June 12, 1956 S. J. WILLIAMS, JR 2,749,720

DUAL PURPOSE LAMP FOR REFRIGERATOR

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FIG. 1.

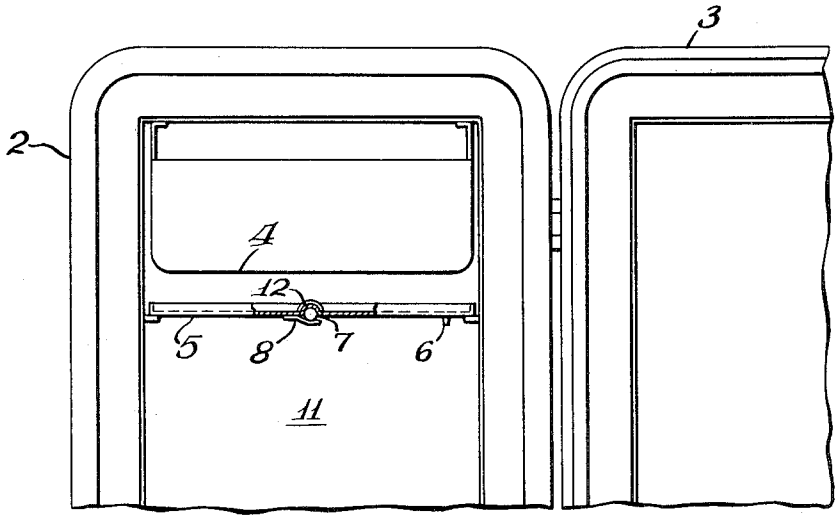
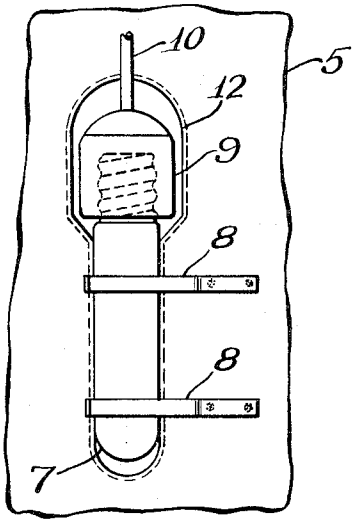


FIG. 2.



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DUAL PURPOSE LAMP FOR REFRIGERATOR

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2 Claims. (Cl. 62—103)

This invention relates generally to refrigerator lamps and more specifically to improved means for illuminating the interior of a refrigerator and for heating a drip tray of the refrigerator.

An object of this invention is to provide simple means for heating a drip tray so that defrost water collected therein will not freeze.

It is another object of this invention to provide simple means having the dual function of a refrigerator lamp and a refrigerator drip tray heater.

It is a feature of this invention that a specially designed drip tray is mounted in thermal cooperation with an electric lamp.

Other objects and features of this invention will become apparent upon the perusal of the following specification and drawing of which:

Figure 1 is a partial front plan view of a refrigerator with the cabinet door open; and

Figure 2 is a partial bottom view of the drip tray shown in Figure 1.

The present embodiment is the preferred embodiment but it is to be understood that changes can be made in the present embodiment by one skilled in the art without departing from the spirit and scope of this invention.

For a detailed description of the invention reference is made to Figures 1 and 2. A refrigerator cabinet 2, having a food storage compartment 11 disposed therein, is shown with a refrigerator door 3 in the open position. In the upper portion of the food storage compartment 11 an evaporator 4 is mounted. As is well known in the art, the evaporator 4 is the means by which the food storage compartment 11 is cooled. It is also well known in the art that in the normal use of a refrigerator, warm moist air is admitted to the food storage compartment 11 when the cabinet door 3 is opened. After a period of time a considerable amount of frost will form upon the surfaces of the evaporator 4 due to the admittance of the warm moist air to the food storage compartment 11. It is then necessary that the refrigerator be defrosted, and this requires some heating of the evaporator 4, either by hot refrigerant being conducted through the evaporator coils or by some form of electric heating means disposed in thermal contact with the evaporator 4. When the evaporator is heated the accumulated frost thereon will melt to form water which will drip from the surfaces of the evaporator.

