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A. E. COLE

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REFRIGERATION ICE TRAY
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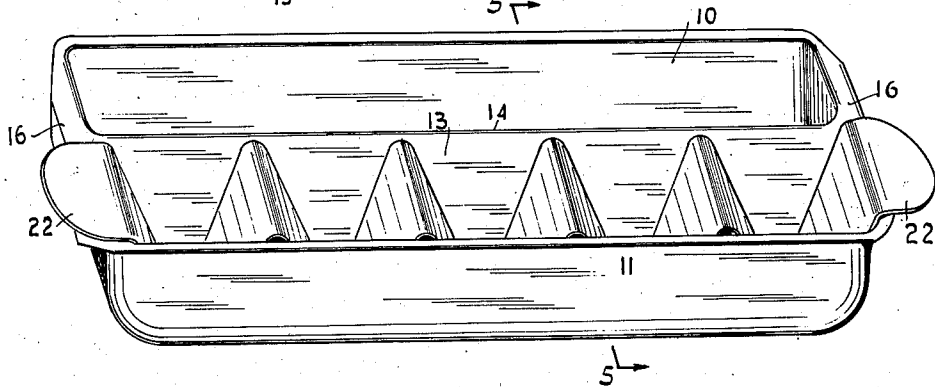
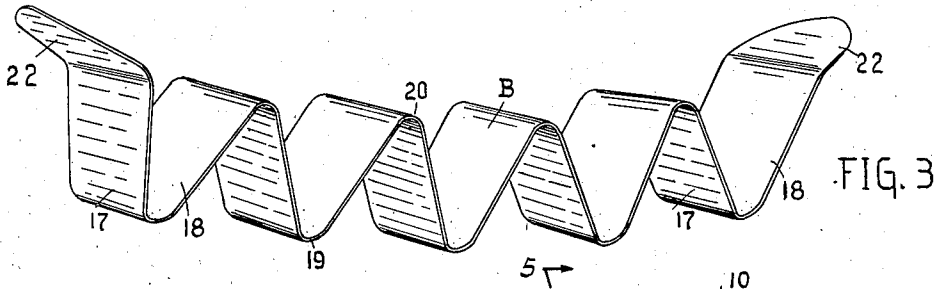


FIG. 1

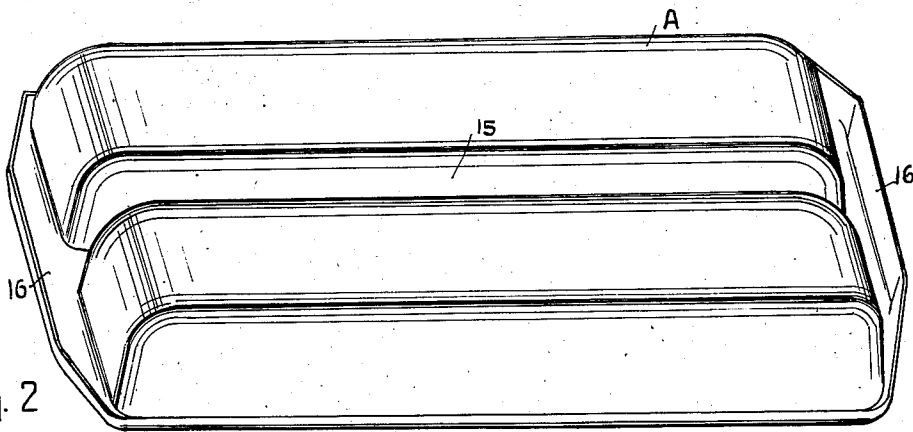


FIG. 2

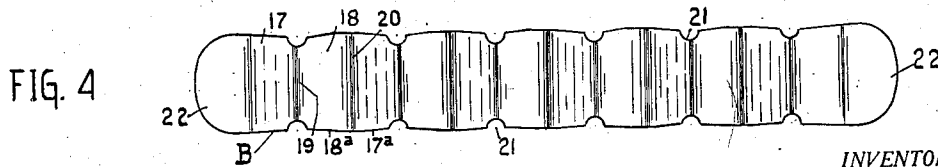


FIG. 4

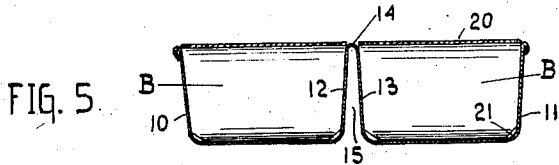


FIG. 5

INVENTOR.
ARTHUR E. COLE

BY *Dike, Calver & Gray*
ATTORNEYS

UNITED STATES PATENT OFFICE

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REFRIGERATION ICE TRAY

Arthur E. Cole, Grosse Pointe, Mich.

