Nov. 6, 1956 I. C. COURSON ET AL 2,769,677

SLIDING MEAT KEEPER

Filed March 10, 1954 2 Sheets-Sheet 1

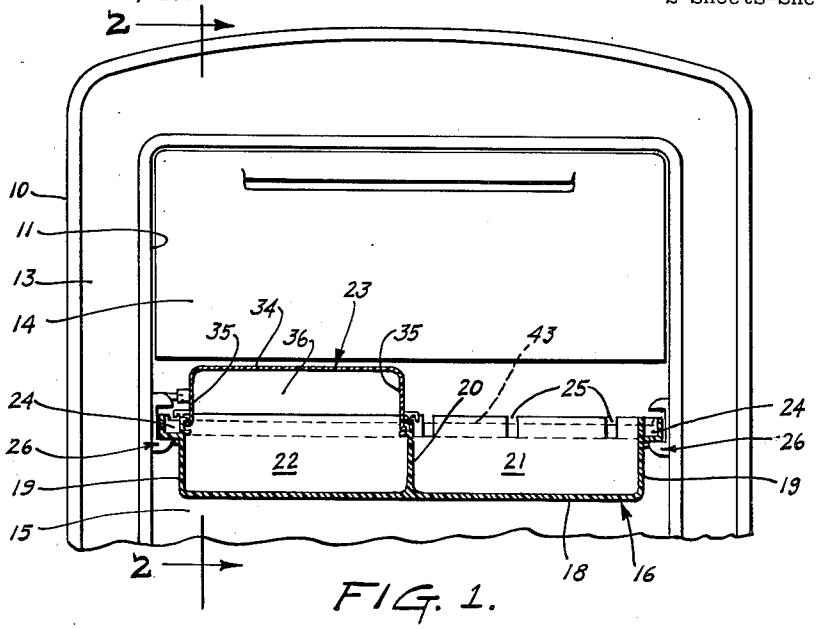


FIG. 1.

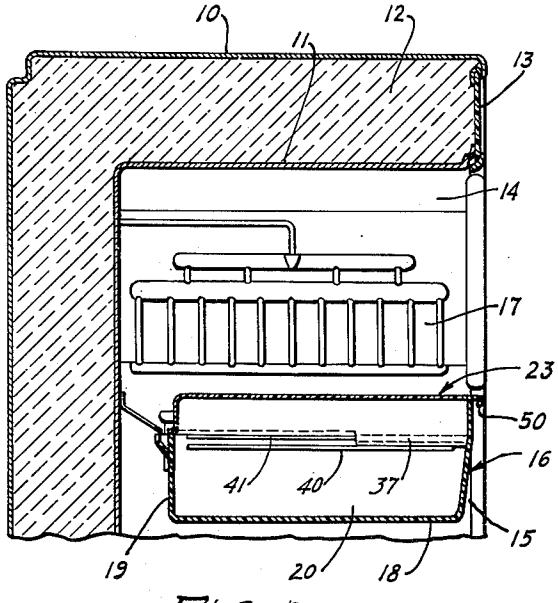


FIG. 2.

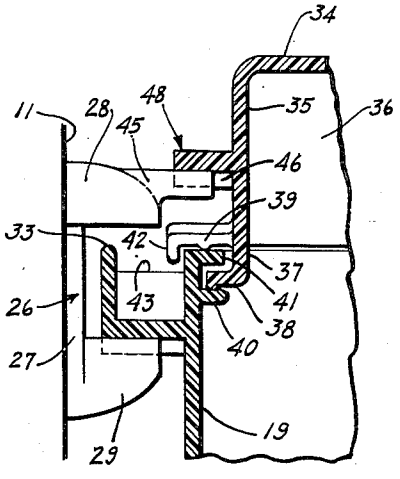


FIG. 7.

