

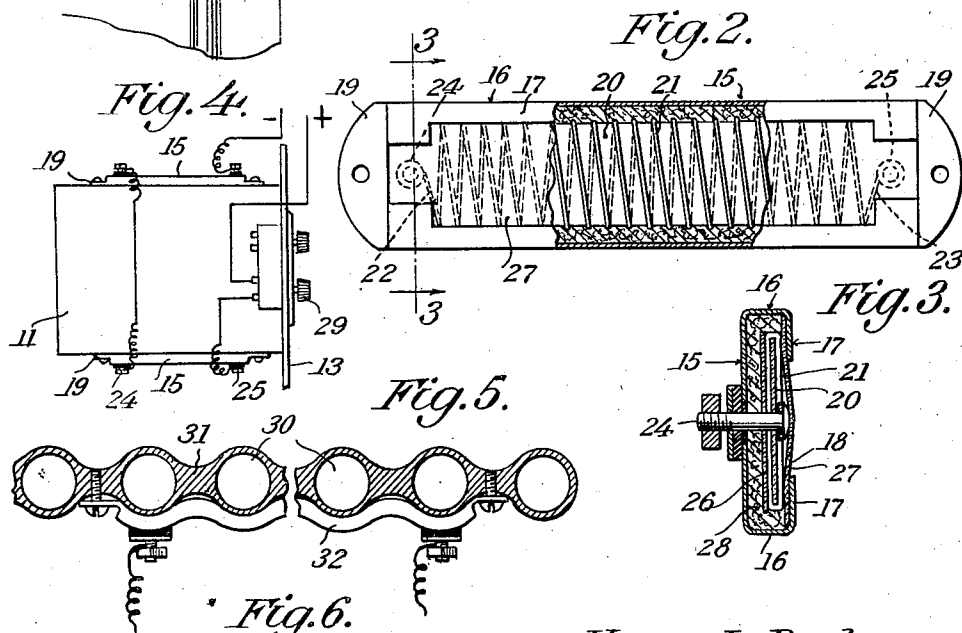
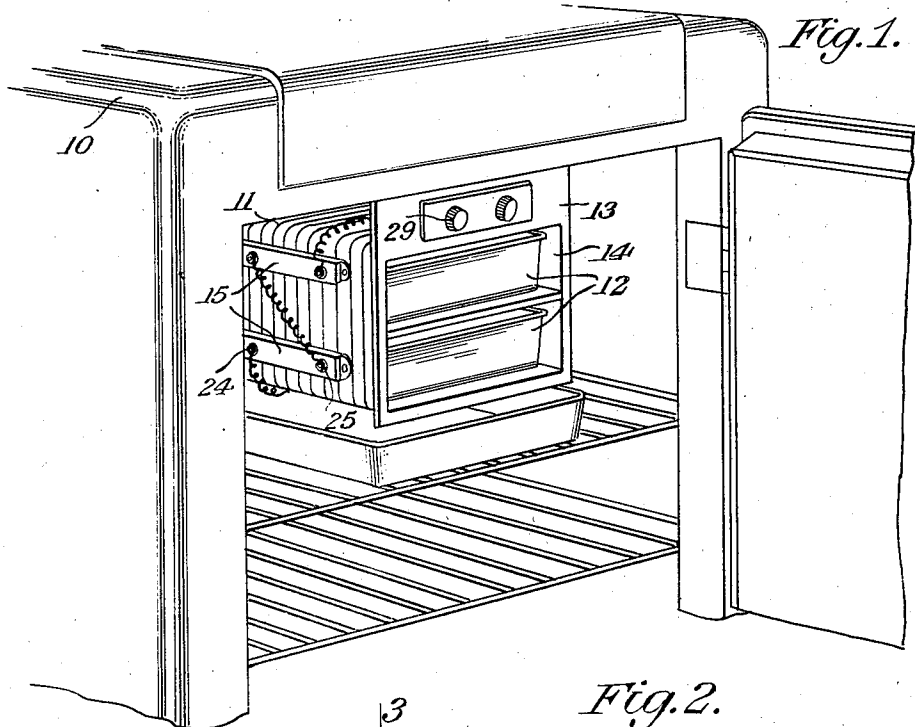
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ELECTRIC DEFROSTER FOR FRIGERATORS

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ELECTRIC DEFROSTER FOR REFRIGERATORS

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7 Claims. (Cl. 62—1)

My invention relates to defrosting devices for refrigerators.

