

Aug. 13, 1935.

C. L. PAULUS

2,010,927

REFRIGERATING APPARATUS

Filed March 26, 1934

2 Sheets-Sheet 1

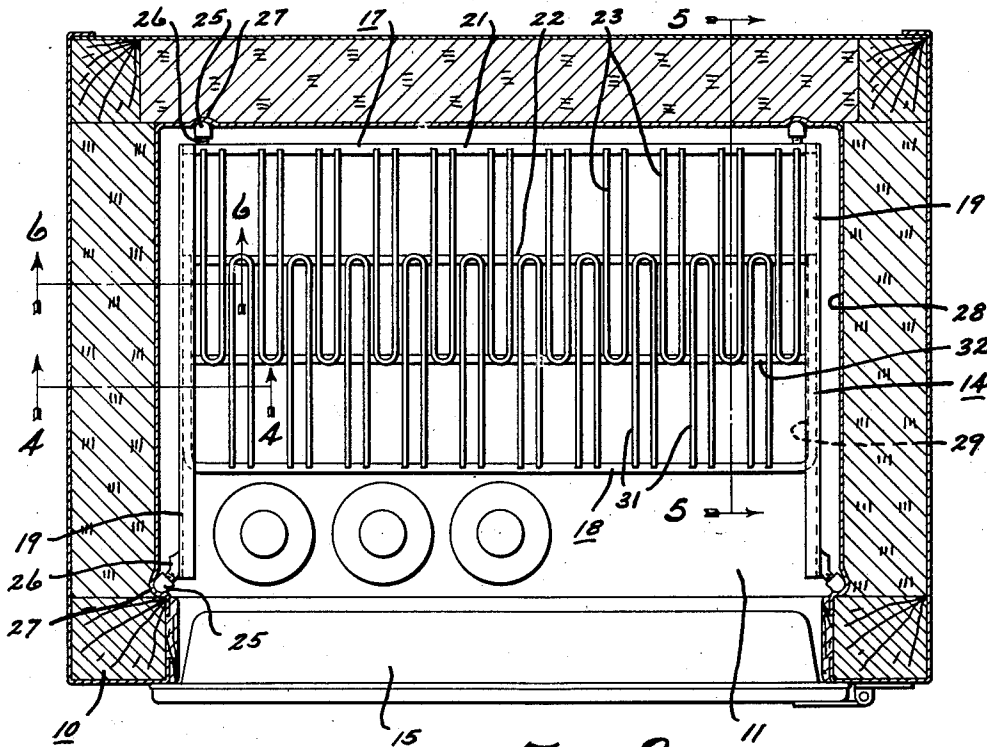


Fig. 2

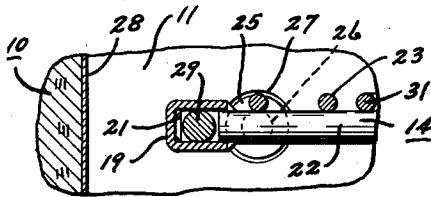


Fig. 6

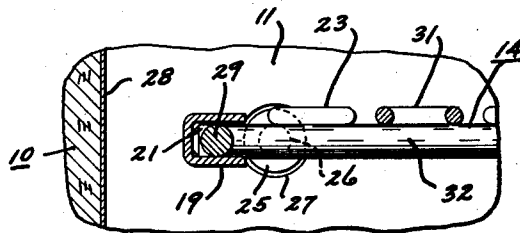


Fig. 4

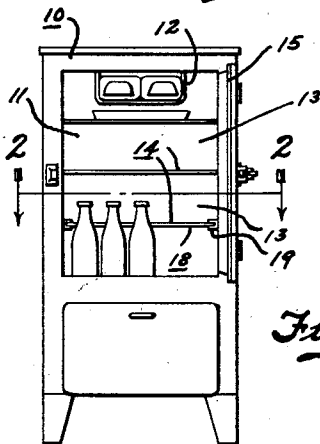


Fig. 1

Inventor
Charles L. Paulus.

By *Spencer Hardman and Lake.*
his Attorneys.

Aug. 13, 1935.

