29 engaging the sides of U-shaped yokes 30 having hooks 31 at the ends thereof sprung into place with the hooks engaging loops 32 and 33 formed in the flanges 25 and 28 respectively. The springs 29 then pull the sheets 19 and 20 together against the insulation 21. The thermally resistant strips 22 are then secured in place. Each of these strips comprises a main thin flat portion and a narrower raised portion 34 of dovetail cross-section extending longitudinally of the strip 22 and forming grooves 34a between the edges or shoulders of the portion 34 and the main portion of the strip. In order to insert the strips 22 between the flanges 25 and 28, the sheets 19 and 20 are pulled apart against the force of the springs 29 and the portions 34 of the strips 22 are then placed

between the flanges 25 and 28 and the sheets 19 and 20 are released, so that the flanges 25 and 28 rest in the grooves 34a which act as stops for limiting the movement of the sheets toward each other. It will be evident that the springs 29 hold the strips 22 securely in place without the use of any securing device extending through the strips to mar the appearance of the smooth outer surfaces thereof, since the devices which I have provided, including the springs 29 and yokes 30, are located entirely within the enclosure formed between the sheets 19 and 20 by such sheets and the peripheral strips 22. Furthermore, it is evident that these devices resiliently secure the sheets 19 and 20 together in assembled relation and provide for limited separation of the sheets to facilitate placement and removal of the strips 22 between the flanges 25 and 28. Angle pieces 35 of polished metal or similar material are placed at corners in grooves 35a in the ends of the strips when the strips are inserted between the flanges, in order to provide a finished appearance for the door. When the door has been assembled in this way the gasket 23 may be secured in place by inserting a longitudinal bead or foot 36 thereof between the flange 25 and the strip 22, the flange 25 being provided with an offset portion 37, which forms a longitudinal recess between the flange and the strip.

The cabinet is assembled in essentially the same manner as that employed in assembling the door. As shown in Fig. 4, the outer casing 15 and the inner liner 16 are provided with flanges 38 and 39 respectively, which lie in substantially the same plane when the cabinet has been assembled. When the insulation has been arranged in place the outer casing and inner liner are resiliently secured together by a plurality of springs 29 secured to the sides of yokes 30, hooks 31 on the ends of the yokes engaging loops 40 and 41 on the flanges 38 and 39 respectively. The flanges 38 and 39 are then forced apart against the force of the springs 29 and the strips 17 and the corner pieces 18 are arranged in place in grooves in the adjacent ends of the strips, and the flanges are released to engage the grooves formed by raised portions 42 on the strips 17. Thus, the securing devices including the springs 29 and the yokes 30 resiliently secure the outer casing 15 and the inner liner 16 together in assembled relationship and provide for limited separation of the outer casing and the inner liner to facilitate placement and removal of the strips 17 between the flanges 38 and 39. The portions 42 are of the same form as the portions 34 of the strips 22. The securing devices including the springs 29 and yokes 30 are thus located entirely within the enclosure, formed between the outer casing 15 and inner liner 16, by the casing and inner liner and the strips 17.

While I have shown and described my invention as applied to a household refrigerator cabinet, other modifications will readily be apparent to those skilled in the art. I do not, therefore, desire my invention to be limited to the specific arrangement shown and described, and I intend in the appended claims to cover all modifications within the spirit and scope of my invention.

What I claim as new and desire to secure by Letters Patent of the United States, is:

1. A refrigerator cabinet or the like comprising metal walls spaced apart and having heat insulation therebetween, a strip of thermally resistant material extending longitudinally between said walls about the edges thereof, and means

including a yoke engaging each of said walls and a spring engaging the sides of said yoke for urging said walls together and for retaining said strip securely in place between said walls.

2. A refrigerator cabinet or the like comprising metal walls spaced apart and having heat insulation therebetween, a strip of thermally resistant material extending longitudinally between said walls and having grooves therein engaging the edges of said walls, and means including a yoke engaging each of said walls and a spring engaging the ends of said yoke for urging said walls together and for retaining said strip securely in place between said walls.

3. A refrigerator cabinet or the like comprising walls spaced apart and having heat insulation therebetween, said walls having flanges near the edges thereof extending substantially in the same plane, a strip of thermally resistant material extending longitudinally between said walls and around the edges thereof, means including an enlarged portion of said strip for providing a shoulder for engaging the flanges on said walls, and means including a yoke engaging each of said walls and a spring associated with said yoke for urging said walls together and for securing said strip in place between said walls.

4. A door for refrigerator cabinets or the like comprising two metal sheets spaced apart and having heat insulation therebetween, a flange on each of said sheets, said flanges extending toward each other in substantially the same plane, strips of thermally resistant material extending longitudinally between said sheets and engaging said flanges, and means including a yoke engaging each of said sheets and a spring associated with said yoke for urging said sheets together and for securing said strips in place between said sheets.

5. A door for refrigerator cabinets or the like comprising two metal sheets spaced apart and having heat insulation therebetween, a flange on each of said sheets, said flanges extending toward each other in substantially the same plane, strips of thermally resistant material extending longitudinally between said sheets, means including portions of dovetail cross-section on said strips and engaging the edges of said flanges for aligning said sheets, said strips and said sheets cooperating to form an enclosure between said sheets, and means located entirely within said enclosure engaging said flanges at points disposed on opposite sides of said strips and closely adjacent said strips for resiliently urging flanges into engagement with said portions of dovetail cross-section on said strips to secure said sheets together and to retain said strips securely in place between said flanges.

6. A door for refrigerator cabinets or the like comprising inner and outer metal sheets spaced apart and having heat insulation therebetween, the edges of said outer sheet being bent to form a hollow frame of substantial thickness, a flange formed on the inner edge of said frame, a flange on said inner sheet extending in substantially the same plane as the flange on said frame, a strip of thermally resistant material arranged between said flanges and having shoulders engaging said flanges, said strip and said sheets cooperating to form an enclosure between said sheets, and means located entirely within said enclosure and engaging said flanges at points disposed on opposite sides of said strip and closely adjacent said strip for resiliently urging said flanges into engagement with said shoulders to

secure said sheets together and to retain said strip securely in place between said flanges.

7. A door for refrigerator cabinets or the like comprising inner and outer continuous metal sheets spaced apart and having heat insulation therebetween, the edges of said outer sheet being bent to form a hollow frame of substantial thickness, a flange formed on the inner edge of said frame, a flange on said inner sheet extending substantially in the same plane as the flange on said frame, a strip of thermally resistant material extending between said flanges and having shoulders engaging said flanges, said strip and said sheets cooperating to form an enclosure

between said sheets, said enclosure being accessible only adjacent said strip, and means located entirely within said enclosure and engaging said flanges at points disposed on opposite sides of said strip and closely adjacent said strip for resiliently urging said flanges into engagement with said shoulders to secure said sheets together and to retain said strips securely in place between said flanges, said means providing for limited separation of said flanges to render said enclosure accessible and to facilitate placement and removal of said strip.

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