July 6, 1948. D. H. REEVES 2,444,789

ICE CUBE TRAY AND GRID

Filed Aug. 27, 1936 2 Sheets-Sheet 1

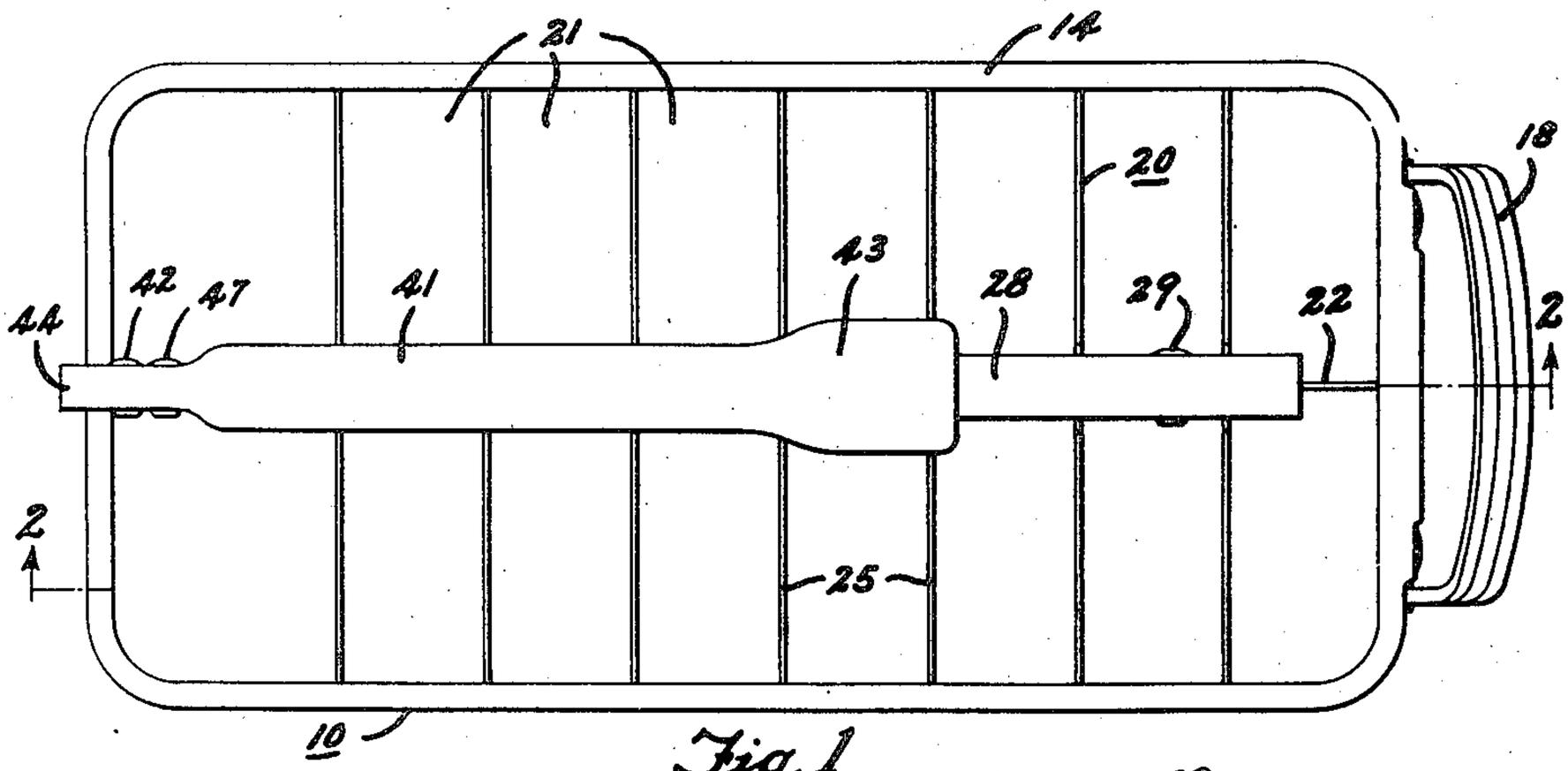

Fig. 1

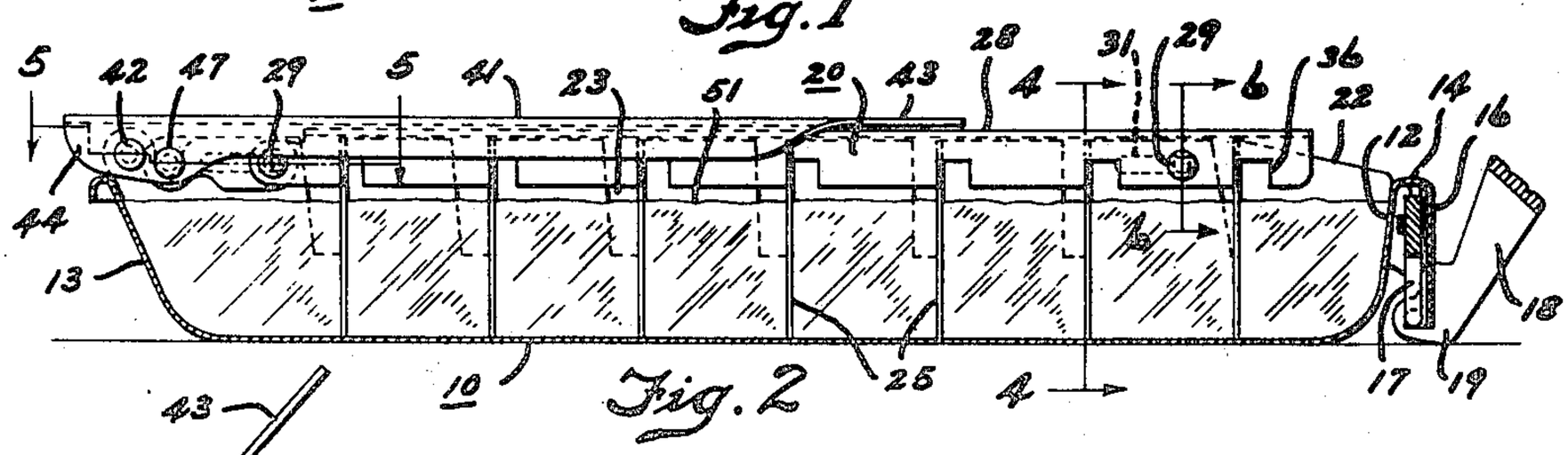

Fig. 2

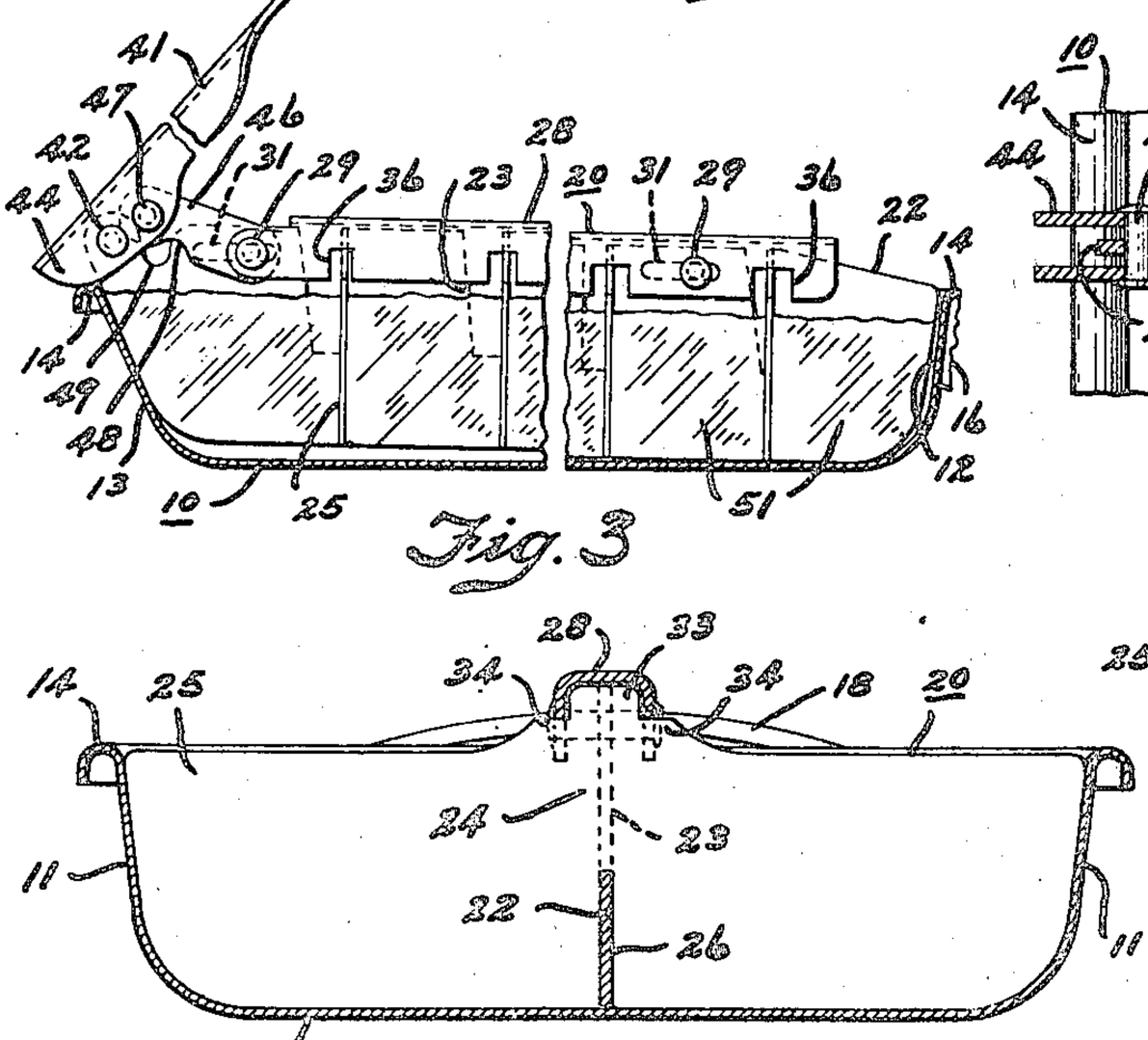

Fig. 3

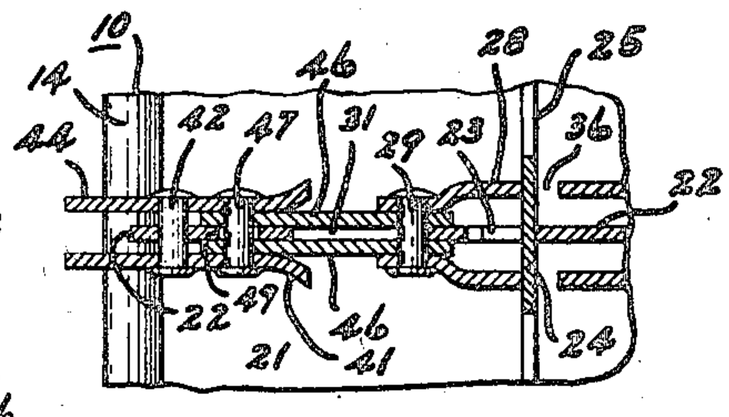

Fig. 5

Fig. 4

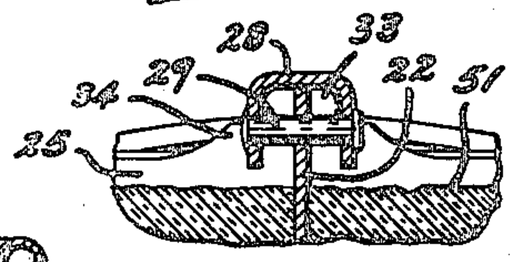

Fig. 6

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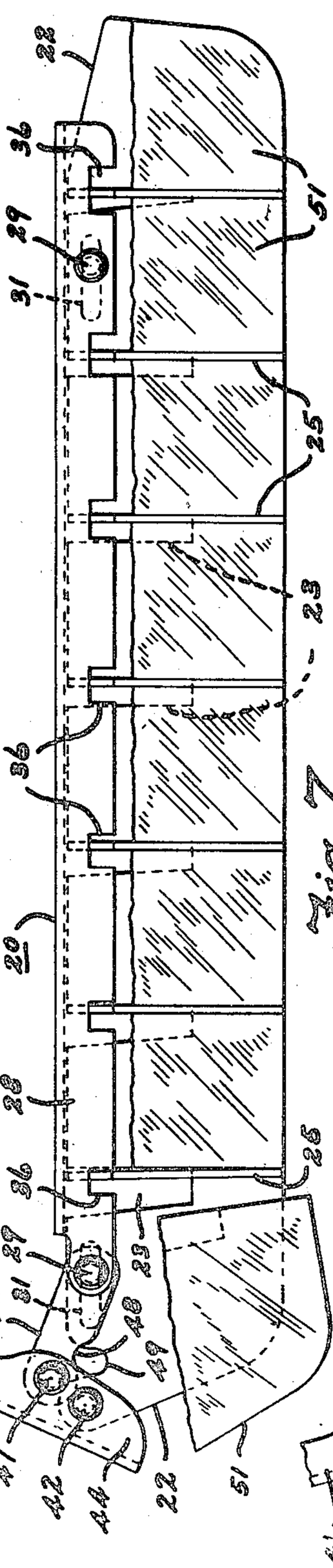


Fig. 7

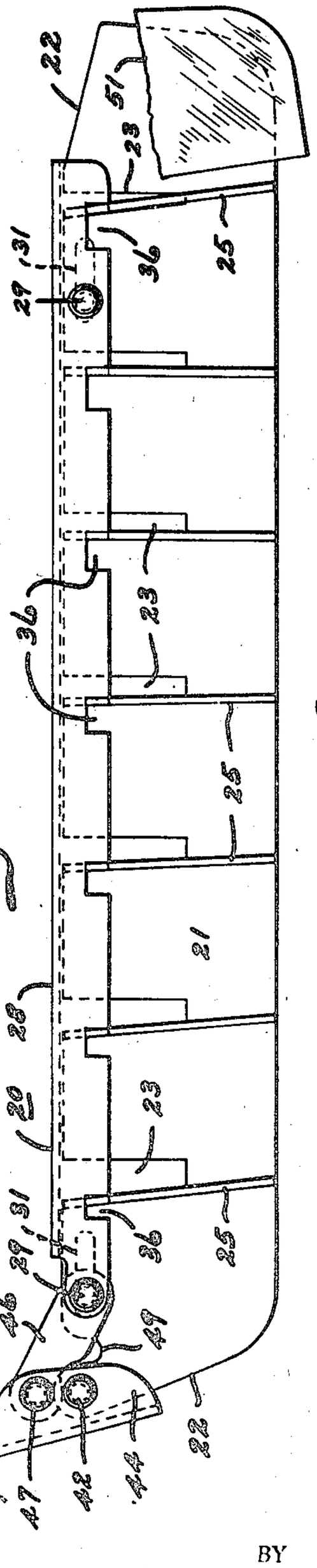
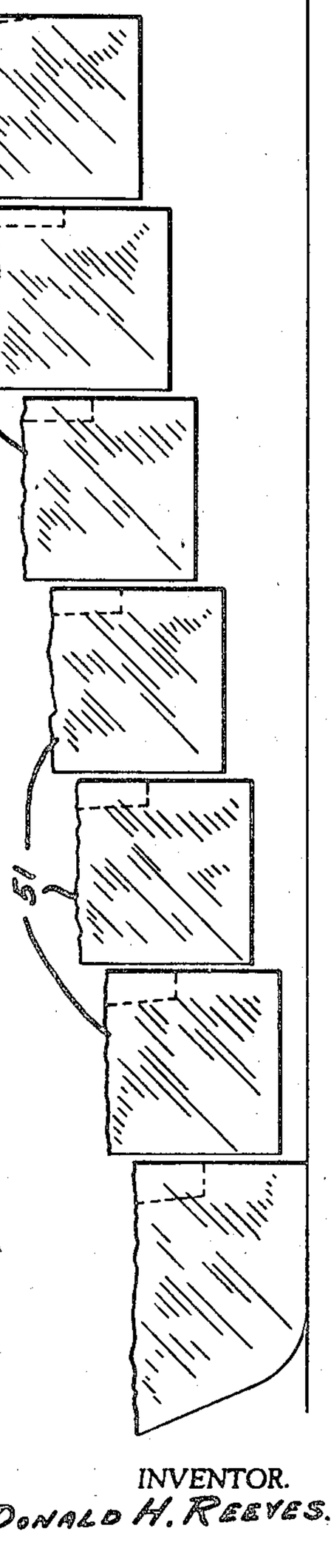


Fig. 8



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2,444,789

ICE CUBE TRAY AND GRID

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Application August 27, 1936, Serial No. 98,213

27 Claims. (Cl. 62—108.5)

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This invention relates to freezing apparatus for liquids such as ice trays employed in mechanically refrigerated household refrigerator cabinets.

