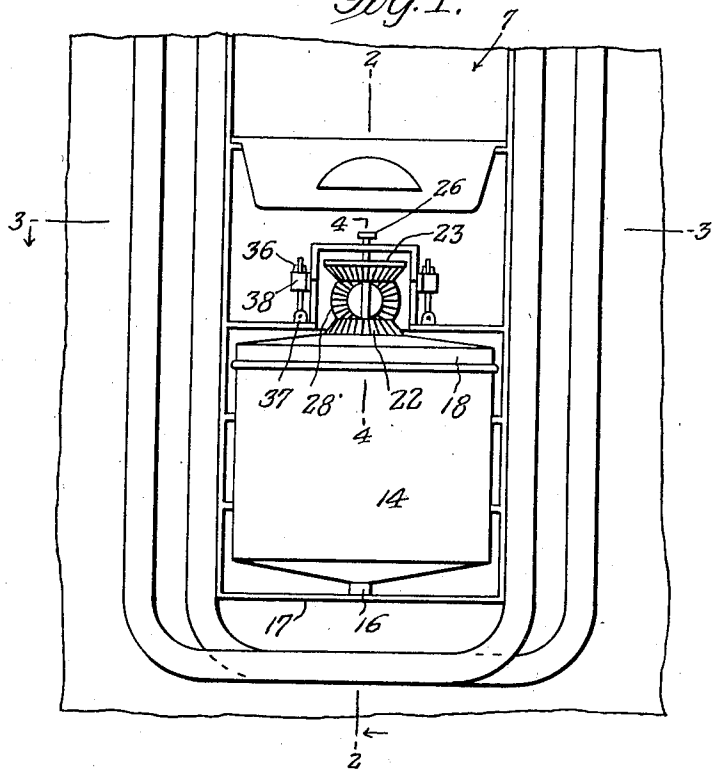
May 14, 1940. R. HAMILTON ET AL 2,200,273

ICE-CREAM FREEZER FOR ELECTRICAL REFRIGERATORS

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Fig. 1.



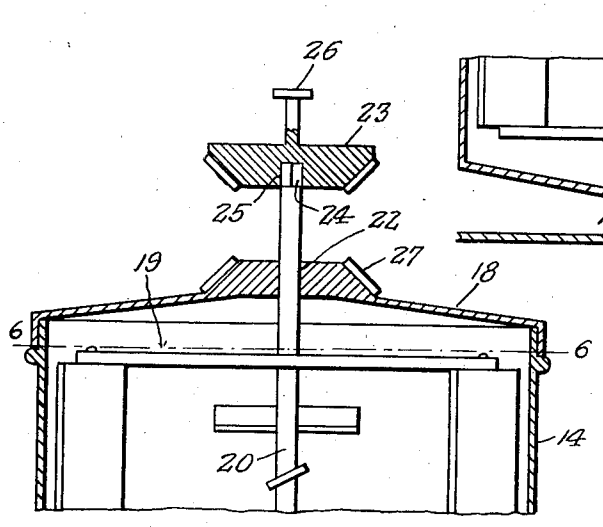


Fig. 4.

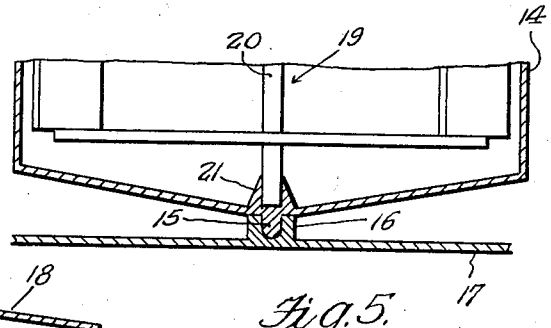


Fig. 5.