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6 Claims. (Cl. 62—108.5)

This invention relates to ice trays for refrigerators, particularly mechanical refrigerators, in which the tray is formed with a grid structure designed to facilitate the production of individual ice blocks within the tray.

In conventional practice the grid structure is either formed as an integral part of the tray, or is formed as a separate member which may be removed from the tray or pan to aid in extracting the ice blocks molded within the partitioned spaces of the grid. The former type, where the pan and grid are formed in one piece, as from a single stamped sheet of metal, is impractical for commercial use since very great difficulty is encountered in extracting the ice blocks from the pan. The second type, consisting usually of a rectangular pan having a removable metal grid designed to produce ice cubes, also is objectionable for various reasons. For instance, in this second type of ice tray it is ordinarily necessary, first, to run warm water over the outside of the metal pan in order to remove the grid and ice blocks frozen in the partitioned spaces thereof as a solid mass; and second, to run warm water over the grid in order to loosen the individual ice cubes. Thus, the use of the standard types of metal ice trays results in a substantial loss of ice due to melting.

Moreover, in all conventional types of ice trays utilizing a removable grid, it is necessary to remove all of the ice blocks from the pan regardless of the number of ice pieces needed for the occasion.

An object of the present invention is to overcome the foregoing disadvantages and to provide an improved tray so constructed as to permit the formation of independent sets or series of ice blocks, and in which the blocks of one set or series may be forcibly removed from the pan and separated one from the other without disturbing the blocks of an adjacent set or series within the pan, and without, as heretofore, necessitating melting the ice in order to effect its removal.

A further object of the invention is to provide what may be termed a compound ice tray in which the usual ice forming space within a given size pan is divided into separate troughs each containing a removable grid which may be mechanically removed independently of another and then flexed so as to separate the individual blocks from the grid.

Other objects of this invention will appear in the following description and appended claims, reference being had to the accompanying drawing forming a part of this specification wherein

like reference characters designate corresponding parts in the several views.

Fig. 1 is a perspective view illustrating a compound ice tray with one of the removable grids constructed in accordance with the present invention.

Fig. 2 is a perspective view of the bottom of the tray.

Fig. 3 is a perspective view of one of the removable grid members.

Fig. 4 is a top plan view, reduced in scale, of the grid member.

Fig. 5 is a transverse section, reduced in size, taken substantially on lines 5—5 of Fig. 1 in the direction of the arrows.

Before explaining in detail the present invention it is to be understood that the invention is not limited in its application to the details of construction and arrangement of parts illustrated in the accompanying drawing, since the invention is capable of other embodiments and of being practiced or carried out in various ways. Also it is to be understood that the phraseology or terminology employed herein is for the purpose of description and not of limitation, and it is not intended to limit the invention beyond the terms of the several claims hereto appended as considered in view of the prior art and the requirements thereof.

Referring to the drawing the ice pan or tray proper is illustrated as a whole at A. This pan in the present instance is substantially rectangular in shape and preferably provided with a pair of substantially identical longitudinal troughs within each of which is mounted a flexible resilient grid member B.

The compound pan is stamped from a single blank of sheet metal by means of suitable draw dies resulting substantially in the provision of two similar pans 10 and 11 having the adjacent side walls 12 and 13 thereof spaced longitudinally from end to end. In drawing the blank by the die operation the adjacent walls 12 and 13 are tapered so as to conform to the inclination of the outer longitudinal walls of the tray and are preferably extended to substantially the height of the pan. These walls form a continuous air passage extending longitudinally of the tray between the pan sections whereby more rapid freezing of the water is obtained. As shown by the drawing the pan sections 10 and 11 are integrally joined along the top edge 14 of the walls 12 and 13 and also at the ends of the tray by means of the extended lips 15, the latter being flanged to enable the tray to be

grasped and removed from the usual ice box compartment of the refrigerator.

Within each of the pan sections 10 and 11 is a removable grid B which in the present instance comprises a single piece of metal, or other suitable flexible material, which is stamped to provide a series of corrugations forming alternate wedge shaped ice block spaces. In the present instance the adjacent pairs of walls 17 and 18 of the corrugations are shown as V-shaped, and when the grid is disposed within the trough of the tray the alternate apices of the corrugations lie alternately at the bottom and top of the pan. Hence the V-shaped ice forming spaces partitioned off within the pan by means of the grid corrugations alternately open at the top and bottom of the pan.