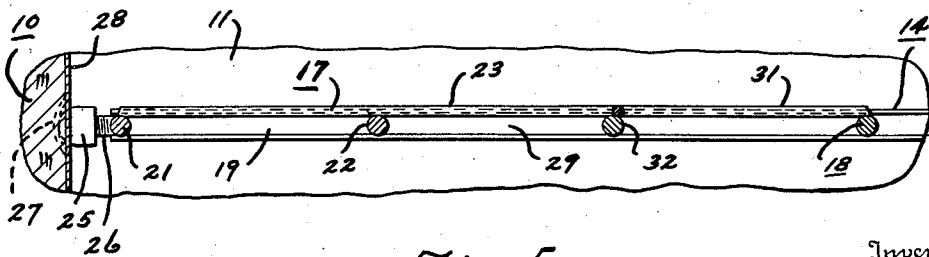
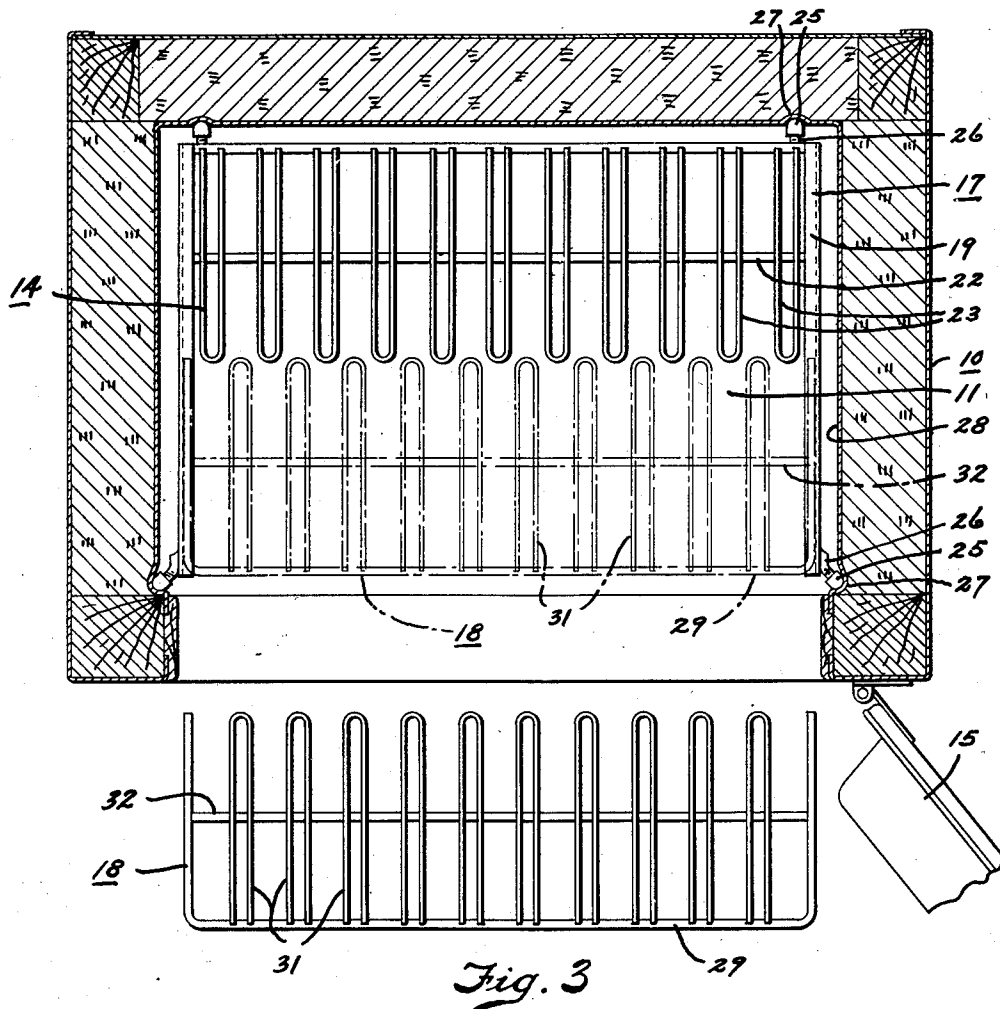
C. L. PAULUS

2,010,927

REFRIGERATING APPARATUS

Filed March 26, 1934

2 Sheets-Sheet 2



Inventor
Charles L. Paulus.