An important object of my invention is the provision of a defrosting device that will quickly and efficiently free the cooling coils of ice.

Another object of my invention is the provision of a defrosting device that will expeditiously defrost the cooling unit with very little rise in the temperature of the refrigerator.

Yet another object of my invention is the provision of a defrosting device that is expeditious in the defrosting action in a manner whereby there will be no loss of perishable goods within the refrigerator due to an increased temperature therein during the defrosting of the coils.

Still another object of my invention is the provision of a defrosting device that is simple in construction, efficient in operation and inexpensive to manufacture.

Other objects and advantages of my invention will be apparent during the course of the following description.

In the drawing, forming a part of this specification, and in which like numerals are employed to designate like parts throughout the same—

Figure 1 is a perspective view of my device, showing its association with the cooling coils of a refrigerator.

Fig. 2 is a bottom plan view of my device showing parts in section and parts in elevation.

Fig. 3 is a vertical sectional view, taken on the line 3—3 of Fig. 2.

Fig. 4 is a schematic top plan view showing my device in association with the cooling coils and the electrical circuits incorporated therewith.

Fig. 5 is a fragmentary longitudinal sectional view of the cooling coils, and showing another form of my invention associated therewith, and

Fig. 6 is a wiring diagram of the electrical circuit embodying a part of my invention.

In the accompanying drawing, wherein for the purpose of illustration, is shown preferred embodiments of my invention, the numeral 10 designates a refrigerator of conventional shape and construction and having the cooling coils 11 secured therein to receive the ice trays 12. A front panel 13 is fastened to the forward part of the coils and has an opening 14 to permit ready access to be had to the trays 12.

My device comprises a casing 15 which is preferably formed from a piece of sheet metal having the longitudinal edges 16 thereof bent inwardly and with the extremities 17 of the said edges bent inwardly in spaced parallel relation with the back of the casing. The ends of the

extremities 17 terminate a substantial distance from each other to provide a longitudinally extending slot 18. The longitudinal ends of the casing are provided with tabs 19 which form a supporting means whereby the said casing may be securely attached to the cooling coils.

A strip 20 of a suitable electrical insulating material such as mica, or the like, is positioned within the casing 15 and has the heating coil 21 positioned spirally therearound and with the opposite ends 22 and 23 thereof attached to terminals 24 and 25 which extend outwardly of the casing. The strip of mica 20 has companion partition strips 26 and 27 of a suitable heat conducting electrically insulating material disposed at opposite sides thereof in appressed relation to the heating coil 21, which strip 27 being possessed of suitable thermal conductive, electrical insulating qualities permits heat from the coil 21 to have ready access to the cooling coils 11. Suitable heat insulating material 28 such as asbestos, or the like, is packed around the strips within the casing 15 to hold the heating coil 21 and protective electrical insulating strips in the proper relative position, and to direct the heat generated by the said coil outwardly through the elongated slot 18 in the casing in a manner to prevent the dispersion of the heat through the back of the casing and into the refrigerator. The strip 27 is of sufficient width to permit either longitudinal end thereof to be positioned behind the extremities 17 of the casing in a manner whereby the various elements within the casing will be securely held in place and with the heating coil 21 in appressed relation therewith.

While I have here described but one unit of my device, I prefer to use four separate units in association with the cooling coil of the refrigerator in order that the best results be obtained and that, while I have only described one of the units in detail, it is to be understood that all of the units are identical in their construction. I have found that best results are obtained by placing spaced pairs of heating units on either side of the cooling coil and with the elongated slot 18 of the casing facing inwardly toward the coil.

In the wiring diagram, illustrated in Fig. 6, I have shown the four heating coils, one being in each of the four units, as being connected in series and with a manually operable switch 29 inserted in the circuit and positioned in any convenient spot such as on the front panel 13 of the refrigerator.

