STORAGE COMPARTMENT ON REFRIGERATOR DOOR

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This invention relates to refrigeration and particularly to the storage and cooling of eggs in a household refrigerator.

Many objections to egg storage containers heretofore mounted on the inner surface of household refrigerator cabinet doors have been raised. One of these objections is that the eggs are not concealed from view and in most cases if they are concealed they are not then properly cooled. Another objection lies in the fact that only one egg rack is mounted on a refrigerator cabinet door and when it is not securely latched, the eggs can be spilled therefrom and broken. When a latch is employed to lock the container against the unit it is required to have both hands to close the container. It is therefore contemplated to pivotally mount a latched shut egg storage container or compartment on the door of a household refrigerator cabinet and to provide a means whereby the container can be simultaneously unlatched and tilted about its pivotal mounting relative to the door to open it.

A general object of my invention is to provide an improved egg storage compartment in a recess in the inner face of a refrigerator cabinet door preferably consisting of a detachable and tiltable frame-like compartment forming a structure around which circulated air, in the main food storage chamber of the cabinet, flows to cool the eggs in the compartment and wherein a plurality of egg containers are interlocked with the structure for maintaining the eggs against breakage during opening and/or closing swinging movements of the door which containers are conveniently removable from the structure to a worktable or the like where eggs are to be used in the preparation of a meal and which containers are interchangeable with one another on the structure.

Another object of my invention is to provide an egg storage compartment on the inner face of a door of a household refrigerator cabinet which normally conceals the stored eggs, permits harvesting of one or more eggs directly therefrom when the cabinet door is opened and also permits a group of eggs to be simultaneously removed therefrom in containers movable interlocked therein with each other and eggs remaining in storage in the compartment.

A further object of my invention is to pivotally mount a frame-like structure in a recess in the inner face of a refrigerator cabinet door to form an egg cooling and storage compartment thereon, to firmly lock the structure by a latch at each end thereof against movement about its pivotal mounting, to provide a common actuator for unlatching both the latches simultaneously, which actuator also serves to tilt the compartment forming structure while it is unlatched whereby separate unlatching and tilting operations are dispensed with and both the unlatching and tilting of the structure is accomplished by one hand.

Still further objects, features and advantages of my invention herein disclosed will be apparent to persons skilled in the art after the construction and operation are understood from the within description. An embodiment of the invention is illustrated in the accompanying drawings forming a part hereof wherein like reference characters identify the same parts throughout the several views, and wherein:

Figure 1 is a front view of a household refrigerator cabinet showing the cabinet door in open position and having my invention incorporated therein;

Figure 2 is an enlarged fragmentary vertical sectional view taken on the line 2—2 of Figure 1 showing the pivotal mounting of an egg storage compartment forming frame-like structure on the refrigerator cabinet door and latch means thereon;

Figure 3 is an enlarged fragmentary horizontal sectional view taken on the line 3—3 of Figure 1 showing a plurality of egg containers removably interlocked with the egg compartment forming frame-like structure,

Figure 4 is a fragmentary sectional view taken on the line 4—4 of Figure 3 showing tracks on the frame-like structure which slidably hold the removable egg containers thereon;

Figure 5 is a fragmentary sectional view taken on the line 5—5 of Figure 2 showing the egg compartment tilted about its pivotal mounting with respect to the refrigerator cabinet door; and

Figure 7 is a perspective view of one of the removable egg containers of the device.

Referring to the drawings, I show in Figure 1 thereof a household refrigerator cabinet 10 having a lower food storage chamber 11 therein and a freezing or frozen food storage chamber 12 above and closed by a closure member 13. These chambers are formed by insulated walls as is conventional in the art. Chamber 11 is provided with a front access opening which is normally closed by an insulated door construction generally represented by the reference character 14 having a pivotally mounted cabinet 16 for swinging movement relative thereto and which provides access to chamber 11 and closure member 12 of the freezing chamber. A closed refrigerator system (not shown) includes suitable refrigerant evaporators for cooling the interior of chamber 11 and the interior of the freezing chamber to different temperatures relative to one another. Such refrigerators are conventional and well known to those skilled in the art and no further description thereof is necessary herein.

The door construction 14 includes an outer panel-like member 16 and an inner, preferably molded plastic, panel 17 suitably secured together and having insulating material 18 (see Figures 2, 3, 4, and 5) disposed therebetween. A resilient gasket 19 is located between the edges of panel member 16 and panel member 17 in any suitable or conventional manner and is adapted to engage the front of cabinet 16 for sealing the container therein. The inner molded plastic door panel 17 is dished inwardly toward panel 16 to provide, at the lower end, a top wall 21, a back wall 22 and side walls 23 of a recess in at least a portion of the interior face of door 14.