One of the objects of the present invention is to provide an improved grid construction adapted to be disposed in an ice tray for dividing the tray into a plurality of ice block compartments and a novel method of removing ice blocks from the tray and grid without application of artificial heat thereto.

Another object of the present invention is to provide a freezing tray with a removable single walled metallic grid structure having certain walls thereof readily movable lengthwise of certain other walls thereof for breaking the bond between ice blocks in the grid and the grid walls to thereby release the blocks therefrom.

A further object of the invention is to provide a single walled grid structure for disposition in an ice tray and having a mechanism associated therewith which will separate the grid together with ice blocks adhering thereto from the tray and which will also be effective to move certain of the grid walls relative to certain other walls thereof progressively from one portion to another portion along the length of the grid structure for dislodging ice blocks consecutively from the structure after its separation from the tray.

A still further object of the invention is the provision of means for directing a force against ice blocks within the grid structure progressively from one end to the other end of the structure whereby any desired number of ice blocks may be removed therefrom without moving and loosening other blocks therein to thereby permit the grid structure together with the other blocks adhering thereto to be replaced in the tray and the tray repositioned on or in a cooling element for future harvesting of the remaining ice blocks.

In carrying out the foregoing objects it is a still further object of the invention to provide a single walled metallic grid structure for an ice tray which is simple in construction, durable and efficient in operation and novel combinations of parts of which, as more fully become apparent from the following description, will present other and more specific objects and advantages.

Further objects and advantages of the present invention will be apparent from the following description, reference being had to the accompanying drawings, wherein a preferred form of the present invention is clearly shown.

