Oct. 23, 1934. J. G. BLYSTONE 1,977,608

ICE TRAY HEATER

Filed July 23, 1929

Fig. 1.

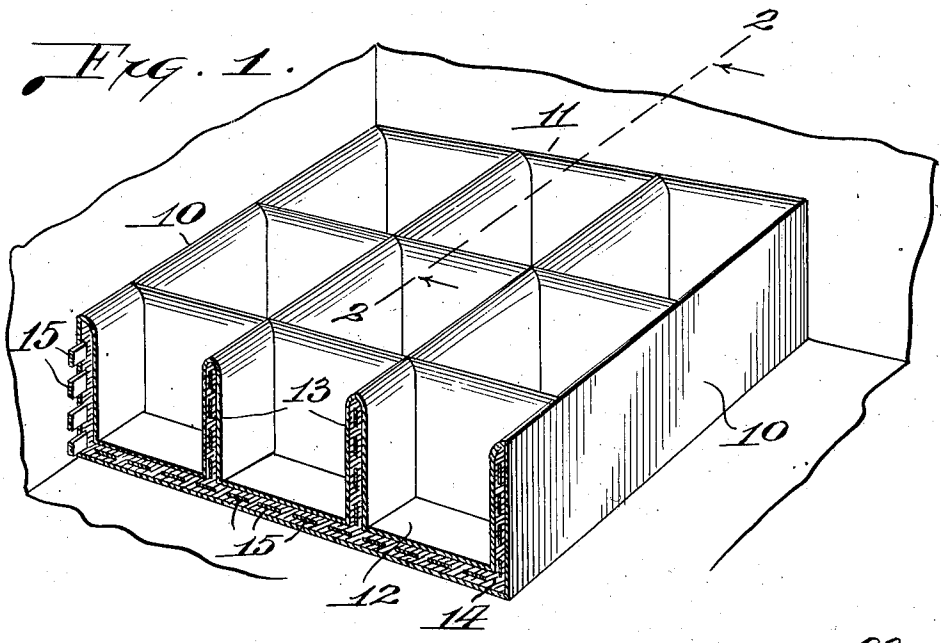



Fig. 2.

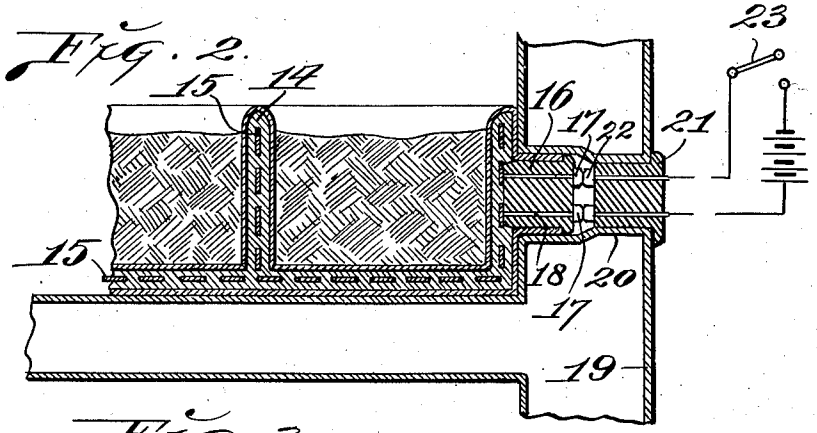
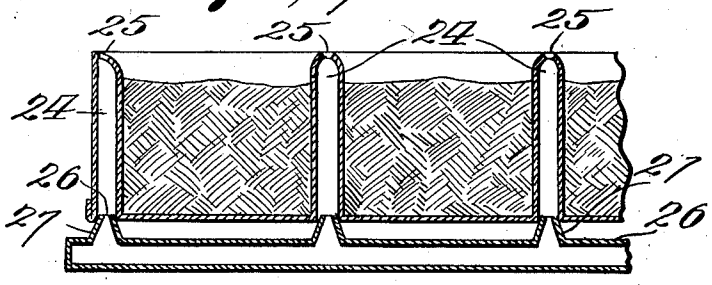



Fig. 3.




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# UNITED STATES PATENT OFFICE

1,977,608

## ICE TRAY HEATER

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Application July 23, 1929, Serial No. 380,321

4 Claims. (Cl. 62—108.5)

My invention relates to an ice tray heater and has for its principal object the provision of relatively simple, practical and efficient means for heating the ice trays of mechanical and electrical refrigerators and particularly those refrigerators that are utilized for household purposes. In practically all household refrigerators that are mechanically or electrically operated the ice for household use is frozen in the compartments of trays and which latter are removably positioned within a refrigerating or freezing chamber and where the water is frozen solid within the compartments of the tray they cannot be removed until sufficient heat has been applied to the tray to loosen the blocks of ice from the walls of the compartments. This operation is generally accomplished by permitting water to run over the tray, but such operation takes considerable time besides requiring considerable manipulation of the tray and the use of considerable water.

I propose to construct an ice tray with double walls and partitions so that heat may be readily applied to all four sides and the bottom of the tray, thereby quickly melting the surfaces of the cubes of ice that are in contact with the walls and bottom of the compartment, thereby enabling said cubes or ice to be quickly removed from the tray.

