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(71) Applicant: **Gregory, Charles**
1348 No. 5 Highway
Burlington Ontario L7R 3X4(CA)

(72) Inventor: **Gregory, Charles**
1348 No. 5 Highway
Burlington Ontario L7R 3X4(CA)

(74) Representative: **Horner, Martin Grenville et al**
Cruikshank & Fairweather 19 Royal Exchange Square
Glasgow G1 3AE Scotland(GB)

(54) Method and apparatus for the sensing of refrigerant temperatures and control of refrigerant loading.

(57) A new method and apparatus are provided for sensing refrigerant temperatures in refrigerator systems, and for the control of refrigerant loading in a plurality of refrigerator evaporator circuit coils (34a,34b) connected in parallel. Such evaporator coils are supplied with refrigerant through a thermostatically controlled flow control valve (30), which is controlled by a sensor (50) to restrict the flow of the liquid refrigerant and ensure a predetermined amount of superheat. The usual minimum superheat is about 5.5° C (10° F) and it is often found that the evaporator coil clearly is underloaded, and in the case of a multi circuit coil evaporator, that many of the circuit coils are underloaded. To avoid this the refrigerant is rendered thoroughly turbulent and mixed, and in the multi-coil evaporator the flows issuing from all of the circuit coils are similarly thoroughly turbulated and mixed, by a turbulating and/or mixing device (48) that intercepts the entire refrigerant flow just before the sensing of the superheat, thus ensuring that the temperature is accurately measured. In the multi-circuit coil system the device averages the temperatures of all the flows, any liquid from circuits with lower heat transfer being broken, mixed with and evaporated by superheated vapour from circuits with higher heat transfer. Different turbulator/mixer devices are described and two or more such devices may be used in flow series. The amount of superheat can now safely be reduced to about 2° C (4° F), the efficiency of the entire system is increased, and close matching between valve size and coil loading is no longer required.

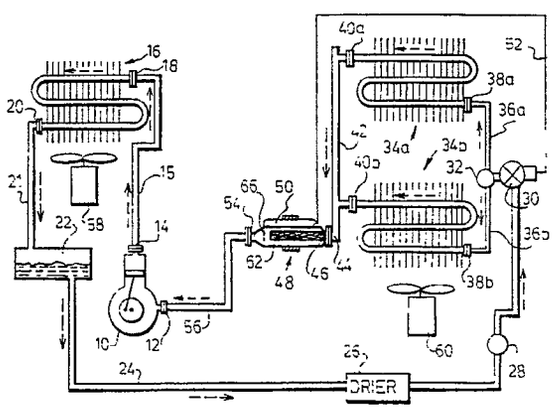

FIG.1

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EUROPEAN SEARCH REPORT

Application Number

EP 89 30 7902

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
D,A	US-A-4 229 949 (BRANDIN) * column 2, lines 36 - 65; figures 1, 3 *	1,13	F 25 B 41/00 F 25 B 43/00 F 25 B 5/02
A	DE-B-1 068 734 (GOEBELS) * the whole document *	1-4,6,7, 13,14,16, 19,20	
A	US-A-4 694 894 (KITO ET AL.) * column 2, lines 17 - 29; figure 3 *	1-3,11, 13-16,24	
A	US-A-2 960 845 (LANGE) * the whole document *	1,12,13, 25	

TECHNICAL FIELDS SEARCHED (Int. Cl.5)

F 25 B

The present search report has been drawn up for all claims

Place of search	Date of completion of search	Examiner
The Hague	17 December 90	BROMAN B.T.

CATEGORY OF CITED DOCUMENTS

X: particularly relevant if taken alone
Y: particularly relevant if combined with another document of the same catagory
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