In the drawings:

Fig. 1 is a top plan view of an ice tray having

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a grid positioned therein and constructed in accordance with the present invention;

Fig. 2 is a side view of the apparatus taken on the line 2—2 of Fig. 1 showing ice blocks within the grid and tray;

Fig. 3 is a view similar to Fig. 2 and shows the grid together with ice blocks adhering thereto elevated relative to the tray;

Fig. 4 is an enlarged sectional view showing the interlocking of the grid walls and is taken on the line 4—4 of Fig. 2;

Fig. 5 is an enlarged sectional view taken on the line 5—5 of Fig. 2 showing a toggle connection between parts of the grid structure;

Fig. 6 is a fragmentary enlarged sectional view taken on the line 6—6 of Fig. 2;

Fig. 7 is an enlarged side view of the grid showing a certain wall thereof moved relative to other walls thereof for releasing ice blocks therefrom; and

Fig. 8 is a view similar to Fig. 7 showing the position of walls of the grid structure after having been moved to release all ice blocks therefrom.

In order to illustrate the present invention I have shown in Figs. 1 to 4 inclusive of the drawings a metal ice tray 10 having side walls 11 (see Fig. 4) and opposed end walls 12 and 13. The tray side walls 11 and the front end wall 12 thereof converge outwardly toward the top of the tray. The back wall 13 of tray 10 may be converged outwardly toward the tray top a greater distance than other walls of the tray for a purpose which will become apparent hereinafter. The walls 11, 12 and 13 of tray 10 have their top edge rolled over to form a rim 14 which extends continuously around the tray. The metal of tray 10 is extended downwardly from the rim 14 as at 16 at the front end thereof to provide a mounting surface for a heavy metal piece 17 which has a handle pivotally secured thereto. The handle 18 facilitates placing of the tray 10 in or on a cooling element of a refrigerating system and a cam surface 19 formed thereon functions, upon actuating the handle 18, to break an ice bond between the tray 10 and its support in or on the cooling element to permit removal of the tray therefrom as is well known in the art.

A unitary grid structure, generally represented by the reference character 20, is disposed within tray 10 for dividing the interior thereof into a plurality of open-top molds, cells or compartments 21. The grid structure 20 includes a vertically disposed single longitudinal wall 22 having a plurality of slots or openings 23 therein (see Fig. 2) for the reception of the part 24 (see Fig.

4) of single walls 25 which intersect the wall 22 and extend transversely thereto. The transverse walls 25 are cut out as at 26 (see Fig. 4) to fit over the continuous part of the longitudinal wall 22 disposed below the slots 23. In order to movably or slidably secure the transverse walls 25 to the longitudinal wall 22 or to the grid structure 20 I place an elongated metal member 28, which is U-shaped in cross-section, over the top of the longitudinal wall 22. Member 28 is slidably attached to the wall 22 by a pair of pins 29 which pass through horizontally elongated holes 31 provided in the upper portion of wall 22 and which pins pass through and are riveted or otherwise rigidly fastened to the leg portions of the U-shaped member 28 (see Figs. 5 and 6). It will be noted that each of the transverse walls 25 has an upwardly extending ear 33 formed thereon above raised shouldered portions 34 (see Fig. 4) provided above the central continuous part 24 thereof. The ear 33 of each wall 25 fits into the U-shaped member 28 between the leg portions thereof. Member 28 is provided with a plurality of corresponding and aligned pairs of notches 36 cut in the depending leg portions thereof and which notches receive the raised shouldered portions 34 of walls 25. The single transverse walls 25 are each thereby locked to the grid structure 20 between the U-shaped member 28 and the continuous portion of the longitudinal wall 22 but are freely movable lengthwise of wall 22 by being slidably mounted in the openings 23 provided therein. A means for moving the member 28 relative to and lengthwise of the wall 22 to cause engagement of walls of the notches 36 with the raised shouldered portions 34 formed on the walls 25 is provided. This means comprises a lever 41 pivotally secured to the grid structure 20 by a pin 42 which passes through the longitudinal wall 22 thereof (see Fig. 5). The lever 41 has a portion thereof which is U-shaped in cross-section and is adapted to fit over or straddle the U-shaped member 28 as shown in Fig. 2 of the drawings. Lever 41 also includes a handle end portion 43 and an opposite end portion 44 which extends over the rim 14 of tray 10 at the back of the tray. The depending leg portions of the end part 44 of lever 41 are mounted so as to clear the rim 14 of tray 10 when the grid structure 20 is positioned within the tray as shown in Fig. 2 and so as to provide a cam adapted to engage the rim 14 of the tray when the lever 41 is operated for a purpose to be presently described. The pivot pin 42 is disposed on a plane slightly above the plane in which the pins 29 are located. A pair of arms or links 46 have their one end attached to the pin 29, disposed at the lever end of the structure, and each arm or link 46 is located between the longitudinal grid wall 22 and the depending leg portions of member 28 (see Fig. 5). The other ends of arms or links 46 are secured by a pin 47 to the lever 41 at a point inwardly of pin 42. Arms or links 46 have a portion of their bottom edge cut away as at 48 so as to permit movement of the arms around the pin 42 during operation of lever 41. The top portion of the longitudinal wall 22 is cut away as at 49, adjacent the part thereof through which pin 42 passes, so as to afford clearance for travel of pin 47 toward the wall 22 when moving the lever 41 to normal position. It is to be noted that the point of attachment of pin 47 to lever 41 is slightly below the point of attachment of pin 42 thereof so as to position the pin 47 below a straight line drawn through pins 42 and 29 when the lever 41 is in its normal position shown in Fig. 2 thereby forming a toggle mechanism.

It will be noted in observing the structure disclosed that the openings or slots 23 provided in the longitudinal grid wall 22 are of different widths relative to one another and that certain of the walls of these openings, disposed toward the lever end of the grid structure, are cut at an angle relative to the opposite walls thereof. The purpose of this difference in the widths of openings 23 and the provision of the one angled wall thereof will become apparent from the description of the operation of the structure. It should also be observed that one wall of one notch 36, provided in member 28, is equally spaced from the corresponding wall of other of the notches but that the opposed wall of the one notch 36 is spaced a different distance away from the corresponding opposed wall of other of the notches. This difference in spacing of the walls of notches 36 provides relatively narrow notches at the lever end of the grid structure and successively wider notches toward the front end of the grid to thus cooperate with the difference in the widths of openings 23 relative to one another for a purpose to be hereinafter apparent. When the parts of the grid structure described are in a normal position as shown in Fig. 2 of the drawings, with the lever 41 lying parallel with and against member 28, it will be noted that the corresponding and equally spaced apart walls of notches 36 are abutting the transverse grid walls 25 to hold same in a vertical position within the openings or slots 23 and against the straight corresponding and equally spaced apart walls thereof.

