July 5, 1932. R. H. CHILTON 1,865,456

FREEZING TRAY

Filed Sept. 20, 1930 2 Sheets-Sheet 1

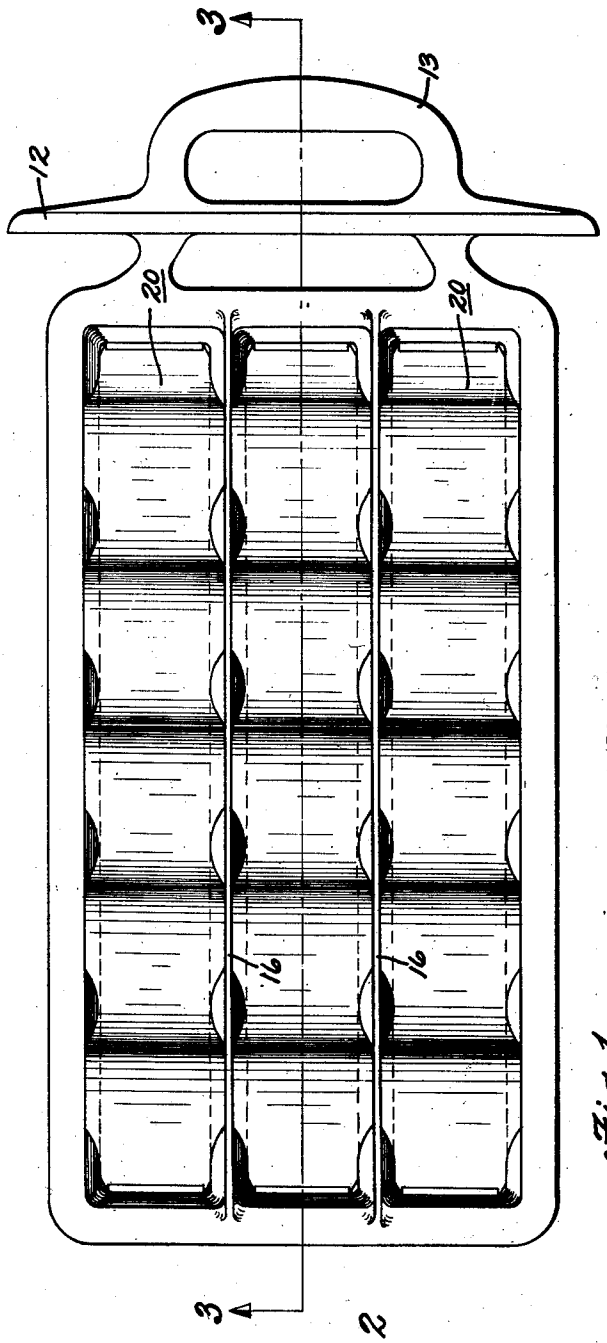



Fig. 1

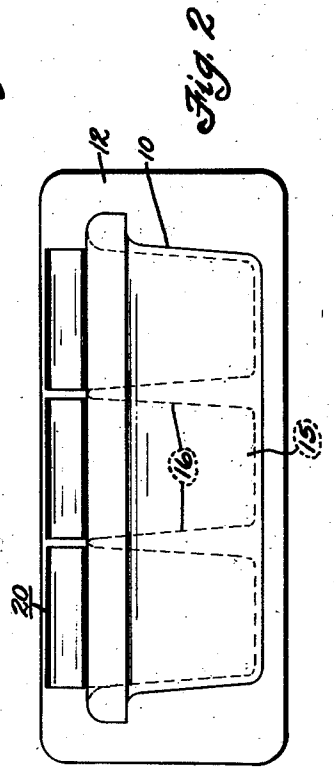



Fig. 2

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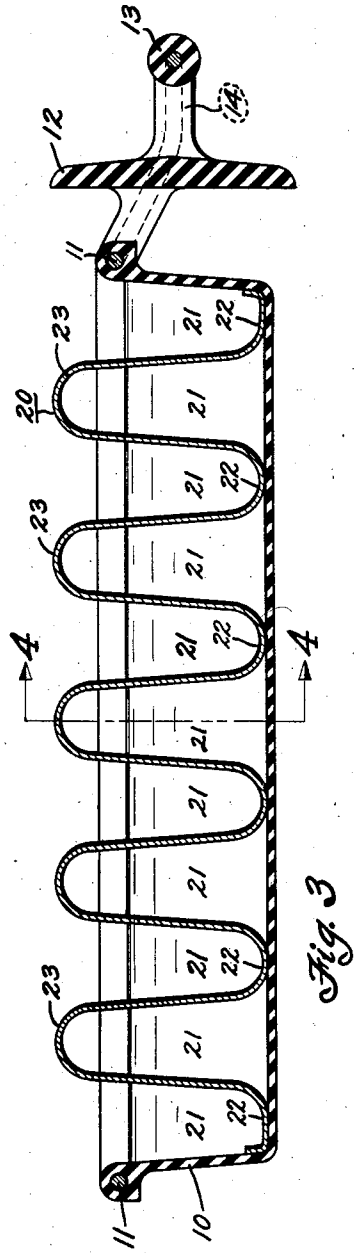



Fig. 3

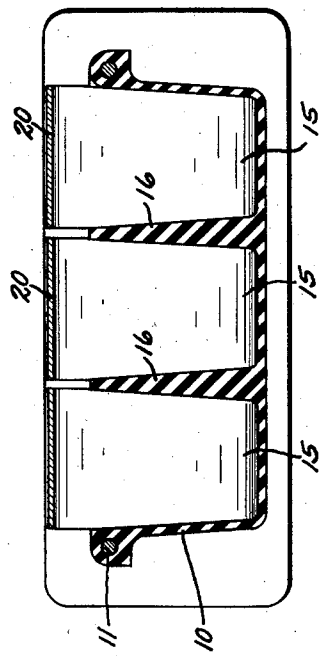



Fig. 4

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# UNITED STATES PATENT OFFICE

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## FREEZING TRAY

Application filed September 20, 1930. Serial No. 483,225.

This invention relates to freezing trays or containers, especially such as are adapted to be used within the freezing compartments of domestic refrigerators.

An object of this invention is to provide an efficient and economically made freezing tray for freezing ice blocks rapidly within the freezing chamber of domestic refrigerators, and providing simple means for removing the frozen blocks without any substantial melting thereof.

An object of this invention is to provide more rapid freezing than occurs in the present forms of freezing trays wherein the partitions are of flexible rubber or other non-metallic material and hence do not rapidly conduct the heat from the water to the surrounding air. In the present invention the upper portions of the sinuous metal bands extend above the water level in the container and hence serve as cooling fins to conduct the heat from the water to the cold air thereabove and hence greatly increases the rate of freezing of the water.

