April 7, 1953 M. H. FOSTER 2,633,715

HOME REFRIGERATION UNIT ICE TRAY

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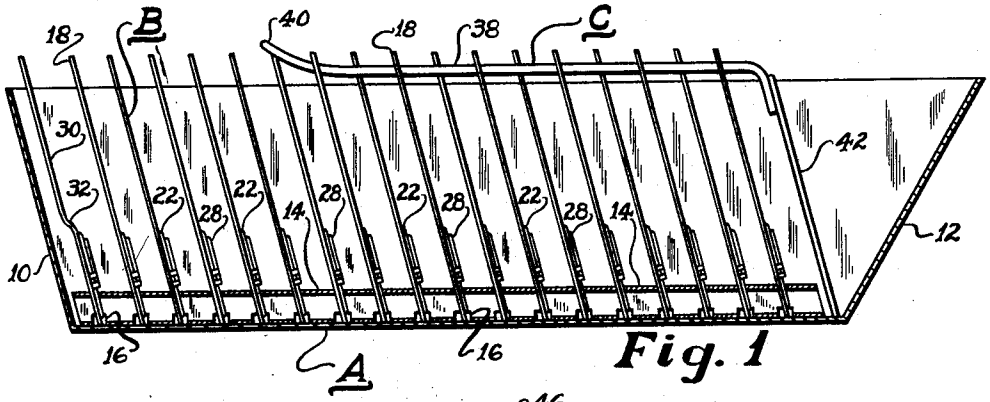


Fig. 1

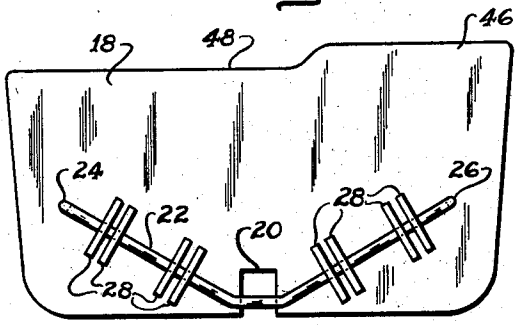


Fig. 2

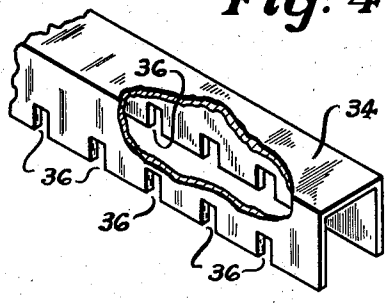


Fig. 4

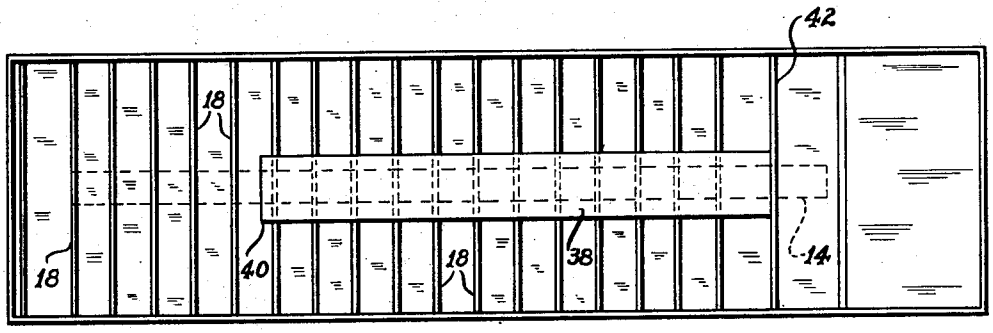


Fig. 5

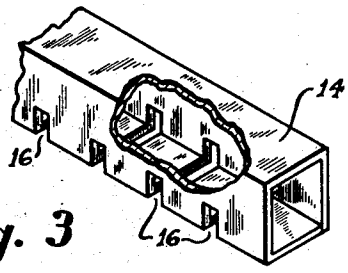


Fig. 3

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HOME REFRIGERATION UNIT ICE TRAY

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8 Claims. (Cl. 62—108.5)

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This invention relates to ice trays, and more particularly to an ice tray having removable and separable parts, whereby the ice cubes may be removed as a whole from the tray proper, or whereby the ice within individual compartments may be crushed.

In the past considerable difficulty has been experienced in removing the ice cubes as a whole from the tray, or removing individual cubes of ice or crushed ice from the tray without removing the entire assembly from the tray. I have found that these difficulties can be eliminated by the novel construction hereinafter described. This structure includes means for removing the entire assembly of ice cubes from the tray.

Additionally, should it be desired to obtain ice, such as individual ice cubes, or crushed ice cubes, without removing the entire assembly, such smaller portions of ice may be obtained readily without removing the assembly from the tray.

An object of the invention, therefore, is to provide an ice tray having a plurality of transversely extended partition plates or separator members which are mounted on a spacer strip, which assembly may be removed as a whole from the tray.