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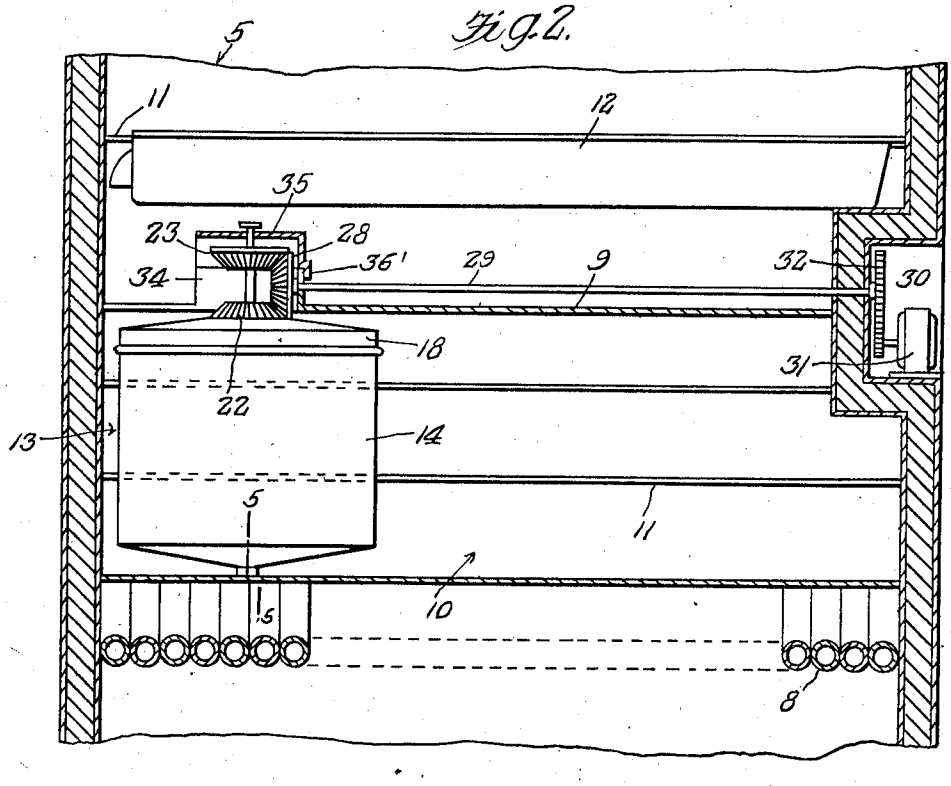
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ICE-CREAM FREEZER FOR ELECTRICAL REFRIGERATORS

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Fig. 2.



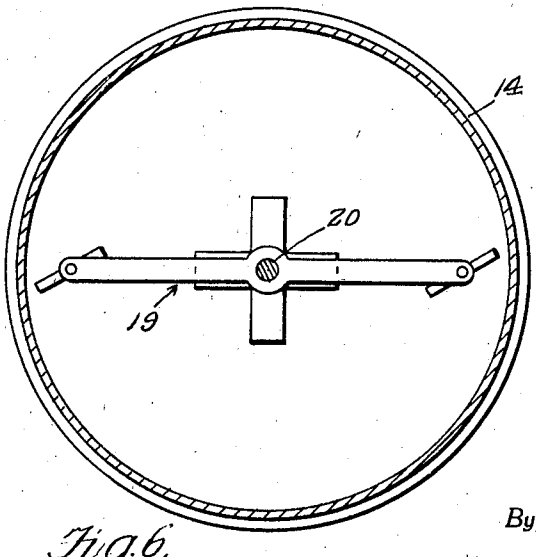
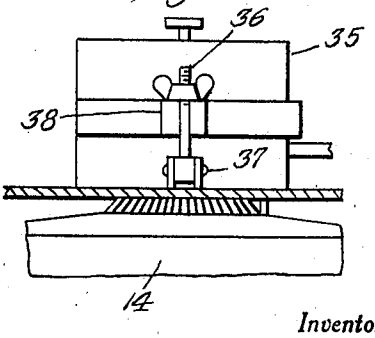


Fig. 6.

Fig. 7.



