

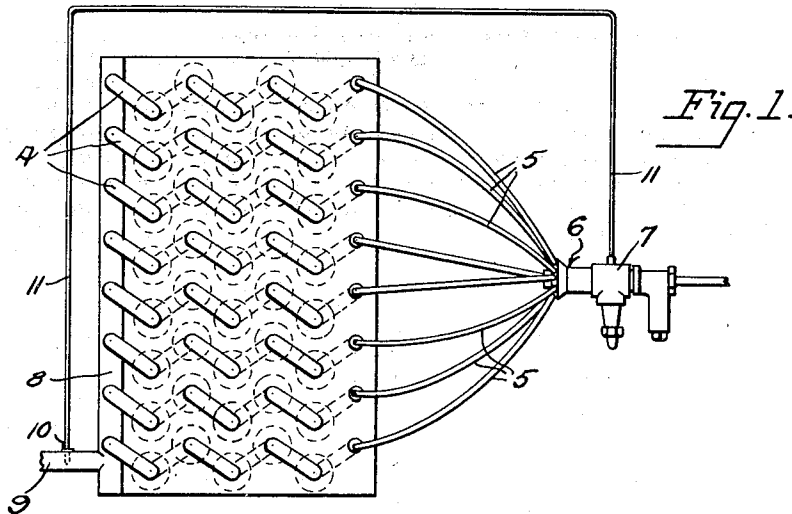
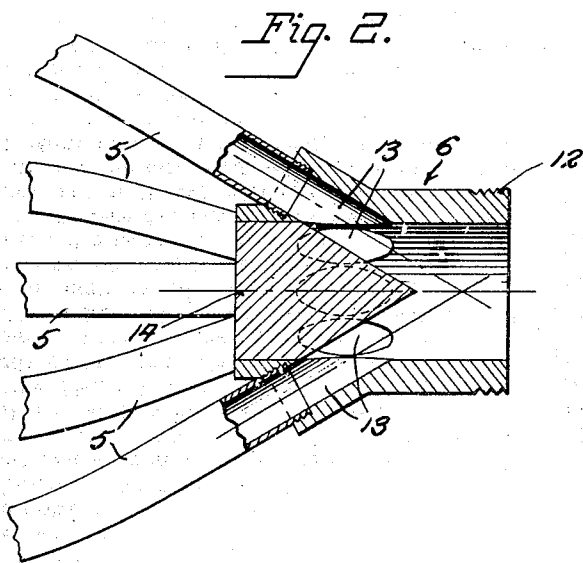
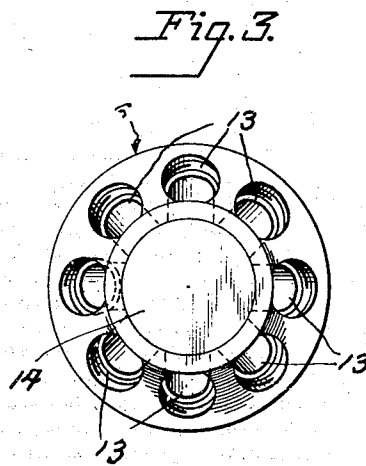
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REFRIGERANT DISTRIBUTOR HEAD

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## UNITED STATES PATENT OFFICE

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## REFRIGERANT DISTRIBUTOR HEAD

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3 Claims. (Cl. 137-166)

This invention relates generally to distributor heads for refrigeration evaporators, and more particularly to distributor heads connecting an expansion valve to a plurality of evaporator coils which may, for example, be the air cooling coils commonly used in air conditioning systems.

The main object of the invention is to provide a distributor head adapted to be connected to a refrigerant expansion valve, for the purpose of apportioning the refrigerant output of the valve equally to each of a plurality of evaporator coils or similar cooling devices.

Other objects of the invention will become apparent as the detailed description thereof proceeds.

In the drawing:

Figure 1 is a side elevation of an assembly of evaporator coils, each coil being connected by a separate pipe to the distributor head of a single expansion valve;

Figure 2 is a central vertical section, to an enlarged scale, taken lengthwise of the distributor head; and

Figure 3 is an end elevation of the distributor head.

The evaporator assembly of Figure 1 comprises the rows of coils 4. Each row of coils is supplied with expanded refrigerant by means of a pipe 5 connected to the distributor head 6 of the expansion valve indicated generally by the reference numeral 7. The invention is not concerned with the structural details of the cooling unit or the expansion valve, which may be of the type illustrated in U. S. Patent No. 1,985,617, December 25, 1934.

As shown in said patent, the rows of coils discharge into a header 8 from which the pipe 9 conducts the low pressure gas after complete evaporation of the refrigerant in the coils. The pipe 9 contains the usual thermostat element 10 connected by tube 11 to the expansion valve 7 to control the rate of flow of refrigerant in accordance with the temperature of the low pressure gas.

The distributor head 6 comprises a fitting 12 suitably secured at one end to the valve 7. A series of conduits 13 are formed in the fitting 12 with their axes inclined at equal angles to and intersecting the axis of the fitting 12 at the same point. Obviously, these intersecting axes all lie on the surface of a cone having as its axis the axis of said fitting.

The conduits 13 are of equal diameter, and their number is such that adjacent apertures, formed by their penetration of the cylindrical inner surface of the fitting 12, are in edge-to-edge, or point contact with each other, as shown in Figures 2 and 3. A conical plug 14 is suitably secured in the fitting 12, and has its axis coinci-

dent with the axis of said fitting. The conical surface of the plug is in alinement with the line elements of the conduits nearest the axis of the cone, in order to deflect refrigerant from the expansion valve in equal proportions into the said conduits. The conduits 13 are counterbored at their outer ends to receive the ends of the pipes 5 with their inner surfaces alined with those of the conduits, to provide smooth passageways for the distributed refrigerant.

There are eight outlets 13 shown in the distributor head. It is obvious, however, that the invention is not limited to use with any fixed number of outlets. But whatever their number may be, they must all be of equal diameters, with their axes lying on the surface of a cone intersecting the axis of the fitting and equiangularly spaced around said axis. With this construction, the refrigerant under pressure is split evenly in all directions by the conical plug, and by the partitions or edges formed by the adjacent apertures through the inner surface of the fitting.

It is to be understood that the invention is not to be considered as limited to the specific construction and arrangement described herein, since it is evident that many changes may be made without departing from the scope of the invention as defined by the claims appended hereto.

What I claim is:

1. A distributor head comprising: a main cylindrical conduit, a plurality of conduits at the same diameter extending laterally from and equiangularly spaced around said conduit, with their axes lying on the surface of a cone having the same axis as said conduit, and means in said conduit for directing fluids in equal proportions to said conduits.

2. A distributor head comprising: a main cylindrical conduit, a plurality of conduits at the same diameter extending laterally from and equiangularly spaced around said conduit, with their axes lying on the surface of a cone having the same axis as said conduit, and a conical plug in said conduit having its conical surface in alinement with the line elements of said conduits nearest to said plug.

3. A distributor head comprising: a main cylindrical conduit, a plurality of conduits at the same diameter extending laterally from and equiangularly spaced around said conduit, with their axes lying on the surface of a cone having the same axis as said conduit, means in said conduit for directing fluids in equal proportions to said conduits, and distributing pipes connected to said conduits and having their inner surfaces flush with the inner surfaces of said conduits.

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