

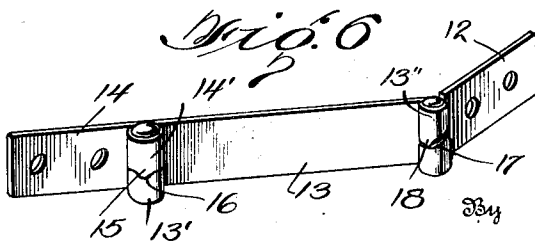
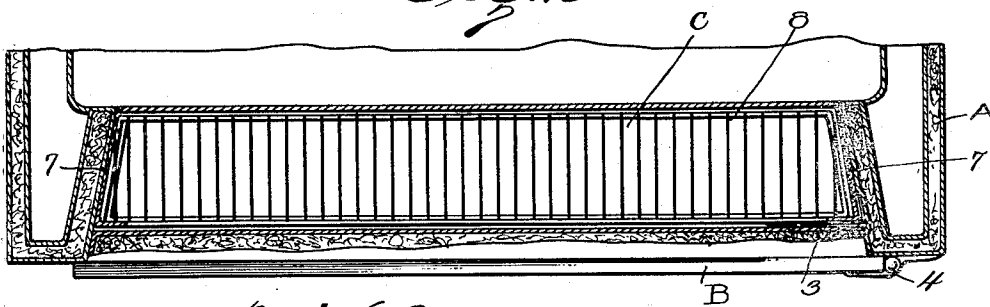
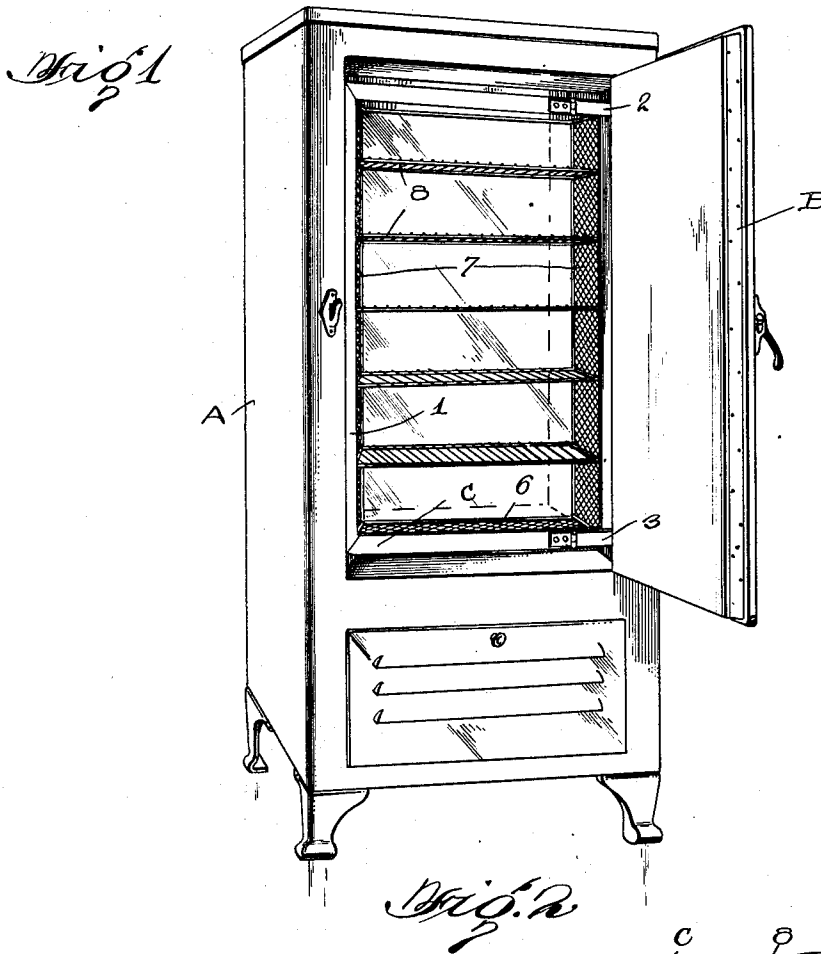
Feb. 9, 1937.