To collect the defrost water dripping from the surfaces of the evaporator 4, a drip tray 5 is provided. The drip tray 5 is mounted within the food storage compartment 11 below the evaporator 4. The edges of the drip tray 5 are upturned so that the defrost water will be collected therein. The drip tray 5 also has a drain hole 6 disposed therein, and the base of the drip tray 5 is formed with inclined surfaces directed downward toward the drain hole 6 so that any defrost water collecting in the drip tray 5 is directed to flow to the drain hole 6. Any means well known in the art (not shown) may be used for removing the defrost water from the food storage compartment 11 after it has been directed through the drain hole 6.

The drip tray 5 is further formed of a material, such as some metal, that has a good thermal conductivity, and a depression 12 is formed on the underside of the drip tray 5. Within the depression 12 an electric lamp 7 is mounted. A socket 9 is attached to the base of the lamp 7, and the conductor 10 extends through the socket 9 thereby providing means by which current may be supplied to the lamp 7. Retaining members 8, mounted to the underside of the drip tray 5 in any manner well known in the art, are positioned about the lamp 7 to thereby retain the lamp 7 within the depression 12. The retaining members 8 are preferably formed of a metal such as spring steel so that the lamp 7 and the socket 9 are pressed into good thermal contact with the walls of the depression 12.

Any well known means (not shown) may be used to control the illumination of the lamp 7 and the defrosting of the evaporator 4. Assuming for purposes of explanation that the evaporator 4 is automatically defrosted, and further assuming that the lamp 7 is connected in an electrical circuit which includes a door switch so that the lamp 7 is turned on when the refrigerator door 3 is open and off when the refrigerator door 3 is closed, a description of the operation of the invention will follow. At a certain time, when the frost upon the refrigerator has reached a certain thickness, or at some predetermined time, electrical means will be energized for causing the evaporator 4 to be heated. A shunt is then provided about the door switch for the lamp 7 so that when the means for causing the heating of the evaporator 4 is energized, the door switch is shunted and the lamp 7 is illuminated. Now, as the lamp 7 remains lighted it will emit substantial quantities of heat. This heat will be conducted to the drip tray 5, and will be conducted throughout the entire surface of the drip tray 5 to raise its temperature. As the evaporator 4 is defrosted, the defrost water dripping therefrom will fall into the drip tray 5 which will collect the water and direct it to the drain hole 6. The water dripping from the evaporator 5 will be approximately at the temperature required for the melting of the frost. If the drip tray 5 were at a temperature somewhat below the freezing temperature of the defrost water, the defrost water would be cooled by the drip tray 5 and ice would form thereon, thus preventing a proper disposal of the defrost water. Since the drip tray 5 is heated by the lamp 7, the defrost water will not be cooled upon collection within the drip tray 5. Thus the defrost water will readily flow over the surfaces of the drip tray 5.

Of course any manual switch or means may be provided for causing the lamp 7 to be lighted when the refrigerator is being defrosted. Thus the lamp 7 may be lighted some period of time before the refrigerator is to be defrosted to initially heat the drip tray 5. Also, the lamp 7 may be allowed to remain lighted some period of time after the defrosting of the evaporator 4 is completed to allow all of the defrost water to flow from the drip tray 5. Of course any automatic means may be provided to accomplish these latter functions. Further, the evaporator 7 need not be defrosted automatically, but may be defrosted by some form of manual switch or means whenever defrosting is necessary.

Having described the invention, what is considered new and desired to be protected by Letters Patent is:

1. In a refrigerator having an evaporator, a drip tray positioned below said evaporator so that any frost melted from said evaporator drips into said drip tray, said drip tray formed to have inclined surfaces and a drain hole at the lowest point thereof so that any water dripping into said drip tray is caused to flow to said drain hole for disposal thereof, said drip tray further formed of a mate-

rial having a good thermal conductivity and formed to have an upwardly projecting depression in the under-side thereof, an electric lamp socket and conductor means connected thereto disposed partially within one portion of said depression in good thermal contact with said drip tray, an electric lamp positioned within said socket and disposed in another portion of said depression in good thermal contact with said drip tray, retaining means for retaining said lamp and said socket in good thermal contact with said drip tray, whereby said electric lamp and socket are used to illuminate the interior of said refrigerator and to heat said drip tray when any frost is melted from said evaporator to prevent the formation of ice upon said drip tray.

2. In a refrigerator as claimed in claim 1, said retaining means comprising a pair of resilient members, one end of each of said pair of members rigidly attached to the underside of said drip tray, the other end of each of said members positioned about the undersurface of said lamp to thereby press said lamp and socket into good thermal contact with said depression.

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