

March 19, 1940.

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2,194,177

REFRIGERATION APPARATUS

Filed Dec. 9, 1938

2 Sheets-Sheet 1

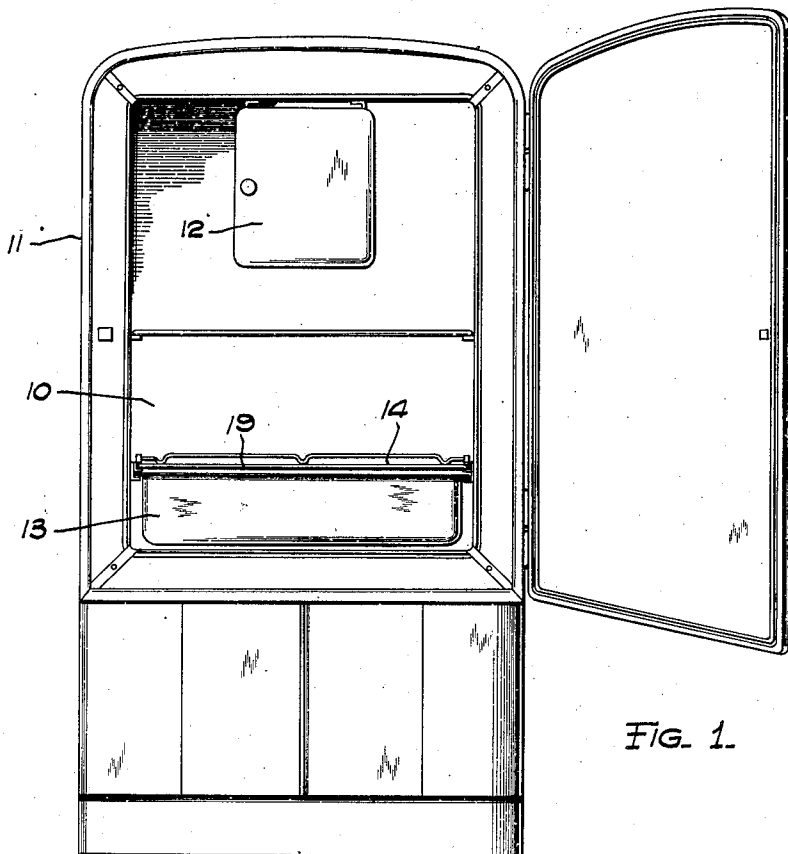


FIG. 1.

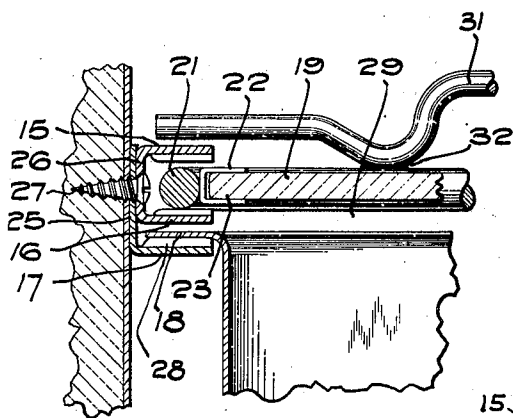


FIG. 3.

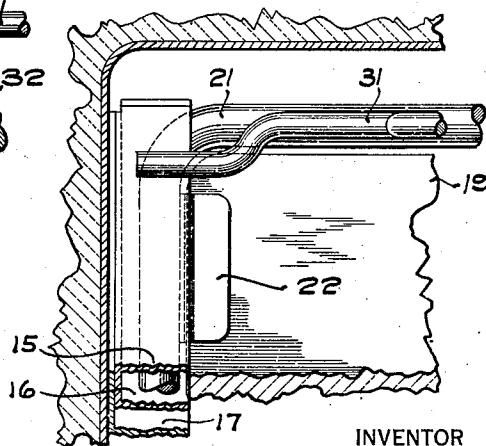


FIG. 4.