A further object of the invention is to provide a structure in accordance with the foregoing paragraph in which the transverse partition plates or separator members are composed of flexible material.

Another object is to provide an ice tray structure having special mounting means for the transverse partition plates or separator members whereby individual plates may be pivoted.

A further object is to provide an ice tray structure having transverse partition plates or separator members and an additional transverse plate having a lever type handle fastened thereto, or forming a part thereof, whereby operation of the handle will free a cube of ice at one end of the tray to permit pivotal movement of the aforementioned plates or separator members.

Yet another object is to provide an ice tray having transverse partition plates or separator members with means for suppporting said members that includes a tension member for holding said plates or separator members in place.

Other objects of the invention will be disclosed throughout the specifications.

In the drawings herein, similar reference characters refer to similar parts in the specification:

Fig. 1 is a transverse vertical section view of the ice tray with the parts in assembled position for freezing ice cubes,

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Fig. 2 is a front elevation of one of the transverse partition plates or separator members.

Fig. 3 is an end view of one form of rectangular-shaped metal spacer strip,

Fig. 4 is an end view of another form of spacer strip, and

Fig. 5 is a top plan view of the ice tray.

Before explaining in detail the present invention, it is to be understood that the invention is not limited in its application to details of construction and arrangement of parts illustrated in the accompanying drawings and set forth in the following description, since the invention is capable of other embodiment. It is to be further understood that the disclosure as shown in the drawings and hereinafter described, is for the purpose of description and not of limitation, and it is not intended to limit the invention classed herein beyond the requirements of the prior.

Referring to the drawings:

The letter A indicates the tray per se; the letter B indicates the cube assembly as a whole, and the letter C indicates the lever and plate assembly.

The tray is provided with ends 10 and 12. Extending longitudinally of the trays and substantially centrally thereof is a rectangular-shaped metal spacer strip 14. This strip is provided with a series of transversely extending notches 16.

A plurality of transverse partition plates or separator members 18 are provided. Each of these separator members has a lower, centered notch 20, of such size that the spacer strip may extend through the notches when the plate members are in the inclined position shown in Fig. 1. For holding each separator member of the spacer strip there is provided a spring 22, having upturned ends 24 and 26. Each spring 22 is made of wire that has been bent into the U-shape shown in Fig. 2, and in this position the ends 24 and 26 of the spring are under tension and are therefore biased to a straight position. The strength of the tension of each spring 22 is only enough to secure the separator member or plate 18 to which it is attached in a fixed position relative to the spacer strip and not sufficient to straighten the separator member. In other words, the tensioning means does not position the separator members in a vertical plane but permits them normally to take the position as shown in Figure 1. The central portion of each spring engages in some one of the transverse notches 16, and each spring is held to its plate by a plurality of pairs of holding members 28, which may be fingers that have been struck from the

partition plates or that may be U-shaped members which have been welded to the plates **18**. It is to be understood that instead of providing pairs of such members, only one such holding member need be provided on either side of the notch **20**.

It will be noted that due to the construction heretofore described each plate **18** is freely pivoted about a pivot which is defined by the notch **16**.

The end plate **30** is provided with an offset portion **32**, as seen in Fig. 1.

Instead of providing a solid-rectangular metal spacer strip such as is shown in Fig. 3, a spacer strip such as shown in Fig. 4 may be provided. This may consist of a longitudinally extending member of the same outside shape on three sides as the spacer strip **14**. In other words this strip **34** may be of sheet metal which is channel-shaped in cross-section. The strip is provided with a pair of notches **36**, corresponding to the notch **16**.

The member C consists of a heavy gauge plate or handle **38**, with an upwardly inclined end **40**. The opposite end of this handle is preferably integral with an additional plate **42**, which is of the same general shape as the plates **18**, but which omits the thumb tabs of said plates **18**, now to be described.

Each plate **18** is provided with a thumb tab **46**, and the plates are so arranged that when viewing the tray from either end thereof alternate thumb tabs will be adjacent to opposite sides of the tray. In other words, the plates are so mounted on the spacer strip that the thumb tabs of consecutive plates are adjacent opposite sides of the tray. This arrangement provides additional space between the plates for the insertion of a finger of the user to flex the plate by engaging the thumb tab **46**. It will be understood that the plates **18** are made of flexible metal so that they may be not only pivoted about the notch **16** or **36**, but they may be also flexed so as to break the ice within the space beween adjacent plates.

With the parts assembled in the position shown in Fig. 1 the tray may be filled with water up to slightly below the top of the tray. In this position the thumb tabs project upwardly above the water on adjacent opposite sides of the tray. The tray is inserted in the freezing compartment of a refrigerator or deep freeze unit.

After the freezing of the water in the tray takes place, some or all of the ice within the tray may be removed.