Assuming that water has been frozen in the tray 10 in the form of blocks 51 in compartments 21, by the cooling effect produced by a cooling element of a refrigerating system, and the tray handle has been manipulated to remove the tray from the cooling element and it is now desired to harvest the ice blocks 51, the handle end 43 of lever 41 is elevated to cause the lever to pivot about the pin 42 and to thereby cause the cam end 44 thereof to engage and exert a force against the rim 14 of tray 10. Force applied to tray 10 in this manner causes the grid structure 20, together with the ice blocks 51 adhering thereto, to be elevated relative to the tray as shown in Fig. 3 of the drawings. The bond between the ice blocks 51 and the tray 10 thus having been broken the grid structure and ice blocks adhering thereto can then be readily removed from the tray. During manipulation of lever 41 to break the bond between the ice and tray 10 and to elevate same relative to the tray the U-shaped member 28 has been moved toward the lever end of the grid structure without engaging any of the transverse grid walls 25 due to the elongation of notches 36. However, further movement of lever 41, after the grid has been removed from the tray, causes elevation or rotation of the pivot pin 47 about the pin 42 and movement of arms 46 toward the rear end of the longitudinal wall 22 of the grid structure. This further movement of lever 41 causes the wall of the one notch 36 adjacent the lever end of the structure 20 to engage and move the transverse grid wall 25 disposed therein lengthwise of wall 22. The transverse grid walls 25 are preferably of a highly tempered metal so as to be somewhat elastic or capable of springing back to their normal position after having been slightly deformed by force applied thereto. Thus initial force applied

to the central portion 24 of walls 25 by movement of member 28 causes these walls to bow intermediate their ends prior to being forced lengthwise of the longitudinal grid wall 22. This initial movement or bowing of walls 25 thereby substantially peels same away from the adjacent ice blocks 51. After walls 25 are freed from the ice blocks 51 by the bowing action thereof they then spring back to their normal straight position and continued force applied thereto begins the lengthwise or tilting movement thereof relative to wall 22. Upon moving the end transverse grid wall 25 lengthwise of the longitudinal wall 22 in the manner described the portion adjacent the bottom edge of wall 25 fulcrums about the lower part of the second from the end pair of ice blocks 51 and is tilted. The end pair of ice blocks receives the force near the top portions thereof and movement of the end transverse grid wall causes the end blocks to move lengthwise of the longitudinal grid wall 22. Movement of the end ice blocks 51 in this manner to break the bond between same and the grid wall 22 causes the ice, formed integral with each end block and disposed in the openings or slots 23 of the longitudinal wall 22, to crack thus separating the end pair of blocks from one another and permitting same to freely fall from the grid structure. If two ice blocks only are desired for immediate use movement of lever 41 is discontinued and this lever may be moved back to its normal position as shown in Fig. 2, and the grid structure 20 together with the ice blocks 51 remaining therein can be replaced in tray 10 and the tray with its frozen contents repositioned in or on the cooling element until future harvesting of the remaining ice blocks is required. However, if more than the end pair of ice blocks are desired or required for immediate use continued movement of lever 41 in a counter-clockwise direction then causes the one wall of the second notch 36, from the lever end of the structure 20, to engage and move the second transverse wall 25 lengthwise of the longitudinal grid wall 22. It being understood, of course, that the difference between the widths of the plurality of notches 36 permits engagement of a wall of the first notch with the first transverse grid wall 25 to move same, upon movement of lever 41 and member 28, but does not cause engagement of the wall of the next notch 36 with the second from end transverse wall 25 to move same. In other words, the walls of notches 36 are so spaced relative to one another that these walls progressively engage their respective transverse walls 25 fitted therein upon movement of member 28 toward the lever end of the grid structure. Thus the second transverse wall 25 from the lever end of the structure 20 is moved relative to the longitudinal wall 22 after movement of the first or end transverse wall and upon a continued or further movement of lever 41 about its pivot pin 42. Obviously therefore movement of the transverse walls 25 one after the other momentarily enlarges the compartments 21 and permits the ice blocks to freely fall out of the compartments. The fulcruming of the second from the lever end transverse wall 25 and loosening of the second pair of ice blocks 51 from the grid walls is similar to that described relative to the first or end transverse wall and the end pair of ice blocks. It is to be noted that the lengthwise movement and tilting of the first or end wall 25 causes same to be peeled away from the second pair of ice blocks 51 and that, after the first or end pair of blocks fall from the grid structure, end wall 25 is freely movable within notch 36 and opening 23 so as not to

interfere with movement of the next wall 25 and removal of the second pair of ice blocks 51. It is believed that a description of the individual successive movement of each transverse wall is unnecessary and that it is obvious that force applied directly to each wall 25 progressively from the lever end to the other end of the grid structure 20 will release the ice blocks 51 therefrom in succession. I have found that in addition to applying force directly and progressively to the walls in such a structure that it is also desirable to provide a positive movement of the end pair of ice blocks located remote from the lever end of the structure 20 relative to the longitudinal wall 22. Therefore the bottom of opening 23 at the end opposite the lever end of the structure 20 is intentionally made very narrow to permit a slight lengthwise initial movement only of the end transverse wall 25 relative to wall 22 and to cause further movement thereof to tilt this wall at an angle. This positive tilting action of the end wall 25 opposite the lever end of structure 20 causes the lower portion thereof to apply force to the end pair of ice blocks which tilts same upwardly within their respective compartments and relative to the longitudinal wall 22 to thus break the bond between the end blocks and the longitudinal wall after the end wall 25 has been broken therefrom to permit the end ice blocks 51 to freely fall from the grid structure as disclosed in Fig. 8 of the drawings.

