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W. H. KITTO

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REFRIGERATION

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Fig. 1

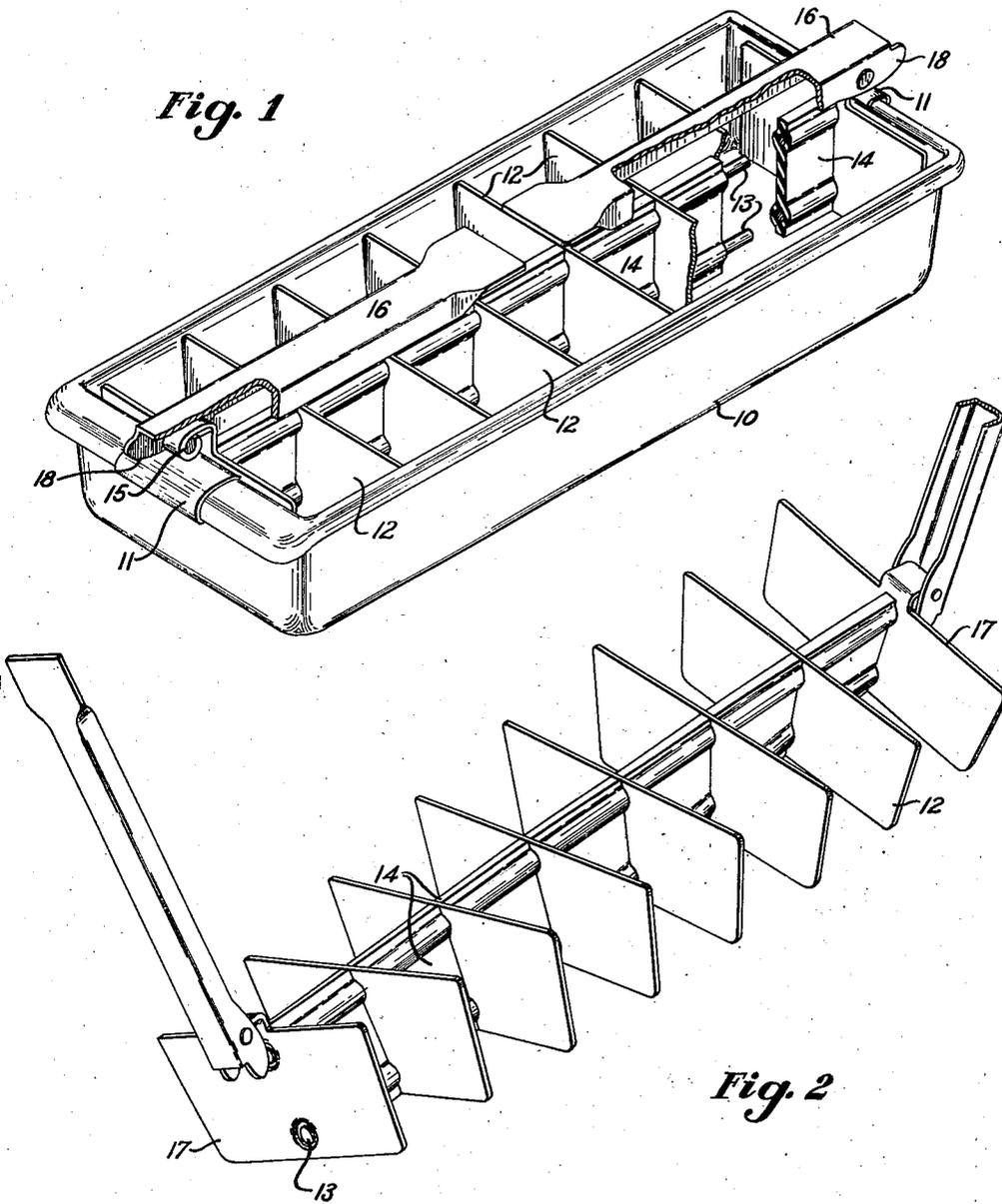


Fig. 2

INVENTOR

William H. Kitto

BY

Harry S. Dumas

ATTORNEY

UNITED STATES PATENT OFFICE

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REFRIGERATION

William H. Kitto, Canton, Ohio, assignor to The Hoover Company, North Canton, Ohio

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11 Claims. (Cl. 62—108.5)

This invention relates to refrigeration, and more particularly to an ice cube tray for domestic refrigerators with means for releasing frozen ice cubes therefrom.

