Aug. 4, 1959 H. D. SQUIRE 2,898,173

REFRIGERATOR DOOR CONTAINER

Filed Feb. 7, 1957 2 Sheets-Sheet 1

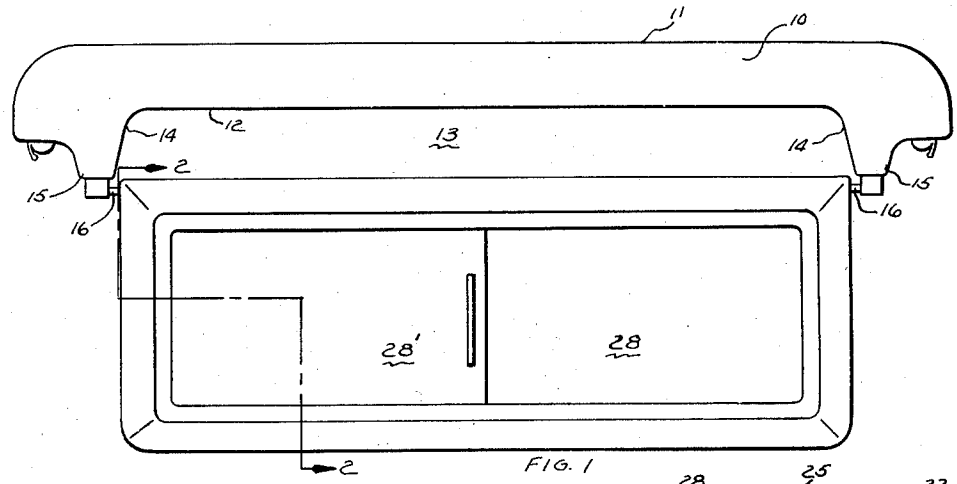


FIG. 1

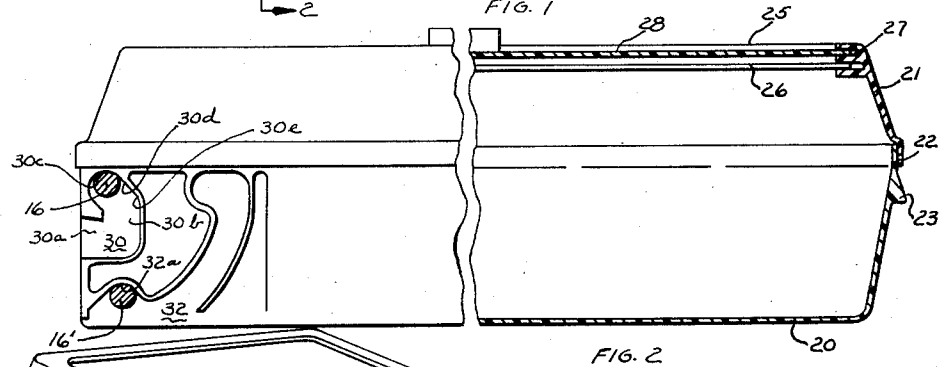


FIG. 2

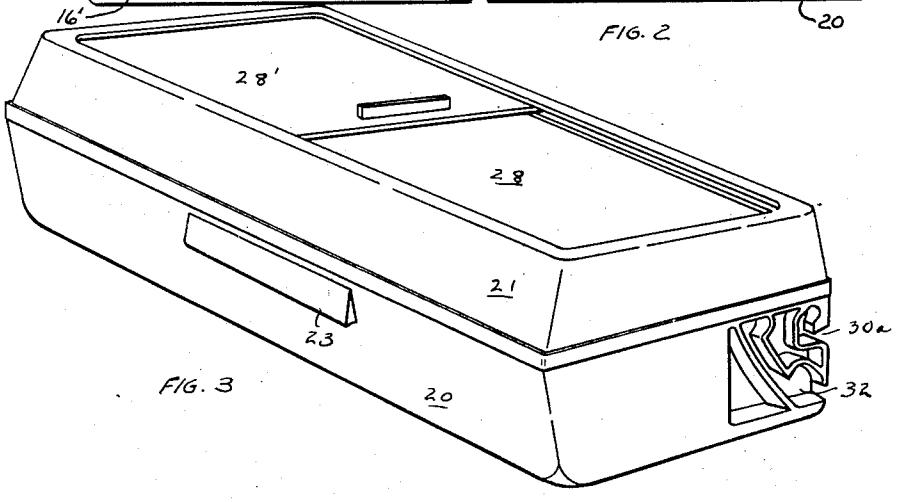


FIG. 3

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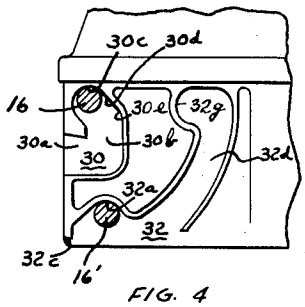


