United States Patent

Newsteder

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[54] TRAY HAVING CONTAINERS FOR FORMING ICE CUBES AND THE LIKE

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[52] **U.S. Cl.** **249/103**

[51] **Int. Cl.** **B41b 11/62**

[58] **Field of Search** ..... 249/102, 103, 117, 118, 120, 249/155, 156, 70, 203, 127, 129, 132; 46/11, 25, 31; 220/97 C, 97 D, 97 E, 97 F

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[57] **ABSTRACT**

A tray having a plurality of apertures with containers disposed therein. The containers include a rim with a well depending therefrom which is shaped to form letters of the alphabet. The well sides each have a draft and locking means are on each container for selectively locking it into its respective aperture. The bottom of the containers are in a common plane and can all be placed in direct contact with a cooling surface.

2 Claims, 6 Drawing Figures

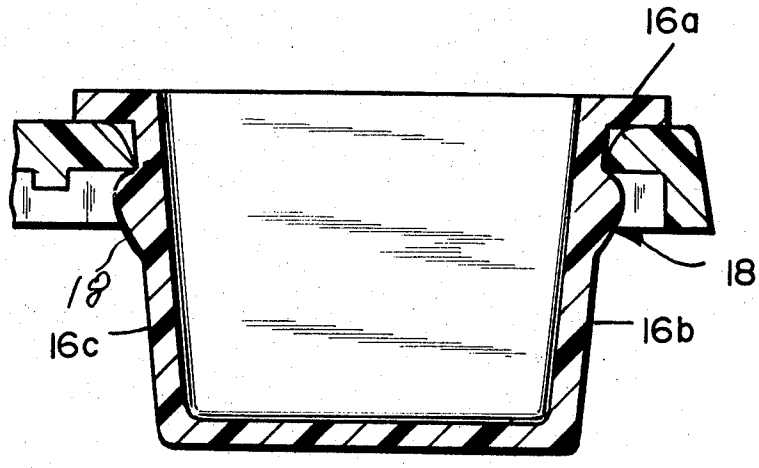


FIG. 1

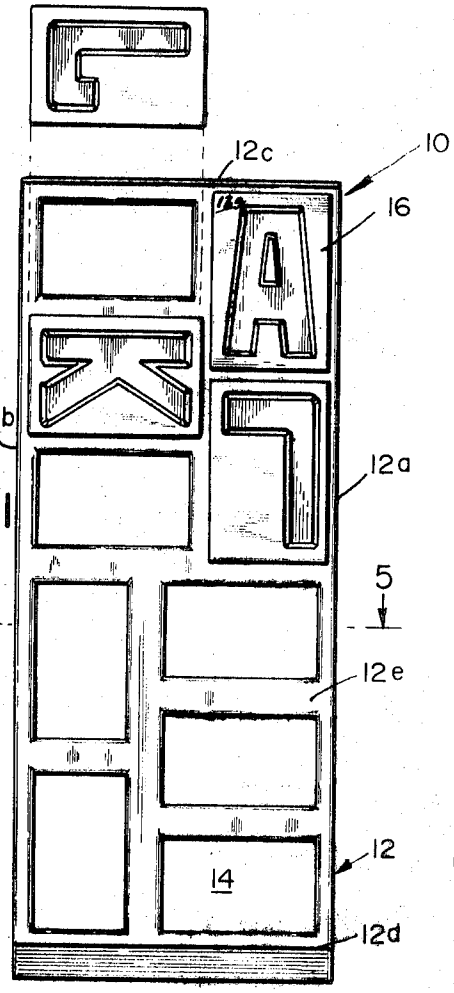


FIG. 2

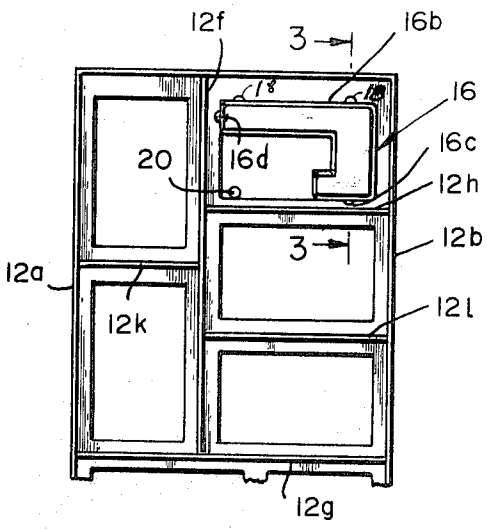


FIG. 3

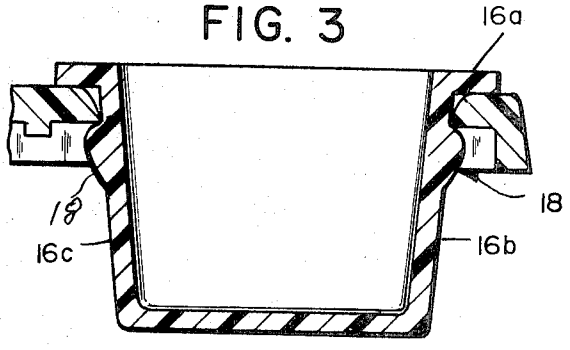
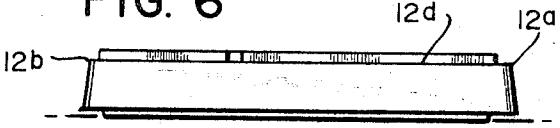


FIG. 6



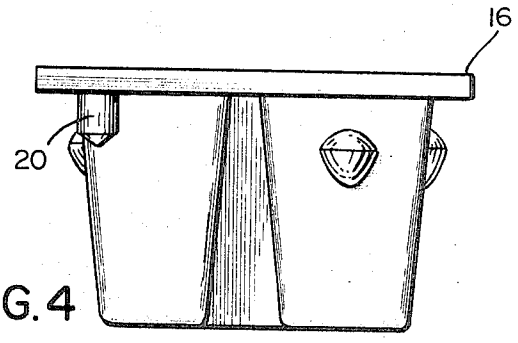
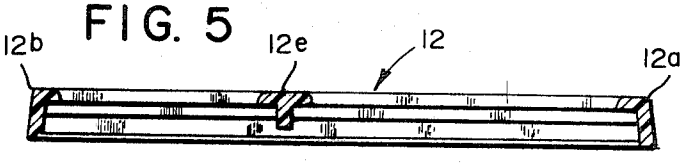


FIG. 4

FIG. 5



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TRAY HAVING CONTAINERS FOR FORMING ICE CUBES AND THE LIKE

BACKGROUND OF THE INVENTION

1. Field of the Invention

Tray having containers for making ice cubes and the like.

2. Description of the Prior Art

There have been a number of devices available on the market for many years for making ice cubes shaped as the letters of the alphabet, ice cubes shaped as animals, etc. This is because such shaped ice cubes are extremely popular items at parties, picnics, etc. As an example, many people like to use ice cubes in their drinks shaped as a letter of the alphabet that corresponds to the initial of their surname or first name.

Many of the prior art devices which were used to make ice cubes shaped as letters were designed so as to make a number of ice cubes of one shape in each tray. As an example, one tray could produce 10 identically shaped ice cubes but could not produce 10 differently shaped ice cubes. In those circumstances where it was necessary to have a small quantity of differently shaped ice cubes this required using a different tray for each differently shaped ice cube that was desired. This, of course, had obvious drawbacks.

A further drawback of many of the prior art devices which were used for making different shaped ice cubes was that they were not designed so as to form ice in as short a period of time as possible.