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SLIDING MEAT KEEPER

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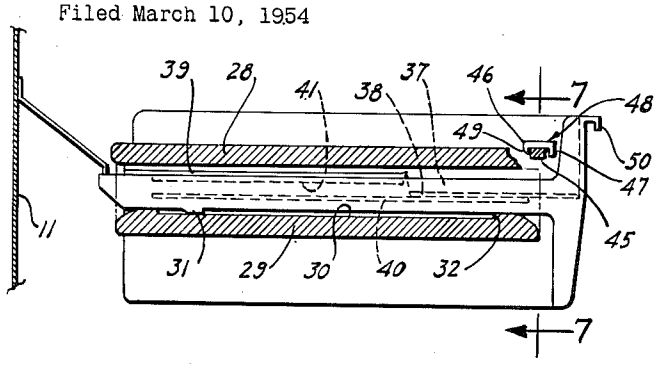


FIG. 3.

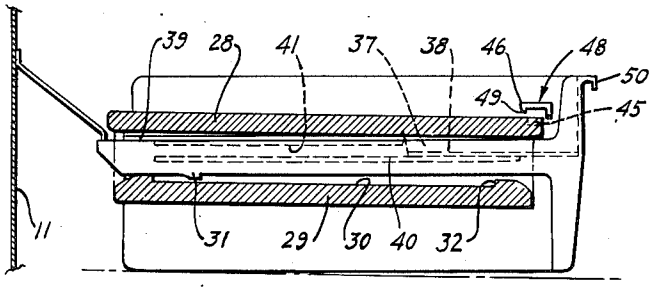


FIG. 4.

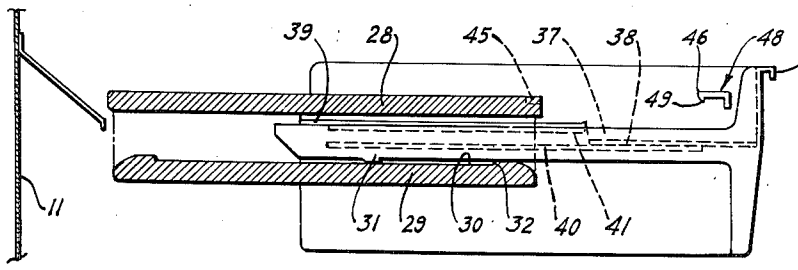


FIG. 5.

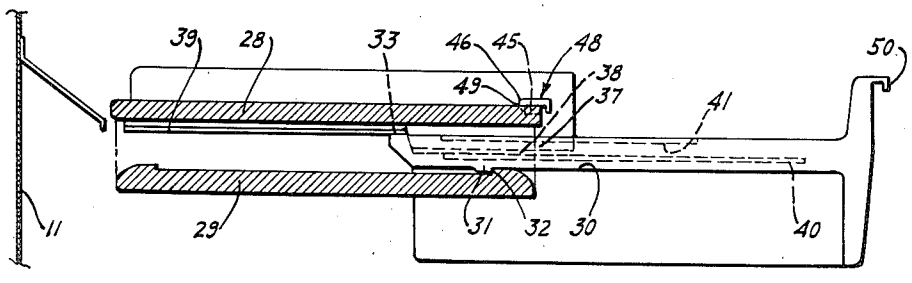


FIG. 6.

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SLIDING MEAT KEEPER

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Application March 10, 1954, Serial No. 415,382

3 Claims. (Cl. 312—308)

The invention hereinafter disclosed and claimed relates to cabinet construction and, more particularly, is concerned with the construction and arrangement of a tray-like chiller drawer within a refrigerator cabinet.

It is desirable in certain types of household refrigerators to provide beneath the freezing compartment or evaporator a slidably mounted drawer type receptacle or tray for the storage of meats, or the like. Many such trays are provided with covers for restricting the flow of air into and out of the tray. Often these covers are secured to fixed cabinet structure or to the track mounting the drawer within the cabinet, but in some cases they are hingedly secured to the tray itself. Additionally, the cover may extend over the entire tray or alternatively over only a portion thereof.