In the event it is desired to remove all of the ice from the tray, the inclined end **40** of the handle **38** is engaged by the fingers and pulled upwardly. This operation accomplishes two purposes, viz., it pulls the ice which has frozen in the space between the lever plate **42** and the inclined end **12**, and it also breaks loose the cube assembly B from the tray A. Ice may be removed from between individual plates by engaging a tab **46**, and moving it so as to crush the ice on either end or both sides of the plate. Only the ice itself opposes movement of the plate about the pivot defined by the notch **18**.

The lever and plate assembly C is entirely independent of the assembly B, the lever **38** finding its support, as shown in Fig. 1, on the edges **48** of the plates.

Assuming that the ice has been frozen in the tray with the parts as shown in position at Fig. 1, and it is only desired to remove ice from between one or more of the plates **18**, this is accomplished by gripping the inclined end of the handle **38**, and

moving the same upwardly so as to break the ice between the lever plate assembly **42** and the inclined end **12** of the tray. Without removing the cube assembly B in the tray, ice may be removed from between any pair of plates by pivoting one or both of the plates. This is accomplished by grasping the tabs **46** of said plates and moving the plates about the pivot defined by the notch **16** or **36**, according to which spacer strip is used.

Such movement of the plates will crush the ice into small pieces, when the plates are pivoted in this manner.

It is to be understood that any shape of tray or plate **18**, **30**, and **42** may be used to accomplish the purpose intended. It is also within the scope of the present invention to use any desired number of such plates so as to divide the ice tray into any desired number of, and shapes of, separate compartments as defined by said plates.

I claim:

1. A grid for an ice tray comprising spacer means, a plurality of spaced plates, and means pivotally mounting said plates on said spacer means, said means for pivotally mounting said plates on said spacer means including a series of notches in said spacer means, and spring means mounted on each plate for engagement with one of said notches, said spring means being under tension whereby said spring means is continually urged upwardly in said notches.

2. A grid for an ice tray comprising spacer means, a plurality of spaced plates, and means pivotally mounting said plates on said spacer means, said means for pivotally mounting said plates on said spacer means including a series of notches in said spacer means, and a spring for each plate engageable with one of said notches, means for mounting each spring on its plate under tension whereby each spring is continually urged upwardly in its notch, said last named means including fastening only the up-turned ends of each spring to its plate.

3. A grid for an ice tray comprising spacer means, a plurality of spaced plates, and means pivotally mounting said plates on said spacer means, said spacer means comprising a rectangular shaped strip of metal having a plurality of parallel notches extending transversely across its lower end, said notches forming part of said means for pivotally mounting said plates.

4. An ice tray including a tray proper and cube assembly comprising a spacer strip extending longitudinally of said tray adjacent the bottom thereof, a plurality of transversely extending spaces on said strip, a plurality of flexible partition plates, means pivotally mounting said partition plates on said strip including a wire member for each plate for engagement in one of said spaces whereby said wire member is continually urged upward in its space.

5. An ice tray including a tray proper and cube assembly comprising a spacer strip extending longitudinally of said tray adjacent the bottom thereof, a plurality of transversely extending spaces in said strip, a plurality of flexible partition plates, means pivotally mounting said partition plates on said strip including a U-shaped wire member for each plate, said plates having raised portions forming thumb tabs in staggered relationship in alternate plates, and a lever and plate assembly comprising a handle adapted to extend over and rest upon a plurality of said plates, and an angle plate forming part of said lever and plate assembly, positioned substantially parallel to said plates first named.

6. An ice tray including a tray proper and cube assembly comprising a spacer strip extending longitudinally of said tray adjacent the bottom thereof, a plurality of transversely extending spaces on said strip, a plurality of flexible partition plates, means pivotally mounting said partition plates on said strip including a U-shaped wire member for each plate, said wire having its central portion engaged in one of said spaces and a lever and plate assembly, said lever and plate assembly being independent of said cube assembly.

7. An ice tray including a tray proper and cube assembly comprising a spacer strip extending longitudinally of said tray adjacent the bottom thereof, a plurality of flexible partition plates, means pivotally mounting said partition plates on said strip including a U-shaped wire member for each plate, said plates having raised portions forming thumb tabs in staggered relationship in alternate plates, and a lever and plate assembly comprising a handle adapted to extend over and rest upon a plurality of said plates, and an angle plate forming part of said lever and plate assembly, positioned substantially parallel to said plates first named, said angular plate having a lower end located adjacent to one end of said spacer strip within said ice tray.

8. An ice tray including a tray proper and cube assembly comprising a spacer strip extending

longitudinally of said tray, a plurality of transversely extending spaces in said strip, a plurality of partition plates, means pivotally mounting said partition plates on said strip including a tensioned member for each plate, and a lever and plate assembly comprising a handle adapted to extend over and rest upon a plurality of said plates, and an angle plate forming part of said lever and plate assembly positioned substantially parallel to said plates first named.

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