Many of the prior art devices for making different shaped ice cubes were made of plastic. However, with many of these plastic ice cube making devices it was difficult to remove the ice cubes from the tray. Additionally, many of the plastic ice cube making devices included undercuts on their component parts which provided great difficulty in molding the parts since the undercuts made it hard to remove the mold from the molded part.

SUMMARY OF THE INVENTION

It is therefore an object of the present invention to provide an improved device for making ice cubes.

A further object of the present invention is to provide an apparatus that can form different shaped ice cubes in one tray.

Still another object of the present invention is to provide a tray and container arrangement for making different shaped ice cubes wherein the tray and container arrangement is designed to form the ice cubes as rapidly as possible.

A further object of the present invention is to provide a tray and container arrangement for forming a plurality of different shaped ice cubes wherein any number of the shaped ice cubes can be easily removed with their containers from the tray.

A still further object of the present invention is to provide a plastic tray and container arrangement for making shaped ice cubes wherein the tray and container arrangement is designed so as to be capable of rapid and economical manufacture.

Briefly, in accordance with the present invention, the foregoing and other objects are achieved by a tray having a plurality of apertures extending therethrough. Each aperture is tapered inwardly from its respective sides and flanges are located about the respective sides of the tray. Preferably the tray is made from a plastic material and can be made by any high speed molding process. Containers designed so as to form different shaped ice cubes are provided for each aperture in the tray and as the containers are generally similar to each other, a description of one such container and how it cooperates with its respective aperture will provide an understanding of the present invention. The container is preferably plastic made by a high speed molding process and includes an upper flat rim portion which is slightly larger than the cross-section of the aperture with there depending from the rim a well arranged to form an ice cube of a particular configuration. The opposite sides of the well have a draft, are inclined so as to slant gradually toward each other and located on the well sides beneath the rim are locking projections. The locking projections include an upper and lower segment. The lower segment is generally about three times the height of the upper segment and makes a relatively small acute angle with the well side from which it projects, whereas the upper segment of the locking projection makes a fairly large acute angle with the well side.