Food storage shelves and other ledges or the like for supporting small food products or articles to be refrigerated by the cool air in chamber 11 may be located in the recess of door 14 as is now common practice in the art.
In accordance with my invention I provide means forming an egg storage compartment within the recess of door 14 of refrigerator cabinet 10 which is of a novel and improved character to increase the utility of such a means and render the refrigerator more useful according to the expressed desires of users. This means in the present disclosure includes a molded plastic frame-like structure having a front wall 26, a bottom wall 27, and end walls 28. The frame-like structure is horizontally disposed and extends across the inner face of door 14 substantially within the recess provided therein. Walls 26, 27, and 28 of the molded plastic frame-like structure cooperate with walls 21, 22, and 23 of the recessed portion of door 14 to form a vertically elongated relatively narrow and wide article or egg storage compartment on the door. A round stud 29 is formed integrally with each of the end walls 28 of the compartment forming frame-like structure at the lower front portion thereof and projects therefrom for serving to pivotally mount the structure on door 14 for vertically tilting movement relative thereto (see Figure 2). Round stud projection 29 at each end of the frame-like structure normally rests in the bottom of a slot 31 provided in each of the side walls 23 of the recess in the inner face of door 14 (see Figures 2 and 5) thus serving as hinge pins for the structure. The slots 31 are formed in a thickened boss portion 32, having a substantially flat outer surface 33 on each opposed side wall 23 of the door recess. A round stud 34, formed integrally with the thickened boss portion 32 from the plastic material thereof, projects inwardly from each side wall 23 of the recess in door 14 and provides a keeper portion of a latch at each end of the frame-like structure (see Figures 2 and 6). Another flat surface ear-like boss 35 for integrally with the thickened portion 32 of each side wall 23 of the recess in door 14 provides stops for limiting tilting movement of the compartment forming frame-like structure and is adapted to be engaged by the edge of wall 28 thereof substantially at the junction of walls 27 and 28 (see Figures 2 and 6). A round stud 37 formed integrally on each of the end walls 28 of the frame-like structure projects outwardly from the upper forward portion thereof (see Figures 2 and 3) and each of which provides a hinge pin having a latch keeper engaging element 38 pivotally mounted thereon. Each element 38 is formed to provide a hook-like end portion 39 (see Figures 2, 3, and 6) which is adapted to hook over the opposed studs 34. The end portions 41 of elements 38 on the other side of their pivotal mounting stud 37 are connected together by a bar member 42. This member 42 extends across the front wall 26 of the egg compartment forming frame-like structure in spaced relation thereto and ties the latches at each end of the structure together to provide a combined common actuator for both latches and a predetermined mass of weight on keeper engaging elements 38 to cause the latches to be automatically latchable when the frame-like structure is tilted into a substantially vertical position with respect to door 14. Member 42 in addition to providing an attractive finish so as to form a decorative strip in front of the frame-like structure also serves as a handle for tilting same about its pivotal mounting pins or studs when door 14 is opened. The arrangement is such that a housewife can lift upwardly on member 42 with one hand at any point along the length thereof to simultaneously unlatch both latches at the end of the compartment forming structure. The arrangement is also such that the housewife pulls forward on member 42 at the same time it is lifted to tilt the structure outwardly of the recess in door 14. The horizontal motion of both the lifting and forward pulling of member 42 creates a feeling that the frame-like compartment forming structure is unlatched and tilted in one or a single operation.

