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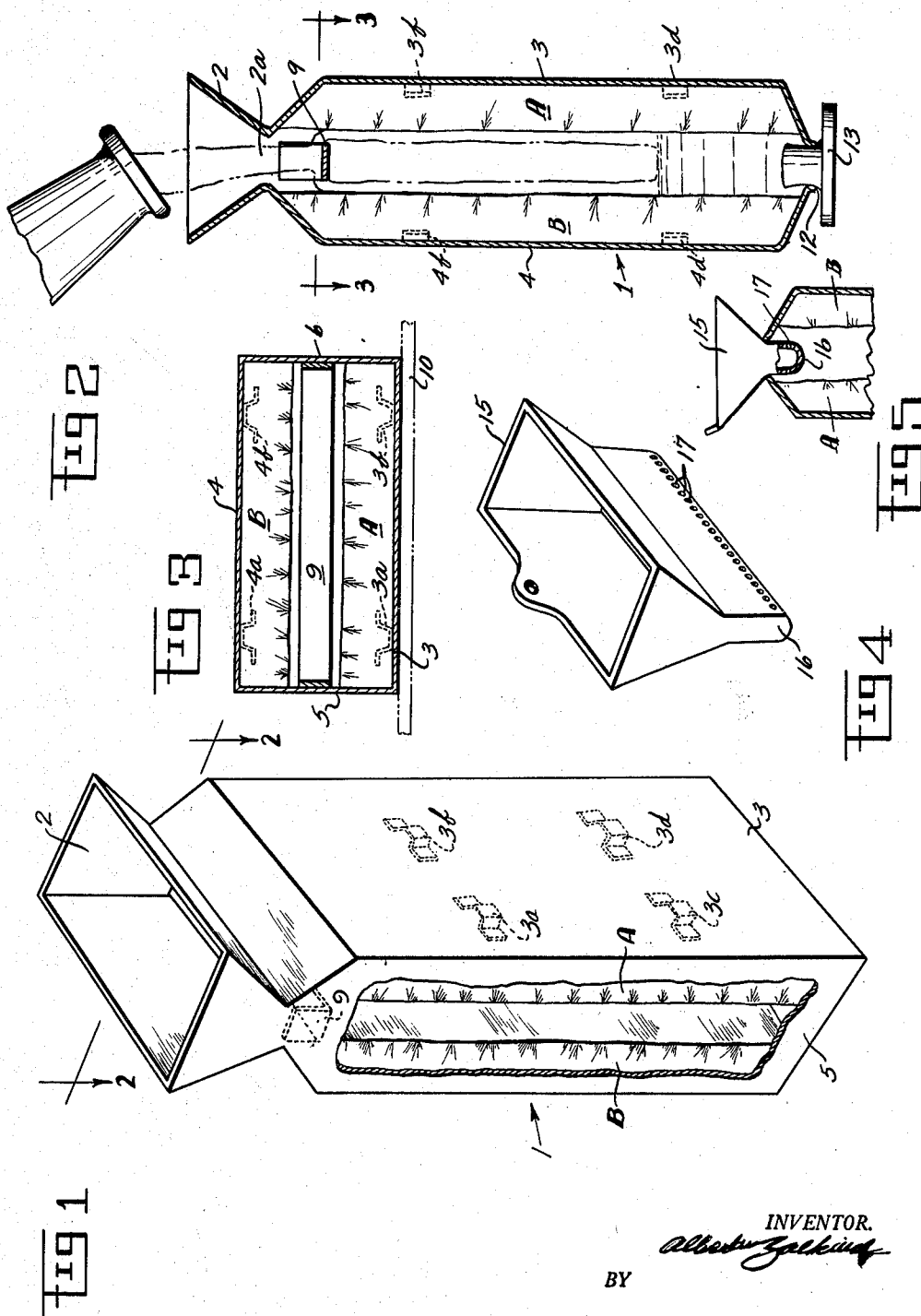
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DEVICE FOR CHILLING LIQUID COMESTIBLES

