

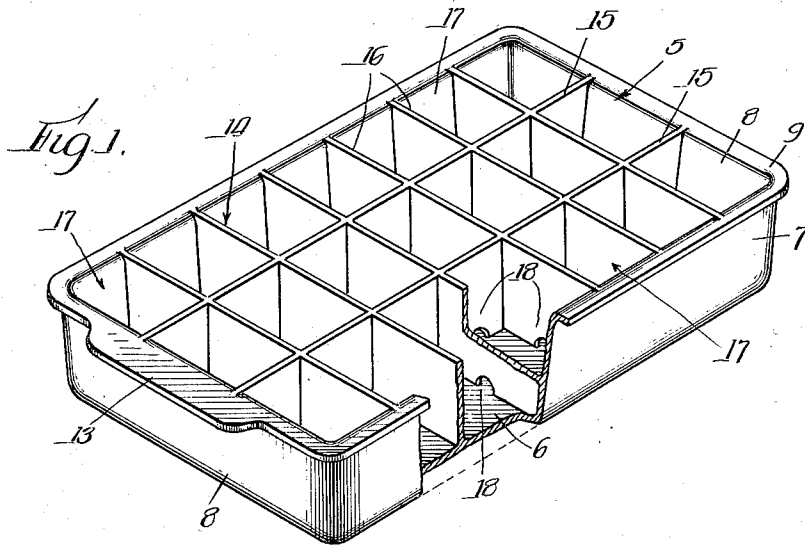
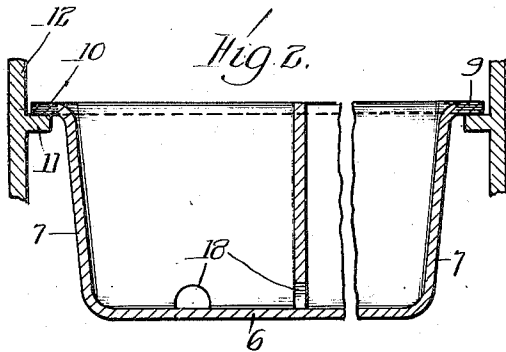
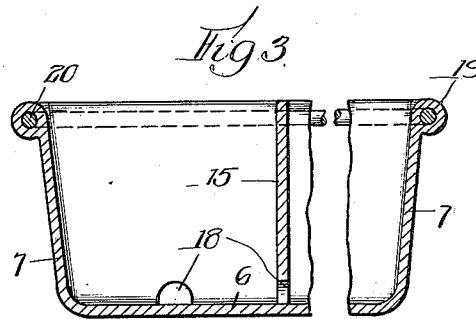
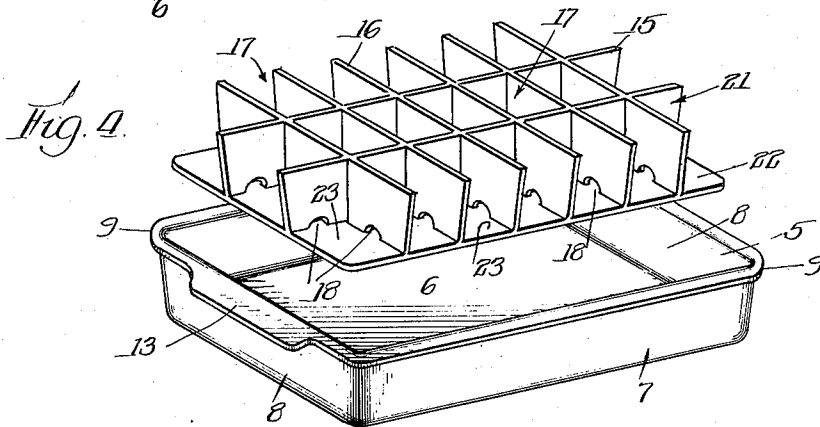
July 21, 1936.

J. SISSMAN

2,048,412

TRAY FOR REFRIGERATORS

Filed March 21, 1930



Inventor:-
Jesse Sissman,
By Cheever, Cox & Moore,
attys.

UNITED STATES PATENT OFFICE

2,048,412

TRAY FOR REFRIGERATORS

Jesse Sissman, Chicago, Ill., assignor to Copeman Laboratories Company, Flint, Mich., a corporation of Michigan

Application March 21, 1930, Serial No. 437,701

10 Claims. (Cl. 62—108.5)

This invention relates to trays in general and particularly to trays for refrigerators. More specifically, the invention relates to trays for automatic ice machines of the mechanical or absorption type, whereby ice blocks or ice cubes may be made in the refrigerator.

The primary object of the invention is to provide a self-sustaining, easily washable, substantially flexible ice tray for manufacturing ice blocks or cubes in a refrigerator apparatus.

Another object is to provide a new and novel ice tray made of substantially yieldable or flexible material, which is capable of being self-supporting when hung in the refrigerating compartment, which permits easy removal of the formed cubes from the tray, and which can be readily and economically manufactured.