By *Spencer, Hardman, and Felt.*
his Attorneys

UNITED STATES PATENT OFFICE

2,010,927

REFRIGERATING APPARATUS

Charles L. Paulus, Dayton, Ohio, assignor to General Motors Corporation, Dayton, Ohio, a corporation of Delaware

Application March 26, 1934, Serial No. 717,352

3 Claims. (Cl. 211—153)

This invention relates to refrigerating apparatus and particularly to refrigerator cabinets of the household type.

It has been the practice of manufacturers of refrigerator cabinets of the household type to provide for the storage of tall bottled beverages or the like in such cabinets by spacing the lower food supporting shelf a considerable distance from the bottom of the food storage compartment so that the tall bottles could be placed under the lower shelf and supported upon the bottom of the storage compartment in an upright position. Some manufacturers have omitted a portion of the lower shelf in order to provide a tall narrow unobstructed space adjacent the lower shelf for the reception of bottles. The maximum shelf food supporting surface, made available when tall bottled beverages or the like are not stored in the refrigerator cabinet, cannot be had by the shelf arrangements just described and heretofore provided in household refrigerators and therefore the user is deprived of a considerable amount of shelf supporting area or surface for the storage within the food compartment of small food products. The present invention is therefore directed to the provision of an improved shelf arrangement for a refrigerator cabinet of the household type.

An object of the present invention is to provide a refrigerator cabinet with a food supporting shelf which can have its food supporting surface increased or decreased at will in accordance with the shape and size of various products or articles adapted to be placed in the food compartment of the cabinet for storage.

Another object of the invention is to provide a refrigerator cabinet with a food storage shelf having complementary portions one of which portions is movable relative to the other for increasing or decreasing the shelf food supporting surface within the cabinet, when desired, and arranging the shelf so that the movable portion thereof may be readily removed from the food compartment of the cabinet and utilized as a serving tray.

A further object of the invention is to provide a food supporting shelf for a refrigerator cabinet with complementary portions one of which can be moved in the same horizontal plane and into a portion of the area defined by the other complementary portion at will to provide a relatively tall space adjacent the shelf within the food storage compartment of the cabinet for the reception and storage of tall bottled beverages or the like.

A still further object of the invention is to pro-

vide a serving tray within the refrigerator cabinet, which tray is removable from the cabinet and, when positioned within the cabinet, forms a complementary part of a food supporting surface of a shelf disposed in the food storage compartment of the cabinet.

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 the present invention is clearly shown.

In the drawings:

Fig. 1 is a front elevational view of a household refrigerator cabinet having the present invention embodied therein;

Fig. 2 is an enlarged horizontal sectional view of the refrigerator cabinet taken on line 2—2 of Fig. 1 showing a top plan view of the improved shelf arrangement of the present invention;

Fig. 3 is a sectional view of the refrigerator cabinet similar to Fig. 2 and shows a portion of the shelf arrangement removed from the refrigerator cabinet;

Fig. 4 is an enlarged fragmentary sectional view taken on the line 4—4 of Fig. 2 and showing in detail a portion of the improved shelf arrangement;

Fig. 5 is an enlarged fragmentary sectional view taken on line 5—5 of Fig. 2 and showing in detail a portion of the shelf arrangement; and

Fig. 6 is an enlarged fragmentary sectional view of the shelf arrangement taken on line 6—6 of Fig. 2.

Referring to the drawings, for the purpose of illustrating my invention, I have shown in Fig. 1 thereof a refrigerator cabinet 10 of the household type. The cabinet 10 includes insulated walls forming a food storage compartment 11 which is cooled by a cooling unit or evaporator 12 disposed therein and having connections with many suitable type of refrigerant liquefying and condensing unit (not shown). The food storage compartment 11 is divided into a plurality of vertically disposed and horizontally extending storage chambers 13 by food supporting shelf members 14. The food storage compartment 11 and the chambers 13 provided therein are closed by a door 15 which affords access thereto. Any desired number of storage chambers 13 may be provided by the shelf members 14 in accordance with the size of the compartment 11. It is preferable to employ as many shelf members 14 as possible within a compartment of a given size in order to materially increase the shelf food supporting area within the refrigerator cabinet.