Filed July 15, 1944

2 Sheets-Sheet 1



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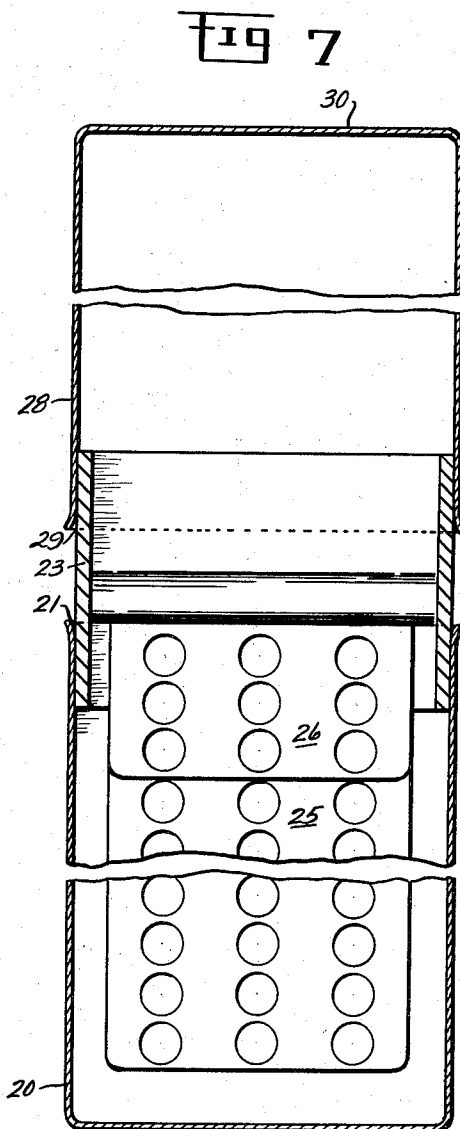
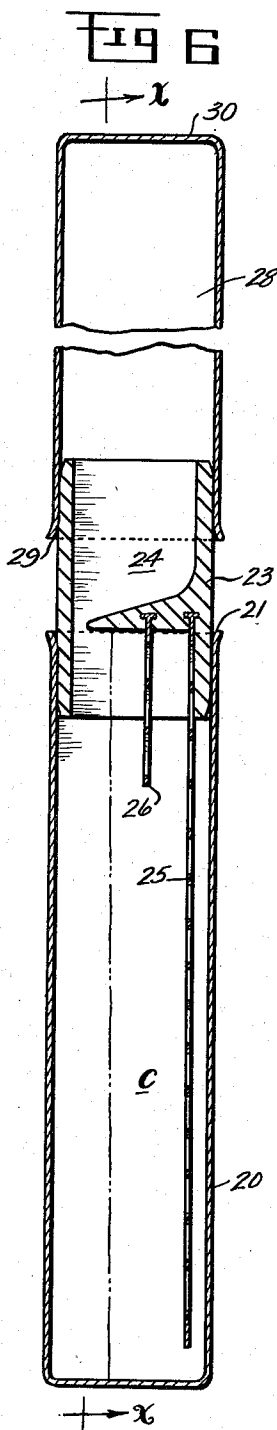
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DEVICE FOR CHILLING LIQUID COMESTIBLES

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17 Claims. (Cl. 62-142)

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This invention relates to devices for chilling liquid comestibles and more particularly to those devices in which ice is used for obtaining the cooling effect. It is an object of my invention to provide a container adapted to hold a quantity of water for freezing into an ice mass therein when the container is placed in a refrigerator, and providing such container with means for directing liquid comestibles to and from the interior thereof whereby the comestibles are chilled by contact with the ice mass therein. Another object of my invention is to provide a device for chilling liquid comestibles rapidly and conveniently. A further object of my invention is to provide a structure adapted for ready rinsing to enhance cleanliness thereof. A still further object of my invention is to provide a compact structure suitable to be manufactured by mass production methods.

In accordance with the above objects, I provide various embodiments of a device having features in common, viz., a substantially rectangular container of sheet aluminum or equivalent material having at least one large flat exterior surface for contact with the freezing shelf of a refrigerator and adapted to have a quantity of water poured into the interior of the container through an opening provided at one end thereof. By placing the container thus charged with water in a horizontal position with the large flat area in contiguity with the freezing shelf of a refrigerator, I obtain a block or slab of ice therein having a relatively large surface area exposed in the interior of the container. The container may then be removed from the refrigerator and rested in substantially vertical position, whereby a quantity of relatively warm liquid comestible may be conveniently poured through the opening into contiguity with the slab of ice. Inasmuch as the container is substantially closed except for the end opening, the comestible is retained therein and becomes chilled by contact with the ice, and the container may be agitated to effect rapidity of heat transfer. After the comestible is thus chilled, it may be poured out of the container into a tumbler or other drinking vessel.

Other objects and features of my invention will be apparent from the detailed description which follows with reference to the appended drawings in which:

Fig. 1 shows an embodiment of my invention, in the preferred form, adapted to retain two parallel slabs of ice;

Fig. 2 shows a section through 2-2 of Fig. 1;

Fig. 3 is a section through 3-3 of Fig. 2;

Fig. 4 shows a modified funnel for use in con-

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junction with various embodiments of my device;

Fig. 5 shows a further embodiment of my invention adapted for use in conjunction with the modified funnel of Fig. 4;

Fig. 6 shows a still further embodiment of my invention; and

Fig. 7 shows a section through X-X of Fig. 6.