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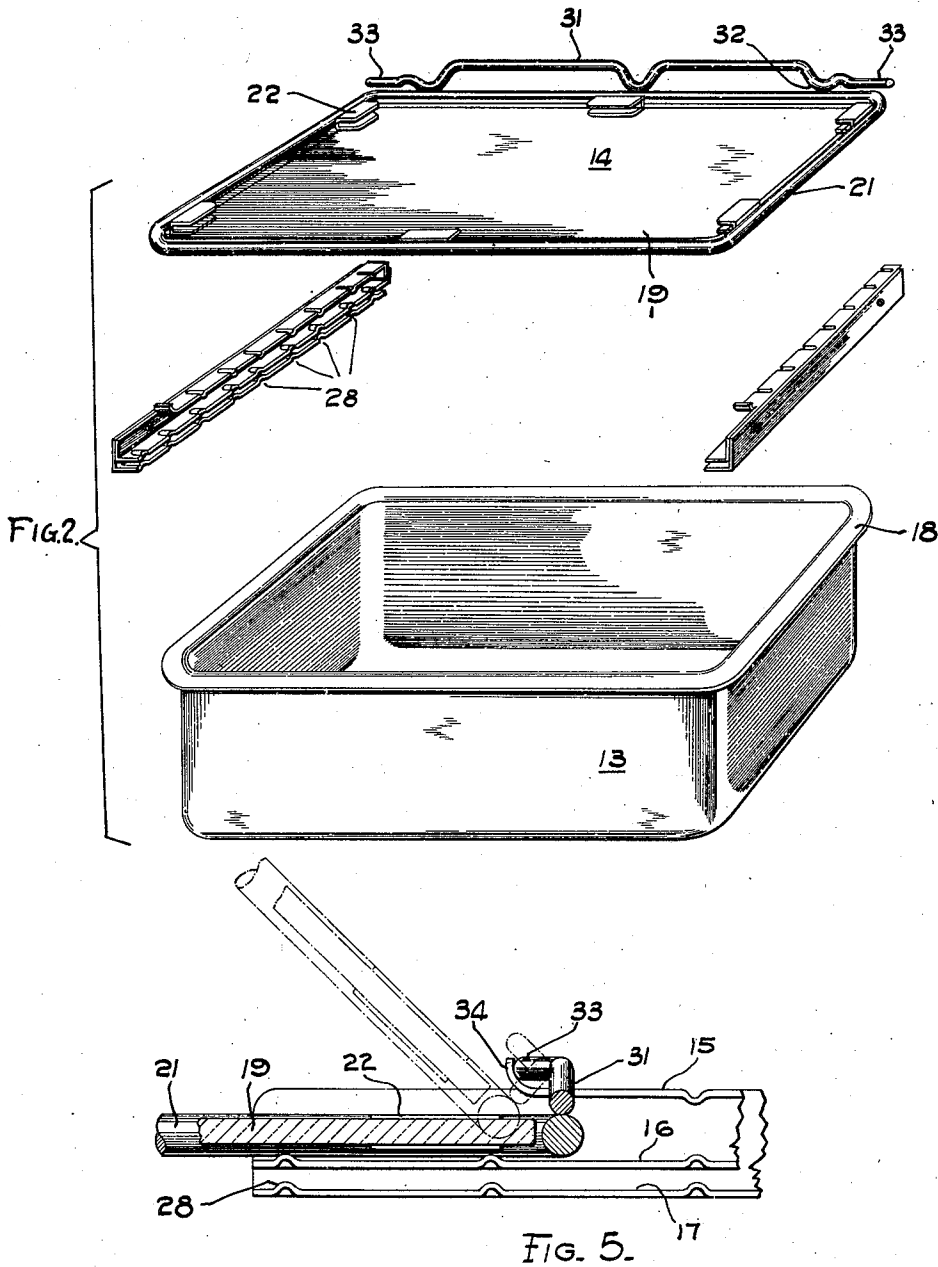
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REFRIGERATION APPARATUS

Filed Dec. 9, 1938

2 Sheets-Sheet 2



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2,194,177

REFRIGERATION APPARATUS

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Application December 9, 1938, Serial No. 244,766

6 Claims. (Cl. 62—1)

This invention relates to refrigerator cabinets and more particularly to the arrangement and support of a high humidity refrigerated compartment commonly referred to as a hydrator.

One object of the invention is to provide a sliding shelf which also forms the cover of a hydrator.

A further object of my invention is to improve the accessibility of food stored in the hydrator and on the shelf above the hydrator and also to dispense with a separate cover for the hydrator other than said shelf.

Another object of the invention is to provide a support affording sliding movement for both a hydrator pan and for a shelf forming the cover of said pan.

A further object of the invention is to provide a combined sliding shelf and hydrator cover, the latter being formed of a transparent material such as plate glass and positioned in the refrigerator cabinet to afford an indication of the humidity condition in the hydrator.