The present invention is concerned with a tray of this general type but, more specifically, with one similar in construction to that shown in assignee's Patent No. 2,604,762 to Quinn, which issued July 29, 1952. In this patented construction, a tray-like receptacle extends substantially across the full width of the refrigerator cabinet and is slidably mounted beneath the evaporator. The tray is divided down its middle into two compartments, only one of which is provided with a cover. The cover in the Quinn construction includes a rear portion fixed to the tray and a front portion hingedly secured to the said rear portion. Access to the covered portion of the tray necessitates sliding the drawer to its forward position, in which it extends from the front opening of the refrigerator, and then raising the lid to its open position. This makes the use of the tray somewhat inconvenient and necessitates the refrigerator door being open for undesirably long periods of time.

The present invention has as its primary object the provision of an improved chiller-drawer providing quick and easy operation.

A more specific object of the invention is to provide such a tray having a cover which may (in response to substantially the same withdrawing movement) either be retained in position over the tray when the latter is moved to advanced position, or which may be retained within the refrigerator cabinet during such movement, thereby to provide easy access to the normally covered portion of the tray.

In achievement of the foregoing objectives, and first briefly described, the invention provides in a refrigerator cabinet a tray-like drawer structure disposed beneath the evaporator and in spaced relation thereto, said structure being of a width and depth substantially equal to the width and depth of said refrigerator compartment. The tray is particularly characterized in that it is provided with cover means cooperating with walls of the tray to define an enclosed meat receptacle. The cover is so disposed as to move with the tray when the latter is moved forwardly, or to remain stationary during such movement thus to expose the interior of the tray. Either condition is achieved by means of a releasable latch or detent element

fixed to the tray cover and associated with fixed cabinet structure in a manner to be retained by the latter during movement of the tray, or easily disengaged therefrom during initial movement of the tray when it is to be moved forwardly.

The manner in which the foregoing and other objects and advantages may best be achieved will be understood from a consideration of the following detailed description taken together with the accompanying drawings, in which:

Figure 1 is a fragmentary front elevational view of the upper portion of a refrigerator cabinet with parts broken away and showing the chiller-drawer in section and mounted beneath the evaporator of the refrigerator.

Figure 2 is a view taken substantially along the line 2—2 of Figure 1;

Figures 3, 4, 5 and 6 are fragmentary side elevational views with parts broken away, and illustrating the operation of the apparatus; and

Figure 7 is a fragmentary sectional view taken substantially along the line 7—7 of Figure 3.

Now, making more detailed reference to the drawings, and especially to Figures 1 and 2 thereof, it will be seen that the invention is therein illustrated as embodied in a domestic refrigerator comprising an outer shell **10** and an inner shell or liner member **11**, spaced inwardly of and insulated from outer shell **10** by means of suitable insulation shown at **12**. As is customary, a breaker strip **13** of low thermal conductivity extends about the forward face of the cabinet and bridges the gap between said outer shell **10** and the inner liner **11**. It will be understood that the refrigerator also includes a compartment for a compressor-condenser unit of any desired type, but illustration of this portion of the apparatus is considered unnecessary since the present invention is not concerned therewith.

As clearly appears in both of Figures 1 and 2, and as described more fully in the aforesaid Quinn patent, the space within the inner liner **11** is subdivided into an upper relatively low temperature storage compartment **14** and a lower above freezing compartment **15** by means of the traylike chiller-drawer structure of the present invention, which latter is designated generally by the reference character **16**. It will be understood that the front access opening of the refrigerator is normally provided with a door (not shown) adapted to seal the space defined by the inner liner by seating against the cabinet in the plane of the aforesaid breaker strip **13**.