The application of force directly to each transverse wall 25 to cause progressive movement of these walls relative to the longitudinal wall 22 to successively remove ice blocks 51 from the grid structure 20 may be discontinued at any point along the length of the structure 20, after the required number of ice blocks 51 have been removed therefrom, to permit the grid together with the number of ice blocks remaining therein to be repositioned in the tray 10 and the tray replaced in or on the cooling element until such time as the ice blocks remaining in the grid structure are desired to be harvested. After all of the ice blocks 51 have been removed from grid structure 20, as shown in Fig. 8 of the drawings, the lever 41 is moved back into its normal position disclosed in Fig. 2 to thereby cause the corresponding and evenly spaced apart walls of notches 36 to engage and move each of the transverse walls 25 to its normal compartment forming position. The grid structure is then placed in tray 10 and the tray and compartments 21 filled with water to be frozen in order to repeat the harvesting of ice blocks from the tray in the manner described.

When lever 41 is moved to its normal position shown in Fig. 2 of the drawings, the pin 47, to which the one end of arms 46 are secured, moves downwardly beyond the plane of a line extended through pin 42 and the pin 29 disposed at the lever end of the grid structure 20. In other words, the lever 41 when in the position disclosed in Fig. 2 is in an over-center position and the parts associated therewith form a toggle mechanism. I provide a close fit between the pivot points 29, 42, 47 and arms 46 and the toggle mechanism tends to maintain lever 41 in its normal position to prevent same from being accidentally raised to a position whereby the handle end 43 thereof would interfere with removal of the tray from superimposed freezing compartments provided in a cooling element or evaporator. This toggle action also locks the trans-

verse walls into their proper positions in relation to the longitudinal wall.

While I have shown the grid structure 20 as being removed from the tray 10 prior to manipulating lever 41 to release the ice blocks 51 from the structure 20 in the present disclosure, it is to be understood that walls of the grid structure may be moved while the structure 20 is in the elevated position shown in Fig. 3 of the drawings as disclosed in my copending application Serial No. 87,263, filed June 25, 1936. While the structure is in the elevated position shown in Fig. 3 and still maintained within the confines of the tray 10 it may be operated in the manner described to break the bond between all the ice blocks and the grid walls, due to the clearance afforded at the one end of the tray, to thereby permit the ice blocks to fall into and remain in the tray during removal of the grid structure upwardly and out of tray 10. Thus harvesting of the ice blocks 51 from tray 10 may be obtained if desired. Due to the quick releasing action of the device disclosed the ice blocks do not melt during manipulation of the device and when they are permitted to remain in the tray, upon removal of the grid from the tray and ice therein, the ice blocks do not stick or bond to one another when positioned in the tray and replaced in or on the cooling element. Therefore the ice blocks can be readily and individually removed from the tray when the tray is pulled outwardly of the cooling element.

From the foregoing it is apparent that I have provided an improved device which is of low cost, durable, efficient in operation and effective to remove ice cubes or blocks therefrom without shattering the blocks and which device is constructed entirely of metal to thereby retain the fast freezing characteristics of metal tray and grid combinations. The improved grid structure is of a single wall type and the walls thereof do not therefore occupy valuable space within the tray and reduce its cubical capacity. The improved construction of the grid and the method of moving the transverse walls relative to the longitudinal wall thereof is such that only a force sufficient to release two ice blocks therefrom is required during the entire progressive operation to release all of the blocks. Thus objections to prior devices wherein utmost effort is required to exert sufficient force to effect release of the ice blocks has been overcome in my improved device and release of ice blocks therefrom can be readily effected by the housewife without difficulty. Single pairs or a plurality of pairs of ice blocks can be removed from my improved device as desired while I have at the same time provided for the repositioning of the grid, together with ice blocks permitted to remain therein, into the tray and the replacement of the contents of the tray in or on the cooling element for future harvesting of the remainder of the ice blocks therefrom. In the construction disclosed I have provided a single lever which is operable, in the same direction and with a single continued motion, to carry out two functions in the harvesting of blocks of ice from a tray in which they are frozen.

While the form of embodiment of the invention as herein disclosed, constitutes a preferred form, it is to be understood that other forms might be adopted, all coming within the scope of the claims which follow.

What is claimed is as follows:

1. A freezing apparatus for liquids comprising in combination, a tray having a grid structure removably disposed therein, said grid structure including a longitudinal wall and a plurality of walls extending transversely to said longitudinal wall in spaced apart relation along the length thereof and dividing the interior of the tray into a plurality of ice block compartments, said transverse walls being movably attached to said grid structure, means for elevating said grid structure together with ice blocks adhering thereto relative to the tray, and means for engaging and applying force to each of said transverse walls to cause movement thereof lengthwise of said longitudinal wall to break the bond between the ice blocks and said grid walls.

2. A freezing apparatus for liquids comprising in combination, a tray having a grid structure removably disposed therein, said grid structure including a longitudinal wall and a plurality of walls extending transversely to said longitudinal wall in spaced apart relation along the length thereof and dividing the interior of the tray into a plurality of ice block compartments, said transverse walls being movably attached to said grid structure, means for elevating said grid structure together with ice blocks adhering thereto relative to the tray, and means for engaging and applying force to each of said transverse walls to cause movement thereof relative to said longitudinal wall progressively from one portion to another portion of said structure to break the bond between the ice blocks and said grid walls.

3. A freezing apparatus for liquids comprising in combination, a tray having a grid structure removably disposed therein, said grid structure including a longitudinal wall and a plurality of walls extending transversely to said longitudinal wall in spaced apart relation along the length thereof and dividing the interior of the tray into a plurality of ice block compartments, said transverse walls being movably attached to said grid structure, means for elevating said grid structure together with ice blocks adhering thereto relative to the tray, and means for engaging and applying force to each of said transverse walls to cause movement thereof lengthwise of said longitudinal wall progressively from one end to the other end of said structure to break the bond between the ice blocks and said grid walls.

4. The combination with a tray adapted to contain a substance to be frozen, of a grid structure normally positioned in the tray and having a longitudinal wall and a plurality of transverse walls dividing the interior of the tray into a plurality of compartments, means carried by said grid and disposed in a position to exert a force against the tray to thereby move the grid together with frozen substance adhering thereto relative to the tray, and means associated with and operable by said first named means for engaging and moving each of said transverse walls lengthwise of the longitudinal wall to thereby release the frozen substance from the grid.