E. G. CLEMENTS
DOMESTIC REFRIGERATOR

2,070,511

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2 Sheets-Sheet 1



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2 Sheets-Sheet 2

Fig. 3

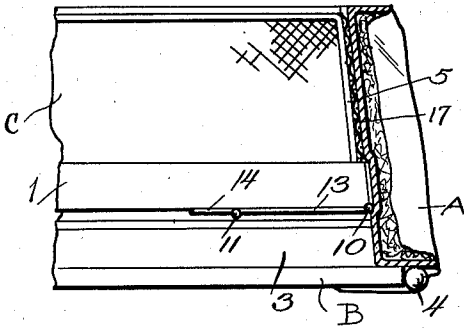


Fig. 4

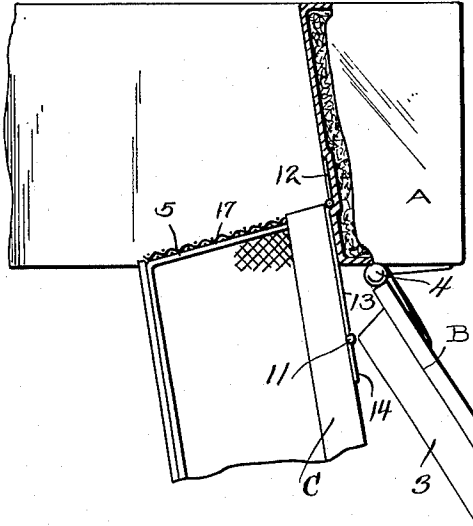


Fig. 5

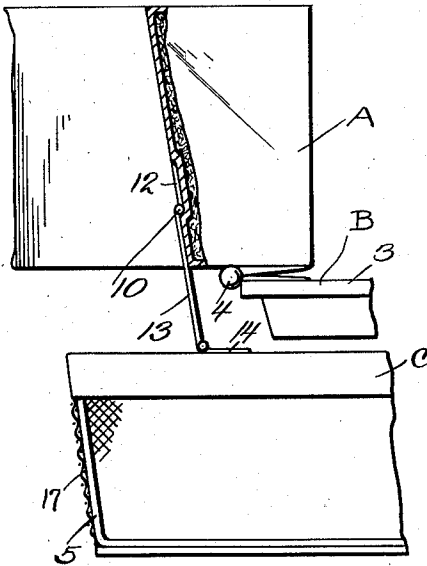


Fig. 6

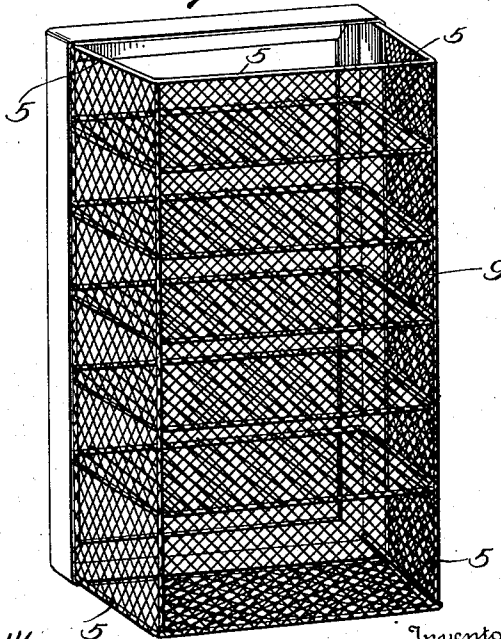
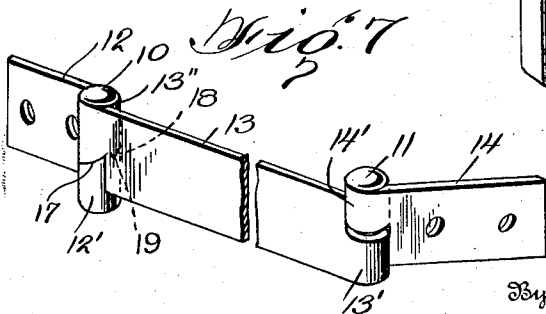


Fig. 7



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UNITED STATES PATENT OFFICE

2,070,511

DOMESTIC REFRIGERATOR

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7 Claims. (Cl. 62—89)

My invention relates to domestic refrigerators of this type equipped with a mechanical refrigeration unit for cooling the food compartment thereof and more particularly to the construction of the compartment adjacent the cooling unit.