FIG. 4

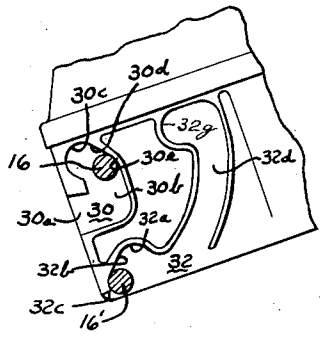


FIG. 5

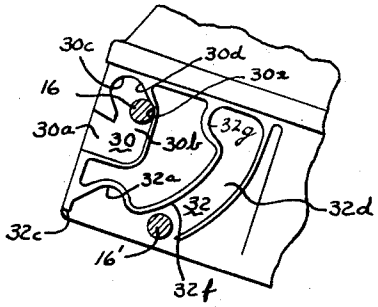


FIG. 6

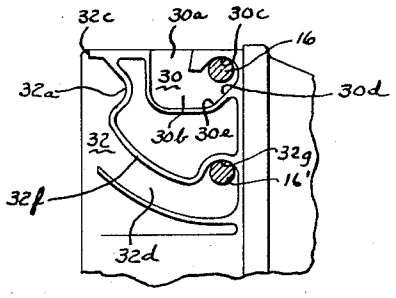


FIG. 7

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REFRIGERATOR DOOR CONTAINER

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10 Claims. (Cl. 312—248)

This invention relates to improvement in comestible containers for refrigerator and more particularly to an improved container known as a crisper for use with refrigerator for the storage of dehydratable food, although it will be apparent that it is useful for the storage of any type of material whether it be in a conventional refrigerator or a refrigerator for storing frozen foods.

As is well known to those versed in the art, it is common practice to provide a container, which usually is in the form of a drawer, that may be closed to prevent dehydration of foods. It is also common practice to provide refrigerators with doors wherein, in the innermost surface of the door, is provided a recess in which horizontal shelves are disposed and upon which certain materials to be refrigerated are disposed.

The present invention resides in the provision of a closed container, which is normally supported within the recess, and which may be rotated outwardly when the door is open, to provide easy access thereto for the removal or insertion of comestibles. Such a container permits the storage of the more bulky dehydratable foods in the door thus providing more useful utilization of the space particularly when it is disposed at the lower portion of the door.

It has a further advantage in that it is conveniently accessible, enables foods to be placed and removed with a minimum of effort, and then be swung out of the way when the door is closed.

Still other advantages of the invention will become more apparent from the following description, which description is illustrated by accompanying drawings and forms part of this specification.

In the drawings Fig. 1 is a horizontal section taken from a refrigerator door illustrating the container separated thereby and rotated to its outermost and horizontal position;

Fig. 2 is a view taken on line 2—2 of Fig. 1 taken in the direction of the arrows;

Fig. 3 is an isometric view of the container;

Fig. 4 is a fragmentary and elevation view of the container showing its manner of support by projections on the door when in horizontal position;

Fig. 5 is a similar view showing the container rotated to an upward position prior to lowering the same;

Fig. 6 is a similar view showing the container in process of rotation to its lower position; and

Fig. 7 shows it in its lowered position wherein the container is in a vertical position.

Briefly the container of my invention is arranged for operation in conjunction with a recessed door of a refrigerator. It will be appreciated however, that the invention may be useful in conjunction with other types of supports such as are useful for shelves, or for a platform which may be moved from a horizontal usable position to a vertical storage position.