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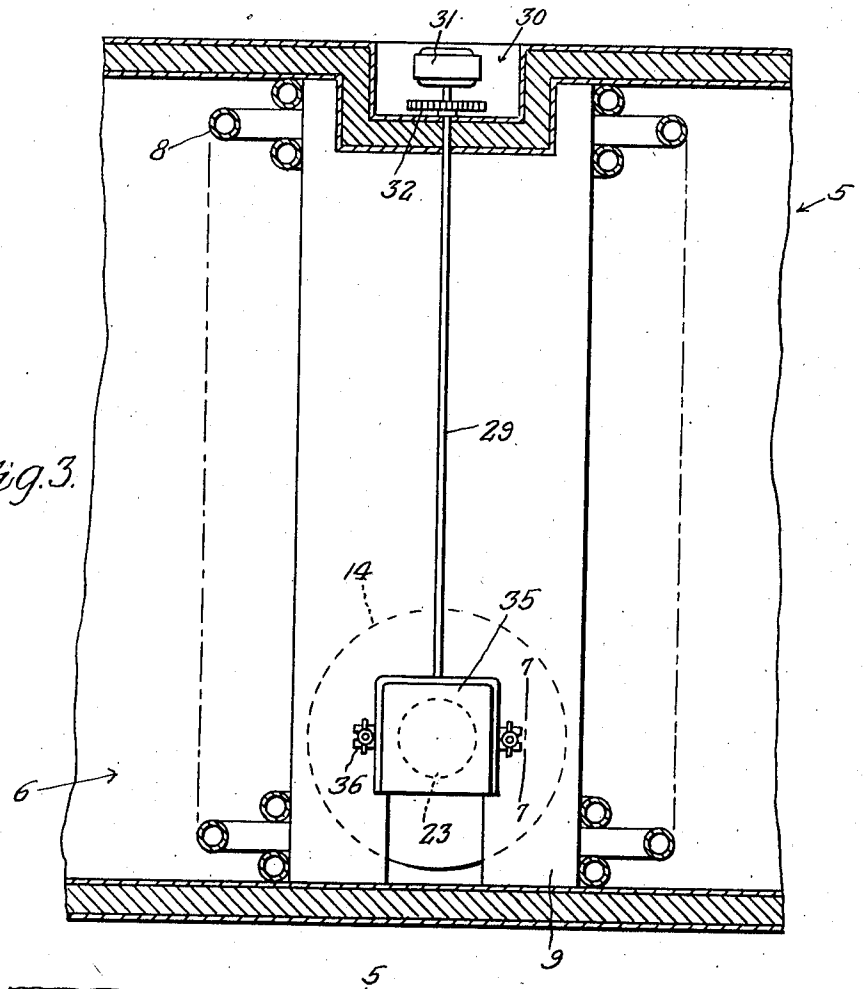
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ICE-CREAM FREEZER FOR ELECTRICAL REFRIGERATORS

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Fig. 3.



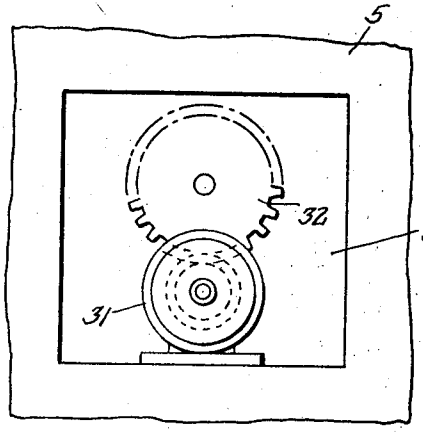


Fig. 8.

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Patented May 14, 1940 2,200,273

UNITED STATES PATENT OFFICE

2,200,273

ICE-CREAM FREEZER FOR ELECTRICAL REFRIGERATORS

Roy Hamilton and Robert Hudson, Merced, Calif.

Application November 9, 1938, Serial No. 239,716

2 Claims. (Cl. 62—114)

This invention relates to refrigerators provided with equipment for producing ice cream and more particularly to the association of an ice-cream freezer mechanism with a power-operated refrigerator.

An object of the present invention is to improve upon ice-cream freezer mechanism of the type now associated with refrigerators of the character above mentioned.

The invention together with its objects and advantages will be best understood from a study of the following description taken in connection with the accompanying drawings wherein:

Figure 1 is a fragmentary front elevational view of an electric domestic refrigerator showing the ice-cream freezer unit positioned in the freezing chamber.

Figures 2, 3 and 4 are detail views taken substantially on the lines 2—2, 3—3 and 4—4 of Figure 1.

Figure 5 is a detail view taken substantially on the line 5—5 of Figure 2.

Figure 6 is a horizontal sectional view taken substantially on the line 6—6 of Figure 4, and Figure 7 is a fragmentary detail view partly in section and partly in elevation for more clearly showing a gear case hereinafter more fully referred to the section being taken on the line 7—7 of Fig. 3.

Figure 8 is a fragmentary elevation looking toward the recessed part of the cabinet and showing the motor and gearing in said recess.