5. The combination with a tray adapted to contain a substance to be frozen, of a grid structure normally positioned in the tray and having a longitudinal wall and a plurality of transverse walls dividing the interior of the tray into a plurality of compartments, means carried by said grid and disposed in a position to exert a force against the tray to thereby move the grid together with frozen substance adhering thereto relative to the tray, and means associated with and operable by said first named means for en-

gaging and moving each of said transverse walls relative to the longitudinal wall progressively from one end to the other end of the grid structure to thereby release the frozen substance therefrom.

6. A freezing apparatus for liquids comprising in combination, a tray having a grid structure removably disposed therein, said grid structure including a vertically disposed longitudinal wall and a plurality of vertically disposed single walls extending transversely to said longitudinal wall in spaced apart relation along the length thereof and dividing the tray into a plurality of ice block compartments, said single transverse walls being movably attached to said grid structure, means for elevating said grid structure together with ice blocks adhering thereto relative to the tray, and means for moving said transverse walls relative to said longitudinal wall progressively from one portion to another portion of said grid structure to break the bond between the ice blocks and said grid walls.

7. In a device of the character described, a continuous one-piece rigid longitudinal wall and a plurality of spaced apart walls extending transversely to and along the length of said longitudinal wall, said walls defining rows of compartments on each side of said longitudinal wall, said transverse walls being mounted for sliding movement relative to said longitudinal wall, and an element for engaging and sliding said transverse walls lengthwise of said longitudinal wall.

8. The combination with a tray adapted to contain a substance to be frozen, of a grid structure normally positioned in the tray and having a longitudinal wall and a plurality of transverse walls dividing the interior of the tray into a plurality of compartments, a lever carried by said grid and disposed in a position to exert a force against the tray to thereby move the grid together with frozen substance adhering thereto relative to the tray, means associated with and operable by said lever for engaging and moving each of said transverse walls relative to the longitudinal wall progressively from one end to the other end of the grid structure to thereby release the frozen substance therefrom, and a toggle connection between said lever and said means for holding the lever in its normal non-operative position.

9. The combination with a tray adapted to contain a substance to be frozen, of a grid structure normally positioned in the tray and having a longitudinal wall and a plurality of transverse walls dividing the interior of the tray into a plurality of compartments, a lever carried by said grid and disposed in a position to exert a force against the tray to thereby move the grid together with frozen substance adhering thereto relative to the tray, means associated with and operable by said lever for engaging and moving each of said transverse walls lengthwise of the longitudinal wall of the grid structure to thereby release the frozen substance therefrom, and a toggle connection between said lever and said means for holding the lever in its normal non-operative position.

10. A freezing apparatus for liquids comprising in combination, a tray having a grid structure removably disposed therein, said grid structure including a longitudinal wall and a plurality of walls extending transversely to said longitudinal wall in spaced apart relation along the length thereof and dividing the interior of the tray into a plurality of ice block compartments, means

for elevating said grid structure together with ice blocks adhering thereto relative to the tray, means traversing all of said transverse walls and being engageable therewith to movably secure same to said grid structure, and means connecting said two means together whereby operation of said first named means actuates said second named means to move said transverse walls relative to said longitudinal wall progressively from one end to the other end of said grid structure to break the bond between the ice blocks and said grid walls.

11. A freezing apparatus for liquids comprising in combination, a tray having a grid structure removably disposed therein, said grid structure including a longitudinal wall and a plurality of walls extending transversely to said longitudinal wall in spaced apart relation along the length thereof and dividing the interior of the tray into a plurality of ice block compartments, means for elevating said grid structure together with ice blocks adhering thereto relative to the tray, means lying over said longitudinal wall and having a portion thereof engageable with each of said transverse walls adjacent the point of intersection of said walls for movably securing the transverse walls to the grid structure, and means connecting said two means together whereby operation of said first named means actuates said second named means to move said transverse walls lengthwise of said longitudinal wall of said grid structure to break the bond between the ice blocks and said grid walls.

12. A freezing apparatus for liquids comprising in combination, a tray having a grid structure removably disposed therein, said grid structure including a longitudinal wall and a plurality of walls extending transversely to said longitudinal wall in spaced apart relation along the length thereof and dividing the interior of the tray into a plurality of ice block compartments, means for elevating said grid structure together with ice blocks adhering thereto relative to the tray, means lying over said longitudinal wall and having a portion thereof engageable with each of said transverse walls adjacent the point of intersection of said walls for movably securing the transverse walls to the grid structure, and means connecting said two means together whereby operation of said first named means actuates said second named means to move said transverse walls relative to said longitudinal wall progressively from one end to the other end of said grid structure to break the bond between the ice blocks and said grid walls.

13. The combination with a tray of a unitary grid structure normally positioned in the tray and having a plurality of interlocked walls of single thickness dividing the interior of the tray into a plurality of ice block compartments, certain of said grid walls being movable relative to another wall thereof, a lever having a single direction of motion carried by said grid structure, and means cooperating with said lever for engaging and moving certain of the movable walls of said unitary grid structure in succession relative to said another wall thereof to release ice blocks from the grid.

14. The combination with a tray adapted to contain a substance to be frozen, of a grid structure normally positioned in the tray and having a plurality of walls dividing the interior of the tray into rows of compartments, certain of said grid walls being movable relative to another wall thereof, and a lever having a single direction of

motion carried by said grid structure for elevating the grid together with frozen substance adhering thereto relative to the tray and for moving the movable walls of said grid structure lengthwise of the other wall thereof to release the frozen substance from the grid after same has been elevated relative to the tray.

15. In a device of the character described, a partition extending longitudinally of the device and a plurality of spaced apart partitions extending transversely to and along the length of said longitudinal partition, said transverse partitions forming walls of compartments on each side of said longitudinal partition, said transverse partitions being mounted for sliding movement relative to said longitudinal partition, and an element for engaging, progressively from one end to the other end of the device, and imparting a sliding movement to said transverse partitions lengthwise of said longitudinal partition.

16. In a device of the character described, a mold element comprising a supporting member and a plurality of transverse members mounted for ice-dislodging movement thereon, and lever-actuated mechanism for imparting ice-dislodging movement to the plurality of members and acting thereon to hold the same against relative movement in the inactive position of the lever.

