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C. STEENSTRUP

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FOOD STORAGE RECEPTACLE FOR REFRIGERATORS

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Fig. 1.

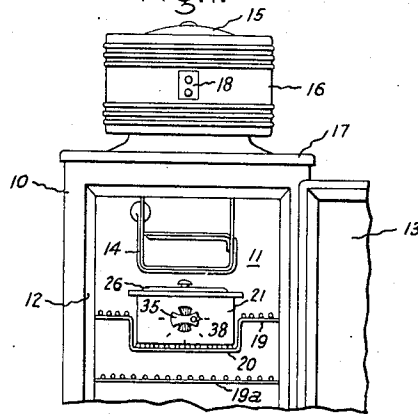


Fig. 2.

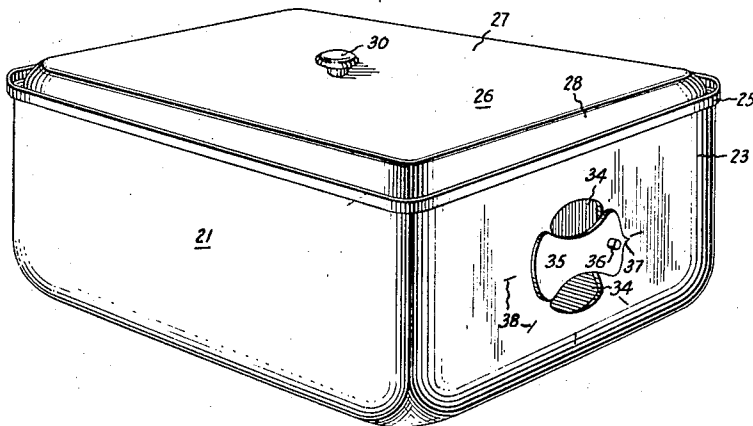


Fig. 3.

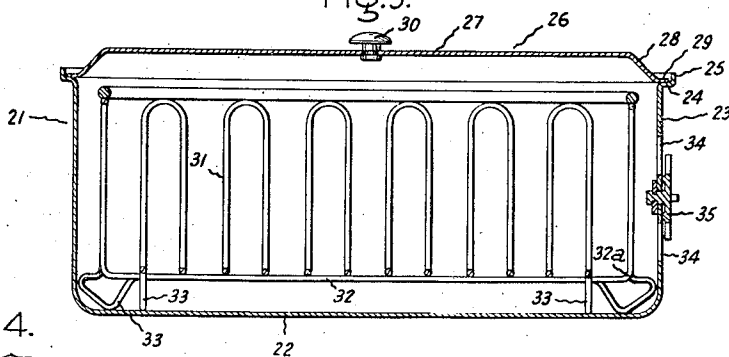
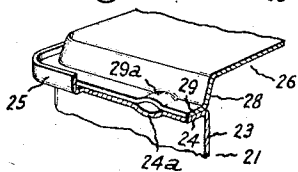


Fig. 4.



Inventor:
Christian Steenstrup,
by *Harry E. Dunham*
His Attorney.

UNITED STATES PATENT OFFICE

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FOOD STORAGE RECEPTACLE FOR REFRIGERATORS

Christian Steenstrup, Schenectady, N. Y., assignor to General Electric Company, a corporation of New York

Application July 9, 1937, Serial No. 152,791

7 Claims. (Cl. 62—1)

My invention relates to refrigerators, and more particularly to food storage receptacles associated with the refrigerated compartments of refrigerators for storing ice cubes and for preserving fruits, green vegetables, meats and the like.

The refrigerated compartment of a household refrigerator is usually maintained at an average temperature between 40° F. and 45° F. for general refrigeration purposes. An average temperature within this range may be maintained in the refrigerated compartment by the convection currents of air set up therein by a cooling unit or refrigerant evaporator located in the upper portion of the refrigerated compartment. In the usual refrigerator this result is obtained by maintaining the temperature of the surface of the refrigerant evaporator considerably below 32° F., for example, 20° F. During operation of the refrigerator, the refrigerant evaporator removes a considerable amount of the moisture present in the air circulated in the refrigerated compartment which appears upon the surface of the refrigerant evaporator in the form of frost, resulting in the maintenance of an atmosphere in the refrigerated compartment having a low relative humidity. While a storage atmosphere having a temperature within the range mentioned and a low relative humidity is satisfactory for the preservation of foods in general, certain types of foods, such for example as green vegetables and meats, may be more satisfactorily preserved in a storage atmosphere having a lower temperature and a higher relative humidity than that normally maintained in the refrigerated compartment. The frost which accumulates on the surface of the evaporator must be periodically melted and the drip water disposed of in order to properly refrigerate the foods stored. In order to obtain a storage atmosphere having a lower temperature and a higher relative humidity than that of the air circulated in the refrigerated compartment of a refrigerator, I have provided an arrangement including a food storage receptacle positioned in the refrigerated compartment below the evaporator and adjacent thereto, which food storage receptacle embodies a ventilating arrangement for controlling the amount of air circulated therethrough. This food storage receptacle is also utilized to receive the drip water from the refrigerant evaporator incident to defrosting of the refrigerant evaporator.