With the foregoing and other objects in view, my invention consists in certain novel features of construction and arrangement of parts that will hereinafter be more fully described and claimed and illustrated in the accompanying drawing, in which:

Fig. 1 is a perspective view of a portion of an ice tray constructed in accordance with my invention.

Fig. 2 is a cross section taken on the line 2—2 of Fig. 1.

Fig. 3 is a cross section of a modified form of the ice tray and the heating means therefor.

In the construction of my improved tray the sides 10, ends 11, bottom 12 and partition 13 are constructed with double walls of sheet metal and arranged within the narrow chambers between said double walls is a filling of suitable insulation 14, which may be of any desired material such as asbestos or mica. Imbedded in this filling of insulation are electrically connected heating elements 15 which may be in the form of wires or sheets or narrow strips of thin metal.

Secured to and projecting from the rear wall of the tray is a plug 16 of suitable insulation, on the outer face of which is arranged a pair of contacts 17 and said contacts are electrically connected by suitable conductors 18 that pass through the plug, to the terminals of the heating elements 15 that are imbedded in the walls, partitions and bottom of the ice tray.

Formed in the rear wall 19 of the refrigerator and to the rear of the chamber in which the ice tray is normally positioned is a socket 20 that is adapted to receive the plug 16 and seated in said socket is a plug 21 of suitable insulation. Arranged on the inner end of this plug are contacts 22 that are adapted to be engaged by the contacts 17 when the ice tray is properly positioned within its compartment.

Contacts 22 are electrically connected to a suitable source of electric current supply, either a battery or the household lighting system, and arranged in the connections between the source of current supply and said contacts 22 is a switch 23.

In the use of my improved ice tray heater the compartments within the tray are filled or partially filled with water and said tray is now properly positioned within the freezing chamber of the refrigerator with plug 16 projecting into the socket 20 and the contacts 17 in engagement with contacts 22. Switch 23 is open.

After the water has frozen solid in the compartments of the tray and it is desired to remove the cubes of ice, switch 23 is closed for a short time so as to permit electric current to flow from the walls through the connections to the heating elements 15 that are imbedded in the walls, bottom and partitions of the tray and in a short time the heat developed by the heating elements will melt the surfaces of the ice cubes that are in contact with the walls of the compartments, thereby enabling the cubes to be readily removed from the tray.

In Fig. 3 I have shown a modified form of the tray wherein the walls and partitions are made double with chambers 24 between the double walls, said chambers being open at their lower ends and provided with small openings 25 at their upper ends.

Where this form of tray is utilized, there is provided a heater in the form of a shallow housing 26 that is supplied with heated air from a suitable source and formed on top of said housing is a series of ribs 27 provided in their upper ends with narrow slots 28.

To remove the cubes of ice from this form of tray the latter is withdrawn from the freezing compartment in the refrigerator and positioned

on housing 26 with the slotted upper ends of the ribs 27 projecting into the open lower ends of the chambers 24 in the walls and partitions and as heated air is circulated through the housing 26, said air will flow upwardly through the ribs 27 and chambers 24, thereby quickly heating the walls and partitions so as to enable the ice cubes to be readily removed.

Where it is not found convenient to provide the refrigerator with the plug 21 and electric connections thereto the ice tray may be removed from the refrigerator after the water has been frozen in the compartments and plug 16 may be inserted in a suitable socket having connections for supplying current to the contacts 17 and thus the melting of the surfaces of the ice cubes may be accomplished outside the refrigerator.

Thus it will be seen that I have provided an ice tray heater that is relatively simple in construction, inexpensive of manufacture and which is very effective in performing the functions for which it is intended.

It will be understood that minor changes in the size, form and construction of the various parts of my improved ice tray heater may be made and substituted for those herein shown and described without departing from the spirit of my invention, the scope of which is set forth in the appended claims.

I claim as my invention:

1. The combination with a refrigerator ice tray, having double walls and partitions, of heating elements imbedded in said double walls and partitions and means including a contact on said tray and a cooperating contact on the refrigerator within which the tray is positioned for delivering heat to said heat elements while the tray is positioned within the refrigerator.

2. In a refrigerator, a support, a removable tray supported thereby, an electric heating element, disposed between said parts and carrying a separable plug member, current wires adapted to be connected with a source of current carried by said refrigerator, and carrying a plug member complementary to said first plug member.

3. The combination with a refrigerator provided with electric contacts and conductors leading from said contacts to a source of electrical energy, of an ice producing tray removably positioned within said refrigerator, said tray having a double walled bottom, side walls and partitions, electric heating elements arranged in the spaces between the double walls of said bottom, sides and partitions and contacts connected to said heating elements and adapted to engage the contacts in the refrigerator when the ice producing tray is positioned therein.

4. The combination with a refrigerator having electrical contacts and conductors leading from said contacts to a source of electrical energy, of an ice producing tray removably positioned within said refrigerator, said tray having double walled sides, bottom and partitions, insulating material within the spaces in said double walled bottom, sides and partitions, electric heating elements imbedded in said insulating material and electrical contacts carried by said tray and connected to said electric heating elements which contacts are adapted to engage the contacts in the refrigerator when the tray is positioned within said refrigerator.

JOHN G. BLYSTONE.