Referring more in detail to the drawings wherein is illustrated the application to a conventional electric refrigerator it will be seen that the cabinet of the refrigerator is fragmentarily shown and indicated generally by the reference numeral 5.

The freezing compartment of the refrigerator is indicated generally by the reference numeral 6 while the ice pan or tray-receiving compartment is indicated by the reference numeral 7.

In the present instance the compartment 7 is shown as being open at the front thereof, and coils 8 encircle the compartment 7 in the usual manner.

Further in accordance with the present invention the ice pan or tray-receiving compartment 7 is divided by a horizontal partition or wall 9 into an upper section and a lower ice-cream freezing section, the latter being indicated by the reference numeral 10.

The upper and lower sections of the compartment 7 are provided with vertically spaced pairs of opposed ice tray-supporting rails 11 for supporting ice trays 12. In this connection it will be understood that when the compartment 10 is not being used in the freezing or making of ice cream, ice cube trays, such as shown at 12, may be arranged therein and supported by the rails 11 provided therefor within the lower section 10 of the compartment 7.

It will be understood that the refrigerator will be provided with the usual refrigerating mechanism (not shown), and forming no important part of the present invention; and that the liquid refrigerant is supplied to a boiler or header, (not shown), through the means of a compressor and condenser operated by a suitable power means such as an electric motor, all of which are well known in the art and are not shown, the liquid refrigerant circulating, as is known, through the coils whereby to freeze the water placed in the pans or trays 12.

In accordance with the present invention the same mechanism may be employed for freezing ice cream and to that end the ice cube trays are removed from the lower section 10 of the compartment 7 and positioned within said section 10 of the compartment 7 is the vertically disposed ice-cream freezer indicated generally by the reference numeral 13.

In the present instance the freezer 13 comprises a cylinder 14 that is opened at its top and closed at its bottom. At the bottom thereof the cylinder 14 is provided with a stud 15 that is journaled in a bearing 16 provided therefor on the bottom wall 17 of the lower section 10 of the compartment 7.

For the open top of the cylinder 14 there is provided a lid 18 as clearly shown in Figure 4.

The cylinder or can 14 accommodates a suitable dasher 19, the shaft 20 of which has one end adapted to be journaled in a suitable bearing 21 provided therefor within the can or cylinder 14 at the bottom of the latter. At the upper end thereof the dasher shaft 20 extends through an opening 22 provided therefor in the lid 18 and accommodates on its upper end a bevel gear 23. As shown in Figure 4 the extreme upper end of the dasher shaft 20 is squared as at 24 to fit in a complemental socket 25 provided therefor in the gear 23 which latter is also provided with a handle 26 to facilitate the positioning of the gear on the shaft 20. The lid 18 for the can or cylinder 14 is also provided at the center thereof with a bevel gear 27 which is formed integrally with the lid 18 or otherwise permanently fastened thereto. The gears 22, 23 are adapted to mesh with a bevel gear 28 provided on one end of a horizontal shaft 29 positioned within the compartment 7 adjacent the bottom of the upper section of the compartment as shown in Figure 2.

The shaft 29 extends through an opening in the rear wall of the refrigerator cabinet 5 to terminate within a recess or chamber 30 provided in said rear wall of the refrigerator cabinet.

As shown in Figures 2 and 8 there is arranged

within the recess or chamber 30 an electric motor 31 for driving the shaft 29 through the medium of gearing 32. It will thus be seen that drive from the motor 30 is transmitted to the shaft 29 through the gearing 32 and from the shaft 29 to the dasher shaft 20 through the medium of the intermeshing gears 28 and 23 for turning the dasher in one direction, while drive from the shaft 29 is transmitted through the medium of the intermeshing gears 28, 22, to the can or cylinder 14 for revolving the latter reversely with respect to the rotation of the dasher 19.

In actual practice it will be found that with the dasher 19 revolving in one direction and the can or cylinder 14 revolving in a reverse direction, the contents of the can or cylinder 14 will be thoroughly agitated and consequently brought to the desired consistency within a very short space of time.

Obviously as the ice-cream contents of the can or cylinder 14 is being thus turned the refrigerant circulating through the coils 8 will freeze the ice cream in a positive and efficient manner.

