Dec. 19, 1944. G. C. DEAN 2,365,526

DRIER FOR ELECTRIC REFRIGERATORS

Filed July 10, 1941 2 Sheets-Sheet 1

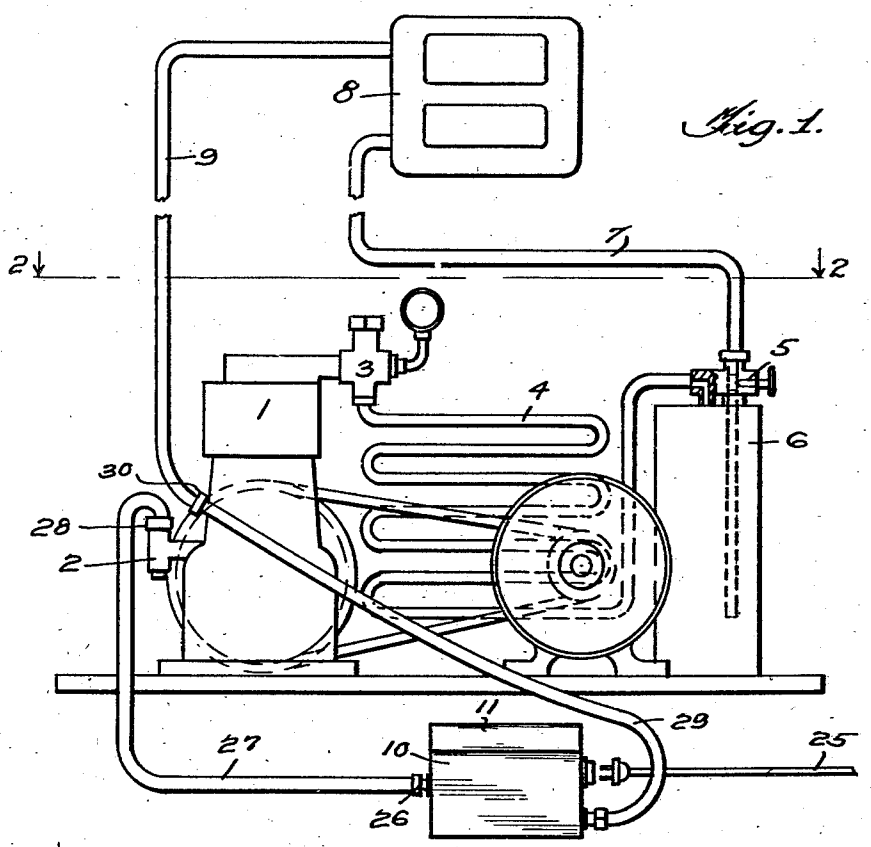


Fig. 1.

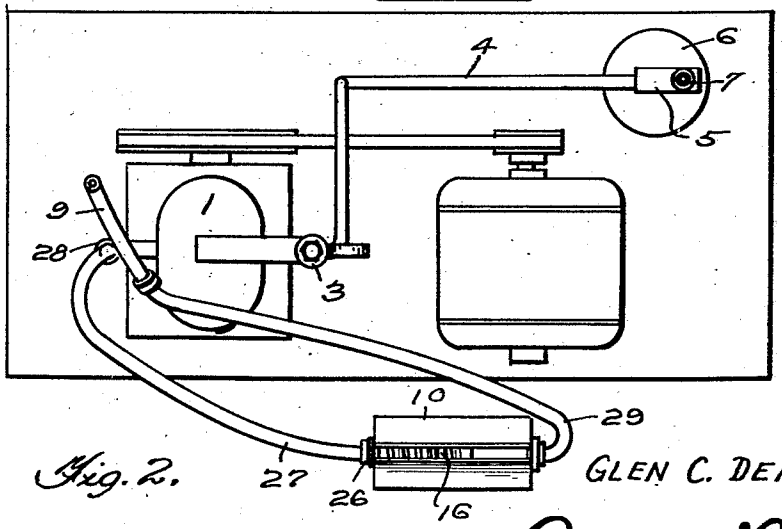


Fig. 2.

Inventor

GLEN C. DEAN,

By Clarence A. O'Brien

Attorney

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DRIER FOR ELECTRIC REFRIGERATORS

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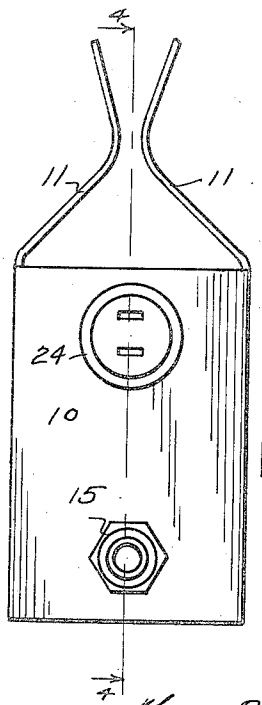


Fig. 3.

