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REFRIGERATING CHAMBER AND FREEZING BOX ARRANGEMENTS

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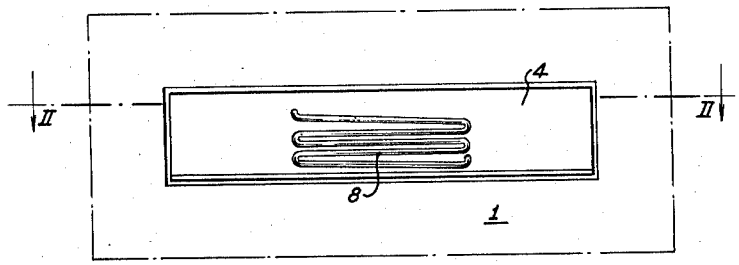


FIG. 1

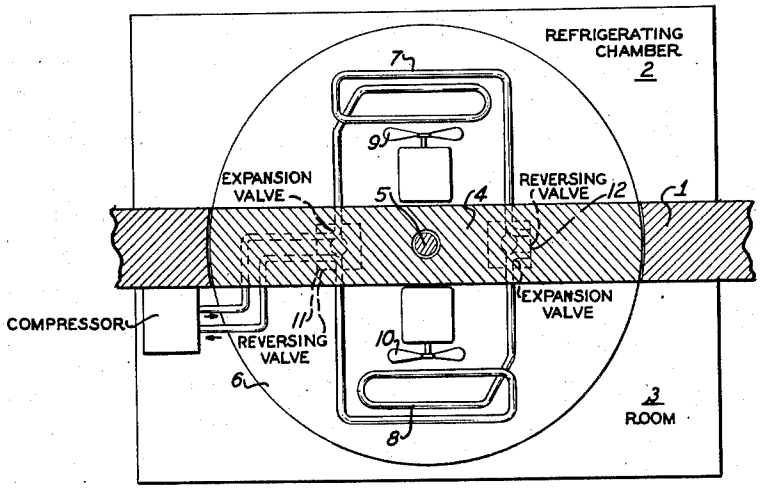


FIG. 2

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REFRIGERATING CHAMBER AND FREEZING BOX ARRANGEMENTS

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1 Claim. (Cl. 62—116)

This invention relates to improvements in refrigerating chamber and freezing box arrangements.

As is well known, in refrigerating chambers and large freezing boxes the requisite low temperatures are, as a rule, generated by the application of the compression method, the compressor and the other details of the cooling machinery being disposed outside the refrigerating chamber which only contains an evaporator in the form of a cooling tube battery and associated means, viz. a fan placed behind the evaporator for distributing the chilled air all over the chamber, and a water pan placed below the evaporator for the purpose of collecting and passing on the melting water formed upon defrosting the evaporator. Generally, such defrosting must be carried out two or three times a day, and in refrigerating chambers wherein the temperature equals or exceeds the freezing point the defrosting is attained by stopping the cooling machine, whereas in rooms having still lower temperatures hot gases are swept round the evaporator and the water pan. Obviously, such defrosting operations are very inconvenient, and the resulting operational interruptions involve a considerable loss of time.

One object of the present invention is to provide means which facilitate and accelerate the defrosting of the evaporator in refrigeration systems of the compressor type.

Another object of this invention is to provide means for carrying out the defrosting of the evaporator in refrigerations systems of the kind herein referred to substantially without interrupting the operation of the system or causing any raise of the temperature in its refrigeration chamber.

A further object of this invention is to provide means for an interchanging of the positions as well as the functions of the evaporator and condenser during defrosting. A still further object of this invention is to provide means for carrying out automatically the switching operations necessary in connection with such an interchangement.

Other objects and features of the invention will be apparent from the following description when read in conjunction with the accompanying drawings, wherein:

Fig. 1 is a diagrammatic front view of the plant.

Fig. 2 is a section taken along the II—II of Fig. 1.

Referring now to the drawing, reference numeral 1 designates a wall which separates a refrigerating chamber 2 from an adjacent room 3. In said wall an opening is

provided in which is fitted a wall portion 4 rotatable round a vertical shaft 5 disposed in the centre of the opening. The rotatable wall portion 4 is preferably mounted on a circular shelf 6 supporting at each side of the wall two similar tube loops 7 and 8 and fans 9 and 10 respectively, placed behind either loop, the shaft of each fan being driven by an electric motor. The tube loops are connected to valve members 11, 12 by means of which each loop can be selectively connected to the compressor of the plant so as to operate as a refrigerating coil. The compressor (see Fig. 2) may either be mounted on the platform 6 and participate in its motion or it may be placed in the room 3, in which case the communication between the compressor and the devices mounted on the platform 6 can be effected via the shaft 5 or directly (as shown) via the valves 11 or 12 alternately as they move into position.

When the platform 6 assumes the position shown in Fig. 2, the member 7 serves as evaporator, while the member 8 forms the condenser. When after some time, the evaporator is to be defrosted, the platform 6 is turned 180° round its shaft 5, so that the members 7 and 8 change place, whereupon the member 7 functions as condenser and is thus rapidly defrosted due to the higher temperature prevailing in the room 3.

The valves 11 and 12 are reversing valves which enable the functions of the loops 7 and 8 to be interchanged. Each of these valves include expansion valves of known construction which are adapted for receiving compressed medium from the compressor with the associated loop 7 or 8 in appropriate position in the refrigerating chamber 2.

Having now described my invention, what I claim as new and desire to secure by Letters Patent is:

In a refrigerating apparatus having a first evaporator chamber, a second condenser chamber, a wall separating said chambers, and a compressor with pressure and suction sides: a movable section in said wall, rotatable to expose selectively either side thereof in either of said chambers, a tubular loop mounted on each side of said movable section to move therewith, and circuit means comprising a supply pipe connecting the loop positioned in said first chamber to the pressure side of the compressor, expansion valve means connected to the two loops for selectively engaging the supply pipe, a delivery pipe connecting the loop positioned in said second chamber to the suction side of the compressor, and valve means for reversing the connections of said two loops with said compressor whereby the function of each loop may be reversed from evaporator to condenser and from condenser to evaporator.

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