The grid B is also stamped to provide projecting handle portions 22 which overlie the lips 16 and project beyond the ends of the pan, thus permitting the grid to be grasped and forcibly removed from the pan.

As shown in Figs. 4 and 5 the adjacent side edges 17a and 18a of the portions 17 and 18 of each corrugation are tapered downwardly and inwardly from the apex 20 to the apex 19 so as to fit snugly against the inner faces of the correspondingly tapered side walls of the pan, thus effecting a more perfect separation of the ice blocks one from the other. Moreover, the edges of the grid at the opposite ends of the bottom apices 19 are cut away or notched at 21 adjacent the bottom longitudinal corners of the pan so as to permit the grid to set evenly on the flat bottom of the pan. By virtue of this construction the individual blocks will be substantially entirely separated one from another with less tendency to form a thin connecting sheet of ice along the side wall or bottom of the pan which would otherwise render it more difficult to forcibly remove the grid from the pan and separate the set of ice blocks formed in the lower spaces of the grid.

It will be seen that when the pan sections 10 and 11 are filled with water the ice blocks will be formed above and below the grid. As the water freezes in the lower spaces of the grid, the expansion thereof will exert upward pressure on the grid causing the ice being formed in said spaces to slide on the diverging side walls away from the apices 19 camming upwardly the grid and ice blocks in the upper spaces of the grid. Moreover, as the water freezes in these upper V-shaped spaces, the expansion thereof will cause the ice blocks to cam upwardly on account of the inclined side walls of the grid. The construction, therefore, provides a means for loosening the ice blocks within the spaces formed by the corrugations, facilitating their removal. Moreover, either grid may be forcibly removed from the pan by grasping the handle 22 and either exerting downward leverage thereon so as to flex or bend upwardly the center of the grid, or may be lifted so as to exert sufficient leverage to detach it from the pan. Furthermore, it will be seen that one series of ice blocks formed in either grid may be independently extracted from the tray without disturbing either the grid or ice blocks formed in the other part of the tray.

I claim:

1. An ice tray for refrigerators comprising a

pan having upwardly and outwardly inclined side walls, a flexible removable grid in said pan comprising a sheet formed with corrugations alternately opening upwardly and downwardly in the pan and having the side edges thereof tapered to conform to the inclinations of said side walls, the apices of the corrugations at the top of the pan having substantially greater width than the apices of the corrugations at the bottom of the pan and said last apices being cut away adjacent the bottom longitudinal corners of the pan.

2. An ice tray comprising a pan stamped from a metal blank to provide a bottom and upwardly and outwardly inclined side walls, said pan having inwardly curved corners at the junctures of the side walls and said bottom, a metallic grid member in said pan comprising a sheet pressed to provide ice block spaces alternately opening upwardly and downwardly, the upright side edges of said grid being inclined to fit the inclination of said side walls and the bottom side edges of the grid being formed to straddle said curved corners.

3. An ice tray comprising a pan having a bottom and upwardly and outwardly inclined side walls, said pan having inwardly curved corners at the junctures of the side walls and said bottom, a flexible metal grid in said pan reversely formed to provide ice block spaces alternately opening upwardly and downwardly, the upright side edges of said grid being inclined substantially in accordance with the inclination of said side walls and the bottom side edges of the grid being inwardly offset to clear said curved corners.

4. An ice tray comprising a pan having a bottom and upwardly and outwardly inclined side walls, said pan having inwardly curved corners at the junctures of the side walls and said bottom, a flexible metal grid in said pan reversely formed to provide ice block spaces alternately opening upwardly and downwardly, the upright side edges of said grid being inclined substantially in accordance with the inclination of said side walls and terminating short of said curved corners and the bottom horizontal portions of the grid also terminating short of said corners.

5. An ice tray comprising a stamped metal pan integrally divided in one direction only to provide a plurality of separated ice forming troughs, a flexible metal grid in each trough and each being formed with ice block spaces alternately opening upwardly and downwardly, the upright side walls of each trough being outwardly inclined and each trough having curved corners at the junctures of the side walls and the bottom thereof, each grid being formed to fit substantially uniformly against said bottom and side walls and being offset opposite said corners.

6. An ice tray comprising a pan having a bottom and upwardly and outwardly inclined side walls, said pan having inwardly curved corners at the junctures of the side walls and said bottom, a flexible metal grid in said pan reversely formed to provide ice block spaces alternately opening upwardly and downwardly, each grid being formed to fit substantially uniformly against said bottom and side walls and being inwardly offset opposite said corners.

ARTHUR E. COLE.