Sept. 10, 1929. C. C. SPREEN 1,727,946

REFRIGERATION

Filed Feb. 24, 1927

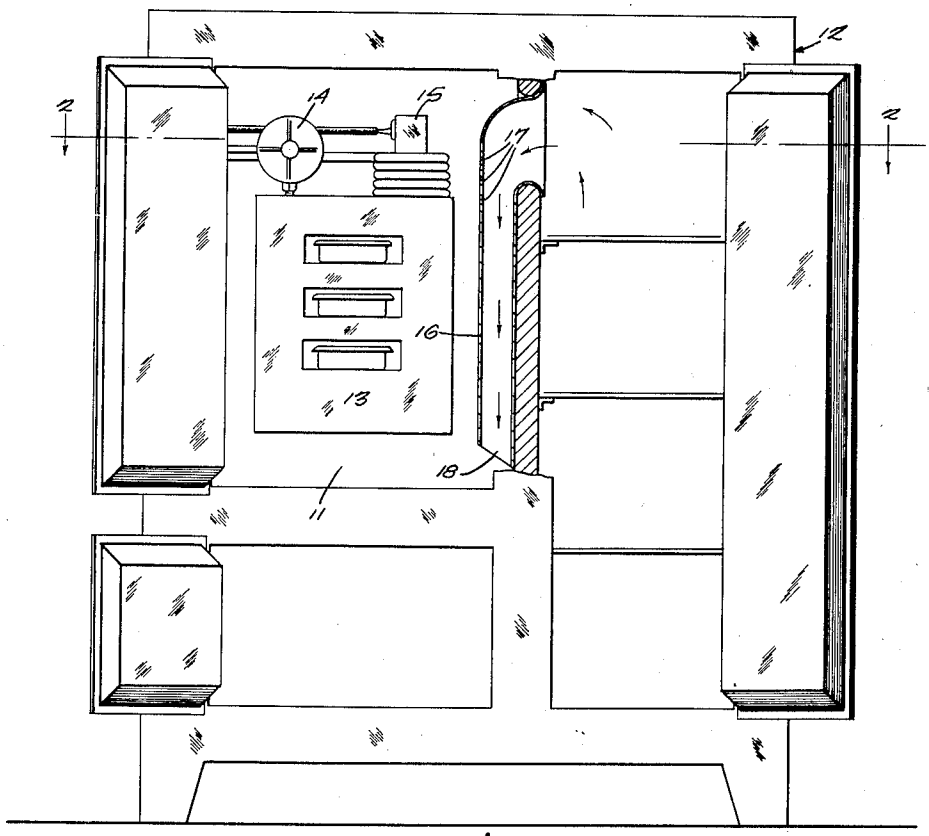


Fig. 1

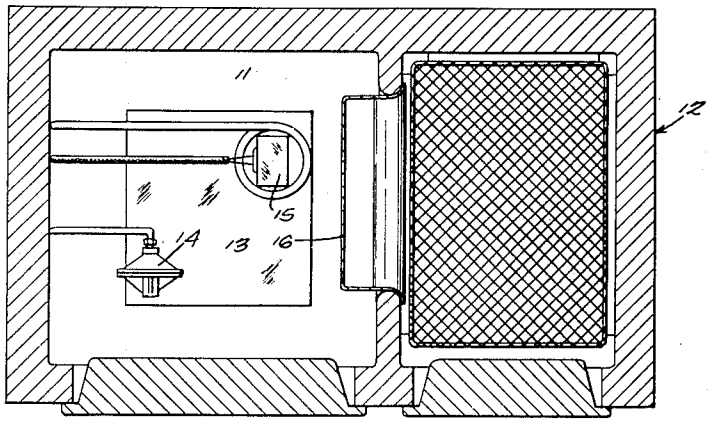


Fig. 2

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UNITED STATES PATENT OFFICE.

CHARLES C. SPREEN, OF DETROIT, MICHIGAN, ASSIGNOR TO KELVINATOR CORPORATION, OF DETROIT, MICHIGAN, A CORPORATION OF MICHIGAN.

REFRIGERATION.

Application filed February 24, 1927. Serial No. 170,554.

My invention relates to refrigeration, and particularly to providing means for preventing the accumulation of frost on the refrigerant expansion unit of mechanical refrigerating apparatus, and the principal object of my invention is to provide new and improved means of this type. In the drawings accompanying this specification and forming a part of this application I have shown, for purposes of illustration, one form which my invention may assume, and in these drawings:

Figure 1 is a front elevation of this embodiment of my invention, while

Figure 2 is a section on the line 2—2 of Figure 1.