The upper zone or compartment **14** is utilized as the colder temperature compartment adapted for the storage of frozen foods, as indicated hereinabove, and to this end the compartment is provided with an evaporator **17** which may be of conventional configuration and preferably is of a width and depth substantially equal to the width and depth of the compartment **14** defined by the upper wall portions of the inner liner **11**. The evaporator **17** would, of course, be coupled to the condensing unit mentioned above through suitable suction and feed lines which it is not necessary to illustrate herein.

As the present invention is not particularly concerned with the temperature characteristics of the refrigerator, the following description will be limited to the tray construction and its mounting on the walls of the inner liner member **11**.

While the tray might be manufactured of many types of material, it has been found desirable to construct it of certain plastic materials, preferably clear or transparent materials, and polystyrene has been found particularly desirable as it lends itself to inexpensive manufacture and is of pleasing appearance.

In particular accordance with our invention, the chiller-drawer structure **16** comprises a tray-like member, defined generally by a bottom wall **18** and by upstanding wall

portions 19, extending peripherally about the tray. As clearly shown in Figure 1, the structure is divided by means of a central upstanding wall 20 into a right-hand open top receptacle 21, and a left-hand covered meat receptacle 22. The wall 20, of course, may be formed integrally with the tray or by a separate piece suitably bonded in a watertight manner to the bottom of the tray and to the adjacent portions of the peripheral wall 19. The open section 21 of the tray serves not only as a receptacle for certain classes of food stuffs, but also to provide for the accumulation of defrost water without necessitating removal of the contents of the covered meat receptacle 22. An open front cover or hood 23 cooperates with portions of the peripheral wall 19 and with the upstanding wall 20 to complete the enclosure or receptacle 22. As clearly shown in Figure 2, the front wall of tray 16 extends upwardly to an extent sufficient to close the open front of cover 23 when the cover is in its closed position.

The side and rear walls of the tray are provided along their upper edges and on the outside thereof, with troughs 24 adapted to receive drip water from the evaporator during defrosting operations and to cause said drip water to flow into the open side 21 of the tray, as mentioned above, by way of notches 25 in rear wall 19. Trough 24 also cooperates with bracket members or trackways 26 mounted on the side walls of liner 11 to provide the means in this embodiment for supporting the tray slidably upon said walls. It is understood, of course, that this supporting means is exemplary and that the tray could be supported in other ways, such, for example, as is the tray in the aforesaid Quinn patent.

While the tracks 26 may be of any suitable material and may take other convenient shapes, it has been found both convenient and economical to mold them in one piece and of plastic material. Each track preferably comprises a channel including a base portion 27 and upper and lower inwardly extending flanges 28 and 29, respectively, the lower flange providing the support for the tray. With particular reference to Figures 3 through 6, it will be seen that the lower flange has its central portion recessed, as indicated at 30. Each of the side troughs 24 is provided adjacent its rearward portion with a downwardly extending stop element 31 which cooperates with the front wall 32 of recess 30 to provide means for stopping the tray in its foremost position, as seen in Figure 6.

Referring to Figure 7, it is seen that clearance is provided between the upper edge 33 of the side troughs and the underside of the upper flange 28 of trackway 26, thereby providing sufficient space to permit relative freedom of movement between the tracks and the tray.

Cover member 23 is in the shape of an inverted open front tray including a top wall 34, downwardly extending side walls 35, and back wall 36. With reference to Figure 2, it will be seen that the forward portion 37 of each of the side walls 35 extends slightly lower than the rearward portion thereof. Each of the forward portions 37 includes an outwardly turned flange 38, while each of the rear portions of the wall includes a similar outwardly turned flange 39.

