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MULTI-STAGE LOW GWP AIR CONDITIONING SYSTEM

- (57)

Disclosed are refrigerant systems for conditioning air and/or items located within a dwelling occupied by humans or other animals preferably including at least a first heat transfer circuit containing a first heat transfer fluid in a vapor/compression circulation loop located substantially outside of the dwelling and at least a second heat transfer circuit, which contains a second heat transfer fluid different than the first heat transfer fluid, located substantially inside of the dwelling. In preferred embodiments, the second heat transfer circuit does not include a vapor compressor, but the system includes at least one intermediate heat exchanger which permits exchange of heat between the first heat transfer fluid and the second heat transfer fluid such that heat is transferred to the first
- heat transfer fluid, preferably thereby evaporating the first heat transfer fluid, and from the second heat transfer fluid, thereby condensing the second heat transfer fluid. Preferably, the intermediate heat exchanger is located outside the dwelling. The first heat transfer fluid comprises a refrigerant which has a GWP of not greater than about 500 and that the second heat transfer fluid comprises a refrigerant that also has a GWP of less than 500 and which has a low flammability and a low toxicity, and even more preferably a flammability that is substantially less than the flammability of the refrigerant in the first heat transfer fluid and/or a toxicity that is substantially less than the toxicity of the refrigerant in said first heat transfer fluid.

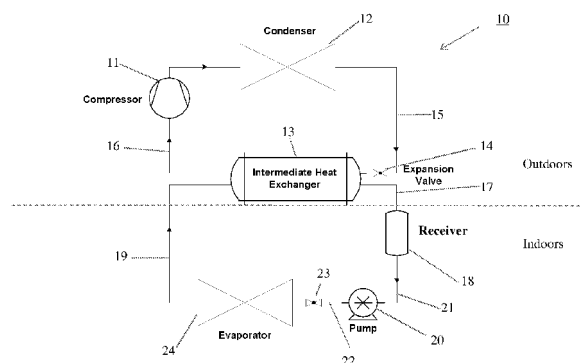


FIGURE 1



EUROPEAN SEARCH REPORT

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Y	* paragraphs [0051], [0020], [0074], [0100]; figures; table 3 *	8-10	F25B9/00 F25B41/00 F25B40/00
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X	MOLÉS FRANCISCO ET AL: "Thermodynamic analysis of a combined organic Rankine cycle and vapor compression cycle system activated with low temperature heat sources using low GWP fluids", APPLIED THERMAL ENGINEERING, PERGAMON, OXFORD, GB, vol. 87, 27 May 2015 (2015-05-27), pages 444-453, XP029248589, ISSN: 1359-4311, DOI: 10.1016/J.APPLTHERMALENG.2015.04.083 * page 445; figure 3; tables 1,2 *	1	TECHNICAL FIELDS SEARCHED (IPC) F25B
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 25 June 2024	Examiner Areal Calama, A
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ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO.

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