

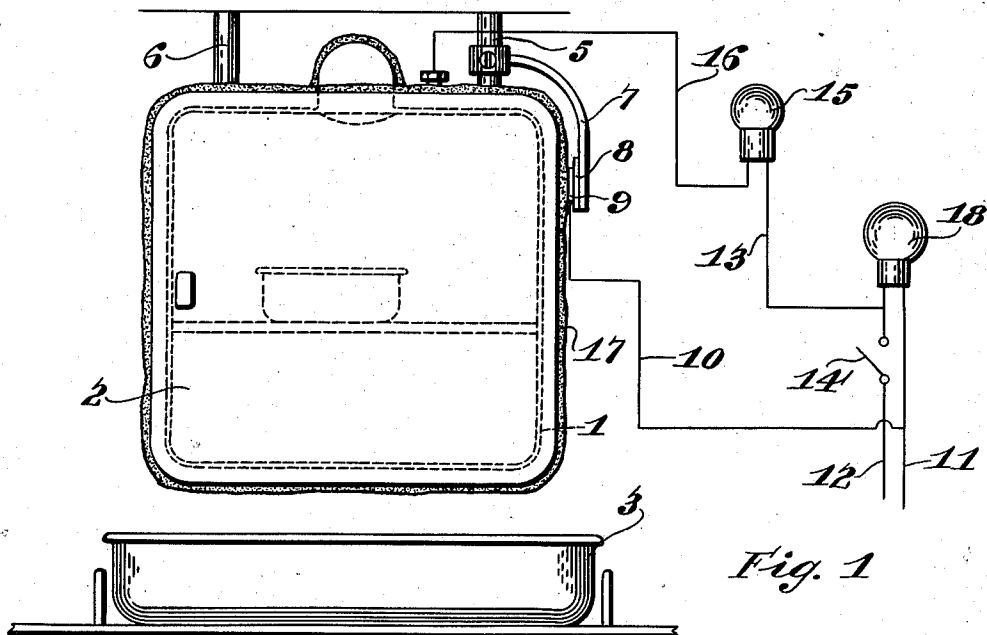
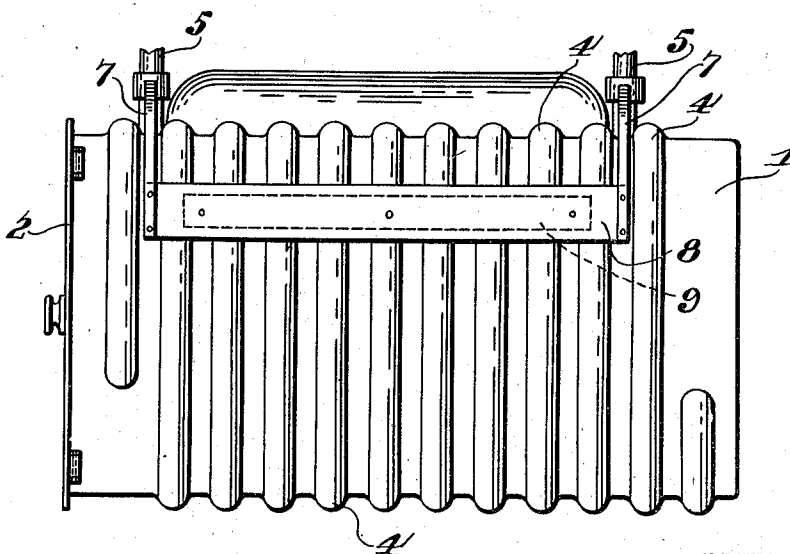
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DEFROSTING SIGNAL FOR REFRIGERATORS

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DEFROSTING SIGNAL FOR
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2 Claims. (Cl. 177—311)

The so-called electric refrigerators are provided with a freezing unit comprising one or more coils of pipe, which are part of the refrigerating apparatus by which the low temperature is secured in the refrigerator. The moisture of the air condenses on these pipes and freezes thereon, forming a coating of frost or ice thereon. This frost is not as good a conductor of heat as is the pipe or pipes which it covers, and it therefore interferes with the absorption of heat from the atmosphere of the refrigerator and interferes with the efficiency of the refrigeration. From time to time this frost must be removed from the coils of pipe, which is easily done by simply turning off the current, which permits the coils and the frost to gradually warm up, so that the frost melts off or is easily broken off of the pipes. This is called defrosting the refrigerator and must be done from time to time.

For the purpose of indicating that a layer of ice has formed on the pipes sufficiently thick so that it should be removed therefrom, an indicator has been provided which indicates that the frost or ice is of objectionable thickness and should be removed from the pipes.

The ordinary electric refrigerator that is used in private homes is provided with a door which closes the open space inside the refrigerator in which food is kept. Many of such refrigerators are provided with a lamp inside the refrigerator which lights only when the door is open, that is, the opening of the door closes a switch which causes the lamp to light up when the door is opened, and opens the switch, or causes the light to go out, when the door is closed.