It is an object of my invention to provide an improved construction and arrangement of a food storage receptacle adapted to be placed in the refrigerated compartment of a refrigerator which is adapted to maintain a storage atmosphere

therein having a lower temperature and a higher relative humidity than the air circulated in the refrigerated compartment.

Another object of my invention is to provide an improved construction and arrangement of a food storage receptacle adapted to be placed in the refrigerated compartment of a refrigerator for receiving drip water from a cooling unit arranged within the refrigerated compartment incident to defrosting of the cooling unit.

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 drawing in which Fig. 1 is a fragmentary front elevational view of a household refrigerator having a refrigerated compartment provided with a food storage receptacle embodying my invention; Fig. 2 is an enlarged perspective view of the food storage receptacle shown in Fig. 1; Fig. 3 is a longitudinal sectional view of the food storage receptacle, a removable cover therefor, and a rack arranged within the receptacle for supporting food above the bottom wall of the receptacle; and Fig. 4 is a fragmentary perspective view, partly in section, of the upper portion of a marginal wall of the food storage receptacle showing a seat formed therein for supporting the removable cover.

Referring to the drawing, in Fig. 1 I have shown a household refrigerator 10 provided with a heat insulated refrigerated compartment 11 having an opening 12 in the front wall thereof and a heat insulated door 13 for the opening 12. The refrigerator is cooled by a refrigerating machine including a cooling unit or refrigerant evaporator 14 arranged in the upper portion of the refrigerated compartment 11, a motor driven compressor enclosed in a casing 15, and an air cooled condenser 16. The refrigerating machine constitutes a unitary construction supported upon a removable top wall 17 of the refrigerator to facilitate assembly of the refrigerator. A suitable thermal control arrangement which includes a temperature adjusting device 18 mounted on the condenser 16 is associated with the refrigerating machine for maintaining any given average temperature over a predetermined range of temperatures within the refrigerated compartment 11. A shelf 19 is supported on the side walls of the refrigerated compartment 11 and is provided with a downwardly extending offset portion 20 disposed below the

refrigerant evaporator 14 for supporting a food storage receptacle 21 below the refrigerant evaporator 14 and closely adjacent thereto. Other spaced apart shelves 19a are supported on the side walls of the refrigerated compartment 11 below the shelf 19. The shelves 19 and 19a are preferably of open wire work construction so as not to interfere with the circulating convection currents of air set up by the refrigerant evaporator 14 in the refrigerated compartment 11.

As best shown in Figs. 2 and 3, the food storage receptacle 21 is of rectangular form in horizontal section and comprises a substantially flat bottom wall 22 and an upwardly directed marginal wall 23. An outwardly extending seat 24 is provided in the marginal wall 23 about the upper portion thereof and an upwardly extending flange 25 is disposed about the outer margin of the seat 24. A removable cover 26 having a substantially flat top wall 27 and a downwardly directed marginal flange 28 provided with an outwardly extending marginal rim 29 is supported on the seat 24 formed in the marginal wall 23 of the receptacle 21. An upwardly extending knob 30 is secured to the top wall 27 of the removable cover 26 in order to facilitate handling.

A reticulated rack 31 is arranged within the receptacle 21 and is provided with a food supporting surface 32 which is spaced above the bottom wall 22 of the receptacle 21, the food supporting surface 32 having a marginal edge 32a spaced inwardly from the marginal wall 23 of the receptacle 21. The rack 31 is retained in place within the receptacle 21 by a plurality of supporting feet 33 which engage both the bottom wall 22 and the marginal wall 23 of the receptacle 21. The receptacle 21 together with its removable cover 26 supported in place in the seat 24 formed in the marginal wall 23 of the receptacle is positioned in the refrigerated compartment 11 of the refrigerator below and closely adjacent the refrigerant evaporator 14. Upon defrosting of the refrigerant evaporator 14 drip water therefrom falls upon the cover 26 and is directed thereby into the seat 24 formed in the marginal wall 23 of the receptacle 21. The drip water then flows from the seat 24 into the interior of the receptacle 21 and downwardly over the inner surface of the marginal wall 23 onto the bottom wall 22 where it accumulates below the food supporting surface 32 of the rack 31 and out of contact with the food supported thereby. The drip water readily flows between the seat 24 formed in the marginal wall 23 of the receptacle 21 and the marginal rim 29 of the cover 26 due to irregularities present in the surfaces of the seat 24 and the marginal rim 29 incident to manufacture of the receptacle 21 and the cover 26. If desired, in order to further assure ready flow of the drip water between the seat 24 and the marginal rim 29 into the interior of the receptacle 21, suitable recesses may be formed in either or both the seat 24 and the marginal rim 29 as shown in Fig. 4. As shown in this figure, a downwardly extending recess 24a is provided in the seat 24 formed in the marginal wall 23 of the receptacle 21 and a cooperating upwardly extending recess 29a is provided in the marginal rim 29 of the removable cover 26. These recesses 24a and 29a provided in the receptacle 21 and the removable cover 26, respectively, afford passages for the flow of drip water from the seat 24 formed in the marginal wall 23 into the interior of the receptacle 21. Due to the spacing of the food supporting surface 32 of the rack 31 above