With reference to Figs. 1, 2, and 3, a container 1 is shown of substantially rectangular-shape having a funnel-shaped opening 2 with a constricted portion 2a at one end thereof and having relatively large flat wall areas 3 and 4 and side walls 5 and 6. A plurality of ice retaining lugs 3a, b, c, and d, and 4a, b, c, and d, substantially wing-shaped, as shown, are secured to the interior surfaces of the walls 3 and 4 of the container by soldering, spot welding, or the like. A spreader bar 9 is secured between the walls 5 and 6 interiorly of the container and disposed below the constricted portion of the funnel-shaped opening 2. Ice blocks or slabs A and B having substantially flat parallel surfaces facing interiorly are shown retained within container 1 by virtue of having been frozen around the retaining lugs. The manner of obtaining the ice slabs A and B in the container 1 is as follows: with the container in a substantially vertical position, as shown in Fig. 1, a charge of water is poured through the opening 2 and then frozen into the slab of ice A by placing the container with the surface 3 horizontal upon the freezing shelf 10 of a refrigerator, as shown in Fig. 3. It will be understood that the initial charge of water can be any amount up to the point where it commences to spill over the constriction 2a of the funnel shaped opening when the container 1 is horizontally disposed on the freezing shelf 10. After the slab A has been obtained, the container is removed from the freezing shelf and is once more held in a vertical position and another charge of water poured in, the slab of ice A being retained in position by means of the lugs 3a, b, c, and d. The container is then returned to the freezing shelf in inverted relation to the view shown in Fig. 3 so that the surface 4 is now in contact with shelf 10, whereby the new charge of water will be frozen into the ice slab B and retained in the container by the lugs 4a, b, c, and d. In this manner I obtain a container having two relatively large substantially parallel ice blocks each filling approximately one-third the interior volume of the container with a space therebetween of approximately one-third the interior volume thereof. In use, the container 1 is held vertical (Fig. 1) and a warm comestible

poured through the opening 2 into the space between the ice slabs A and B, impinging during the pouring process (Fig. 2) against the spreader bar 9 which has the effect of causing the comestible to be directed against the ice slabs at the top thereof and cascade downwardly in contact therewith. The container may be agitated to hasten the chilling effect and when suitably cooled the comestible may be poured out through opening 2 into a drinking vessel.

Melting of the ice slabs takes place during the process of cooling a comestible, and sufficient melting may occur to loosen the grip of the walls of the container on the ice slabs. Due, however, to the restraining action of the retaining lugs, the ice slabs are prevented from floating upwardly to choke or constrict the opening 2a. Should the slabs break away from the lugs due to substantial melting or rough handling, bar 9 will effectively block them from closing the opening 2a when the chilled comestible is being poured out of the container.

With particular reference to Fig. 2, the base of the container 1 is shown as having a central aperture 12 closed by a closely fitting plug 13. The aperture and plug are provided for the purpose of enhancing rinsibility of the device, since by removing plug 13 flow of water from a sink tap can be directed through the opening 2, draining downwardly through the container and washing the ice surfaces and the walls, the plug being removed to permit continuous draining. The particular function of the plug is to prevent leakage through the aperture when the container is being charged with water for freezing therein in the manner heretofore described. Also, providing an aperture as shown renders the device capable of having a comestible continuously poured there-through, container 1 being held vertically over or resting on the edges of a receiving receptacle and the chilled comestible draining thereinto. Rinsing may also be accomplished in the same manner that a bottle or other elongated vessel would be rinsed, namely, by pouring clean water thereinto and shaking the container, thereby agitating the water to scour the interior.

After rinsing, the container is charged with a quantity of water to compensate for loss of ice due to melting, the correct quantity being determined by pouring an excessive quantity of water therein while it is in the vertical position and then holding it with either wall 3 or 4 horizontal to permit the excess to drain out through the opening 2. The ice slabs A and B are replenished alternately in this manner, fresh ice being formed adhering to one or the other of the ice slabs after each use.

