

[54] **SPILL-PROOF ICE CUBE TRAY**
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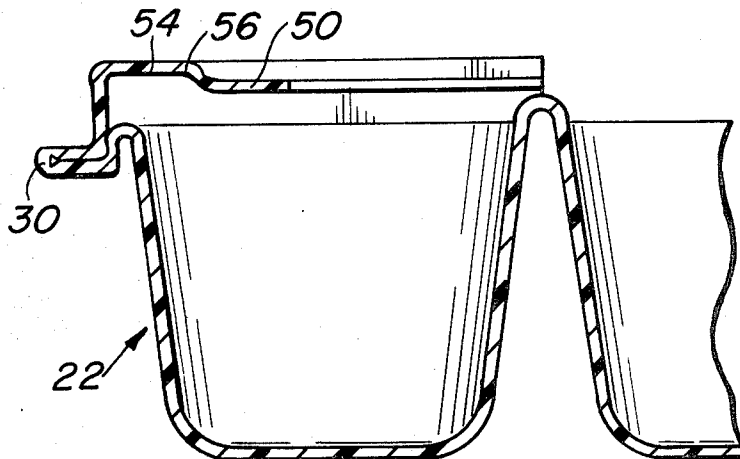
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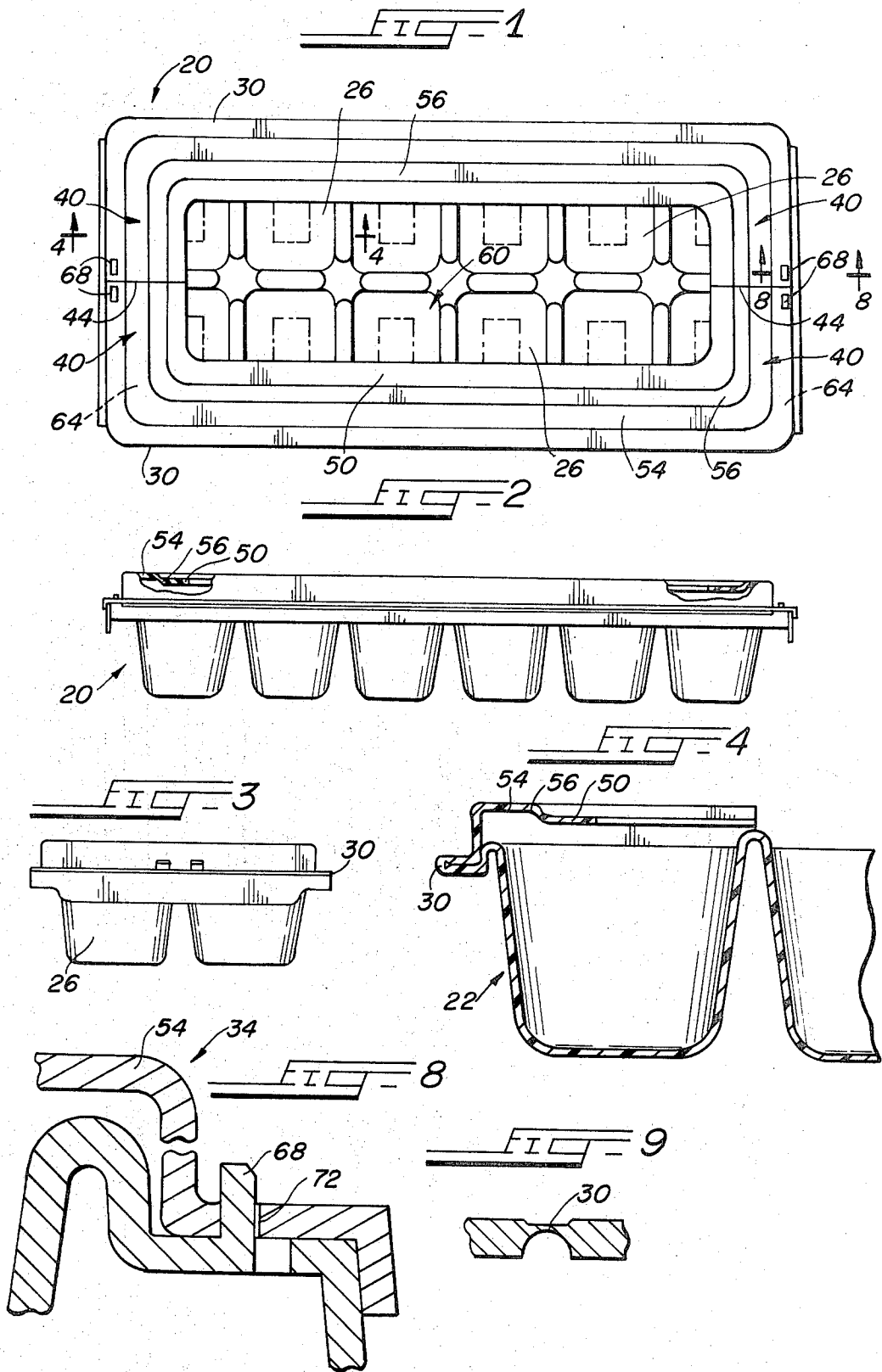
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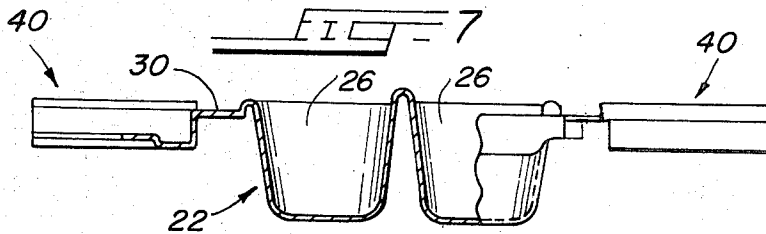
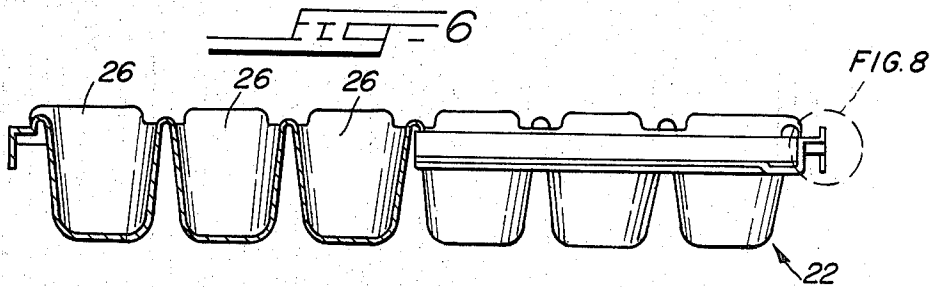
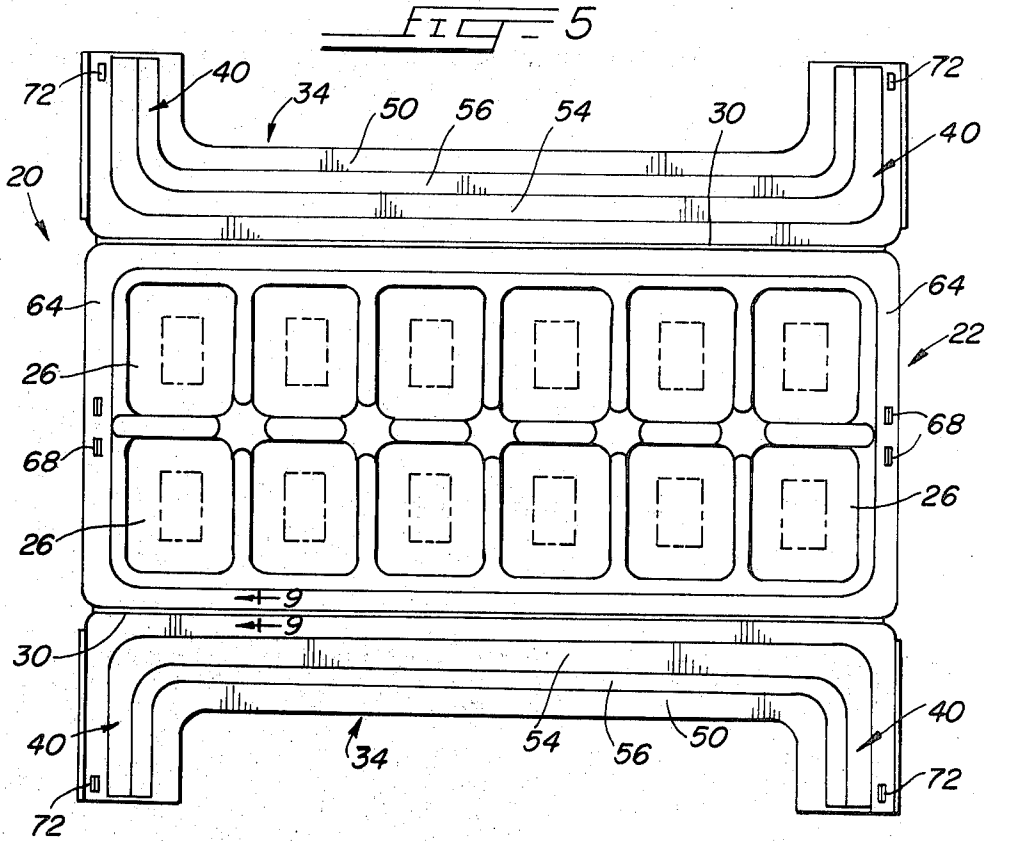
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[57] **ABSTRACT**
 A unitary, one-piece assembly constituting an ice cube tray of plastic material and including captive, integrally formed cover means pivotal between selectable positions one of which exposes the compartmental container for ready filling and one of which seals the cube compartments to prevent water spillage during transport of the filled tray from the filling site to the freezing unit.