The embodiment of my invention herein shown is designed to be placed in the refrigerating chamber 11 of a refrigerator cabinet 12 having a refrigerating unit comprising a brine tank 13, refrigerant expansion coils (not shown), an expander valve 14, and a thermostat 15.

It is well known to those skilled in the art that during the operation of a refrigerating unit of this type frost readily accumulates on the exterior surface of the unit, that this accumulation of frost continually decreases the absorption of heat from the refrigerator cabinet through the refrigerating unit, and that periodic defrosting of the refrigerating unit is ordinarily required.

In order to lengthen the period during which a refrigerating unit will operate without defrosting, or perhaps to eliminate entirely the need of defrosting, and in order to greatly increase at all times the rate of heat absorption from the refrigerator cabinet to the refrigerating unit, I have provided a flue 16 apertured at 17 and positioned in the path of the circulatory air of the cabinet in a manner to necessitate passage of such air through the flue 16 prior to contacting with the refrigerating unit 13.

The flue 16 is composed of a material having a high heat conductivity which causes it to continually present to the circulatory air of the cabinet a surface chilled to approximately the temperature of the air between the refrigerating unit and the flue 16. The temperature of such air is normally low enough to cause condensation of its moisture but not low enough to cause such moisture to be deposited as frost. Consequently, when the circulatory air, which has been warmed during its passage through the refrigerated compartment and as a result thereof has become laden with moisture, strikes the chilled surface of the flue 16 the temperature of such air is decreased and the accumulated moisture is deposited on the surface of the flue 16 so that when such air passes through the apertures 17, or from the mouth 18 of the flue, into the space surrounding the refrigerating unit 13 it is in a practically dry condition whereby there is but little or no deposition of moisture upon the refrigerating unit 13 and by reason thereof but slight deposition of frost upon the unit 13.

From the above disclosure it will be obvious to those skilled in the art that I have provided new and improved means for preventing the accumulation of frost on the refrigerant expansion unit of mechanical refrigerating apparatus.

At the same time it also will be obvious to those skilled in the art that the embodiment of my invention herein shown and described may be variously changed and modified without departing from the spirit of my invention or sacrificing the advantages thereof, and it therefore will be understood that the disclosure herein is illustrative only, and that my invention is not limited thereto.

I claim:

1. In combination with a refrigerator cabinet having an interior wall forming a refrigerating chamber and a food storage chamber, said wall being provided with apertures to permit air circulation between said chambers; of means for collecting moisture from the air entering the refrigerating chamber prior to free circulation therein.

2. In combination with a refrigerator cabinet having an interior wall forming a refrigerating chamber adapted to contain a mechanical cooling unit and a food storage chamber, said wall being provided with apertures to permit air circulation between said chambers; of means for confining the initial

flow of air entering said refrigerating chamber in a single path isolated from the remainder of the chamber, said means being formed of heat conducting material and arranged in heat exchange relation with said cooling unit.

3. In combination with a refrigerator cabinet having an interior wall forming a refrigerating chamber adapted to contain a mechanical cooling unit and a food storage chamber, said wall being provided with apertures to permit air circulation between said chambers; of means formed of heat conducting material for confining the initial flow of air entering said refrigerating chamber in a single path isolated from the remainder of the chamber, said means being arranged in heat exchange relation with the cooling unit and formed to collect moisture from the air prior to its free circulation in said chamber.

4. In combination with a refrigerator cabinet having an interior wall forming a refrigerating chamber adapted to contain a cooling unit and a food storage chamber, said wall being provided with apertures to permit air circulation between said chambers; of a flue formed of heat conducting material for confining the initial flow of air entering said chamber in a path along the partition wall of said cabinet, said flue being arranged in heat exchange relation with the cooling unit and provided with apertures permitting lateral escape of air into said chamber.

5. In combination with a refrigerator cabinet having an interior wall forming a refrigerating chamber adapted to contain a mechanical cooling unit and a food storage chamber, said wall being provided with apertures to permit air circulation between said chambers; of a flue formed of heat conducting material extending downwardly from the upper aperture and opening adjacent the bottom of said refrigerating chamber, said flue being arranged in heat exchange relation with the cooling unit and having laterally extending openings therein to permit escape of air therefrom into said refrigerating chamber.

6. In combination with a refrigerator cabinet having an interior wall forming a chamber for receiving a cooling unit and a chamber for storing food, said wall being formed to permit circulation of air between said chambers; of means in said cabinet for removing moisture from the circulatory air prior to its contact with said cooling unit.

In testimony whereof I hereunto affix my signature.

CHARLES C. SPREEN.