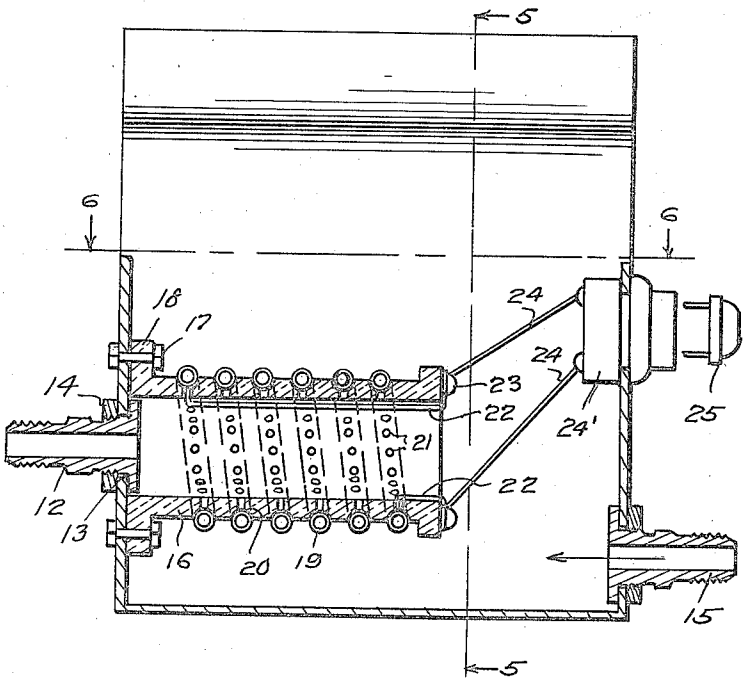


Fig. 4.

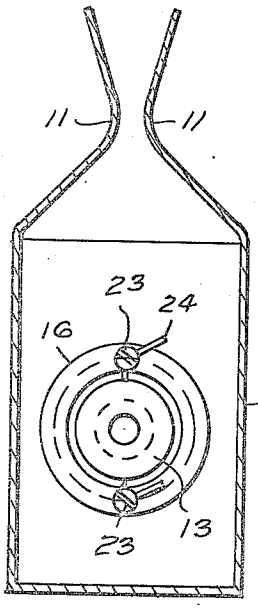


Fig. 5.

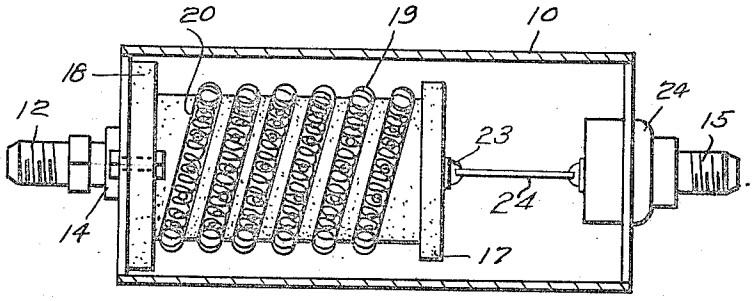


Fig. 6.

Inventor

GLEN C. DEAN,

By Clarence A. O'Brien

Attorney

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UNITED STATES PATENT OFFICE

2,365,526

DRIER FOR ELECTRIC REFRIGERATORS

Glen C. Dean, Loyall, Ky., assignor of one-half to J. S. Greene, Harlan, Ky.

Application July 10, 1941, Serial No. 401,858

2 Claims. (Cl. 62—1)

My invention relates to improvements in driers for electric refrigerators of commerce such as are designed more particularly for commercial use.

The principal object of the invention is to provide a simply constructed, efficient and readily portable device equipped for attachment to the cooling system of such refrigerators to quickly and positively eliminate moisture therefrom.

Other and subordinate objects are also comprehended by my invention, all of which, together with the precise nature of my improvements will be readily understood when the succeeding description and claims are read with reference to the drawings accompanying and forming part of this specification.

In said drawings:

Figure 1 is a view in front elevation illustrating my improved drier applied in the circuit of a cooling system, of an electric refrigerator.

Figure 2 is a view in horizontal section taken on the line 2—2 of Figure 1,

Figure 3 is a view in end elevation of the drier,

Figure 4 is a view in vertical longitudinal section taken on the line 4—4 of Figure 3,

Figure 5 is a view in transverse section taken on the line 5—5 of Figure 4, and

Figure 6 is a view in horizontal section taken on the line 6—6 of Figure 5.