As stated and as shown in Fig. 1, a door **10** is provided including an outer panel **11** and wherein the inner panel **12** is provided with a recess **13**. This recess is usually of

general rectangular formation and includes oppositely disposed slanting side walls **14** adjacent but spaced from the opposite edges of the doors. In the preferred construction, the door is provided with an inwardly projecting portion **15** in the form of a continuous rib which defines the periphery of the recess **13** and to the innermost extending portion of which are fastened first and second projections **16** and **16'**, respectively. The projections may be secured to the rib **15** in suitable manner and are in the form of pins **16** and **16'** which are vertically spaced from each other and project towards the pins on the opposite side rib in alignment therewith. These pins comprise the support means about which the container may be revolved.

The container may take various forms, in the embodiment shown comprising a substantially rectangular box having a base portion **20** cooperating with an upper portion **21** through the medium of overlapping flange **22** on the base and upper portion. As best shown in Fig. 2, the base portion is provided with a hand grip **23** on its outermost edge when in horizontal position and which is under the container when it is disposed in a vertical position. The upper end of the part of the upper portion **21** is provided with a generally rectangular opening **25**. The walls defining the opening are provided with pairs of peripheral grooves **26** and **27** in vertically spaced relation. Each of the grooves has slidably disposed therein doors **28** and **28'** which may be slid in either direction to provide access to either end of the container and which, when slid outwardly from overlapping position relative to each other provide an enclosure for the container.

Each end of the container, at each end side wall, as shown in Figs. 2 and 3, is formed with a pair of grooves, each one of a pair of grooves being intended for guiding engagement with one of the pins **16** and/or **16'**. These grooves may be molded into the wall of the container or they can be provided by a plate having corresponding ribs thereon to form the grooves, secured to the outside of the container or the device which is to be supported.

As best shown in Fig. 2, a first channel or groove **30** is provided, the walls of which are engaged with the upper (first) projection **16**. This first channel or groove includes an entrance portion **30*a*** which extends laterally inward from the edge of the container at that end and enables the container to be slipped onto or removed from the pin **16**. Another portion **30*b*** of the first channel **30** extends substantially perpendicularly away from the entrance portion **30*a*** in a direction toward the upper portion **22** of the container and presents a first seat **30*e*** for engagement by the first pin **16**. An inclined wall **30*d*** of the first channel extends away from the first seat **30*e*** therein in a direction away from the second channel **32** and terminates in a second seat **30*c*** for engagement by the first pin **16**. This second seat is at the inner end of the first channel **30** and is spaced from the first seat **30*e*** in that channel in a direction away from the second channel **32**.

The second channel **32** includes an upwardly offset groove wall providing a seat **32*a*** which is offset toward the first channel **30**. The seat **32*a*** in the second channel **32** is spaced from the second seat **30*c*** in the first channel **30** a distance equal to the spacing between the pins **16** and **16'**. Therefore, pin **16'** engages the seat **32*a*** in the second channel at the same time that the pin **16** engages the second seat **30*c*** in the first channel when the container is in horizontal position as shown in Figs. 2 and 4. In this position the container extends outwardly of the refrigerator door and the doors **28** and **28'** may be opened by sliding to the right or left and the materials placed in the container or removed therefrom.

When it is desired to rotate the container to a verti-

cal position, at which time the base is disposed within the recess 13 and only the upper portion 21 projects therefrom, the handle 23 is engaged and the outermost edge of the container raised. At this time, as best shown in Figs. 4 and 5, the inclined wall 32*b* at the outer end of the second channel 32 slides upwardly on the second pin 16', at which time the inclined wall 30*d* at the inner end of the first channel 30 slides upwardly over the first pin 16 causing a slight bodily inward movement of the container at the first pin 16 and outward movement of the container at the second pin 16', which movement continues until the second pin 16' hits a lowermost projection 32*c*. The resistance to the upward movement can be readily felt at this time. It will be noted that the second channel 32 is provided with an arched portion 32*d*, which is arcuate about the first seat 30*e* in the first channel 30 and therefore is now coaxial with the projection 16 as shown in Figs. 5 and 6.