It is a well known fact that it is essential to the efficient operation of the refrigerator that the cooling coils be periodically defrosted, and that in order to prevent perishable articles within the refrigerator from being lost, it is necessary that this be accomplished in an expeditious manner and with relatively little dispersion of the heat within the refrigerator. In my device the strip 27 will electrically insulate the heating coils from the cooling coils of the refrigerator but will in no way prevent the free dispersion of heat therethrough against the said cooling coils.

The cooling coils are frequently formed with spaced parallel tubes 30 joined by an intervening web 31 and, in a coil constructed in this manner, I find it advisable to provide a casing 32 which is corrugated in its formation in a manner whereby the same may be placed in close fitting contact with the corrugated exterior of the coil. This form of the invention is best illustrated in Fig. 5, and the position of the parts within the casing 32 is so similar to the first form of the invention, hereinbefore described, that further explanation is thought to be unnecessary.

It is obvious that the electrical insulating strips within the casing must be of undulatory formation in order to be properly received within the casing 32.

It is to be understood that the forms of my invention herewith shown and described are to be taken as preferred examples of the same, and that various changes in the size, shape and relation of parts may be resorted to without departing from the spirit of my invention or the scope of the appended claims.

Having thus described my invention, I claim:

1. In a refrigerator having a cooling coil, the combination of a casing secured to the said coil and having an open side in appressed confronting relation therewith, a heating element within the casing adjacent the open side thereof, electrical insulating, heat conducting material interposed between the said heating element and the said cooling coil, and a heat insulating material interposed between the heating element and the closed sides of the said casing.

2. In a refrigerator having a cooling coil, the combination of a casing secured to the said coil and having an open side in confronting relation therewith, a heating element arranged within the said casing adjacent the open side thereof, and a heat insulating material interposed between the heating element and the closed sides of the said casing.

3. In combination with a refrigerator having a cooling coil, pairs of spaced casings having open sides in confronting relation with the said coil and secured thereto on either side thereof, heating coils arranged within the said casings

adjacent the open sides thereof, heat conducting means to electrically insulate the heating coils from the said cooling coil, means to heat insulate the heating coils from the said casings in a manner to direct the heat from the heating coils through the open sides of the casings and against the cooling coil, a source of electric power, an electric circuit connecting the said heating coils and the said source of electric power, and manually operable switch means within said circuit.

4. In combination with a refrigerator having a cooling coil, pairs of spaced casings having open sides in confronting relation with the coil and secured thereto on either side thereof, heating coils arranged within the said casings adjacent the open sides thereof, heat conducting means to electrically insulate the heating coils from the said cooling coil, means to heat insulate the heating coils from the closed sides of the said casings, a source of electric power, and an electric circuit connecting the said heating coils and connected to the said source of electric power.

5. In combination with a refrigerator having a cooling coil, means to defrost the said cooling coil comprising a casing secured to the coil and formed with an open side confronting the coil, said casing being longitudinally corrugated to permit the same to have a close fitting engagement with the said coil, a heating element within the said casing, heat conducting, electrical insulating material interposed between the said heating element and the said cooling coil, and a heat insulating material interposed between the heating element and the said casing.

6. In combination with a refrigerator having a cooling coil, means to defrost said cooling coil comprising pairs of spaced casings having open sides facing the said coil and secured thereto on either side thereof, a heating coil within each casing adjacent the open side thereof, thermally conducting means to electrically insulate the heating coils from the said cooling coil, and means to heat insulate the heating coils from the closed sides of said casings.

7. In combination with a refrigerator having a cooling coil, means to defrost said cooling coil comprising pairs of spaced casings having open sides disposed in confronting relation with the said cooling coil and secured thereto on either side thereof, heating coils arranged within the said casings adjacent the open sides thereof, said heating coils being electrically insulated from said cooling coils, and means to heat insulate the heating coils from the closed sides of the said casings in a manner to direct the heat from the heating coils through the open sides and against the said cooling coil.

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