However, in providing the maximum shelf food supporting surfaces within the cabinet 10 by positioning the shelf members relatively close to one another, some provision must be made to permit the storage of tall bottled beverages and the like in the compartment 11 when desired. My improved shelf arrangement, to be hereinafter more fully described, permits the storage of tall bottled beverages within the compartment 11 and permits of readily increasing the shelf supporting surface or of obtaining the maximum of such surface when bottled beverages are not stored in the cabinet.

Referring now to Fig. 2 of the drawings, it will be noted that the lower of the shelf members 14 within compartment 11 is of the type which includes two portions 17 and 18 cooperating with one another and forming complementary parts of the shelf 14. The shelf portion 17 includes side members 19, a rear member 21 and a member 22 spaced from the rear member 21 to rigidly maintain the side members 19 at right angles to the rear member 21. The metallic members 19, 21, and 22 are disposed in substantially the same horizontal plane (see Fig. 5) and are secured together in abutting relation in any suitable manner such as by welding. By referring to Fig. 6 it will be noted that the rear rod or member 21 extends into the space defined by the U-shaped sides 19 while the rod member 22 extends into this space only a short distance to permit an unobstructed passage for movement therein of a part of a complementary portion of the shelf 14 to be hereinafter described. Sides 19 are of sheet metal members of a U-shape formation while the members 21 and 22 are solid rods. A plurality of U-shaped wire members 23 having legs welded or otherwise secured to the rear member 21 and to member 22 and are spaced apart to form the food supporting surface of the shelf portion 17. Portion 17 of shelf 14 is rigidly mounted in compartment 11 of cabinet 10 by a plurality of resilient supporting plugs 25, carried on studs 26 secured to the shelf portion 17, which plugs 25 fit into depressions 27 formed in the food storage compartment lining 28. The plugs 25 may be threaded upon studs 21 or otherwise made adjustable relative to the shelf portion 17 in order to permit withdrawal of the plugs 25 from the depressions 27 when the shelf is desired to be installed in or removed from the compartment 11.

The portion 18 which forms a complementary part of the shelf 14 includes a rim or frame member 29 of U-shaped formation, the legs of which are adapted to be slidably received in the U-shape tracks or side members 19 of the shelf portion 17 for supporting the shelf portion 18 in compartment 11. A plurality of wire members 31 of U-shaped formation have their legs welded or otherwise secured to the rim or frame 29 and are spaced apart to form the food supporting surface of the complementary shelf portion 18. A rod 32 is welded in abutting relation to the legs of rim member 29 and to the U-shape wire members 31. This rod 32 supports the wire members 31 and maintains the legs of rim member 29 at right angles to the leg connecting portion thereof. It will be noted that the wire food supporting surfaces 31 are spaced apart along the rim member 29 in such a manner as to fit between the wire food supporting surfaces 23 of the shelf portion 17 when the shelf portion 18 is moved into the area defined by the shelf portion 17.

The construction and arrangement of the parts of the complementary shelf portions 17 and 18 are

such that when these parts are assembled together to form the shelf 14 a flat unobstructed food supporting surface is provided by virtue of the complementary portions of the shelf being disposed in the same horizontal plane. The complementary portion 18 of the improved shelf structure 14 may, when it is desired to place tall bottles or the like in the compartment 11, be slid or moved, horizontally along the track or U-shaped side members 19, toward the rear of the compartment 11, thus affording a relatively tall space adjacent shelf 14 at the front of the compartment 11 for the reception and storage of bottles in an upright position. This position of shelf portion 18 relative to shelf portion 17 is illustrated in Fig. 2 of drawings and it will be noted that the shelf portion 18 has been moved rearwardly of the door opening, for door 15, only a sufficient distance to permit reception of a single row of bottles. However, shelf portion 18 may be moved farther toward the rear of compartment 11 than is illustrated in Fig. 2 in order to permit a double row of bottles to be placed in front of shelf 14 if desired. In other words, the construction of the shelf 14 is such that the complementary portion 18 thereof can be moved toward the rear wall of compartment 11 until the cross bars 22 and 32 abut or strike one another.

