April 9, 1935. J. R. REPLOGLE 1,997,432

SHELF CONSTRUCTION

Filed Feb. 1, 1932 2 Sheets-Sheet 1

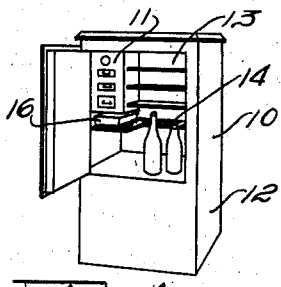
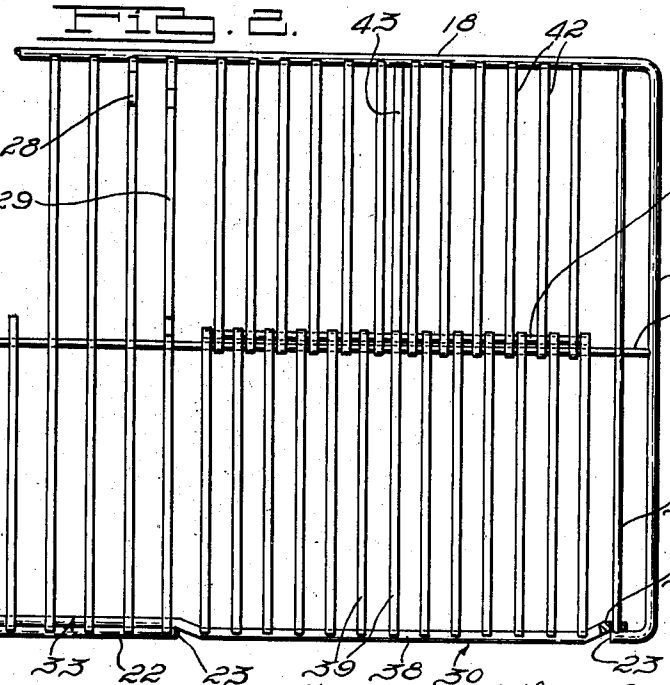


Fig. 1.

Fig. 2.



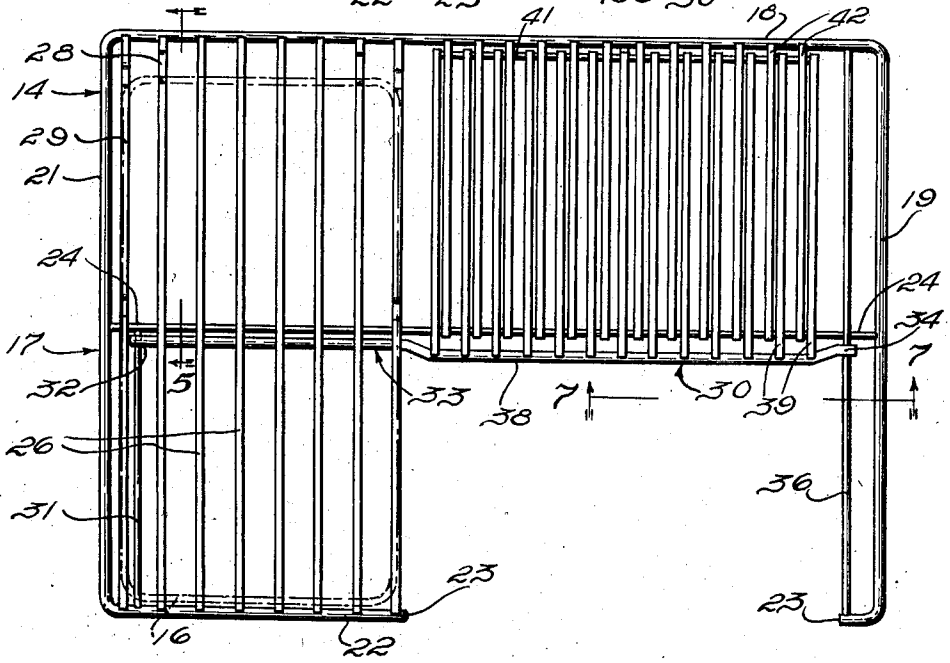


Fig. 3.

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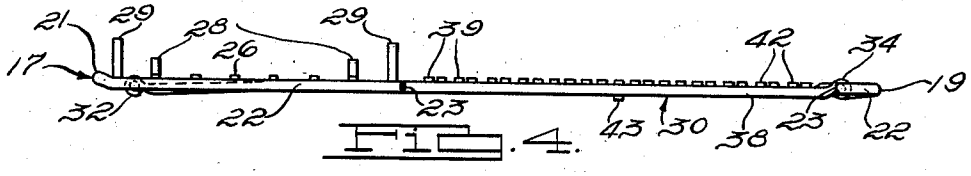


Fig. 4.