It is the usual practice to remove ice cubes from the freezing tray of a domestic refrigerator by running hot water over the bottom of the tray so as to melt the grid assembly and attached cubes from the tray and thereafter running additional hot water over the grid assembly to remove the individual cubes therefrom.

This has the disadvantage that the ice is wasted since the cubes become appreciably smaller in melting them loose. It also has the disadvantage that the surface of the ice is wet and slippery and water drips around the place where the cubes are being removed which necessitates wiping up after each removal of the cubes.

It has also been proposed to remove ice cubes from the freezing tray of a domestic refrigerator by a mechanical leverage mechanism, but these devices have not been entirely satisfactory because of the excessive force necessary to be applied to release the cubes, their complexity, high cost of manufacture and the fact that they get out of order easily necessitating their frequent replacement.

It is an object of this invention to provide a grid assembly for an ice tray which can be used with a standard tray.

More particularly it is an object of this invention to provide a grid assembly made up of a plurality of spaced apertured lateral grid members connected together by elongated elements extending through the apertures of the lateral grid members with the spacing elements surrounding the elongated elements and spacing the lateral grid members apart, with lever means pivoted to the end of a longitudinal grid member having portions to coact with an edge of the tray for raising the grid assembly in the tray and forming handles for flexing the longitudinal grid member for releasing ice from the grid assembly.

It is another object of this invention to provide a grid assembly for an ice tray which is simple in operation, easy and economical to manufacture and which will not get out of order.

Other objects and advantages of the invention will become apparent as the description proceeds when taken in connection with the accompanying drawing in which,

Figure 1 is a perspective view of the device of the invention positioned in an ice tray, and

Figure 2 is a perspective view of the device

showing the longitudinal grid member in flexed position.

Referring to the drawing, numeral 10 represents an ice tray of standard construction except for the wear plates 11 at each end thereof.

The grid assembly comprises a plurality of spaced apart lateral grid members 12 having apertures therein through which are threaded wire or other rods 13. Between each pair of lateral grid members 12 are spacers 14 having eye-like apertures extending longitudinally there-through, through which the rods 13 are threaded. The spacer members 14 may be made of rubber or any other suitable molded material or they can be made of a plurality of wire-like members with an eye at each end for receiving the rod 13. The cross grid members may be made of metal or of molded material.

Secured to the ends of the rods 13 are end plate members 17 having eyes 15 for forming a pivotal mounting for levers 16 which are channel shaped in cross section. The levers 16 have cam portions 18 which cooperate with the wear plates 11 for raising the grid assembly in the tray.

The spacer members 14 may be premolded and the rods 13 extended therethrough during the assembly operation or the grid assembly can be placed in a mold and the rubber or other substance molded about the rods 13.

In operation the grid assembly is positioned in the tray 10, the tray 10 filled with water and placed on the freezing shelf of a refrigerator and the water allowed to freeze.

When the water is frozen the tray is removed from the evaporator shelf and the levers 16 raised in an upward direction. This will cause the cam ends 18 of the levers to contact the wear plates 11 on the edge of the tray whereby the grid assembly and attached ice cubes will be raised in the tray.

The grid assembly and the attached cubes are then removed from the tray and the levers raised to a vertical position and the legs of the channel arms will contact the edges of the eyes on the plates 17. The levers are then twisted laterally in opposite directions so that the longitudinal grid member formed by the spacers 14 and the rods 13 will be flexed or twisted and the ice cubes will be broken from the grid assembly.

If desired only one lever may be provided and the front of the opposite end of the longitudinal grid member provided with a handle portion for use in grasping during the flexing or twisting of the grid assembly.

From the foregoing it can be seen that this

invention provides a grid assembly adapted to be positioned in a standard tray in which the grid assembly and attached cubes can be easily removed from the tray and the attached cubes easily separated from the grid assembly which is simple in operation, simple and economical to manufacture and which will not get out of order.

While I have shown but one embodiment of my invention, it is to be understood that this embodiment is to be taken as illustrative only and not in a limiting sense. I do not wish to be limited to the specific structure shown, but to include all equivalent variations thereof except as limited by the scope of the claims.