Another important object is to provide a substantially flexible or yieldable self-sustaining or supporting tray, which has a dividing partition arranged therein with communicating channels extending through the partition walls, whereby all the compartments can be filled with water by merely pouring water into any one of the compartments.

A further object is to provide a two-piece ice tray which is sanitary, which can be readily cleaned, and which prevents the ice from adhering to the sides of the tray and the compartments to permit easy removal of the ice cubes.

Numerous other objects and advantages will appear throughout the progress of the following specification:

The invention comprises in general a tray portion having a removable frame insertable within the tray. Apertures are provided in the various division walls to permit communication from one compartment to another compartment, whereby pouring fluid into any one of the compartments will cause all the compartments to be filled. The tray and the frame are preferably made of flexible and yieldable material, such as rubber. The tray has an outwardly extending peripheral flange, which is vulcanized to make it substantially rigid so that the tray is capable of being self-supporting and non-collapsible when hung in the refrigerating compartment. Instead of making the outwardly protruding flanges of the tray substantially rigid by vulcanizing or the like, a flexible wire may be moulded into a rolled over flange to make the tray self-sustaining.

The accompanying drawing illustrates a selected embodiment of the invention, and the views therein are as follows:

Fig. 1 is a detail perspective view partly in section of one form of the improved tray.

Fig. 2 is a detail transverse sectional view through the tray shown in Fig. 1 having the outwardly extending flanges vulcanized to make them substantially rigid.

Fig. 3 is a similar view showing the modification of the flange by rolling it around a wire support.

Fig. 4 is an exploded or separated view showing a removable frame for the tray.

Referring to the drawing and particularly to Figs. 1 and 3 thereof, 5 designates a tray generally having a bottom 6, side walls 7, and end walls 8. The tray is preferably made of flexible yieldable material, such as rubber, and has an outwardly extending peripheral flange 9, which may be vulcanized as indicated at 10, Fig. 2, for making the flange substantially rigid so that it may be slidably and hangingly supported on the guides 11 protruding inwardly from the refrigerator chamber walls 12, Fig. 2. A forwardly extending lip 13 may be formed integral with the flange 9 to provide a handle to facilitate in the insertion or withdrawal of the tray in the refrigerating chamber. A frame 14, Fig. 1, is arranged inside of the tray and comprises a plurality of longitudinal partition walls 15 and cross dividing walls 16 to provide a plurality of separate compartments 17. These compartments may be of any size or shape desired and in which blocks or ice cubes are formed. Each of the longitudinal walls 15 and division walls 16 is provided with an aperture or cut out portion 18 to effect communication from one compartment to another, so that fluid poured into any one of the compartments will flow into all of the compartments, causing the fluid to seek its own level, the fluid rising in each compartment. These apertures are relatively small in size and extend through the walls upwardly from the bottom 6 of the tray, as clearly shown in Figs. 2 and 3. The provision of the apertures or cut outs 18 also permits the entire tray and frame to be flushed out after the ice cubes are removed therefrom. This flushing may consist of merely placing the tray under a water faucet, whereby the water entering any one of the compartments will flow through the apertures 18 and cause the balance of the compartments to be flushed also. As previously mentioned, the frame 14 is also made of flexible yieldable material, such as rubber, and when ice cubes are frozen in the tray they are easily removed by bending or flexing the tray, such as by pushing the cubes outwardly from the

bottom. The ice formation connecting the various cubes caused by the apertures 18 is easily broken as it is relatively small and narrow. In practice, it has been found that the ice formation connecting the various cubes in the compartments offers no resistance in removing the cubes, as the various division walls of the frame can be flexed, and this flexing readily breaks the formation, permitting the cubes to be easily withdrawn. The material from which the tray and frame are made permits easy withdrawal of the cubes from the compartments without the necessity of first pouring hot water over the tray, as is necessary in the conventional type of metal tray.

Instead of having the flange 9 vulcanized as indicated at 10, Fig. 2, the flange may be rolled as indicated at 19, Fig. 3, and a peripheral spring wire 20 may be moulded therein to make the tray self-supporting when it is hung in the refrigerating chamber. This wire is springy and permits flexing of the flange for assisting in removing the formed cubes from the various compartments.

In Fig. 4 the tray 5 is provided with a removable frame 21. This frame is similar in all respects to the frame 14 with the exception that it is removably arranged in the tray instead of being permanently and integrally fastened therein, as shown in Fig. 1. This latter frame may be provided with an integral bottom 22 to assist in holding the longitudinal walls 15 and the divisional walls 16 in position, inasmuch as the frame is preferably made of the same flexible material as the frame 14. The frame 21 is also provided with the apertures 18 formed in the longitudinal and divisional walls 15 and 16 respectively. These apertures commence at the top 23 of the bottom connecting member 22, and permit water or other fluid to flow from one compartment to the other in the same manner as described relative to Fig. 1. The construction shown in Fig. 4 may be preferred over that shown in Fig. 1, inasmuch as the entire tray is removable and can be more readily and easily washed. The flanges 9 of this tray may be either vulcanized as shown in Fig. 10, or the flanges may be rolled over and have the peripheral wire moulded therein.