the bottom wall 22 and the spacing of the marginal edge 32a of the rack 31 inwardly from the marginal wall 23 of the receptacle 21, the drip water from the refrigerant evaporator 14 flowing downwardly over the inner surface of the marginal wall 23 of the receptacle 21 does not contact the food supported by the supporting surface 32 of the rack 31 and no contamination of the food results from defrosting of the refrigerant evaporator 14. Also, the spacing of the food supporting surface 32 of the rack 31 above the bottom wall 22 of the receptacle 21 is coordinated with respect to the area of the bottom wall 22 to define a zone below the food supporting surface 32 of the rack 31 having a volume greater than the volume of the drip water from the refrigerant evaporator 14 incident to defrosting thereof.

The provision of a food storage receptacle having a removable cover and a rack arranged within the receptacle which is provided with a food supporting surface spaced above the bottom wall of the receptacle and a marginal edge spaced inwardly from the marginal wall of the receptacle, the cover being arranged to direct drip water into the interior of the receptacle and between the marginal edge of the food supporting surface of the rack and the marginal wall of the receptacle is not my invention, but is the invention of James L. Fletcher and is described and claimed in his application, Serial No. 152,792, filed July 9, 1937, and assigned to General Electric Company, the assignee of my present invention.

One end of the marginal wall 23 of the receptacle 21 is provided with a pair of spaced-apart and aligned openings 34 therein in order to provide for ventilation of the interior of the receptacle. A closure member 35 is rotatably supported by the end of the marginal wall 23 between the openings 34 for adjusting the amount of ventilation of the interior of the receptacle 21. The openings 34 are completely uncovered when the closure member 35 occupies a horizontal position and are completely covered when the closure member 35 occupies a vertical position, a knob 36 being provided the closure member 35 to facilitate rotation thereof in order to effect adjustment of the closure member 35. A pointer 37 is provided on one end of the closure member 35 and suitable arcuately disposed reference indicia 38 is provided on the end of the marginal wall 23 adjacent the pointer 37 for calibrating the uncovered area of the openings 34 and the corresponding relative humidity of the storage atmosphere in the receptacle 21.

Due to the arrangement of the receptacle 21 below the refrigerant evaporator 14 and closely adjacent thereto, a food storage atmosphere is maintained within the receptacle 21 which is somewhat below the average temperature of the air circulated in the refrigerated compartment 11. The temperature of the storage atmosphere in the receptacle 21 can be maintained readily at approximately 36° F. although the average temperature of the air circulated in the refrigerated compartment 11 is maintained at a temperature of only approximately 40° F. Furthermore, by adjusting the amount of ventilation of the interior of the receptacle 21 with the closure member 35, the relative humidity of the storage atmosphere in the receptacle 21 may be increased readily above that of the air circulated in the refrigerated compartment 11. Thus, storage atmospheres having substantially prede-

terminated relative humidities, ideal for the preservation of fruits, green vegetables, meats and the like may be obtained by adjusting the position of the closure member 35 with respect to the openings 34.

While I have shown a particular embodiment of my invention in connection with a household refrigerator, I do not desire my invention to be limited to the particular construction 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 food storage receptacle for a refrigerator of the type having a compartment with a cooling unit therein, said receptacle having a bottom wall and an upwardly directed marginal wall provided with a seat therein about the upper portion thereof and an upwardly extending flange about the outer margin of said seat, and a removable cover for said receptacle having a marginal rim supported on said seat in said marginal wall of said receptacle and arranged within said upwardly extending flange about the outer margin of said seat, said cover being adapted to direct any fluid falling thereon into said seat in said marginal wall of said receptacle, said receptacle and said cover being constructed to provide a passage for the flow of fluid from said seat in said marginal wall of said receptacle into the interior of said receptacle.