I claim:

1. A grid assembly comprising, a plurality of apertured spaced apart laterally extending grid members, vertically spaced elongated elements extending through the apertures in said laterally extending grid members and connecting them together, flexible spacers between said spaced apart grid members, said spacers and elongated elements constituting a longitudinal grid member and means secured to the ends of said longitudinal grid member forming handles whereby the longitudinal grid member may be twisted for removing ice from the grid assembly.

2. A grid assembly comprising, a plurality of apertured spaced apart laterally extending grid members, vertically spaced elongated elements extending through the apertures in said laterally extending grid members and connecting them together, flexible spacers between said spaced apart grid members, said spacers and elongated elements constituting a longitudinal grid member, said spacers having eyes through which the elongated elements extend.

3. A grid assembly adapted to be positioned in an ice tray comprising, longitudinal and lateral grid members, said longitudinal grid member comprising longitudinally extending reinforcing means surrounded by flexible means, said reinforcing means being threaded through openings in said lateral grid members and said flexible means acting as spacers for said lateral grid members.

4. In combination, a plurality of apertured spaced apart lateral grid members, vertically spaced members extending through the apertures in said lateral grid members and spacer members between the lateral grid members forming a vertical partition to cooperate with the lateral grid members to form a plurality of compartments.

5. A grid assembly comprising, a plurality of apertured spaced apart lateral grid members, a flexible longitudinal grid member comprising, vertically spaced elongated elements extending through the apertures of said lateral grid members, spacing means having eyes for receiving the elongated elements positioned between the lateral grid members, a plate secured to each end of said elongated elements, and a lever pivoted to each of said plates on a transverse axis whereby the levers may be used for twisting the longitudinal grid member for removing ice from the grid assembly.

6. The combination of an ice tray and a grid assembly positioned therein, said grid assembly comprising a plurality of apertured spaced apart lateral grid members each extending from one side of the grid assembly to the other and a longitudinal grid member, said longitudinal grid member comprising elongated means extending

through the apertured lateral grid members and spacing means between said lateral grid members, lever means secured to each end of said longitudinal grid member having means thereon for raising the grid assembly in said tray and being so secured to the longitudinal grid member that it may be utilized to flex said grid assembly laterally to release ice therefrom.

7. A grid assembly comprising longitudinal and lateral grid members, said longitudinal grid members comprising vertically spaced longitudinally extending rod-like members extending through said lateral grid members and spacing means carried by said rod-like members for spacing the lateral grid members on said rod-like members and together with said rod-like members forming the vertical partition of said longitudinal grid member.

8. A grid assembly comprising longitudinal and lateral grid members, said longitudinal grid member comprising vertically spaced longitudinally extending rod-like members extending through said lateral grid members, spacing means carried by said rod-like members for spacing the lateral grid members on said rod-like members and together with said rod-like members forming the vertical partition of said longitudinal grid member, and means carried by said rod-like members for twisting said longitudinal grid member.

9. A grid assembly comprising longitudinal and lateral grid members, said longitudinal grid member comprising vertically spaced longitudinally extending rod-like members extending through said lateral grid members and spacing means carried by said rod-like members for spacing the lateral grid members on said rod-like members and together with said rod-like members forming the vertical partition of said longitudinal grid member, and means on said longitudinal grid member so constructed as to coact with the edge of an ice tray for raising said grid assembly in the tray.

10. In combination, an ice tray, a grid assembly positioned therein comprising, a plurality of spaced apart lateral grid members and a flexible longitudinal grid member, a transversely extending plate secured to each end of the longitudinal grid member, each of said transversely extending plates cooperating with said tray and said lateral and longitudinal grid member to form end cube compartments and a lever pivoted to each of said plates on a transverse axis whereby the levers may be utilized for laterally flexing the longitudinal grid member for releasing ice from the grid assembly.

11. In combination, an ice tray, a grid assembly positioned therein comprising, a plurality of spaced apart lateral grid members and a flexible longitudinal grid member, a transversely extending plate secured to each end of the longitudinal grid member, each of said transversely extending plates cooperating with said tray and said lateral and longitudinal grid members to form end cube compartments, a lever pivoted to each plate on a transverse axis whereby the levers may be utilized for laterally flexing the longitudinal grid member for releasing ice from the grid assembly and means on the ends of the levers adapted to contact the upper edge of said tray for releasing the grid assembly from the tray as the levers are moved to a vertical position.

WILLIAM H. KITTO.