The invention provides a sanitary ice tray which may be made of any material desired, but which is preferably made of flexible material, such as rubber. The apertures permit the water to flow from one compartment to another to permit the entire tray to be filled with water or other fluid by merely pouring the water or fluid into any one of the compartments. This construction also permits easy flushing and cleaning of the tray to remove the deposits which occur on the frame, side walls and tray bottom. The strengthening flange permits the tray to be easily handled and allows it to be hung in position. A tray without a substantially rigid but somewhat yieldable supporting peripheral flange is unwieldy and awkward to handle, and when it is filled with liquid cannot be hung in position, but must have its bottom resting on some sort of a support.

Changes may be made in the form, construction, and arrangement of the parts without departing from the spirit of the invention or sacrificing any of its advantages, and the right is hereby reserved to make all such changes as fairly fall within the scope of the following claims.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A rubber tray for manufacturing ice cubes in

a refrigerator comprising a bottom, side and end walls integral with said bottom, an integral relatively rigid outwardly extending peripheral flange on said tray for hangingly and slidingly supporting the tray in a refrigerator chamber and for preventing collapsing of the tray, a relatively flexible rubber frame removably arranged in said tray and comprising a bottom member, and longitudinal and cross vertical wall members fastened to said bottom member and providing a plurality of compartments in which ice cubes are formed, said wall members being provided with apertures at their bases to provide communicating channels between each adjacent compartment, whereby a fluid poured into any one of the compartments will flow into the other compartments until the fluid finds its level.

2. A tray for manufacturing ice cubes in refrigerators comprising a bottom, side and end walls integral therewith, and a removable integral frame of flexible yieldable material arranged in the tray, said frame comprising longitudinal and cross wall members providing independent compartments and a flexible wall member carrying said longitudinal and cross wall members, each of said wall members having openings provided therein to provide a communicating passage or channel from one compartment to another.

3. A tray for manufacturing ice cubes in refrigerators comprising a bottom, side and end walls integral therewith, and a removable frame arranged in the tray, said frame comprising a bottom member, and longitudinal and cross wall members fixed to said frame bottom and providing independent compartments, each of said wall members and bottom member having surfaces of rubber and having openings provided therein to provide communication from one compartment to another.

4. The combination of a tray for containing matter to be frozen, a grid unit for said tray formed of flexible material, said grid unit including a flexible substantially horizontal wall and vertical partition walls carried by and extending from said horizontal wall, some of said partition members cooperating with side walls of said tray to form independent compartments, the surfaces of said horizontal wall and partition walls forming said compartments being formed of non-metallic material to which ice does not readily adhere whereby when the grid is removed from the tray the part of the compartment formed by the walls of the tray will be open to permit transverse removal of the ice cubes from the grid.

5. The combination of a sharp freezing tray for containing material to be frozen, a non-metallic integral frame for said tray formed of flexible material, said frame comprising vertically extending walls forming a plurality of independent compartments, and a flat wall closing one end of said compartments and carrying said vertical walls, some of said compartments being open at the sides to permit easy transverse removal of ice cubes when said frame is removed from the tray.

6. The combination of a sharp freezing tray for containing material to be frozen, a removable integral frame for said tray comprising vertical flexible walls for defining a plurality of rows of independent compartments within the tray, the exposed surfaces of said walls being formed of rubber, and a horizontal wall carrying all of said vertical walls and closing one end of said compartments, the surface of said horizontal wall closing one end of said compartments being formed of rubber, the sides of some of said com-

partments adjacent the edge of the frame being open to permit easy transverse removal of ice cubes when said frame is removed from the tray.

7. An ice cube grid unit for forming compartments in an ice tray, comprising a horizontal non-metallic flexible wall provided with flexible non-metallic partitions projecting therefrom, some of the compartments formed by said partitions being open at the sides to permit of transverse removal of ice cubes from the grid.

8. An ice cube grid unit for forming compartments in an ice tray, comprising a horizontal flexible wall provided with flexible partitions projecting therefrom, and forming a plurality of rows of ice cubes adapted to be supported on said wall as a single base, some of the compartments formed by said partitions being open at the sides to permit of transverse removal of ice cubes from the grid.

9. The combination of a tray for containing material to be frozen, a grid unit for said tray including a substantially horizontal wall and flex-

ible vertical partition walls carried by and extending from said horizontal wall, some of said partition walls cooperating with the side walls of said tray to form independent compartments, the surfaces of said partition walls forming said compartments being formed of non-metallic material to which ice does not readily adhere whereby when the grid is removed from the tray the part of the compartments formed by the walls of the tray will be open to permit transverse removal of the ice cubes from the grid.

10. A container for freezing ice cubes, comprising a rubber tray having flexible side walls and a relatively rigid upper frame, and a removable grid unit having flexible non-metallic vertically extending partition walls some of which cooperate with side walls of the tray to form ice cube forming compartments and a horizontal wall secured to said partition walls and closing the ends of some of said compartments.

JESSE SISSMAN.