2. A food storage receptacle for a refrigerator of the type having a compartment with a cooling unit therein, said receptacle having a bottom wall and an upwardly directed marginal wall provided with a seat therein about the upper portion thereof and an upwardly extending flange about the outer margin of said seat, and a removable cover for said receptacle having a marginal rim supported on said seat in said marginal wall of said receptacle and arranged within said upwardly extending flange about the outer margin of said seat, said cover being adapted to direct any fluid falling thereon into said seat in said marginal wall of said receptacle, said receptacle being constructed to afford a passage for the flow of fluid from said seat in said marginal wall of said receptacle into the interior of said receptacle.

3. A food storage receptacle for a refrigerator of the type having a compartment with a cooling unit therein, said receptacle having a bottom wall and an upwardly directed marginal wall provided with a seat therein about the upper portion thereof and an upwardly extending flange about the outer margin of said seat, and a removable cover for said receptacle having a marginal rim supported on said seat in said marginal wall of said receptacle and arranged within said upwardly extending flange about the outer margin of said seat, said cover being adapted to direct any fluid falling thereon into said seat in said marginal wall of said receptacle, said cover being constructed to afford a passage for the flow of fluid from said seat in said marginal wall of said receptacle into the interior of said receptacle.

4. A food storage receptacle for a refrigerator of the type having a compartment with a cooling unit therein, said receptacle having a bottom wall and an upwardly directed marginal wall provided with a seat therein about the upper portion thereof and an upwardly extending flange about the outer margin of said seat, a removable cover for said receptacle having a marginal rim supported on said seat in said marginal wall of

said receptacle and arranged within said upwardly extending flange about the outer margin of said seat, said cover being adapted to direct any fluid falling thereon into said seat in said marginal wall of said receptacle, said receptacle and said cover cooperating to afford a passage for the flow of fluid from said seat in said marginal wall of said receptacle into the interior of said receptacle, said marginal wall of said receptacle having an opening therein providing for ventilation of the interior of said receptacle, and means including a closure member carried by said marginal wall of said receptacle adjacent said opening therein for adjusting the amount of ventilation of the interior of said receptacle.

5. A food storage receptacle for a refrigerator of the type having a compartment with a cooling unit therein, said receptacle having a bottom wall and an upwardly directed marginal wall provided with a seat therein about the upper portion thereof and an upwardly extending flange about the outer margin of said seat, a removable cover for said receptacle having a marginal rim supported on said seat in said marginal wall of said receptacle and arranged within said upwardly extending flange about the outer margin of said seat, and a rack arranged within said receptacle and having a food supporting surface in spaced relationship with respect to said bottom wall of said receptacle and to said marginal wall of said receptacle, said cover being adapted to direct any fluid falling thereon into said seat in said marginal wall of said receptacle, said receptacle and said cover cooperating to afford a passage for the flow of fluid from said seat in said marginal wall of said receptacle downwardly over the inner surface of said marginal wall into the interior of said receptacle.

6. A food storage receptacle for a refrigerator of the type having a compartment with a cooling unit therein, said receptacle having a bottom wall and an upwardly directed marginal wall provided with a seat therein about the upper portion thereof and an upwardly extending flange about the outer margin of said seat, a removable cover for said receptacle having a marginal rim supported on said seat in said marginal wall of said receptacle and arranged within said upwardly extending flange about the outer margin of said seat, a reticulated rack arranged within said receptacle and having a food supporting surface in spaced relationship with respect to said bottom and marginal walls of said receptacle said cover being adapted to direct any fluid falling thereon into said seat in said marginal wall of said receptacle, said receptacle and said cover cooperating to afford a passage for the flow of fluid from said seat in said marginal wall of said receptacle downwardly over the inner surface of said marginal wall into the interior of said receptacle, said marginal wall of said receptacle having an opening therein providing for ventilation of the interior of said receptacle, and means including a closure member carried by said marginal wall of said receptacle adjacent said opening therein for adjusting the amount of ventilation of the interior of said receptacle.

7. A food storage receptacle for a refrigerator of the type having a food storage compartment therein, said receptacle having a bottom wall and an upwardly directed marginal wall providing an open top, a removable cover for the open top of said receptacle, said marginal wall of said receptacle having an opening therein providing for ventilation of the interior of said receptacle,

means including a closure member carried by said marginal wall of said receptacle adjacent said opening therein for adjusting the amount of ventilation of the interior of said receptacle, and
5 means including reference indicia provided on said marginal wall of said receptacle adjacent said closure member and cooperating therewith for calibrating the amount of ventilation of the interior of said receptacle in order to obtain a storage atmosphere in said receptacle having a substantially predetermined relative humidity when said receptacle is placed in said compart- 5
ment.

CHRISTIAN STEENSTRUP.