Another object of the invention is to provide a novel stop for a sliding shelf.

These and other objects are effected by my invention as will be apparent from the following description and claims taken in connection with the accompanying drawings, forming a part of this application, in which:

Fig. 1 is an elevational view of a refrigerator showing the hydrator in its preferred position in the refrigerator cabinet;

Fig. 2 is an exploded view in perspective of the hydrator and its supports;

Fig. 3 is an enlarged vertical section of the supporting rails and the edge portions of the hydrator and cover engaging the rails;

Fig. 4 is a plan view of a portion of the supporting rails and of the cover supported on the rails; and

Fig. 5 is a vertical section of a portion of the cover showing the locking or stop mechanism and the method of releasing it.

Referring specifically to the drawings for a detailed description of the invention, the reference numeral 10 designates a food chamber in a mechanical refrigerator 11. A cooling unit 12 is located in the upper portion of the food chamber 10 and a hydrator pan 13 and a shelf 14 forming a cover for the pan 13 are supported in the lower portion of the food chamber 10 by three slide rails 15, 16 and 17 on each side of the food chamber.

The hydrator pan is formed with sidewardly-extending flanges 18 which are adapted to slide between the lower two slide rails 16 and 17. The

sliding shelf 14 which forms the cover for the pan 13 comprises a pane of transparent glass 19 surrounded by a heavy wire frame 21. The glass 19 is secured in the frame 21 by several flat metal clips 22. Each metal clip 22 is bent in the shape of an L and welded to the inner surface of the wire frame 21. The glass 19 is then inserted on the horizontal legs 23 of the L-shaped clips 22 and the upper portion of the clips 22 bent down over the glass.

The wire frame 21 containing the glass 19 is adapted to slide between the upper two rails 15 and 16 in the sides of the food chamber 10 so that both the pan 13 and the shelf 14 forming the cover can be slid into and out of the food chamber 10 independently of one another.

The three slide rails 15, 16 and 17 on each side are formed by two strips of metal 25 and 26, one of which is bent longitudinally into an L-shaped section 25 and the other in a U-shaped section 26. The two strips 25 and 26 are secured in the sides of the food chamber by screws 27 passing through both of the strips 25 and 26. The bearing surfaces of the rails 15, 16 and 17 have small projections 28 pressed therein to reduce the sliding friction of the pan 13 and the shelf 14. The slide rails 15, 16 and 17 are spaced so that ventilating slits 29 are formed between the cover 14 and the pan 13.

A specially formed length of wire 31 is welded at three points 32 to the rear portion of the wire frame 21 and forms a backstop to prevent articles supported on the shelf 14 from falling from the rear edge thereof when the shelf 14 is suddenly pulled forward. Both ends 33 of the wire 31 are located immediately above the top rails 15 and are bent forward as best shown in Fig. 4 for a purpose to be explained presently.

The top rails 15 in the food chamber 10 do not extend forward as far as the other two rails 16 and 17 and the front portions of these top rails are curved upwardly to form stops 34 which engage the end portions 33 of the wire 31 when the shelf 14 is pulled forward to prevent the shelf 14 from being pulled out too far. If it is intended to remove the shelf 14 from the food chamber 10 the front edge of the shelf 14 is tilted upwardly when the ends 33 of the wire 31 strike the stops 34. This position is shown in dotted lines in Fig. 5. The ends of the wire 33 will then be lifted over the stops 34 and the shelf 14 is free for removal from the food chamber 10.

It will be observed that the glass shelf 19 is located between the cooling unit 12 and the hydrator pan 13 and is, therefore, colder than the

hydrator pan 13. This provides an arrangement whereby the humidity conditions in the hydrator are indicated by the moisture condensing out on the glass shelf.

5 If sufficient free water is present in the pan 13, either in the bottom thereof or clinging to vegetables in the pan, the water will evaporate, and since the hydrator is a substantially closed vessel, will tend to saturate the air in the hydrator to the dew-point temperature corresponding to the temperature of the free water. The glass, or at least portions thereof, will be at a temperature below the dew-point temperature of the water vapor in the hydrator, and some of the vapor will, therefore, condense out on the glass or at least on the coldest portions thereof.

10 If the humidity in the hydrator is high so that the dew-point temperature of the water vapor is higher than any portion of the glass shelf, the entire lower surface of the glass shelf will be covered with condensed moisture which indicates that the humidity in the hydrator is substantially at a maximum.

