July 28, 1931. A. W. BERRESFORD 1,816,711

FREEZING TRAY HEATING DEVICE

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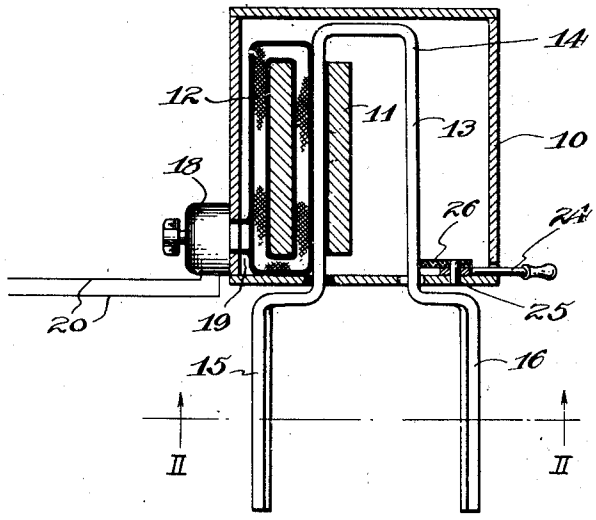



Fig. 1

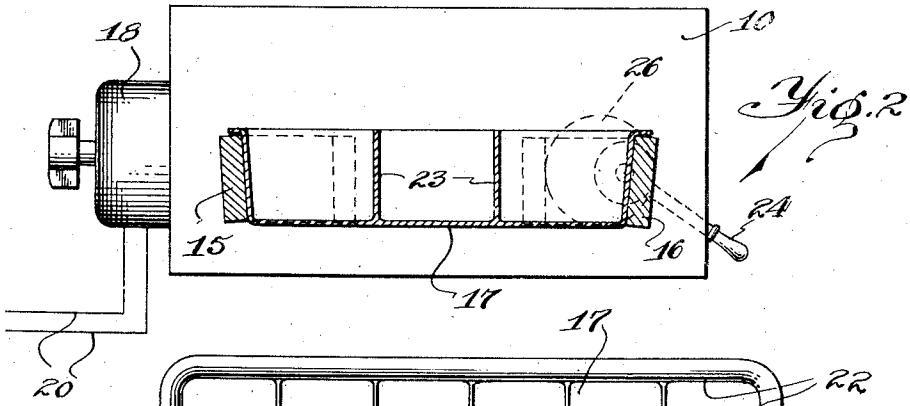



Fig. 2

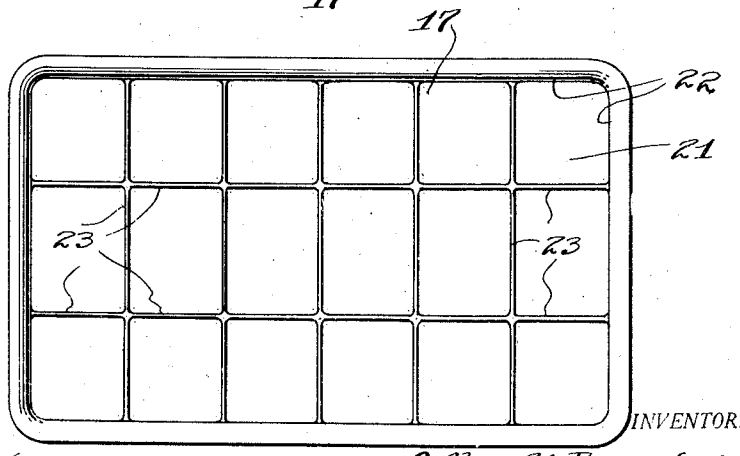



Fig. 3

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# UNITED STATES PATENT OFFICE

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## FREEZING TRAY HEATING DEVICE

Application filed August 18, 1927. Serial No. 213,784.

My invention relates to heating devices and it has particular relation to means for freeing blocks of ice from containers in which it has been frozen.