Front wall 26 of the frame-like structure is provided with a plurality of sets of vertically aligned and spaced apart, integral bosses 46 projecting from its inner face (see Figures 3, 4, and 6). Rail 47 is secured by screws 48 to each set of bosses 46 and extends laterally on each side thereof so as to overlap the same and provide parallel tracks or track portions along the inside of the article or egg storing compartment formed by the frame-like structure. A rail projection 49 is integrally with and extending from the inner face of each end wall 28 of the frame-like structure, in spaced relation to front wall 26 thereof (see Figure 3), forms tracks paralleling the track rails 47. The tracks 47 and 49 are equally spaced horizontally apart for the purpose of rendering containers therewith and supported by the frame-like structure interchangeable with one another at different side by side positions in or on the structure. While the open end slots 31 provide for removability of the entire frame-like structure from door 14 by unlatching, lifting it upwardly and pulling it forward 52 and the inner face of the door, it is intended to remove the structure only for cleaning purposes due to its large size or bulkiness. While also an egg or two can be removed from the structure merely by tilting same as shown in Figure 6 of the drawings I provide means for segregating eggs stored in the door compartment into groups or rows or cells. This segregation in addition to more effectively insuring against breakage of the eggs further permits a group of eggs to be simultaneously removed from the refrigerator to a cooking range or worktable when more than a couple of eggs are required in the preparation of a meal. I provide a plurality of open top box-like containers generally represented by the reference character 50 (see Figure 7) which are supported in the egg storage compartment by being removably interlocked with the tracks on the frame-like structure. The containers 50 are formed of any suitable or desirable molded plastic material and each comprises a base 51, integral upright side walls 52 and a central partition 53 dividing the interior of a container into egg receiving and storing cells 54 and 55. The base 51 projects outwardly beyond one of the upright walls 52 and the container 50 has a raised or inclined handle 56. Each container 50 is provided with a track receiving portion 57 along two opposed sides thereof and it is to be noted that two of the upright walls 52 and the partition 53 diverge or are inclined outwardly from their bottom to their top in a direction toward the side of the container having the handle 56 thereon for a purpose to be hereinafter explained. The three containers 50 in the present disclosure are adapted to hold two rows of three eggs each in the cells 54 and 55 thereof. Containers 50 are adapted to be moved into supported association with the frame-like structure by sliding the lower lip of the track receiving portion 57 thereon under two opposed tracks 47 or under one of the rails 49 and one track 47. The frame-like compartment forming structure is tilted relative to door 14, as viewed in Figure 6 of the drawings, and then the sides opposite the handle side 56 of a container 50 together with eggs therein are inserted into the frame-like structure and pushed rearwardly until the bottom portion of the container comes to rest against the wall 27. It will be noted by reference to Figure 6 that the inclination of the two walls 52 and partition 53 of the container 50 positions these walls in a substantially vertical plane and places the base 51 of the container in a position inclined with respect to the horizontal when the frame-like structure is tilted against the stops 36. The eggs are disposed in substantially a vertical plane within their cells 54 and 55 and due to the inclined position of the base 51 of the container 50 the one row of eggs rest against the
chamber having an access opening, a door hingedly mounted upon said refrigerator for horizontal swinging movement relative thereto normally closing said chamber access opening, a panel on said door formed to provide a recess in the inner face thereof, a frame-like structure swingingly carried by said door disposed in and extending substantially across said recess without the aid of additional means a compartment therein communicating with the interior of said food chamber, said frame-like structure having tracks on the inner side thereof, a plurality of containers each having track receiving portions slidably engaging the tracks on said frame-like structure to removably mount the containers therein in side by side relationship within the compartment on said door, a partition in one of said containers dividing same into open end egg storage cells disposed one above the other within said compartment with the open end of the cells normally facing said door panel to expose the eggs stored therein to cold air in said food chamber, means for pivotally mounting said frame-like structure upon said door for tilting same relative thereto, means for latching said frame-like structure in its compartment forming position and preventing tilting thereof during opening and closing swinging movements of said door, said latching means being accessible by opening said chamber door to unlatch said frame-like structure and tilt same outwardly of the door recess into a substantially horizontal position, and said containers being selectively slideable away from said tilted frame-like structure with said open end of the cells in said one container upright to retain eggs therein.

2. In a refrigerator provided with a refrigerated food storage chamber having an access opening, a door hingedly mounted upon said refrigerator for horizontal swinging movement relative thereto normally closing said chamber access opening, a panel on said door formed to provide a recess in the inner face thereof, a frame-like structure swingingly carried by said door disposed in and extending substantially across said recess without the aid of additional means a compartment therein communicating with the interior of said food chamber, said frame-like structure having tracks on the inner side thereof, a plurality of containers each having track receiving portions slidably engaging the tracks on said frame-like structure to removably mount the containers therein in side by side relationship within the compartment on said door, a partition in one of said containers dividing same into open end egg storage cells disposed one above the other within said compartment with the open end of the cells normally facing said door panel to expose the eggs stored therein to cold air in said food chamber, means for pivotally mounting said frame-like structure upon said door for tilting same relative thereto, a latch at each side of said frame-like structure for latching same in its compartment forming position and preventing tilting thereof during opening and closing swinging movements of said door, a member connected to each of said latches and extending across the front of said frame-like structure in spaced relation thereto, said member being accessible only upon opening said chamber door and forming a common actuator for simultaneously unlatching both of said latches and serving as a handle to tilt said frame-like structure outwardly of the door recess into a substantially horizontal position, and said containers being selectively slideable away from said tilted frame-like structure with said open end of the cells in said one container upright to retain eggs therein.

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