3 Claims, 9 Drawing Figures







SPILL-PROOF ICE CUBE TRAY

The present invention relates to an improved ice cube tray. More particularly, the invention is directed to a spill-proof ice cube tray which includes, in combination with a compartmented container, integrally formed cover means to preclude water spillage as the filled container is carried to and positioned in place within the refrigerator or freezer.

The problem of spillage as a water-filled ice cube tray is carried across a room between the sink and the refrigerating appliance in which the ice cubes are to be formed is one which has been of great concern for many years. Many different types of mechanical structures and innumerable tray "designs" have been proposed to eliminate the problem. However, no structure has gained widespread acceptance since none has provided a completely satisfactory solution to the problem posed. Removable cover plates have afforded some degree of protection, but the vagaries of human nature and general laxity have caused such separate plates to be forgotten, misplaced, or discarded rather than used. Notwithstanding the considerable attention that has been directed to the subject, no acceptable solution has, heretofore, been proposed. It is the aim of this invention to provide a simple and effective answer to the existing problem in an ice cube tray structure which prevents spillage, is simple to use, and may be produced economically.

It is a principal object of the invention to provide, in a one-piece assembly, a plastic ice cube tray which includes as an integral component, a pivotally supported cover joined to the container proper through an integrally formed plastic hinge.

It is an important feature of the invention that, in a preferred embodiment, the cover is formed in two parts each hinged at to a respective opposed side edge of the compartmentalized container.

It is a related object of the invention to provide an ice cube tray which includes an integrally formed cover component and integral hinge means to secure that cover in place to overlie the water-filled open cavities of the tray.

Another object of the invention is to provide an ice cube tray assembly which includes captive, integrally formed cover means to prevent water spillage when the water-filled tray is transported to a freezer.

It is a related object of the invention to provide, in an ice cube tray, an improved, integrally formed cover which, in its functional disposition still permits one to view the wateraccepting chamber or cavities of the tray.

Yet another object of the invention is to provide, in a unitary structured ice cube tray, pivotal cover elements which are selectably positionable to overlie the upwardly opening ice cube compartments of the tray and to interlock with the tray so as to preclude spillage of water therefrom.

A related object of the invention is to provide in an ice cube tray integrally formed and pivotal cover elements which do not substantially increase the vertical height of the overall assembly.

Other and further objects, advantages, and features of the invention will become apparent from a reading of the following specification taken in conjunction with the drawing in which:

FIG. 1 is a top plan view of the ice cube tray of the invention with the cover elements in a closed position;

FIG. 2 is a side elevational view of the structure illustrated in FIG. 1, with portions cut away to show the cross-sectional contour of the cover elements;

FIG. 3 is an end elevational view of the ice cube tray of the invention, with the covers closed;

FIG. 4 is an enlarged, fragmentary cross-sectional view taken substantially on the line 4—4 of FIG. 1 and showing the integral hinge structure by means of which the cover element is pivoted, in accordance with the invention;

FIG. 5 is a top plan view of the ice cube tray of the invention with the cover elements in the open position;

FIG. 6 is a side elevational view of the structure illustrated in FIG. 5 and showing part of the tray in section;

FIG. 7 is an end view of the tray illustrated in FIG. 5, with portions shown in section;

FIG. 8 is an enlarged cross-sectional view of the interlocking mechanism which secures the cover element and taken on line 8—8 of FIG. 1; and

FIG. 9 is an enlarged fragmentary cross-sectional view of the open hinge of the invention and taken substantially on the line 9—9 of the FIG. 5.

The aims and objects of the invention are accomplished by providing in an integral, unitary plastic structure a molded ice cube tray which includes a principal body portion or container integrally connected at its opposed longitudinally extending lateral edges to a pair of pivotally supported cover elements selectably shiftable between a first position in which the cover elements overlie the ice cube cavities or compartments, and a second position in which the cover elements expose the cavities for convenient filling. The tray and the cover elements are integrally formed of a semi-rigid plastic such as polyethylene or polypropylene, and joiner of the cover elements to the tray is through an integrally formed "live" hinge.

Referring more particularly to the drawings, for the purpose of illustrative disclosure, a preferred embodiment of the ice cube tray 20 of the invention, incorporating the teachings thereof, is shown as including a compartmentalized base or container 22 defining an array of distinct compartments 26 each opening upwardly and adapted to receive and retain water therein to be frozen to form ice "cubes."