It now remains for the container to be lowered which is effected by maintaining a slight inward pressure on the handle to retain the first pin 16 in the first seat 30*e* in the first channel while the container is rotated downward as shown in Fig. 6 so that the second pin 16' passes into the groove 32*d*. At this time the first pin 16 and the first seat 30*e* in the upper (first) channel provide the fulcrum about which the container rotates. The handle end of the container is then lowered, the second pin 16' sliding along the wall 32*f*, Fig. 7, which defines channel 32*d*, until it arrives opposite to the seat 32*g*. Seat 32*g* is offset from the arcuate portion 32*d* of the second channel 32 in a direction toward the first channel 30 and is spaced from the second seat 30*c* in the first channel a distance equal to the spacing between the pins 16 and 16'. At this time the container is released and the pin 16' seats in the seat 32*g* at the same time that the pin 16 seats in the seat 30*c*. At this time the pin 16 functions as a fulcrum as well as a support and the pin 16' locks the container against accidental outward swinging movement. The container is now disposed with the base in the recess 13 and the door may be closed.

Limited access to the container may now be obtained through the doors if desired but preferably, particularly when the container is full of comestibles, it should be rotated to the horizontal position in order that they do not fall out.

When it is desired to obtain access to the container, the user merely engages the handle on the underside of the container and lifts upward and this causes the container to be moved upwardly relative to the pin 16 and 16' whereby the pin 16' becomes aligned with channel 32*d* and the pin 16 engages in the first seat 30*e* in the first channel. Continued rotation outwardly of the container moves it through the position shown in Fig. 6 at which time the pin 16 is riding on the wall 32*f* where it rides until it drops into the seat 32*a* or engages with the projection 32*c*, depending upon the amount of upward movement, after which it is gently released. The pins again set in the seats 30*c* and 32*a* as shown in Fig. 4.

Since the outer ends of the channels 30 and 32 are open the entire container may be quickly and easily removed from its connection with the door by holding it in position as shown in Fig. 6 and moving it upwardly and outwardly. This readily permits the removal of the same for cleaning purposes.

It will thus be seen that I have provided a container which may be connected to the door without any movable parts other than the container itself. All of the elements enumerated can be made of plastic, require no lubrication because of the loose tolerance.

Having thus described my invention I am aware that numerous and extensive departures may be made therefrom without departing from the scope or spirit of the invention as defined by the appended claims.

I claim:

1. A comestible container for a refrigerator having a door the inner side of which is formed with a recess, pairs of projections at each side of said recess, each pair including vertically spaced projections each of which extends toward the projection of the other side in horizontal alignment therewith, a container arranged to be supported by the projections, said container having at least two end walls the sides of which are formed with walls defining channels, the sides of which are arranged for guiding engagement with said projections, and including a first channel for guiding engagement with the upper projection and having an uppermost portion providing a fulcrum about which the container may be rotated, a second channel for cooperation with the lowermost projection formed to provide a first notch for engagement with the lower projection for holding the container outwardly of the recess in a horizontal position, said second channel being provided with an abutment for engagement with the projection and constituting a fulcrum when the container is rotated upwardly, said first channel being provided with a cam surface and a seat outwardly and below the fulcrum portion of the first channel whereby when the container is rotated upwardly the wall of the channel is moved relative to the projection to move the projection to the seat, said second channel being provided with a curved portion coaxial with said seat in the first channel which is moved into alignment with the lower projection upon upward rotation of the container, said container, upon being rotated in a downward direction, causes the lower projection to pass into and be guided by said coaxial channel, the end of said coaxial channel being provided with an offset portion which provides a seat permitting the container to be lowered and the upper projection to be engaged with the fulcrum portion of the upper channel and said offset portion being in locking engagement with the lower projection to hold said container against swinging movement when in its lowered position.

2. In combination, a support, first and second spaced parallel projections carried by said support, and a supported member having spaced apart first and second channels which slidably receive the first and second projections, respectively, the first channel presenting a first seat for the first projection and a second seat for the first projection which is spaced from said first seat in a direction away from the second channel, the second channel having spaced apart offset portions which are offset laterally toward the first channel and each of which presents a seat for the second projection which is spaced from the second seat in the first channel a distance equal to the spacing between the first and second projections, each of said offset portions of the second channel retaining the second projection and preventing pivotal movement of the supported member when the first projection engages said second seat in the first channel, and said second channel being positioned to pass over the second projection to thereby permit pivotal movement of the supported member about the first projection when the first projection engages the first seat in the first channel.

3. The combination of claim 2, wherein the first channel has a closed inner end which defines said second seat and the second channel has a closed inner end which defines one of said offset portions.