One of the objects of our invention is to provide a special light inside or outside of the refrigerator that will light on the opening of the door only when the pipes should be defrosted.

Another object of the invention is to make the accumulation of ice complete the circuit so that the auxiliary light will light up, and indicate that the refrigerator should be defrosted, when the door is open.

These and other objects of the invention will be illustrated in the drawing, described in the specification and pointed out in the claims at the end thereof.

In the drawing:

Figure 1 is a front elevation of the freezing unit, with the lamp circuits therefor.

Figure 2 is a side elevation of the freezing unit.

In the drawing like reference numerals indicate like parts.

In the drawing reference numeral 1 indicates the housing of the freezing unit. This housing is closed at the front by a door 2. Pans of water can be placed in this housing for the purpose of turning it into ice. Below this housing is placed a drip pan 3. The housing 1 includes the coil of pipe 4, through which the refrigerant circulates. The frost and ice accumulates on these pipes and on the housing, and a layer of frost and ice on the pipes and housing is shown in section in Figure 1.

This housing is supported from the structure of the refrigerator by the posts 5 and 6. Two or four of these posts are used, depending on the type of the refrigerator. From the posts 5, 5 on one side of the freezing unit depend brackets 7, which brackets extend down along the side of the freezing unit. On these brackets is supported a cross bar 8, which is preferably made of insulating material, such as bakelite, porcelain, etc. On this cross bar is mounted a strip of brass 9, or other conducting material, which brass is suitably spaced from the refrigerating unit or the coils thereof, so that an air gap of predetermined width ordinarily exists between them. This brass strip is connected by the conductor 10 to the conductor 11. The conductor 12 is connected to the conductor 13 by the switch 14, which is operated by the door.

When the door is opened the conductor 13 is energized, and energizes the lamp 15 and the conductor 16, which is grounded on the housing. The circuit of the lamp 15, however, remains open until the layer of ice 17 forms sufficiently thick to bridge the gap between the brass plate and the housing 1 or one or more of the coils 4 thereof. This layer of ice closes the circuit and causes the lamp 15 to light when the door is opened, or when the switch 14 is otherwise closed. Otherwise the light will remain dead.

The lamp 18 will light every time the switch 14 closes with the opening and closing of the door.

The signal lamp 15 is preferably a small lamp and is also preferably a colored lamp, red or green, etc. When this lamp lights up, it indicates that the frost has accumulated to such a thickness as to interfere with the efficiency of the refrigeration, and the freezing unit should be defrosted. This is done by shutting off the current from the refrigerator. When the defrosting is complete, and the current is turned on again, the lamp 15 will remain dead until the frost has accumulated to a sufficient thickness to again make it desirable to defrost the refrig-

erator. Thereafter it will again light up until the frost or ice has been removed.

The lamp 15 can be either on the outside or inside of the refrigerator, and can be operated independently of the lamp 18. So far as this lamp 15 is concerned, the switch 14 can be kept permanently closed or may be omitted altogether, that is, the circuit may be fully established without the switch, but the switch is shown because it is sufficient for the signal to light merely on the opening of the door. This means saving of current.

If the switch 14 is closed, or is omitted from the circuit, the current will flow as soon as the least amount of frost accumulates and makes contact with the contact plate. In such case the current would melt the frost and break the contact. With the switch normally open, no current can flow and the frost can accumulate until the contact is fully established, with no possibility of melting the frost by reason of the flow of any current. When the switch is closed by the door, or otherwise, after the frost has fully accumulated the current can flow and the lamp will light, and during the short time that the door is open the flow of current cannot melt the frost sufficiently to break the circuit or put out the special lamp that indicates that the freezing unit should be defrosted.

To avoid melting the frost and avoid interfering with the circuit that is closed by it when the

current flows, a small lamp is used, that is, one that has a small consumption of watts.

This device applies to any mechanical refrigeration as well as to electrical refrigeration.

We claim:

1. In an electric or mechanical refrigerator the combination of a freezing unit on which frost is adapted to accumulate, a large contact plate suitably spaced from said freezing unit and insulated therefrom, a lamp circuit connected to said freezing unit and said contact plate, said circuit being closed between the freezing unit and the contact plate by the accumulation of frost on the freezing unit, said lamp circuit having a lamp therein capable of lighting with a low consumption of watts.

2. In an electric or mechanical refrigerator the combination of a freezing unit on which frost is adapted to accumulate, a large contact plate suitably spaced from said freezing unit and insulated therefrom, a lamp circuit connected to said freezing unit and said contact plate, said circuit being closed between the freezing unit and the contact plate by the accumulation of frost on the freezing unit, a switch in said circuit by which the circuit may be otherwise opened and closed, said lamp circuit having a lamp therein capable of lighting with a low consumption of watts, said switch being normally open.

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