The bottoms of all the ice cube containers are flat and when the containers are placed in their respective apertures in the tray, lie in a common plane which is below any of the flanges depending from the tray. As a result, when the tray is placed on a cooling surface, the bottoms of the containers contact the surface and are not elevated therefrom so as to freeze the liquid in the containers as rapidly as possible.

The individual containers can be removed from the tray as desired by merely pushing on the bottoms thereof.

These and various other objects and advantages of this invention will become apparent to the reader in the following description.

This invention accordingly consists in the features of construction, combinations of elements and arrangements of parts which will be exemplified in the device hereinafter described and of which the scope of application will be indicated in the appended claims.

BRIEF DESCRIPTION OF THE DRAWINGS

In the drawings:

FIG. 1 is a top view of an embodiment of the present invention with certain of the apertures of the tray having containers therein;

FIG. 2 is a bottom view of a portion of the present invention;

FIG. 3 is an enlarged sectional view taken substantially along the line 3 — 3 of FIG. 2;

FIG. 4 is an enlarged view of a container of the present invention;

FIG. 5 is a sectional view taken substantially along the line 5 — 5 of FIG. 1; and

FIG. 6 is a side plan view of the present invention.

DESCRIPTION OF THE PREFERRED EMBODIMENT

In FIG. 1 of the drawings, an embodiment 10 of the present invention is illustrated which includes a tray 12 having a plurality of apertures extending therethrough. Tray 12 can be made of plastic by any high speed molding process and is generally rectangularly shaped, having elongated sides 12*a* and 12*b* and shorter sides 12*c* and 12*d*. Located on the uppermost portion of tray 12 when it is in the orientation seen in FIG. 1 is a flat surface 12*e* through which 10 apertures extend. Extending downwardly from sides 12*a*, 12*b* and 12*c* the same amount are flanges with the flanges from sides 12*a* and 12*b* being shown in FIG. 5. The flange which depends from side 12*d* is inclined with respect to the flat surface 12*e* of tray 12 and extends downwardly from said surface to a greater distance measured perpendicularly therefrom than the flanges which depend from sides 12*a*, 12*b* and 12*c*.

A supporting rib 12*f* extends from side 12*c* on the bottom of tray 12 to a rib 12*g* which extends between sides 12*a* and 12*b*. A rib 12*h* which is smaller than ribs 12*f* and 12*g* extends from side 12*b* to rib 12*f*. In a similar fashion ribs 12*k* and 12*l* are positioned as shown in FIG. 2, with it being appreciated that in this FIG. only one-half of the bottom of the invention is shown and the rib structure for the other half is merely a mirror image of the half shown in FIG. 2. The ribs serve the important function of providing structural rigidity for the tray and by having ribs of different sizes in the manner just described the tray is designed to withstand all use.

While tray 12 in the FIGS. is shown as having 10 apertures, it is to be appreciated that this is for illustrative purposes only and any variation therefrom could be made without departing from the scope of the invention. Additionally, the geometric orientation of the different apertures relative to each other is shown in the drawings merely setting forth one possible arrangement and other arrangements could obviously be used

without departing from the scope of the invention. As each aperture is identical to every other aperture except for its orientation relative to the other apertures, a description of one aperture will suffice for an understanding of the present invention.

As can be seen in FIGS. 1 and 2, aperture 14 is rectangularly shaped with its sides being parallel to the sides of the tray. Each of the sides that comprise the aperture tapers from its uppermost portion to the flat tray bottom. Preferably the taper of the aperture sides is arcuate and the reason for having the taper will soon be apparent.

The different containers which are adapted to be placed in the respective apertures are generally similar to each other and thus a description of one such container will suffice for an understanding of the present invention. Container 16 includes a flat rim 16*a* from which a well depends that is designed to form the letter L. Other containers will have wells which are shaped to form different letters in a manner that will be apparent to those skilled in the art. The opposite well sides of container 16 are inclined towards each other and thus have a draft. As can be seen in FIG. 3, well sides 16*b* and 16*c* are inclined towards each other. In a like fashion the opposed other sides of the well are inclined towards each other.