As shown in Figures 1 and 7, the space between side walls 35 of the cover is less than the space between side wall 19 and central wall 20, thus permitting the depending forward portions 37 of the cover side walls to pass below the top edge of the said tray walls, when assembling the cover with the tray, until flanges 38 come to rest upon flanges 40, extending inwardly from walls 19 and 20. Flanges 40, as seen in Figure 2, are substantially equal in length to the depth of the tray. Simultaneously, flanges 39 of the depending cover walls engage flanges 41 extending inwardly from the top edges of walls 19 and 20 from a point adjacent the rear edge of extension 37 of the cover to the rear wall of the tray, as seen more clearly in Figure 2. Flanges 39, as seen in Figures 1 and 7, are provided with a downwardly turned edge portion 42 which cooperate with walls 19 and 20 of the tray to accurately position the cover on the tray in a manner preventing inadvertent sidewise displacement thereof relative to the tray.

In Figure 7, it is seen that the rear wall 43 of the trough extending along the rear of the tray is somewhat lower than the corresponding wall of the side wall trough, thus to permit freedom of sliding movement of the cover to the rear of the tray.

Still with reference to Figure 7, it is seen that upper flange 28, of track 26, includes an inwardly extending finger or latch element 45 having its outer end terminating somewhat shorter of side wall 35 of the tray cover. This latch element is engaged between the depending walls 46 and 47 of an inverted U-shaped member or keeper 48 extending from, and preferably integral with, side wall 35 of the cover member. Rear wall 46 of keeper 48 is somewhat shorter than its forward wall 47 and preferably has its outer or rearward edge 49 tapered upwardly to the rear. It should be understood that latch element 45 is formed integrally with track 26 as a matter of convenience and economy, and could, if desired, be a separate element secured directly to the cabinet wall.

Now with reference to Figures 3 through 6, the operation of the tray will be described.

Figures 1 and 3 show the tray and cover supported, as by side wall trough 24, within the refrigerator cabinet upon lower flanges 29 of trackways 26 in retracted position with the latch element 45 engaged within keeper 48. It will be seen that flanges 38, along the lower edge of depending side wall portions 37 of the cover, rest upon flanges 40 on side wall 19 and center wall 20 of the tray, while the outwardly turned flanges 39 at the rear of the cover side walls rest upon the top of flanges 41 extending inwardly from the same tray walls.

Considering now the withdrawal of the tray to gain access to open compartment 21 thereof, it is desirable that the cover 36, over compartment 22, remain in position on the tray so that the compartment temperature will not be substantially affected. For easy handling of the tray, a finger grip or handle portion 50 has been provided at the top of the upward extension of the front wall of the tray. To move the tray in the manner described, handle 50 is grasped, the tray is lifted upwardly, as shown in Figure 4, thus removing the keeper 48 from engagement with latch element 45. The tray is then pulled forwardly to its extended position, as shown in Figure 5, to an extent sufficient to enable the user to gain access to compartment 21.

Should the tray be withdrawn to its fully extended position, stop element 32 engages wall 31 of the track, thus preventing inadvertent complete withdrawal of the tray. This condition is shown in Figure 6 in connection with a different operation of the tray. In the fully extended position, if the tray is released, it would tip downwardly until the rearward ends of the side troughs engage the underside of the upper flanges 28 of the trackways, thus to prevent the tray from falling. If it is desired to remove the tray from the refrigerator, it is merely necessary to raise the tray until extension 32 clears the wall 31. This movement is possible by reason of the clearance between the top of the trough 33 and the bottom wall of top flange 28 of tracks 26, as seen more clearly in Figure 7. Returning the tray to its retracted position, as shown in Figure 1, it is merely necessary to push it rearwardly to the position shown. At the end of this movement, the tapered edge 49 of the shorter rear wall 46 of keeper 48 causes the cover to ride over and engage latch bolt 45. It will be understood that with the tray in its advanced position with the cover in place over compartment 21, emergency access may be had to the compartment simply by pushing the cover to the rear.