Referring to the drawings by numerals, I have shown the preferred embodiment of my drier therein as applied to a well known type of refrigerator cooling system, conventionally illustrated as sufficient for the present purposes, 1 designating the usual motor driven compressor having the intake valve 2 on the suction side thereof and the outlet valve 3 on its discharge side, 4 the condenser coil leading from the outlet valve 3 to the expansion valve 5 of the receiver tank 6, 7 the supply line from the expansion valve 5 to the freezing, or evaporation unit 8, and 9 the return line from said unit 8 to the intake valve 2. As will be understood, the return line 9 is adapted to be coupled to the intake valve 2 and uncoupled therefrom.

The drier comprises a substantially rectangular, flat bottomed, casing 10 having an open top and provided with a pair of opposed, upstanding side edge flanges 11 forming a restricted air inlet at the top of the casing for a purpose presently seen. The casing 10 is of a size, which may vary, but which renders the same readily portable and may be formed of any suitable metal. An externally threaded warm air discharge nipple 12 is fixed in one end of the casing 10 to extend therefrom and by means of an end flange 13 and a jamb nut 14 is fastened thereon, said nipple being spaced above the bottom of the casing. A similar inlet nipple 15 is secured in the opposite end of the casing 1 in a like manner.

A heating unit is provided in the casing 10 including a short cylinder 16, preferably of unglazed porcelain, said cylinder being fixed at one end of the casing 10 to open into the discharge nipple 12. Screws 17 passing through an end flange 18 on the cylinder 16 secure the latter to the casing above the bottom of the same. A helical heating coil 19 surrounds the cylinder 16 intermediate its ends, the convolutions of the coil being seated in a helical, circumferential, groove 20, in said cylinder. A helical series of perforations 21 are provided in the cylinder beneath the convolutions of the coil 19. The ends of the coil 19 are connected by a pair of extensions 22 to a pair of binding posts 23 provided on the detached end of the cylinder 16. A pair of leads 24 extend from the posts 23 to a conventional socket 24' suitably secured in the end of the casing 10 for plugging in a service line 25 leading from the house current or other source of electricity.

Attached at one end, as by a coupling 26, to the warm air discharge nipple 12 is a flexible suction hose line 27 having a coupling 28 on its other end. Similarly attached to the intake nipple 15 is a pressure line hose 29 having a coupling 30 on its free end.

Referring now to the use and operation of the described invention, the cooling system is first drained in any suitable manner provided for in the system to evacuate the refrigerant therefrom. The return line 9 is uncoupled from the intake valve 2 and coupled to the pressure line 29 by means of the coupling 30. The suction line 27 is coupled to the intake valve 2 of the compressor by means of the coupling 28. Thus the drier is interposed in the circuit of the cooling system. The service line 25 being plugged in, the compressor 1 is started. As will be readily understood, under operation of the compressor, suction is created in the line 27 to draw air into the circuit of the cooling system from the casing 10 and by way of the cylinder 16, warm air discharge nipple 12 and suction line 27. As such air passes through the cylinder 16, it is heated. The heated air is forced through the circuit of the cooling system and discharged therefrom by way of the pressure line 29 and inlet nipple

15 back into the casing 10 to be again drawn into the cylinder 16 and recirculated through the cooling system. Fresh air is drawn into the casing 10 by way of the top thereof to mix with the discharged warm air recirculated through the system. Thus the cooling system of the refrigerator is completely dried, all moisture being completely removed therefrom.

The foregoing will, it is believed, suffice to impart a clear understanding of my invention without further explanation.

Manifestly the invention, as described, is susceptible of modification without departing from the inventive concept, and within the scope of the subjoined claims.

What I claim is:

1. The combination with the elements of a refrigeration system including a compressor having a low and a high pressure side, respectively, an evaporator, a condenser coil connected to said high pressure side and to the inlet of said evaporator, and a return line connected to the outlet of said evaporator, of apparatus for introducing warm air into said circuit comprising a casing having an air inlet in the top thereof, an air discharge and an air inlet nipple on opposite sides of the casing, respectively, a conduit forming member in said casing having one end communicating with said discharge nipple and the other end thereof opening into the interior of the casing, electrically operative means for heating said conduit, and a pair of air lines connecting the discharge and inlet nipples to said low side of said compressor and return line, respectively.

2. The combination with the elements of a refrigeration system including a compressor having a low and a high pressure side, respectively, an evaporator, a condenser coil connected to said high pressure side and to the inlet of said evaporator, and a return line connected to the outlet of said evaporator, of apparatus for introducing warm air into said circuit comprising a casing having an air inlet in the top thereof, an air discharge and an air inlet nipple on opposite sides of the casing, respectively, a conduit forming member in said casing having one end communicating with said discharge nipple and the other end thereof opening into the interior of the casing, and means to electrically heat said conduit comprising a heating coil surrounding said member, and a convolute series of perforations in said member underlying the convolutions of said coil.

GLEN C. DEAN.