As can be seen in FIG. 2, locking projections 18 extend from well sides 16*b* and 16*c* as well as from well side 16*d* (FIG. 2). Since the locking projections are similar to each other a description of one locking projection will provide a thorough understanding of the present invention. The locking projection on well side 16*b* includes upper and lower segments which extend from the well side and which are continuous with each other. The lower segment is about three times the height of the upper segment and gradually extends outwardly from well side 16*b*. The upper segment extends more sharply from well side 16*b* and the two segments together provide a rounded projection extending from the well side. It is to be noted that the projection is located slightly below the rim of the container. On the portion of container 16 which does not contain a well due to the configuration of the letter L, a post 20 depends therefrom as can be seen in FIGS. 2 and 4.

It is to be noted that all the containers are of the same height and when placed in their respective apertures their bottoms lie in a common plane upon which the present invention may be rested. (FIG. 5)

Each container may be locked in an aperture by inserting the container downwardly into the aperture. The inclined sides of the well of the container move past the tapered sides of the apertures and by applying a slight pressure to the rim of the container the locking projection is locked beneath the bottom of the tray. (See FIG. 3) As the locking projections are moved past the tapered sides of the aperture the parts cam over each other until the projections are locked beneath the tray surface as shown in FIG. 3. By having the bottom of the tray and the tapered sides of the aperture meet to form a relatively sharp edge, a snap action lock on the upper portion of the locking projection is provided. For those letters whose well does not occupy the aperture space the locking post which depends from the rim is locked at the intersection of the tapered sides of the aperture. (See locking post 20 in FIG. 2)

In use, different containers having wells shaped to form different letters of the alphabet may be placed in the respective apertures of the tray and filled with water. The bottoms of the containers all lie in a common plane and can be placed on a cooling surface so that the liquid in the containers will be cooled as rapidly as possible. In some prior art devices of the kind herein described the bottom of the ice forming parts of the apparatus were not in contact with the cooling surface and thus a relatively great deal of time was required to cool the liquid therein.

When it is desired to remove any container from the aperture in which it is seated, force is merely applied to the container bottom and the upper segment of the locking projection rides over the bottom of the tray and the container can be removed therefrom. This occurs quite easily and thus provides for the simple and rapid removal of containers from the tray. A person may remove any number of containers from the tray as desired.

It is to be noted that none of the component parts which comprise the present invention include undercuts that in any way hinder high speed molding operations. Thus, the present invention is capable of being made from plastic and being molded rapidly by any high speed process, which further adds to its attractiveness.

If desired, the tray can have containers of a shape to form ice cubes of the same configuration or shaped to form ice cubes having different configurations. This, obviously, adds to the flexibility of the present invention and increases its desirability. It is, of course, to be appreciated that while the present invention as shown in the drawings for making ice cubes into the shape of different letters, the containers in the invention could be designed so as to produce ice cubes shaped as animals, different pleasing geometrical shapes, etc.

While the present invention has been described in the context of forming ice cubes, it will be appreciated that any liquid could be frozen therein. As an example, if desired, liquid fudge could be frozen in different containers of the present invention to form different shaped cubes of fudge.

It is thus apparent that an apparatus is provided which achieves the objects of the invention as well as other objects not specifically herein set forth, and that is well adapted to meet the conditions of practical use.

As various possible embodiments might be made of the above invention, and as various changes may be made in the embodiment set forth, it is to be understood that all matter herein described or shown in the accompanying drawings is to be interpreted as illustrative and not in a limiting sense.

Having thus described the present invention, there is claimed as new and desired to be secured by Letters Patent:

1. Apparatus for forming ice cubes and the like comprising a plastic tray having an upper flat surface, a plurality of identically sized and shaped apertures extending through said flat surface, each of said apertures having a plurality of sides, each of said sides being tapered downwardly from said flat surface, said tray including a bottom surface, said taper on each of said sides extending to said bottom surface, a plurality of containers having flat closed bottoms with the bottoms of said containers being in a common plane in which the ice cubes and the like may be formed disposed in different ones of said apertures, each of said containers including a flat rim with the rims of each container being in a common plane parallel to the plane in which said container bottoms are located, said rim being larger than said aperture and extending laterally with a portion thereof being in contact with said flat surface, said containers each including a well depending from said rim, each container configured to produce an ice cube and the like shaped as a letter of the alpahbet, extending through said apertures and having a plurality of sides with said well sides all having a draft, a locking projection extending outwardly from at least some of said well sides, said locking projection including an upper segment and a lower segment, said upper segment extending from said well side and making an acute angle with respect thereto, said lower segment extending from said well side and making an angle substantially smaller than said acute angle formed by said upper segment with said well side, each locking projection having a curved cross section.

2. Apparatus according to claim 1 wherein at least one container includes a post depending from the rim thereof, said post being in frictional contact with two adjacent aperture sides.

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