It is customary in the construction of refrigerator boxes of the type defined to construct the door or closure for the food compartment so as to extend within the reveal, defining the compartment opening, a distance equal to the thickness of the refrigerator wall surrounding the opening.

With improvements in heat insulating materials and the construction of sealing strips for refrigerator closures it has been found that the door need not be built out intermediate its inner flanged edge so as to fit within and fill the compartment opening in order to preserve the cooled conditions of the compartment. A sizeable space is thus afforded for the storage of certain classes of foods in this space between the inner surface of the door and forward edge of the compartment shelves.

An object of the present invention is to provide a shelf carrying structure accessible from without the refrigerator box when the usual closure or door is opened, said structure being swingable from a position within the compartment opening to a position wholly outside of the box.

A further object of the invention is to so construct the shelf carrying structure as to be wholly independent of the compartment closure yet which will cooperate therewith in closed position to prevent rapid transfer of heat through the closure of the compartment.

A still further object is to provide a shelf carrying structure which will substantially fill the space between the side walls defining the closure opening but which is spaced a substantial distance from the upper and lower walls of the opening so as to permit adequate circulation of air from the compartment to cool and preserve certain classes of food stored upon the shelves thereof.

Another object of my invention is to provide a movable reticulated shelf carrying structure adapted to fit within the confines of a refrigerator compartment opening, whereby free and unrestricted circulation of cool air, from the refrigerating element within the compartment, to the food storage spaces between the several shelves of the structure, is maintained irrespective of the quantity or character of the food, or food containing elements, supported upon the shelves.

A still further object of the invention is to mount the shelf carrying structure of the character briefly described so as to permit said structure to be readily swung relative to a side wall of a refrigerator compartment opening to permit access to the compartment space behind and to be returned by gravitation to closed position within the compartment opening; or to be so swung and extended for swinging movement wholly without the said opening, in which latter position the mounting structure functions to retain the shelf carrying structure in open position.

Other objects of my invention relate to details of construction of the means for swingably mounting, and extending and swinging the shelf carrying structure, whereby the foldable elements of the means operate in a predetermined sequence with respect to each other on opening and closing movements of the device.

Other objects and advantages will be apparent to those skilled in the art from a consideration of the following detailed description taken in connection with the accompanying drawings wherein:

Fig. 1 is a view in perspective of a refrigerator with the door open showing the arrangement of the shelf carrying structure or auxiliary food compartment disposed within the door opening.

Fig. 2 is a horizontal sectional view through the refrigerator of Figure 1 showing the auxiliary compartment in section and a shelf therein and the relationship between the auxiliary compartment and the door opening to the refrigerator.

Fig. 3 is a detail view partially in section illustrating the position of the hinge with the auxiliary food compartment and the door of the refrigerator closed.

Fig. 4 is a view similar to that of Figure 3 showing the door and auxiliary compartment partly open.

Fig. 5 is a similar view showing these parts in fully open position.

Figs. 6 and 7 are detail views of the hinge construction for supporting the auxiliary food compartment, and

Fig. 8 is a view in perspective of a modified form of auxiliary food compartment having a solid metal frame and wire mesh or reticulated side, bottom and back walls and a plurality of shelves of similar character located therein.

In Figure 1 there is shown the usual form of domestic refrigerator cabinet comprising the casing or box A and door B. An auxiliary food compartment C is shown in normal position in the door opening of the food compartment of the re-