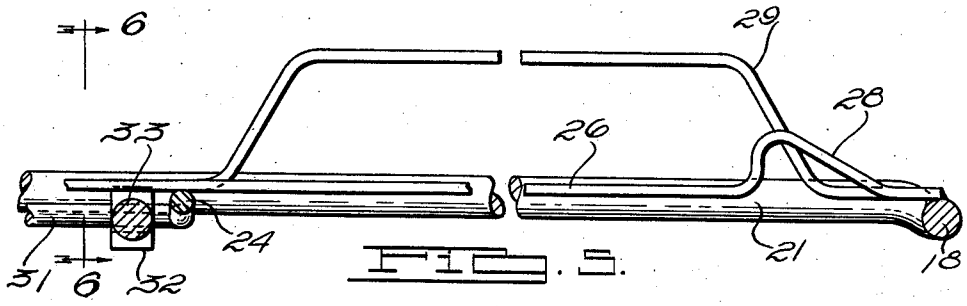


Fig. 5.

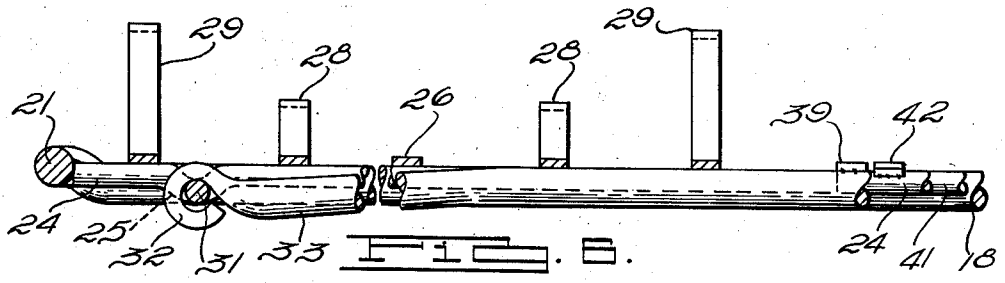


Fig. 6.

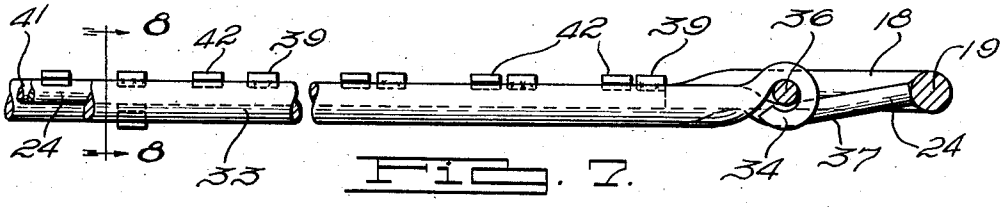


Fig. 7.

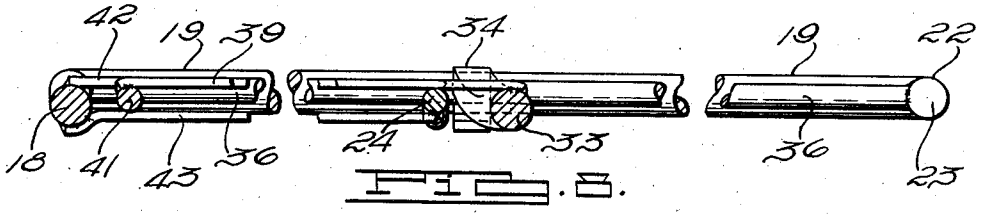


Fig. 8.

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UNITED STATES PATENT OFFICE

1,997,432

SHELF CONSTRUCTION

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Application February 1, 1932, Serial No. 590,112

8 Claims. (Cl. 211—153)

This invention relates to the refrigeration art and has particular relation to a cabinet shelf construction particularly adaptable for supporting parts of the refrigerating mechanism and also for accommodating food products which the refrigerator is required to preserve.

An object of the invention is to provide a refrigerator shelf which can be employed for supporting the defrosting tray employed therein and also for supporting articles to be stored in the refrigerator either over the entire remaining portion of the shelf or upon a portion thereof, while elsewhere the shelf is collapsed or removed to accommodate milk bottles or other tall objects placed upon the bottom of the refrigerator or on other supporting means therebeneath.

The embodiment of the invention disclosed herein for the purpose of illustration, comprises generally a shelf suspended from the side walls of a cabinet, by hooks or by other suitable shelf supporting means, and which is disposed in a region immediately below the cooling unit by which the temperature of the cabinet is retained within the desired limits. On the portion of said shelf just beneath the evaporating or cooling unit is a portion particularly adaptable, by reason of guides formed in the shelf, for receiving a defrosting tray in which water thawed from the cooling unit is periodically collected. Beside the defrosting tray the shelf is provided with a collapsible front portion which may be fully extended for supporting articles upon the entire upper surface thereof or such portion may be collapsed so as to provide an opening in the front edge thereof through which milk bottles and other tall objects supported beneath the shelf may project.