In Fig. 4 is shown a modified flow directing means comprising a funnel-shaped structure 15 of generally trapezoidal configuration having a depending channel 16 provided with a plurality of perforations 17. The structure shown in Fig. 4 may be used in conjunction with the container 1 by being inserted in the funnel-shaped opening 2 with the bottom of the channel 16 resting on the spreader bar 9, for the purpose of straining the comestible. Further, the structure shown in Fig. 4 could be used in conjunction with a container in which the upwardly flared position of the opening 2 and the spreader bar 9 are eliminated, as illustrated in Fig. 5. By elimination of the upwardly flaring portion of the opening 2, the over-all length of the container is shortened, it being understood that the modified flow directing

means is removed when the container is placed on the freezing shelf of a refrigerator.

With reference to Figs. 6 and 7, a substantially rectangular container 20 is disclosed having a completely open upper end 21 adapted to have fitted therein, with sliding, but sealing fit, a plug 23 having a funnel-like interior structure 24 and ice retaining grids 25 and 26 integrally secured thereto protruding into the container 20. A container 28 is provided having an opening 29 adapted to fit over the opposite end of the plug 23, with a sliding, but sealing fit, as shown. A block of ice C is frozen in the interior of the container 20 around the grids 25 and 26 in the same manner as the block A or B was frozen in the container in the form shown in Fig. 1, the container 28 being removed from the plug 23, and not forming part of the structure, when the container 20 is in the refrigerator. In use, a warm comestible is poured into the container 28 which is adapted to rest on the end 30, and the container 20 having been removed from the refrigerator, is held in vertical alignment over container 28 and joined thereto by sliding plug 23 into aperture 29. As viewed on Fig. 5, the assembled structure would then be upside down. The whole structure is then turned end over end several times and shaken so that the comestible is thoroughly agitated and uniformly chilled, whence the assembled structure is again held vertical permitting the comestible to drain entirely into container 28, the structure then being disassembled and the chilled comestible poured out of container 28 as desired. In this manner, a volume of comestible larger than the volume of free space in container 20 may be conveniently chilled. Plug 23 may be made of plastic material, or the equivalent, and the grids 25 and 26 of flexible stainless steel, so that as the comestible warms the sides of the container 20 and the ice block C melts away therefrom, it is free to swing in space although restrained from floating upwardly to constrict the opening, whereby the comestible has access to substantially the entire surface area of the ice block. Alternatively, the grids 25 and 26 may be hinged in any suitable manner to the plug 23 to perform the same function. It is to be understood that although two grids 25 and 26 are shown, in practice the device is not limited to any specific number. A feature of the structure resides in the fact that, after use, plug 23 may be pulled out of the container 20, the ice block C remaining attached to the plug and being exposed for convenient and thorough rinsing.

Having thus described my invention, I claim:
1. In a device for chilling liquids, a thin walled container adapted for retaining a quantity of water therein and having a heat transfer element of extended area for freezing said water into an ice mass, said container being substantially closed except for opening means to permit ingress and egress of liquids to be chilled by contact with said ice mass, and means adjacent said opening means for receiving impingement of a liquid to be chilled to direct said liquid against said ice mass, said latter means being inside said container.

2. In a device for chilling liquids, the combination of a first container adapted to retain a fluid to be frozen therein, said container having a relatively large, substantially flat area through which heat is withdrawn from said fluid, and a second container, and means adapting said containers to be sealingly associated and providing communication therebetween whereby a liquid to be chilled may be retained in said containers and exchanged

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therebetween, said means comprising a member slidably and sealingly engaging openings in said containers and having an aperture therethru.

3. A device as set forth in claim 2 including means secured to said member and protruding into said first container and adapted to be secured to the frozen fluid therein.

4. A device for the cooling of liquids, said device comprising a container including means forming a bottom portion at one end thereof, means forming a mouth portion having a straight side at the opposite end of said container, wall structure connecting said means and formed to provide a flat heat transfer element of extended area, and means projecting from said element toward the center of said element for holding a body of frozen, normally liquid material in fixed position with respect to said element; the straight side of said mouth being located in a plane cutting through the interior of the container in parallelism with said element and the first and the second mentioned means being arranged to cooperate with said wall structure to define a space to be occupied by said body of frozen material, with a surface thereof providing one wall of a chamber in communication with said mouth portion.

5. A device for refrigerating a potable liquid, said device comprising a container including means forming a bottom at one end thereof, means forming a mouth, having a straight side, at the opposite end of said container, wall structure providing a flat heat transfer element of extended area and connecting said means, a body of frozen edible refrigerant having a substantially flat surface, and means carried by said heat transfer element holding said body in fixed relation to said element with the flat surface of said body forming one wall of a chamber and in communication with said mouth for contact reception of the potable liquid to be refrigerated.