17. A metallic unitary grid structure for disposition in a freezing tray and removable therefrom as a unit, said grid structure including a substantially inflexible metal longitudinal partition wall and a plurality of separate substantially inflexible metallic cross walls spaced lengthwise along said longitudinal wall, said cross walls being movably mounted upon and interlocked with the longitudinal wall and extending continuously in a straight line plane on both sides of said longitudinal wall through the plane of said longitudinal wall, said cross walls and said longitudinal wall cooperating with each other to form a plurality of ice block compartments on opposite sides of said longitudinal wall, said mounting of the cross walls on said longitudinal wall permitting movement of said cross walls in a direction lengthwise of said longitudinal wall, and means carried by the grid structure for moving the cross walls lengthwise of the longitudinal wall.

18. The combination including an ice tray, a removable grid positioned therein, said grid including a substantially inflexible metal longitudinal partition and a plurality of substantially inflexible cross walls loosely mounted upon and interlocked with the longitudinal partition, said cross walls being spaced along the length of the longitudinal partition and said cross walls extending continuously in a straight line plane on both sides of said longitudinal partition through the plane of the longitudinal partition to form a row of ice cube compartments on either side of said longitudinal partition, and means carried by the grid structure for elevating the grid together with the ice adhering thereto relative to the tray and for moving the movable walls of said grid structure relative to the longitudinal partition wall to release the ice from the grid after the grid and ice have been elevated relative to the tray, said last named means including an operating handle movable in the same direction to both elevate the grid and ice from the tray and to release the ice from the grid.

19. A metallic grid structure for disposition in a freezing tray and removable therefrom as a unit, said grid structure comprising a longitudinal wall structure and a plurality of separate

cross walls extending through the plane of said longitudinal wall on both sides thereof to form rows of ice block compartments on opposite sides of said longitudinal wall structure, said cross walls being carried by and interlocked with said longitudinal wall structure, and means for removing all or less than all of the ice blocks from the grid structure, said last named means including means having a portion engaging and moving a wall of each ice block compartment relative to the remaining walls of each compartment, said movement taking place progressively along the length of said longitudinal wall structure.

20. A grid for an ice tray including a substantially inflexible metal longitudinal wall structure including a lower partition member and an upper operating member movable relative thereto, a plurality of substantially inflexible metal cross walls loosely mounted upon and interlocked with said longitudinal wall structure, said cross walls being spaced lengthwise along said longitudinal wall structure and extending continuously on both sides of said longitudinal wall structure through the plane thereof to form a row of ice cube compartments on either side of the longitudinal wall structure, said upper operating member having formed therein a plurality of slots embracing the upper edges of said cross members, means for moving said operating member relative to and lengthwise of said lower partition member to cause the side walls of the notches to engage and move said cross walls lengthwise of said lower partition member, said last named means including an operating handle carried by the said grid.

21. A grid for an ice tray including a substantially inflexible metal longitudinal wall structure including a lower partition member and an upper operating member movable relative thereto, a plurality of substantially inflexible metal cross walls loosely mounted upon and interlocked with said longitudinal wall structure, said cross walls being spaced lengthwise along said longitudinal wall structure and extending continuously on both sides of said longitudinal wall structure through the plane thereof to form a row of ice cube compartments on either side of the longitudinal wall structure, said upper operating member having formed therein a plurality of slots embracing the upper edges of said cross members, the width of said slots increasing from end to end of the operating member, means for moving said operating member relative to and lengthwise of said lower partition member to cause the side walls of the notches to progressively engage and progressively move said cross walls lengthwise of said lower partition member, said last named means including an operating handle carried by the said grid.

22. An ice cube tray organization including a tray and a grid removably disposed therein, said grid comprising a longitudinal member composed of a plurality of relatively movable longitudinal sections lying in substantially the same vertical plane and a series of spaced substantially rigid transverse fins mounted in slots on a longitudinal section but loose with respect to all of said sections and so associated therewith that said fins may move pivotally with relation to all of said longitudinal sections and progressively, independently of each other; said grid being open at its bottom so that the ice cubes contact the bottom wall of the ice tray.

23. In a congealing apparatus, the combina-

tion of a tray, a grid within the tray for dividing said tray into a plurality of cells for forming ice cubes, said grid including a longitudinally extending divider member having a plurality of notches formed along one of the horizontally positioned edges thereof, a plurality of transverse dividers each having a portion extending in a notch of the longitudinal divider and portions extending on opposite sides of said longitudinal divider but spaced therefrom to permit relative movement between the longitudinal and transverse dividers, and means adapted for engaging the upper portion of the transverse dividers for moving same longitudinally to the longitudinal divider by tilting the upper portion of the transverse divider toward the cube adhered thereto to free the cube therefrom.

24. A unitary grid structure for disposition in a freezing tray and removable therefrom as a unit, said grid structure comprising a substantially non-flexible longitudinal wall member and a plurality of substantially non-flexible wall members extending laterally from said longitudinal wall member and being interlocked therewith to form a plurality of ice block compartments, means for moving said laterally extending walls lengthwise of said longitudinal wall, and said means being so constructed and arranged as to prevent initial simultaneous movement of said laterally extending walls and to cause said movement thereof to be progressive from one portion to another portion of said unitary structure.

25. A grid structure for disposition in a freezing tray and removable therefrom as a unit, said unitary grid structure comprising a wall extending longitudinally of a tray and a plurality of walls carried by and extending transversely of said longitudinal wall to form within the tray rows of ice block compartments, and a longitudinally extending member longitudinally slidable and carried by the upper portion of

said unitary removable grid for breaking a bond between ice blocks and the compartment walls.

26. A grid structure for disposition in a freezing tray and removable therefrom as a unit, said unitary grid structure comprising a wall extending longitudinally of a tray and a plurality of walls carried by and extending transversely of said longitudinal wall to form within the tray rows of ice block compartments, and a member carried by the upper portion of said longitudinal wall and longitudinally slidable therealong for breaking a bond between ice blocks and the compartment walls.

27. A unitary grid structure for disposition in a freezing tray and removable therefrom as a unit, said grid structure comprising a longitudinal wall member and a plurality of spaced apart separate and independent one-piece transverse wall members extending through the plane of said longitudinal wall member and being movably interlocked therewith to form a permanent unitary grid structure providing rows of ice block compartments, and mechanism for moving said transverse wall members relative to and in a direction paralleling the extension of said longitudinal wall member, said mechanism including means for moving said transverse wall members one by one in succession from a portion to another portion of said unitary structure.

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