refrigerator which compartment is provided with the usual cooling coils and other equipment of such machines including shelving for supporting food and food containers as is customary. The auxiliary food compartment as illustrated in Figures 1 and 2 comprises an open sheet metal rectangular frame for the front of the compartment made of angle irons or similar structure. This frame 1 is hinged at the top and bottom as indicated at 2 and 3 to the side wall of the door opening adjacent the door hinges 4. Attached to the frame 1 by welding or other suitable means is a metal frame 5, which may be of heavy wire or similar construction defining the auxiliary compartment. The back of this compartment, as shown in Figures 1 and 2, is made of sheet metal which may be welded to the back vertical and horizontal members of the frame 5. The bottom 6 and the side walls 7 of the auxiliary compartment are formed of wire mesh or similar reticulated construction and welded to the frames 1 and 5. The bottom 6 is horizontal to serve as a shelf or support for articles placed thereon. Within the compartment C are located a plurality of shelves 8 of open metal construction which are welded to the frames 1 and 5 and may be welded to the side and back walls of the compartment to provide a strong and rigid construction. The auxiliary compartment is shorter than the vertical height of the door opening so that space for air circulation above and below such compartment is provided. The open top of the auxiliary compartment and the reticulated shelves and bottom thereof permit free movement of air therethrough from the main refrigerator compartment.

In Figure 8 there is shown an auxiliary compartment similar to that of Figure 1 with the exception that the rear wall 9 is made of wire mesh which may be integral with the side walls 7 and bottom 6. This wall 9 may also be welded to the frame members 5 and shelves 8. In this construction the open work back wall permits free flow of cool air through the auxiliary compartment even though some of the shelves may be blocked by food or food containers stored upon the shelves.

In Figures 3, 4 and 5 the positions of the door B, and the compartment C relative to each other and to cabinet A are shown for both open and closed positions. In Figure 3 both the door and compartment C are closed while in Figure 4 the door is open and the auxiliary compartment swung at right angles to the plane of the opening and in Figure 5 the door is entirely open and the compartment C swung outwardly and into a position parallel to the door opening and offset with respect thereto. In this latter position the entire interior of the main compartment of the refrigerator is accessible.

The auxiliary food compartment is hinged in such manner that it has a tendency to remain in closed position by gravity. The particular form of hinge and mounting to accomplish this will be presently described.

The hinge construction referred to insures that on opening the auxiliary compartment it will pivot about the pintle 10 until it assumes the position shown in Figure 4. Further movement to the position shown in Figure 5 will be about pintle 11 as a pivot. The hinge construction for the auxiliary compartment is shown in detail in Figures 6 and 7 which are two views of the same hinge. As illustrated this hinge comprises three leaves 12, 13 and 14 pivoted together as indicated by pintles 10 and 11. The leaf 12 is attached to

the side wall of the door opening and the leaf 14 to the front frame 1 of the auxiliary compartment as shown in Figures 3, 4 and 5.

As shown in Figure 6, the roll or sleeve 14' of sleeve 14 is provided with an offset 15 which drops into a notch 16 of the roll 13' of leaf 13 when the leaves 13 and 14 are in substantial alignment as shown in Figures 3 and 4. This construction causes the auxiliary compartment to pivot about pintle 10 in Figure 3 and move to the position shown in Figure 4. Further opening movement cams the offset 15 out of the notch 16 and the compartment may be freely swung about 11 as a pivot to the position shown in Fig. 5.

The pivot arrangement about pintle 10 is different from that just described in that the sleeve or roll 12' of leaf 12 has an upwardly inclined surface 17 cooperating with an offset 18 of roll 13' of leaf 13, to give a camming or lifting movement to the leaf 13 and raise the attached auxiliary compartment when it is moved towards open position. This inclined surface 17 and offset 18 have a tendency to cause the compartment to remain in closed position by gravity since any attempt to open it causes offset 18 to ride up on surface 17 and lift the compartment. The offset 18 also cooperates with a notch 19 in sleeve 12' when leaves 12 and 13 are in substantial alignment to hold them in that position. From the hinge construction described it will be apparent that with the auxiliary compartment closed, Fig. 3, the leaves 13 and 14 are straight and offset 15 is in notch 16, also the cam surface 17 and offset 18 have a tendency due to the weight of the compartment to maintain it in closed position. In moving the compartment to the position of Figure 4, the offset 18 rides up on surface 17 until it drops into notch 19 in which position compartment is held as indicated in Figure 4. Further movement of the compartment to open position causes offset 15 to ride out of notch 16 and the position of Figure 5 is attained.

In closing the compartment 15 moves into 16, position of Figure 4, then 18 is forced out of 19 and the offset 18 rides down inclined surface 17 as the compartment moves to fully closed position, Fig. 3.