6. A device for refrigerating a potable liquid, said device comprising a container including means forming a bottom at one end thereof, means forming a mouth at the opposite end of said container, wall structure providing a flat heat transfer element of extended area and connecting said means, said mouth extending substantially the breadth of said heat transfer element, a body of frozen edible refrigerant having a substantially flat surface within said container, and means carried by said container holding said body with a flat surface thereof forming one wall of a chamber in communication with said mouth for receiving the potable liquid to be refrigerated.

7. The method of chilling a liquid comestible which comprises partially filling a container with an edible refrigerant, placing said container on a refrigerator freezing shelf to solidify said edible refrigerant, said container being oriented when placed on said shelf so as to freeze said refrigerant in a slab having a maximum of free surface area exposed to the unfilled volume of said container, removing said container from said freezing shelf after said refrigerant has been frozen, introducing a liquid comestible into said container into contiguity with said free surface, and withdrawing said liquid comestible from said container in a chilled condition.

8. In a device for chilling liquids, a container having a heat exchange element of extended area, said container being substantially closed except for an opening at one end thereof, a closure for said opening comprising a member re-

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movably engaging said opening, an aperture in said member providing communication with the interior of said container, and retainer means secured to said member and protruding into said container and being constructed and arranged to become embedded in an ice block formed therein.

9. In a device for chilling comestibles, a container having a heat exchange element of extended area, retainer means secured to said container and protruding into the interior thereof constructed and arranged to be embedded in a slab of ice formed therein and to hold said ice in fixed relation with respect to said container, said container having a pair of opposing end walls disposed on opposite sides of said heat exchange element, and apertures in said end walls constructed and arranged so that a comestible may be poured through said container in contiguity with said ice slab.

10. A device for chilling liquids comprising a container having at least one relatively large flat heat conductive wall for freezing a refrigerant into an integral ice mass therein, said container having an opening for introducing liquids therein, and ice retaining means disposed within said container for preventing egress of said ice mass, said means being arranged to permit motion of said ice mass therein but prevent blocking of said opening by said ice mass.

11. A device as set forth in claim 10 including ice retainer means comprising an element secured interiorly of said container and disposed so as to protrude into said refrigerant during freezing thereof.

12. In a device as set forth in claim 10, wherein said ice retaining means comprises a bar extending across said opening.

13. A device for chilling comestibles comprising a container having two parallel heat conductive walls extending in the direction of the longest dimension of said container, said container having an opening intermediate said walls and spaced therefrom, means disposed within said container for securing an ice slab frozen therein restrained from substantial movement, the disposition of said opening being such that approximately one-third the volume of said container may be used to retain a liquid refrigerant when said container is resting on either heat conductive wall.

14. A device for chilling comestibles comprising a container of substantially rectangular shape and having an end wall with an elongated opening therethrough, a detachable funnel-like member having a depending channel portion insertable in said opening and co-extensive therewith, said container having another end wall opposite said first end wall on which it is adapted to rest, and means within said container for securing an ice slab therein in a position substantially parallel to said depending channel.

15. In a device for chilling liquid comestibles, a thin walled, rectangular, metallic container having a heat exchange wall adapted to contact the freezing shelf of a refrigerator, said container having an end wall and being substantially closed except for a normally open port in said end wall so disposed relative said heat exchange wall as to effect retention of a predetermined quantity of water in said container by effecting spilling of excess water when said wall is oriented for freezing contact, so as to insure existence of a space above the subsequently formed ice mass wherein liquid comestibles may be intro-

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duced for chilling in contiguity with said ice mass, said opening having a dimension in a direction perpendicular to said heat exchange wall of from one-quarter to one-half the depth of said container, including means disposed interiorly of said container and adapted to restrain said ice mass therein from blocking said port.

16. In a device for chilling comestibles, a container having a plurality of heat exchange elements of extended area, the construction and arrangement being such that said elements may be selectively brought into engagement with the freezing shelf of a refrigerator by orientation of said container for freezing quantities of liquid introduced into said container at different times, and means in said container for retaining the resultant ice masses in spaced relation, including an end wall on said container having an opening disposed intermediate said heat exchange elements, said opening being elongated so as to be substantially coextensive with a transverse dimension of said container.

17. In a device for chilling comestibles, a container having a plurality of heat exchange elements of extended area, the construction and arrangement being such that said elements may be selectively brought into engagement with the freezing shelf of a refrigerator by orientation of said container for freezing quantities of liquid

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introduced into said container at different times, and means in said container for retaining the resultant ice masses in spaced relation, wherein said retaining means comprise angularly shaped elements secured to respective walls and arranged to be embedded in respective ice slabs during the freezing thereof.

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