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 embodiment of one form of the present invention is clearly shown.

In the drawings:

Fig. 1 is a plan view of a freezing tray made according to this invention.

Fig. 2 is an end view of Fig. 1, looking in the direction of arrow 2 of Fig. 1.

Fig. 3 is a longitudinal section taken on line 3—3 of Fig. 1.

Fig. 4 is a transverse section taken on line 4—4 of Fig. 3.

Similar reference characters refer to similar parts throughout the several views.

The body 10 of the container is shown in the drawings as an integrally molded one piece flexible rubber container having a steel wire metal frame 11 molded in situ in the peripheral marginal bead for stiffening purposes. The closure front 12 and the handle 13 are also shown integrally molded of soft rubber, and the reinforcing wire 14 in the handle extends through the closure front 12 and is made rigid with the wire frame 11, whereby the entire tray may be rigidly supported from the handle 13. This much of the structure is old and no claim thereto is made herein.

In the form shown in the drawings, the container 10 is molded with three longitudinal pockets 15 extending the length thereof and formed by the two longitudinal partitions 16. These partitions 16 are shown as being quite heavy to also serve as stiffening ribs to prevent sagging of the flexible rubber walls when the container is filled with water, however, in some cases partitions 16 may be substantially of the same thickness as the outer side walls.