Some difficulty has been encountered in freeing blocks of ice from the containers in which they have been frozen. This is particularly true of the task of removing blocks or cubes of ice from the small pans generally known as freezing trays, employed for that purpose in mechanical refrigerating units of the domestic type, because of the large number of partitions contained therein. Heretofore, the ice has been freed from such trays or containers by holding the tray upside down and pouring heated water over the bottom thereof. This method not only requires considerable time and effort, but is difficult to practice without rendering the kitchen untidy. Also, a waste of ice is caused, as, during the time required for the heat from the water to warm the partitions in the ice tray, the ice adjacent to the bottom of the pan is melted to an unnecessary degree. By my invention I have eliminated all of these objections and have provided a novel device of attractive appearance by which the ice blocks may be readily removed and which may be used in any suitable location without detriment to the appearance of the kitchen.

One object of my invention consists in providing means for automatically heating a freezing tray.

Another object of my invention is to provide means for simultaneously heating all portions of said freezing tray, including the bottom, the side walls and the partitions thereof.

A further object of my invention consists in providing a novel type of freezing tray heating device which is simple in construction, inexpensive to operate, and attractive in appearance.

An additional object of my invention consists in providing a novel type of freezing tray which lends itself particularly to use with my improved ice tray heating device.

A still further object of my invention is to provide a novel method of freeing blocks of ice from the trays in which they have been frozen.

For a better understanding of my invention reference may now be had to the accompanying drawings of which:

Fig. 1 is a cross-sectional view taken in horizontal plane of a freezing tray device constructed in accordance with my invention.

Fig. 2 is a cross-sectional view of the structure illustrated in Fig. 1, the section being taken substantially along the line II—II thereof, with the freezing tray resting upon its support.

Fig. 3 is a plan view of a freezing tray constructed in accordance with my invention.

Referring more specifically to the drawings, I have illustrated a cabinet 10 within which is disposed a transformer core 11, of the usual type, upon which is mounted a primary winding 12 and an open circuit secondary winding 13 consisting of a single bar of substantially U-shape having a main body portion 14 and spaced legs 15 and 16 integral therewith. The secondary winding 13 may be composed of copper or any other suitable conductor of electricity, and is of sufficient cross-sectional area to support a freezing tray 17 upon the legs 15 and 16. As illustrated in Fig. 2, on one side of the cabinet 10 is mounted a manually operable electric switch 18, which is connected to the primary winding 12 by means of suitable connections 19 and to an external source of power by means of connections 20. Normally the switch 18 is so turned as to keep the primary winding 12 continuously energized, the resulting flow of current being relatively small unless the secondary winding of the transformer is closed.

The freezing tray 17 consists of a bottom portion 21, side walls 22 and partition walls 23 and is composed of copper, aluminum or the like. It is desirable that the partition walls 23 be cast with the main body portions 21 and 22 of the tray, or, that they be soldered thereto, so as to form good electrical contact therewith. Disposed partially within the cabinet 10 is a lever 24 pivotally

mounted upon a pin 25 secured in the wall of the cabinet 10. Rigidly secured to the lever 24 is a cam 26, composed of insulating material, which is adapted to engage the leg 16 of the secondary winding 13 to move it toward the leg 15 when the lever 24 is manually actuated.

Having described the structural features of my invention, its operation is as follows:

After ice has been frozen in the freezing tray 17, the tray is removed from the refrigerator, or other freezing device, in which the freezing operation occurs, and is placed upon the legs 15 and 16, which are so shaped as to conform to the sides of the tray 17, so as to form a good electrical contact therewith, the weight of the freezing trays forcing the sides thereof into clamping engagement with the legs 15 and 16. In the event that suitable electrical contact is not secured by reason of the clamping engagement produced by the weight of the freezing tray, the lever 24 may be actuated so as to move the leg 16 toward the leg 15, thus clamping the freezing tray therebetween. With the primary winding 12 energized the secondary winding 13 will have a source of potential existing across the legs 15 and 16 and as soon as the metallic freezing tray 17 is placed upon the legs 15 and 16 an electric current will flow therebetween through the freezing tray. This current serves to heat the various portions of the tray and as the partition walls 23 have good electrical contact with the various portions of the side walls the current also traverses these partition walls, thus serving to heat all portions of the freezing tray simultaneously.