15 If the humidity in the hydrator is at a lower value so that the dew-point temperature of the water vapor in the hydrator is above that of the coldest portion of the glass shelf but below that of the warmest portion thereof, only the coldest areas of the glass shelf will be covered with the condensed moisture which indicates that the humidity of the hydrator is high but is not at a maximum.

20 If the humidity in the hydrator is at a still lower value so that the dew-point temperature of the water vapor in the hydrator is below the temperature of even the coldest portion of the glass shelf, moisture will not condense out on the glass shelf which indicates that the humidity in the hydrator is fairly low.

25 The moisture condensed out on the glass shelf or the lack of such condensation is therefore an indication of the humidity existing in the hydrator. If this humidity is too low, sprinkling of the articles therein with water usually suffices to raise the humidity to the desired point.

30 From the foregoing it will be apparent that this invention provides a hydrator chamber in a refrigerator, the cover of which chamber forms a sliding shelf in the refrigerator, thereby increasing the accessibility of foods stored on the combined shelf and hydrator cover and dispensing with a separate cover for the hydrator. Furthermore, by forming the hydrator cover of glass, the contents of the hydrator are readily visible, the humidity of the hydrator chamber may be checked and the glass gives the appearance of depth to the refrigerator interior which otherwise would appear smaller because of the space which the hydrator occupies. The invention further provides a novel locking mechanism for a sliding shelf.

35 While I have shown my invention in but one form, it will be obvious to those skilled in the art that it is not so limited, but is susceptible of various changes and modifications without departing from the spirit thereof, and I desire, therefore, that only such limitations shall be placed thereupon as are imposed by the prior art or as are specifically set forth in the appended claims.

40 What I claim is:

1. In a refrigerator, the combination of a food storage chamber having an opening therein, a door for said opening, a cooling unit for said chamber, a substantially imperforate and trans-

parent glass shelf below said cooling unit, a metal frame secured around said shelf, said shelf being adapted for a horizontal sliding movement through said opening, and a hydrator pan below said shelf, said pan being adapted for horizontal sliding movement through said opening independently of said shelf, said shelf forming a cover for said pan.

2. In a refrigerator, the combination of a food storage chamber having an opening therein, a door for said opening, a cooling unit in the upper portion of said chamber, a hydrator pan adapted for horizontal sliding motion in the lower portion of the food chamber, and a plurality of shelves between the hydrator pan and the cooling unit, the lowermost of said shelves comprising a transparent sheet of glass adapted for horizontal sliding movement and placed adjacent said hydrator pan to form a cover therefor affording limited degree of ventilation to said pan, said glass shelf affording a view of the hydrator pan and the moisture condition therein, said glass also affording a complete view of the food storage capacity of the food chamber through the door opening.

3. In a refrigerator, the combination of a food storage chamber having an opening therein, a door for said opening, a cooling unit for said chamber, a series of three horizontal rails secured to each side of the food storage chamber, said rails comprising two metal strips, one formed in L-section and the other in U-section, a transparent glass shelf below said cooling unit, a metal frame secured around said shelf, said frame being adapted to slide between the upper two rails of each of said series, and a hydrator pan having outturned flanges, said flanges being adapted to slide between the lower two rails of each of said series, said rails affording independent sliding movement to both said shelf and said hydrator and being spaced so that the shelf forms a cover for the hydrator pan.

4. In a refrigerator cabinet, the combination of a food storage chamber having an opening in its front wall, a substantially horizontal slide rail on a side wall of said chamber, a retaining rail spaced above said slide rail, said retaining rail terminating short of said slide rail at the front end thereof and having an upwardly-extending portion forming a stop, and a shelf adapted to slide in the space between the slide rail and the retaining rail, said shelf having a stop engaging portion normally above said retaining rail and positioned a short distance in advance of the rear sliding edge of the shelf so that said stop engaging portion will strike said stop when the shelf is pulled forward but will disengage said stop when the shelf is tilted upwardly when in the stop engaging position.

5. A refrigerator cabinet according to claim 4 in which the stop engaging portion is extended to form a guard on the shelf.

6. In a refrigerator, the combination of a food storage chamber having an opening therein, a door for said opening, a cooling unit in said chamber, a substantially imperforate and transparent glass shelf below said cooling unit, said shelf being adapted for horizontal sliding movement through said opening, and a hydrator pan below said shelf and in a warmer region of the food storage chamber than the region of said shelf, said shelf serving to indicate the humidity condition in the hydrator by the area of condensed water vapor on its underside.

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