4. The combination of claim 3, wherein the other of said offset portions is located adjacent the outer end of the second channel and the supported member presents a lateral stop surface at the outer side of said other offset portion which extends from said other offset portion in a direction away from the first channel for engagement by the second projection when the supported member is slid over the projections to move said second seat in the first channel away from the first projection and move the first seat in the first channel into engagement with the first projection.

5. In combination, a support member, a supported member, first and second spaced projections carried by

one of said members, the other of said members having spaced apart first and second channels which slidably receive the first and second projections, respectively, the first channel presenting a first seat for the first projection and a second seat for the first projection which is spaced from said first seat in a direction away from the second channel, the second channel having spaced apart offset portions which are offset laterally toward the first channel and each of which presents a seat which is spaced from the second seat in the first channel a distance equal to the spacing between the first and second projections, each of said offset portions of the second channel retaining the second projection and preventing pivotal movement of the supported member about the first projection when the first projection engages said second seat in the first channel, and said second channel being positioned to pass the second projection to thereby permit pivotal movement of the supported member about the first projection when the first projection engages the first seat in the first channel.

6. In combination, a support, first and second spaced parallel projections carried by said support, and a supported member having first and second channels which slidably receive said projections, respectively, the first channel intermediate its length defining a pivot seat for said first projection and said second channel having a portion which is arcuate about said pivot seat and is spaced from said pivot seat a distance equal to the spacing between said first and second projections so that the supported member may be pivoted about the first projection with said arcuate portion of the second channel passing over said second projection when the first projection engages said pivot seat, said second channel at one end of its arcuate portion terminating in a closed end which is offset radially inward from said arcuate portion, said first channel terminating in a closed end which is offset in the same direction as said offset end of the second channel, said offset closed ends of the channels receiving the respective projections when the supported member hangs down from the projections and the offset closed end of the second channel preventing pivotal movement of the supported member about the first projection when the supported member is so positioned, and said second channel at the outer end of its arcuate portion presenting a seat which is offset radially inward from said arcuate portion and which receives the second projection when the first projection engages the offset inner end of the first channel and the supported member extends laterally outward from the support, said offset seat in the second channel preventing the supported member from being moved pivotally about said first projection while the supported member extends laterally outward from the support and the first projection remains seated in the offset inner end of the first channel.

7. In a refrigerator having a door member formed with a recess at its inner side, a comestible container member received in said recess, one of said members carrying first and second spaced lateral projections at each side of said recess, with the projections at one side being aligned horizontally with the respective projections at the opposite side, the other of said members at each side of said recess presenting spaced apart first and second channels which slidably receive the respective projections at that side, each first channel presenting a first seat for the corresponding first projection and a second seat for said first projection which is spaced apart from said first seat in a direction away from the corresponding second channel, each second channel having spaced apart first and second offset portions which are offset laterally toward the corresponding first channel and each of which presents a seat which is spaced from the second seat in said first channel a distance equal to the spacing between the respective first and second projections, the first projections seating against said second seats in the first channels and the second projections seating in the first offset portions of the second channels when the container member extends vertically in said recess in the door member, said first offset portions of the second channels retaining the second projections and preventing pivotal movement of the container member about said first projections when the container member extends vertically with the first projections seating against said second seats in the first channels, said second channel being positioned to pass the second projections to thereby permit pivotal movement of the container member about the first projections when the first projections engage the first seats in the first channel, and said first projections seating against said second seats in the first channels and the second projections seating in the second offset portions of the second channels when the container member extends horizontally out from the door, and said second offset portions of the second channels retaining the second projections and preventing pivotal movement of the container member about said first projections when the container member extends horizontally with the first projections seating against said second seats in the first channels.

8. The structure of claim 7, wherein the first channels have closed inner ends which define said second seats, said first channels being open at their outer ends, and the second channels have closed inner ends which define the seats at said first offset portions, said second channels being open at their outer ends.

9. The structure of claim 8, wherein there are provided lateral stop surfaces adjacent the outer ends of the second channels which extend from said second offset portions in a direction away from the first channels for engagement by the second projections when the container member is displaced to seat the first projections against the first seats in the first channels.

10. The structure of claim 9, wherein each of said second channels presents a portion which is coaxial with the first seat in the respective first channel and which extends between said first and second offset portions of the second channel.

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