When the tray is in its retracted position, access to covered compartment 22 may be gained by merely drawing the tray forwardly without lifting it, thereby main-

taining latching engagement of the cover with element **45**, while the tray moves from beneath the cover to the extent shown in Figure 6. During this movement, cover flanges **38** and **39** ride upon tray flanges **40** and **41**, respectively. After initial movement in this manner, it will be seen with reference to Figure 2 that lower cover flange **38** passes between flanges **40** and **41** thus locking the cover to the tray in a manner to prevent its displacement therefrom when the tray has been moved to its fully extended position. To prevent complete displacement of the cover relative to the tray, when in the position shown in Figure 6, it will be noted that the rear edge of the downwardly projecting portion **37** of cover wall **35** engages the back wall of the tray to prevent further relative movement between these parts.

It is now seen that the construction and arrangement described above improves the ease and facility of operation of a tray-like receptacle of the type shown in the aforesaid Quinn patent, making it much more convenient to operate, and saving both the time of the user and reducing operating expense.

We claim:

1. A chiller-drawer for refrigerator cabinets, said drawer comprising; a tray having a bottom wall, upstanding side walls, and an intermediate wall, defining a two compartment open-topped tray, said tray also including a pair of upper and lower channel forming flanges, extending inwardly from adjacent the top edge of one of said side walls, the upper flange being shorter at the front than the lower flange, and a second and similar pair of flanges positioned adjacent the top edge of said intermediate wall and extending toward said first pair; and a cover enclosing one of said compartments, said cover comprising a top wall, depending side walls, and a discontinuous flange extending outwardly from each of opposing side walls thereof, the front portion of each of said cover flanges being lower than the remaining portion, its lower flange portions, when said cover is assembled with said tray, resting upon the lower tray flanges and its upper flange portions resting upon the upper tray flanges, thereby slidably supporting said cover over said one compartment in a manner whereby the lower portion of said cover flange passes between said tray flanges to retain said cover engaged with said tray when said cover is moved rearwardly relative to said tray.

2. In a cabinet having an open front compartment: a chiller-drawer said drawer comprising; a tray having a bottom wall, upstanding side walls, and an intermediate wall, defining a two-compartment open-topped receptacle, said tray also including a pair of upper and lower channel forming flanges extending inwardly from adjacent the top edge of one of said side walls, the upper

flange being shorter at the front than the lower flange, and a second and similar pair of flanges positioned adjacent the top edge of said intermediate wall and extending toward said first pair; a cover enclosing one of said compartments, said cover comprising a top wall, depending side walls, and a discontinuous flange extending outwardly from each of opposing side walls thereof, the front portion of each of said cover flanges being lower than the remaining portion, its lower flange portion, when said cover is assembled with said tray, resting upon the lower tray flanges and its upper flange portion resting upon the upper tray flanges, thereby slidably supporting said cover over said one compartment in a manner whereby the lower portion of said cover flange passes between said tray flanges to retain said cover engaged with said tray when said cover is moved rearwardly relative to said tray; latch means fixed to said cabinet adjacent the open front of said compartment; and keeper means on said cover normally cooperative with said latch means to retain said cover within said compartment when said chiller-drawer is moved to a forward position, said keeper means being separable from said latch means to permit said cover to move with said member.

3. A chiller-drawer for refrigerator cabinets, said drawer comprising: a tray having a bottom wall and upstanding side walls, defining an open-topped receptacle, said tray also including a pair of upper and lower channel forming flanges extending inwardly from adjacent the top edge of said side walls, the upper flange being shorter at the front than the lower flange; and a cover enclosing said compartment, said cover comprising a top wall, depending side walls, and a discontinuous flange extending outwardly from each of opposing side walls thereof, the front portion of each of said cover flanges being lower than the remaining portion, its lower flange portions, when said cover is assembled with said tray, resting upon the lower tray flanges and its upper flange portions resting upon the upper tray flanges, thereby slidably supporting said cover over said compartment in a manner whereby the lower portion of said cover flange passes between said tray flanges to retain said cover engaged with said tray when said cover is moved rearwardly relative to said tray.

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