In the drawings:

Fig. 1 illustrates a perspective view of a refrigerator embracing the principles of this invention;

Fig. 2 is a plan view of a shelf removed from the refrigerator shown in Fig. 1 and with a movable portion of such shelf extended;

Fig. 3 is a plan view similar to that shown by Fig. 1 except that the movable portion of the shelf is in a retracted position;

Fig. 4 is a view of the shelf as it might appear from the front of a refrigerator through the door opening therein;

Fig. 5 is a cross-sectional view of the shelf taken substantially on line 5—5 of Fig. 3;

Fig. 6 is a cross-sectional view taken on line 6—6 of Fig. 5;

Fig. 7 is a cross-sectional view taken on line 7—7 of Fig. 3;

Fig. 8 is a cross-sectional view taken on line 8—8 of Fig. 7.

Referring particularly to the drawings, a heat insulated cabinet 10, embracing the invention, is provided with a cooling unit 11, secured in the cabinet in an upper corner thereof, which cools the cabinet by absorption of heat from the air adjacent thereto, thus causing a circulation of air downwardly adjacent the unit and upwardly elsewhere within the cabinet. The heat absorbed by the cooling unit 11 is dissipated by a condensing unit located either in a machine compartment 12, beneath the cabinet 10, or elsewhere.

Secured in any suitable manner within the cabinet 10 and between the cooling unit 11 and an opposite wall of the cabinet are a plurality of fabricated shelves 13 on which small packages or other food products to be refrigerated are supported. Supported on hooks or other suitable means extending from the side walls of the cabinet 10 and just beneath the cooling unit 11 is a somewhat larger shelf 14 on which a defrosting tray 16 is supported along one side thereof just beneath the cooling unit 11.

The shelf 14 consists of an outer supporting frame 17 having a rear rail portion 18, two side rail portions 19 and 21 and a front rail portion 22 with an opening 23 at one side thereof. Welded or otherwise secured at the opposite ends thereof to the middle portions of the side rails 19 and 21 is an intermediate supporting rail 24 on which are secured, in the region just below the cooling unit 11, the middle portions of a plurality of spaced supporting bars 26. The opposite ends of these bars are secured upon corresponding portions of the rear and front rails 18 and 22.

An intermediate pair of the bars 26 is bent upwardly adjacent the back rail 18 to provide stops indicated at 28 for limiting the extent to which the defrosting pan 16 supported on the upper surfaces thereof can be moved. As outer pair of these bars also is bent upwardly as is indicated at 29 between the intermediate rail 24 and the back rail 18 to provide side supports or guides for insuring the proper location of the defrosting tray 16 beneath the opposite sides of the cooling unit 11.

Between a bent portion 25 of the middle rail 24 and the front rail 22, and adjacent the side rail 21, is secured at opposite ends a guide rod 31 which projects through an eye 32 formed at one end of a slidable front rail section 33 of a movable telescoping or collapsing shelf section 30. The opposite end of such section also is

formed with an eye, indicated at 34, through which extends a guide rod 36 secured at its front end to the front rail 22 adjacent the opening 23 therein, at the opposite end to the back rail 18, and at its middle portion to the intermediate rail 24 in a depression or bent portion 37 which is provided in order that the upper surface of the guide rail will be on a level with the upper surfaces of the supporting bars 26. The front rail section 33 has an outwardly bent portion 38 which projects into the opening 23 in the front rail 22 and is aligned with the sections thereon.

Secured to the front rail section 33, between the guide rail 36 and the supporting bars 26, are a plurality of spaced supporting bars 39 which extend rearwardly therefrom and are secured at their opposite end to a rod 41 which is disposed just behind the intermediate supporting rail 24 when the front rail section 33 is in its most forward position. Between the intermediate rail 24 and the back rail 18 also are secured at opposite ends a plurality of spaced supporting bars 42 which are disposed at their forward ends between the bars 39 in such manner as to prevent lateral movement thereof. Secured at opposite ends to the lower surfaces of the rear rail 18 and the intermediate rail 24 is a bar 43 on which the lower surface of the rod 41 slides when the telescoping shelf section 30 is moved rearwardly.

The location of the guides 29 and the stops 28 is such that when the defrosting tray 16 is moved rearwardly upon the supporting bars 26 it will stop and be retained in a position beneath the cooling unit 11 in which the liquid from the cooling unit, during the defrosting thereof, will flow directly into the defrosting tray rather than to one side or the other thereof as now occurs with improperly located trays.

