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DESICCANT AND STRAINER ASSEMBLY

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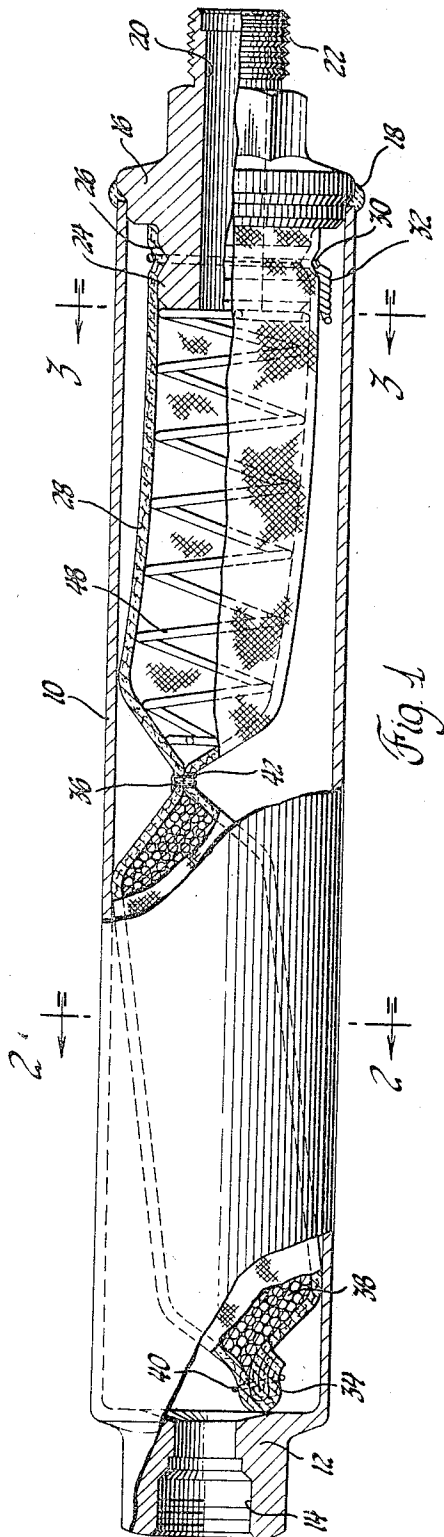


Fig. 1

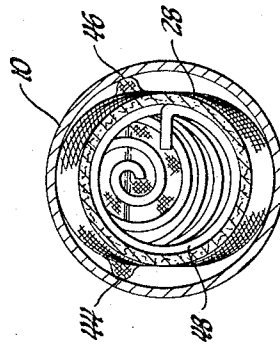


Fig. 3

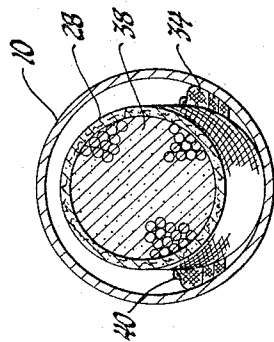


Fig. 2

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DESICCANT AND STRAINER ASSEMBLY

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1 Claim. (Cl. 210—266)

This invention relates to an assembly for maintaining a refrigerant flowing in a refrigerating system clean of solid particles and free of moisture.

It has been customary in the field of refrigeration to circulate a liquid and gaseous refrigerant in a closed circuit with the use of a compressor, condenser, expansion valve and evaporator. A desiccant or dehydrator such as silica gel in granular form is usually used for removing moisture from the refrigerant. This desiccant is placed in a casing or accumulator installed in the circuit and generally placed in a refrigerant line between the condenser and the expansion valve. Sometimes, the casing retaining the desiccant becomes clogged and a distinct pressure drop occurs thereby disturbing the efficiency of operation of the compressor and the system. Dirt, solder particles and particles coming free from the desiccant mass employed cannot be tolerated in a refrigeration system.