When bottled beverages or the like are not placed in the refrigerated compartment 11 for storage the complementary portion 18 of shelf 14 may be moved into the position shown by the dot-dash lines in Fig. 3 of the drawings, thus materially increasing the shelf food supporting surface within compartment 11. The spacing of the U-shaped wire members 23 and 31 relative to one another is arranged so that the U-shaped members 31 may be moved in the same horizontal plane into the space between each of the members 23 when the shelf portion 18 is moved toward or into at least a portion of the area defined by the shelf portion 17. Therefore if there are not too many articles supported on shelf 14, prior to moving shelf portion 18, these articles may be pushed to the rear of shelf 14, to permit movement of the shelf portion 18, without removing the articles from the shelf or from the refrigerated compartment 11. Thus a space within compartment 11 for the reception of tall bottles may be readily and quickly provided adjacent the front edge of shelf 14. In addition, the arrangement of the improved shelf permits the movable complementary portion 18 thereof to be detached from the portion 17 and removed from compartment 11 and cabinet 10 so as to provide a serving tray. The full line showing of shelf portion 18 in Fig. 3 of the drawings discloses this portion of the shelf removed from cabinet 10 in a horizontal direction and affords a readily accessible serving tray for removing food products or articles from the refrigerator and for conveying these articles to other points remote from the refrigerator cabinet. The use of the shelf portion 18 as a serving tray thus eliminates the necessity of permitting the refrigerator cabinet door to remain open over long periods of time during transferring of individual articles therefrom.

From the foregoing it is apparent that I have provided an improved shelf arrangement for a refrigerator cabinet of the household type wherein a wide variety of food products and bottled beverages may be more economically stored. My improved shelf arrangement permits spaces ordinarily not used in a refrigerator cabinet,

when tall bottles are not stored therein, to be utilized as additional food supporting surfaces while at the same time rendering this space available for bottled beverages when it is desired to place same in the refrigerator cabinet. The forming of a shelf of complementary portions permits the movable complementary portion thereof to be utilized as a serving tray. Thus I have provided a combined shelf and serving tray.

While the form of embodiment of the invention as herein disclosed, constitutes a preferred form, it is to be understood that other forms might be adopted, all coming within the scope of the claims which follow.

What is claimed is as follows:

1. A shelf for a refrigerator cabinet, said shelf including complementary portions adapted to form a food supporting surface of a predetermined area within said cabinet; means for supporting one of the complementary portions of the shelf against vertical movement relative to the other portion thereof and in the same horizontal plane therewith, the one complementary portion of said shelf supported by said means being movable horizontally relative to the other portion of the shelf to vary the area of the food supporting surface, and said supporting means being so constructed and arranged as to permit detachment of the movable portion of the shelf from the other portion thereof by sliding same horizontally from said refrigerator cabinet whereby said movable shelf portion may be utilized as a serving tray.

2. A shelf for a refrigerator cabinet, said shelf

including complementary portions adapted to form a flat food supporting surface of a predetermined area within said cabinet; means for supporting one of the complementary portions of the shelf against vertical movement relative to the other portion thereof and in the same horizontal plane therewith, the one complementary portion of said shelf supported by said means being slidable horizontally into at least a part of the area defined by the other of said shelf portions to decrease the normal total area of the food supporting surface, and said supporting means being so constructed and arranged as to permit detachment of the movable portion of the shelf from the other portion thereof by sliding same horizontally from said refrigerator cabinet whereby said movable shelf portion may be utilized as a serving tray.

3. A shelf for a refrigerator cabinet, said shelf including complementary portions adapted to form a food supporting surface of a predetermined area within the cabinet, means for securing one of the complementary portions of the shelf against vertical movement relative to the other portion thereof and in substantially the same horizontal plane therewith, and said securing means being so constructed and arranged as to permit detachment of said one portion of the shelf from the other portion thereof by sliding same horizontally from the refrigerator cabinet to thereby decrease the area of the shelf food supporting surface.

CHARLES L. PAULUS.