When the telescoping section of the shelf is moved into its forwardmost position small packages, and food products generally, may be supported upon all of the upper surfaces of the shelf 14 except that portion occupied by the defrosting tray 16. In this position the front rail section 33 also tends to reinforce the inwardly projecting free end of the front rail 22 and thus assists in supporting the weight of the front half of the defrosting tray thereabove.

When it is desirable to store tall bottles and other articles within the refrigerator the telescoping section 30 may be moved rearwardly to any desired extent and such bottles and articles may then be disposed upon the bottom of the refrigerator and permitted to project upwardly through the opening thus provided in front of the telescoping section.

It will be particularly noted that the two sets of bars 39 and 42 are so positioned relative to each other and to the rails 18, 24, 33 and 41 supporting them, that no matter what position the auxiliary shelf 30 is in, the upper surfaces of both shelves lie in a common plane, which provides an even superficial surface for the ready sliding of articles placed thereon without danger of their upsetting.

While the refrigerator structure as herein disclosed constitutes the preferred form and application of the invention, it is to be understood that other structures differing widely from that herein disclosed are within the scope of the invention as defined by the appended claims.

I claim:—

1. In a shelf structure, in combination, a border frame having a fixed width and depth, means fixed with respect to said frame forming an L-shaped shelf, and an auxiliary shelf section slidably engaging and connected to the first mentioned means for optionally enlarging it to rectangular formation or positionable to be substantially included within the area of the first mentioned means.

2. In a shelf structure, in combination, a border frame having a fixed width and depth, means fixed to said frame forming a fixed shelf along one side thereof for substantially the full depth of said frame and a fixed shelf laterally offset therefrom of less depth than the depth of said frame, and a shelf means slidable on and secured to the first mentioned means so as to be optionally movable to complete the full frame depth of the second mentioned shelf.

3. In a shelf structure, a main shelf comprising a border frame having an interruption on one side, shelf means fixed thereto and providing an opening at said interruption extending inwardly therefrom, auxiliary shelf means slidably engaging said main shelf means and adapted to close in a variable degree the opening in the latter, and means cooperating between the auxiliary shelf means and the main shelf to prevent declivity of the interrupted edge of the main shelf.

4. In combination, a main shelf having an opening therein extending through the front edge thereof and of less width than the width of said edge, an auxiliary shelf slidably supported by said main shelf to close said opening, and means slidable with said auxiliary shelf extending below and cooperating with said main shelf to support said main shelf along the front edge thereof when said auxiliary shelf is in a position closing said opening.

5. A shelf structure including a generally rectangular border frame having an interrupted front member and a cross member intermediate the front and rear members thereof, a guide rod fixed to said frame in inwardly spaced relation with respect to each of the side members thereof, shelf forming means fixed to said frame over the full depth thereof except over the width of the interruption in said front member and between said intermediate member and said rear member over the width of said interruption, a transverse support between said guide rods slidable thereon, and an auxiliary shelf slidable with said support optionally to complete the full shelf area of said frame.

6. A shelf structure including a generally rectangular border frame having an interrupted front member and a cross member intermediate the front and rear members thereof, a guide rod fixed to said frame in inwardly spaced relation with respect to each of the side members thereof, shelf forming members extending between said front and rear members except over the width of said interruption and over said width between said intermediate member and said rear member, at least one of said shelf forming members being bent over a portion of its length upwardly out of the general plane of said structure, a transverse support between said guide rods slidable thereon, said support extending below said shelf forming members, and an auxiliary shelf supported by said support and slidable therewith to optionally complete the shelf area of said frame.

7. A shelf structure comprising a border frame and strips secured relative thereto forming an L-shaped supporting surface, and an auxiliary frame and supporting strips secured thereto so constructed and slidably arranged with respect

to said L-shaped frame as to fill out said L-shaped frame to a rectangular shape when said auxiliary frame is in one of its slidable positions and so as to be adjustably retractable in a variant degree to a position substantially within the area of the L-shaped frame, said frames and strips being further arranged and constructed relative to each other to provide on their upper surfaces a common plane surface for the support and ready sliding of objects thereon.

8. A shelf structure comprising a main border frame and strips secured thereto forming a supporting surface with an opening in one side thereof extending inwardly, an auxiliary frame and strips secured thereto so constructed and slidably arranged with respect to said main frame and strips secured thereto as to fill said opening when in an extended position and so as to be adjustably retractable in a variant degree to a position substantially within the area of said main frame, said frame and strips being further arranged and constructed relative to each other to provide on their upper surfaces a common plane surface for the support and ready sliding of objects thereon.

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