An object of the present invention is to provide an improved desiccant and strainer assembly of low cost and which promotes free flowing of refrigerant during an extended period and is effective during that period in maintaining dryness and clarity of the refrigerant.

A feature of the invention is a tube, bag, or sleeve of flexible and permeable sheet or mesh material supported in a casing in such a way as to permit free flowing of a refrigerant through the casing and which tube, bag or sleeve is partially filled with a desiccant to dehydrate the refrigerant and which is partially expanded to facilitate clarifying or straining of the refrigerant.

These and other objects and features of the invention will become apparent as the description proceeds.

In the drawings:

FIGURE 1 is an elevational view of an assembly presented as one embodiment of the present invention, parts being broken away better to illustrate the construction;

FIGURE 2 is a sectional view looking in the direction of the arrows 2—2 of FIGURE 1; and

FIGURE 3 is a sectional view looking in the direction of the arrows 3—3 of FIGURE 1.

A casing 10 is depicted in FIGURE 1 and constitutes an elongated cap-like element with one end 12 made in the form of a connection which is threaded as at 14 for joinder to a pipe line. This end is adapted to define an inlet for a refrigerant flowing into the casing 10. A cap 16 is inserted in the other end of the casing 10 and is welded thereto as at 18. This cap is adapted to serve as an outlet because of its port 20 and it bears an exterior thread 22 whereby the casing may be coupled to a line leading to the expansion valve and evaporator of a refrigerant system.

A concealed and inner end 24 of the cap 16 presents an annular groove as at 26 to facilitate the attachment of one end of a bag, tube, or sleeve 28. This bag is attached to the cap 16 by means of a wire 30 encircling the bag at the groove with its ends twisted as at 32 and pressed close to the bag. It will be noted that the bag is of such

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proportions insofar as cross-section is concerned that considerable space is left between the inner wall surface of the casing 10 and the outside surface of the bag.

The bag 28 is preferably made of woven wool free from dyes but it may be made from a variety of flexible and permeable materials compatible with the refrigerant employed in the system. The bag 28 is made of such length that it extends substantially the full length of the casing 10 and portions of the bag are joined as at 34 and 36 so that a closed bag is formed in the inlet end of the casing to retain a mass of desiccant 38 in the form of granules. At 34 the bag material is doubled over and fastened with a staple 40. At an area 36 intermediate the length of the bag 28 the cross-section is flattened out by means of stitches 42. The flattening of the bag causes one dimension of the bag cross-section to increase and the bag to contact the inside surface of the casing 10 as shown at 44 and 46 of FIGURE 3. This contact aids in maintaining a flow space between the bag and the casing.

That portion of the bag 28 connected to the outlet end or cap 16 contains a coiled spring 48 which holds a portion of the bag in expanded form to facilitate a filtering or straining action on the refrigerant after it has received its drying treatment.

In operation, a refrigerant may be caused to flow from the inlet at the end 12 and through and around the desiccant 38 and then through the wall material of the bag 28 for discharge by way of the port 20. Obviously, the flow could be in the other direction.

It will be seen from the foregoing description that a very low cost and effective assembly is had which is not susceptible to blockage and a consequent undue pressure drop but is nevertheless adapted to be extremely effective in maintaining the dryness and clarity of the refrigerant passing through the casing 10.

I claim:

A desiccant and strainer assembly comprising an elongated casing having connections at opposite ends whereby the assembly may be included in a refrigerant line, an elongated bag made of mesh material in said casing and extending substantially from one end to the other of the latter, one end and an intermediate portion of said bag being flattened and sealed to form a closed portion of said bag, a desiccant retained within said closed portion, the said flattened end and intermediate portion spacing much of said bag from the interior wall of said casing, the other end of said bag being in communication with one of said connections, expanding means in said bag between said other end and intermediate portion to facilitate strainer action, and said bag having a cross-section throughout its length that is smaller than that of the interior of said casing.

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