Now within each long pocket 15 there is inserted a sinuous or reversely-looped easily-flexed metal band 20 which obviously divides up each long pocket 15 into a series of small ice block compartments 21. The bottom loops 22 of the metal band 20 preferably rest directly upon the floor of the pockets 15, while the upper loops 23 project considerably above the normal water level in said container (as shown in Fig. 3) so that they serve as cooling fins for transferring heat from the water to the cold air thereabove. Preferably the metal band 20 is made from a metal having high heat conductivity to increase the rate of transfer of heat from points below the water level to the cooling fin portions of the loops, thereby greatly increasing rate of freezing of the water.

In operation, the tray 20 is simply filled with water to the desired level and the three metal bands 20 drooped into place in the water, one in each pocket 15. The tray is then inserted within the freezing chamber of the refrigerator until the water is frozen solid about the metal bands 20. The ice may be removed from each long pocket 15 separately by flexing the flexible rubber container 10 to free the bond of the ice thereto and then lifting the metal band 20 with the ice blocks 21 attached thereto from the pocket 15. Now by simply flexing the metal band 20, either by bending or stretching same, the individual ice blocks will be easily loosened and will fall therefrom, or the ice blocks may be individu-

ally picked by hand from band 20. And this is preferably accomplished by only partially removing the band 20 and its attached ice from the pocket 15 if only two or three ice blocks are desired to be removed at the time. Thus, all waste and unnecessary melting of the ice is avoided. Obviously the longitudinal partitions 16 may be omitted if desired and a sinuous metal band of the full width of the container 10 used instead of the three narrow bands 20. This of course will provide ice blocks of a length equal to the width of the container 10, the removal of the ice being substantially the same as described above.

The chief feature of this invention is the very simple and cheap construction for increasing the rapidity of freezing and at the same time providing easy removal of the ice blocks. Obviously the metal bands 20 may have the loops thereof spaced relatively closer together than as shown, thereby providing narrower ice blocks 21, for the purpose of obtaining relatively greater fin cooling area and hence still more rapid freezing. In fact, the only limit to the relative fin cooling area is the desired width of the ice blocks 21, and hence if there be no objection to ice blocks only half an inch wide the loops of band 20 may be spaced only about half an inch and thus provide a high rate of freezing due to the much greater fin cooling area for the same weight of ice to be frozen.

While I have shown the sinuous metal bands 20 as having a simple sine-like curve it is obvious that the principles of this invention are not limited to such particular shape of loops but that these loops may be of any other useful shape such as may be readily devised and still obtain the advantages of this invention. Also it is obvious that the sinuous metal bands of this invention may be used to advantage with metal containers with fixed longitudinal metal partitions instead of flexible rubber containers. In such case, the metal bands and attached ice are first removed bodily from the container after thawing the frozen bond between ice and container, after which the ice blocks are removed from the metal bands as described in detail above.

While the form of embodiment of the present 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 tray adapted to be inserted within a freezing chamber comprising: a molded flexible rubber container having a plurality of elongated pockets therein formed of flexible rubber, and a removable sinuous flexible metal band fitting within each pocket with the edges of said band contacting with the side walls of said pocket and forming a plurality of separate ice blocks in each pocket, said band and associated ice blocks in each pocket being removable bodily from said container by flexing the rubber walls of said pocket.

2. A freezing tray adapted to be inserted within a freezing chamber, comprising: a flexible rubber container having a plurality of elongated compartments therein and a flexible metal partition having alternate reverse pockets therein fitting within each of said compartments with the edges of said partition contacting with the side walls of the compartment and forming a plurality of individual ice pockets in each compartment, said partition and associated ice blocks being removable from said container by flexing the rubber walls thereof.

3. A freezing tray adapted to be inserted within a freezing chamber, comprising: a flexible rubber container having a flexible rubber partition therein dividing said container into a plurality of elongated compartments, and a reversely looped flexible partition fitting within each of said compartments with the edges of said looped partition contacting with the side walls of the compartment and forming a plurality of ice pockets in each compartment, said looped partition being removable from said container by flexing the rubber walls of said container.

4. A freezing tray adapted to be inserted within a freezing chamber, comprising: a flexible rubber container having a flexible rubber partition therein dividing said container into a plurality of compartments, and a flexible metal partition fitting into each compartment and forming a plurality of ice pockets in each compartment, each of said flexible metal partitions being removable with the frozen contents from its compartment by flexing the rubber walls of said container.

In testimony whereof I hereto affix my signature.

RALPH H. CHILTON.