Integrally molded with the container base 22 and connected thereto by means of integrally formed hinges 30 substantially coextensive with the length of the base container and extending along lateral marginal extremities thereof are a pair of cover elements 34 each pivotally supported on its respective hinge 30 and each adapted to be shiftable selectively between a first position, as illustrated in FIG. 5, in which the cover elements 34 extend laterally outwardly of the container 22 to expose the compartments 26 so as to permit convenient access for filling thereof, and a second position, as shown in FIG. 1, in which the cover elements 34 overlie the compartments to prevent water spillage during transport of the filled tray from a water filling station to the cooling unit of a refrigerator system.

From the foregoing disclosure, it will be appreciated that the covers 34 may, if desired, be shaped and dimensioned to overlie and seal the entire upper surface of the container 22. However, in the preferred embodiment of the invention illustrated, the cover compartments are each of substantially U-shaped configuration, as seen in FIGS. 1 and 5. Corresponding inwardly directed legs 40 of the covers are dimensioned so that

when presented toward one another (FIG. 1) proximity of the opposed edge portions 44 is established to effect a substantially uninterrupted cover "panel" extending entirely around a marginal border of the ice cube container, the panel constituting a substantially uninterrupted seal to obviate spillage of water from the compartments during transport of the water-filled ice cube tray.

As illustrated in the cut-away portion of FIG. 2, and as seen most clearly in the cross-sectional view of FIG. 4, the cover elements 34 are physically deformed or shaped to define, inwardly of their outer extremities, as viewed in FIG. 4, a "downwardly" displaced web portion 50 establishing a raised ledge 54, the ledge 54 and web 50 being joined by a connecting wall 56 which serves as a water retaining dam extending around the ice cube tray and displaced somewhat inwardly of the outer limits thereof. It is an important feature of the structure described that water which may tend to splash from the water compartments 26 in the central area 60 of the tray 22 will flow directly back into the compartments 26 rather than being lost by spillage.

As shown in FIGS. 1 and 5, opposed horizontal end strips or borders 64 of the ice tray 22 are formed at each side of a longitudinal medial line of the tray with projections or tabs 68 extending generally upwardly of the end strips 64 and adapted to extend through cooperating punch-outs, openings, or ports 72 formed in the cover elements 34 at positions which correspond with the locations of the projections 68 when the cover 34 assume a closed position, as indicated in FIG. 1 and as shown in detail in FIG. 8. The tab 68 and port 72 structures ensure alignment of the cover elements 34 upon the ice tray 22 and provide inter-engaging means to hold the cover elements 34 securely in place until they are manually pivoted to expose the ice cubes compartments therebelow.

It is thus seen that the present invention provides an ice cube tray which is simple in construction and dependable in operation and which includes a highly effective and operable structure for precluding the spillage of water as the filled tray is carried from the point of filling to the cooling unit of the refrigerator system. The assembly is characterized by imaginative engineering and is manufactured with minimum production costs utilizing any preferred molding technique such as injection molding, vacuum forming, or blow molding.

What is claimed is:

1. A spill-proof plastic ice cube tray comprising, in

combination, a container for use in a mechanical refrigerating device, said container defining an array of distinct compartments opening upwardly, each said compartments being adapted to receive and to retain water therein to be frozen to form ice,

cover means for said container;

hinge means integrally formed with and securing said cover means to said container;

said cover means comprising a pair of longitudinally extending webs each integrally formed at opposed ends thereof with a pair of parallel legs coplanar with and projecting normally of each said webs joined to and extending therebetween to define a pair of substantially U-shaped cover elements;

each said pair of legs extending inwardly of opposed longitudinal edge portions of said container as said cover elements overlie said compartments;

corresponding legs of opposed said cover elements being dimensioned and arranged to meet and to establish edge proximity of said legs at a juncture thereof when said cover elements overlie said container in a compartment-covering attitude;

whereby upon pivotal placement of said cover elements in overlying abutment upon said container said cover elements define, in combination, a container-framing closure panel superimposed on said container and constituting a substantially continuous compartment seal therefor, said seal covering said compartments and extending about a peripheral marginal zone of said container to obviate spillage of water from said compartments during transport of said tray.

2. The structure as set forth in claim 1 and further comprising cooperating intercoupling means carried at corresponding positions on respective said container and said cover means to ensure alignment therebetween and to effect secured retention of said cover means in a compartment-covering position in which said cover means overlies at least portions of compartments of said container to preclude water spillage therefrom.

3. The structure as set forth in claim 1 wherein said cover means is formed to provide an upwardly directed wall defining a dam-like water retention border integral with said cover means and extending there around to direct and to return to said compartments any water displaced therefrom during transport of the water-filled tray from a point of filling to a refrigerating device.

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