From the above it will be apparent that the compartment remains in closed position under the action of gravity, and in opening the camming action takes place until the position of Figure 4 is attained, in which position the offset 18 engages notch 19 to hold the compartment in this position. It may be further opened by disengaging offset 15 from notch 16 and on closing the reverse series of steps takes place.

It will be obvious to those skilled in the art that various modifications may be made in my device without departing from the spirit of my invention, therefore I do not limit myself to what is shown in the drawings or described in the specification but only as indicated in the appended claims.

Having thus fully described my said invention, what I claim as new and desire to secure by Letters Patent is:

1. A domestic refrigerator cabinet having a main food compartment and a door opening in one wall of said cabinet, a door mounted on the exterior of said cabinet and adapted to be secured across said opening, an auxiliary food compartment, means swingably mounting said auxiliary compartment in the door opening in said cabinet, said means being operable by gravity to normally maintain said auxiliary compartment in

the plane of said opening, and means cooperating with said first-mentioned means when said auxiliary compartment is swung into a position at substantially right angles to the plane of said opening for retaining said compartment in said right angular position.

2. A domestic refrigerator cabinet having a main food compartment and a door opening in one wall of said cabinet, a door mounted on the exterior of said cabinet and adapted to be secured across said opening, an auxiliary food compartment, and means mounting said auxiliary compartment in said opening in said cabinet, said auxiliary compartment being swingable on said means to a position at substantially right angles to said opening, and said means being operable when said auxiliary compartment is swung into said latter position to extend said compartment outwardly of said opening for further swinging movement into a plane offset with respect to said opening and parallel to the plane thereof.

3. In combination with a refrigerator cabinet having a main food compartment and a door opening in one insulated wall thereof, a door swingably mounted on the exterior of said cabinet to extend across the opening in said wall, a shelf carrying structure open at the top and bottom and swingably mounted in said opening independent of said door, and a reticulated wall covering the inner side of said shelf carrying structure and serving to permit free circulation of air from the main food compartment through the top and bottom of said structure and between the shelves thereof.

4. In a refrigerator cabinet having a door opening and a door mounted to swing across said opening, a shelf carrying structure shaped to conform to the door opening in said cabinet, means swingably mounting said structure in said opening, said means comprising a three leaf hinge member, the coacting articulated bearing surfaces of which are formed with cooperating offset and notch portions adapted to engage when the leaves of said hinge are swung into substantial end to end relationship, the bearing surface of one leaf part of the hinge being angularly disposed to the vertical axis of the hinge, whereby said leaf is caused to swing relative to

the others by gravity when the offset and notch portions of the articulated parts are released.

5. A domestic refrigerator cabinet comprising a main food compartment having a door opening in one wall of said cabinet, a door swingably mounted on said cabinet across said opening, an auxiliary food compartment swingably mounted in the door opening independently of said door, and self-acting means operable upon swinging movement of said auxiliary compartment into a position at substantially right angles to the plane of said opening for retaining said compartment in said position and for returning said compartment to the plane of the opening from all positions intermediate said position and the plane of the opening.

6. In combination with a refrigerator cabinet having a main food compartment and a door opening in one insulated wall thereof, a door swingably mounted on the exterior of said cabinet to extend across the opening in said wall, a shelf carrying structure open at the top and bottom and swingably mounted in said opening independent of said door, and said shelf carrying structure being of reticulated construction permitting free circulation of air from the main food compartment through the top, bottom and back of said structure and between the shelves thereof, irrespective of the open or closed position of said door.

7. In combination with a refrigerator cabinet having a main food compartment and a door opening in one insulated wall thereof, a door swingably mounted on the exterior of said cabinet to extend across the opening in said wall, an open shelf carrying structure consisting of a wire frame of materially less vertical dimensions than said opening, means swingably mounting said shelf carrying structure in said opening independent of said door and with the upper and lower end portions of said structure vertically spaced a material distance from the upper and lower walls defining said opening and in laterally spaced relation to all inner portions of said door, whereby free circulation of air from said main food compartment is maintained through the shelf carrying structure, irrespective of the open or closed position of said door.

EVERETT G. CLEMENTS.