After the ice cream has been brought to the proper consistency and frozen to the desired degree, the can or cylinder 14 may be bodily removed from the lower section 10 of the compartment 7. To accomplish this removal the operator pulls upwardly on the knob 26 to raise the gear 23 off of the upper end of the dasher shaft 20 whereupon the can 14 may be tilted as required to lift the stud 15 out of the bearing 16 permitting complete removal of the freezer from the compartment.

To accommodate the gears 22, 23 and 28 the partition wall 9 terminates short of the front of the compartment 7 and at its forward edge there is formed on the partition 9 a gear casing including a lower section 34 that is integral with the partition 9 and an upper removable section 35. At the lower edge thereof the section 35 is formed to provide an internal groove 36' that receives the upper edge of the wall of the lower gear casing 34. The upper section 35 is held seated on the lower gear casing section 34 through the medium of nut-equipped bolts 36 hinged to the wall 9 at opposite sides of the gear case section 34 as at 37 and engageable with pairs of lugs 38 provided on opposite sides of the upper gear case section 35 as will be clear from a study of Figures 2 and 7.

It will also be noted that the top wall of the upper gear case section 35 is provided with an opening to receive the handle member 26 associated with the gear 23. Also there will be suitable clearance between the gear 23 and the top wall of the upper gear case section 35 as to permit the gear 23 to be raised out of engagement with the dasher shaft 20.

It is thought that a clear understanding of the construction, utility and advantages of an invention of this character will be had without a more detailed description.

Having thus described the invention what is claimed as new is:

1. In a domestic refrigerator having a cabinet provided with a rear wall equipped with a recess accessible from the exterior of said cabinet, said cabinet also having therein an ice tray-receiving chamber surrounded by refrigerating coils, said ice tray-receiving chamber having a horizontal partition therein dividing said chamber into upper and lower sections, said partition at the front edge thereof terminating short of the front end of said chamber and provided at said front edge with a gear case, a bearing member mounted in the bottom of the lower section of said chamber, and in substantial alignment with said gear case, an ice-cream freezer including a container provided on the bottom thereof with a stud adapted to be journaled in said bearing, and a dasher revolubly mounted in said container and having a shaft provided at its upper free end with a squared terminal, a gear rotatably mounted in said gear casing and supported therein for vertical movement, said gear having therein a socket complemental to the squared terminal of said dasher shaft for receiving said terminal, a lid for said container having an aperture therein to accommodate the dasher shaft and also provided with a gear thereon accommodated within said gear case when the freezer is positioned within the lower section of said chamber, a gear on one end of said shaft and arranged within said gear case and meshing with the first and second-named gears, a power unit mounted within the aforementioned wall recess, said shaft having an end thereof terminating within said recess, and gearing connecting said power unit with said shaft for driving the latter from said power unit, the first, second and third-named gears intermeshing for transmitting drive from said shaft to the dasher and container simultaneously for rotating said dasher and container in reverse directions relative to one another.

2. In a domestic refrigerator having a cabinet provided with a rear wall equipped with a recess accessible from the exterior of said cabinet, said cabinet also having therein an ice tray-receiving chamber surrounded by refrigerating coils, said ice tray-receiving chamber having a horizontal partition therein dividing said chamber into upper and lower sections, said partition at the front edge thereof terminating short of the front end of said chamber and provided at said front edge with a gear case, a bearing member mounted in the bottom of the lower section of said chamber, and in substantial alignment with said gear case, an ice-cream freezer including a container provided on the bottom thereof with a stud adapted to be journaled in said bearing, and a dasher revolubly mounted in said container and having a shaft provided at its upper free end with a squared terminal, a gear rotatably mounted in said gear casing and supported therein for vertical movement, said gear having therein a socket complemental to the squared terminal of said dasher shaft for receiving said terminal, a lid for said container having an aperture therein to accommodate the dasher shaft and also provided with a gear thereon accommodated within said gear case when the freezer is positioned within the lower section of said chamber, a gear on one end of said shaft and arranged within said gear case and meshing with the first and second-named gears, a power unit mounted within the aforementioned wall recess, said shaft having an end thereof terminating within said recess, and gearing connecting said power unit with said shaft for driving the latter from said power unit, the first, second and third-named gears intermeshing for transmitting drive from said shaft to the dasher and container simultaneously for rotating said dasher and container in reverse directions relative to one another, and the upper and lower sections of said chamber being provided with vertically spaced pairs of opposed ice tray accommodating rails.

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ROBERT HUDSON.