It will be understood, of course, that the secondary winding 13 is insulated from the cabinet 10 so as to prevent any current flowing therein except when the legs 15 and 16 are bridged by means of the freezing tray.

From the foregoing description it will be apparent that the only action necessary on the part of the operator to free the ice cubes or blocks from the freezing tray consists in placing the tray upon the supporting legs 15 and 16 for a sufficient length of time for the current to slightly heat the various portions of the freezing tray, whereupon the tray may be removed from the heating device and overturned to remove the ice blocks therefrom. The length of time required by the heating device to sufficiently heat the various portions of the tray will depend upon the resistance of the secondary winding 13, the number of turns and resistance of the primary winding 12, and the potential across the lines 20.

In the event that only a portion of the ice blocks are desired at any one time, it is unnecessary to free all of the blocks of ice. A portion of the blocks may be freed without disturbing the remainder by placing in contact with the arms 15 and 16 only one end of the tray. This will result in a relatively heavy current passing through the portion of the tray in contact with the arms 15 and 16, and only a relatively small current passing through the remainder of the tray. The heavier current will heat the end of the tray sufficiently to free the blocks of ice therein disposed before the remainder of the tray is heated to any material degree. The desired free blocks may then be removed and the tray containing the remaining blocks again returned to the refrigerator.

From the foregoing description it will be apparent that I have provided an apparatus for facilitating the removal of ice from freezing trays which is simple to manufacture and inexpensive to operate, and which simplifies and materially reduces the amount of effort necessary to remove the ice from the tray.

Although I have illustrated but one form of my invention and have described in detail but a single application thereof, it will be apparent to those skilled in the art, that various modifications and changes may be made therein without departing from the spirit of my invention or from the scope of the appended claims.

What I claim is:

1. In a freezing tray heating device adapted to removably support a freezing tray, means for clampingly engaging a metallic freezing tray and means for simultaneously inducing an electrical current therein.

2. A metallic freezing tray receiving device comprising two spaced members adapted to clampingly engage the tray on opposite sides thereof for removably supporting the same and means for inducing an electrical circuit therein.

3. A freezing tray heating device comprising a casing, a transformer core and a primary winding associated therewith disposed within said casing, an open secondary winding of substantially U-shape associated with said transformer core, the main body portion of said U-shape member being disposed within said casing and the leg portions thereof projecting from said casing in clamping relation to the sides of the freezing tray.

4. A freezing tray heating device comprising a casing, a transformer core and a primary winding associated therewith disposed within said casing, an open secondary winding of substantially U-shape associated with said transformer core, the main body portion of said U-shape member being disposed within said casing and the leg portions thereof projecting from said casing,

and means for moving one of said leg portions relative to the other.

5. A freezing tray heating device comprising a casing, two spaced arms projecting from said casing and adapted to serve as a support for a freezing tray, and means disposed within said casing for automatically causing an electrical current to flow from one of said arms to the other through the freezing tray when the freezing tray is placed on said arms, said casing being provided with means for causing said arms to clampingly engage said freezing tray.

6. In combination, a freezing tray receiving device comprising two spaced electrical contact members adapted to conform to the sides of a freezing tray, a freezing tray adapted to be supported by said contact members, means for urging the contact members towards each other for clampingly engaging the freezing tray, and means for inducing an electrical circuit therein.

In testimony whereof I hereunto affix my signature.

ARTHUR W. BERRESFORD.