



(11) **EP 2 530 401 A3**

(12) **EUROPEAN PATENT APPLICATION**

(88) Date of publication A3:
19.11.2014 Bulletin 2014/47

(51) Int Cl.:
F24H 4/04 (2006.01) **F24H 9/14** (2006.01)
F24D 11/02 (2006.01)

(43) Date of publication A2:
05.12.2012 Bulletin 2012/49

(21) Application number: **12170277.3**

(22) Date of filing: **31.05.2012**

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA ME

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(30) Priority: **31.05.2011 JP 2011121360**

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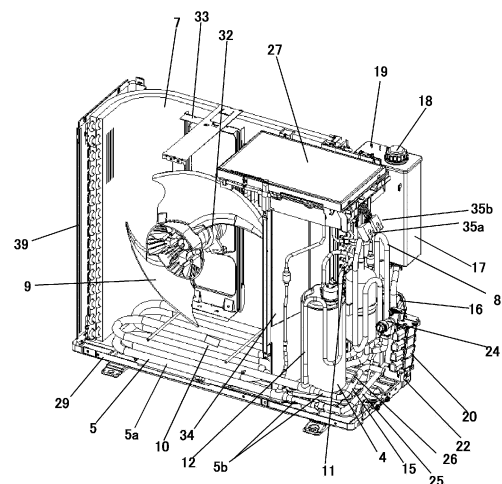
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(54) **Heat pump hydronic heater**

(57) A heat pump hydronic heater of the present invention includes: a sheath body 36 in which a refrigerant circuit 8 and a water refrigerant heat exchanger 5 are provided; an external radiator 2 which circulates a heating medium heated by the water refrigerant heat exchanger 5 and which makes the heating medium dissipate heat; and a heating medium outward port 21 and a heating medium return port 23 which connect the sheath body 36 and the external radiator 2 to each other through a pipe 3. A convex portion 41 is provided on a side of the sheath body 36. The heat pump hydronic heater of the invention has high workability, efficiency thereof can be enhanced, maintenance performance thereof is excellent, and the heat pump hydronic heater can be designed compactly.

[Fig. 2]





EUROPEAN SEARCH REPORT

Application Number
EP 12 17 0277

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	JP 2003 287242 A (CHOFU SEISAKUSHO CO LTD) 10 October 2003 (2003-10-10)	1,2,4,6	INV. F24H4/04 F24H9/14 F24D11/02
Y	* paragraphs [0012] - [0013], [0016] -	5,7	
A	[0018]; figures 1-3 *	3	
Y,D	JP 2010 144986 A (CORONA CORP) 1 July 2010 (2010-07-01) * the whole document *	5	
Y	GB 769 230 A (BRENTFORD ELECTRIC LTD) 6 March 1957 (1957-03-06) * page 2; figures 1-3 *	7	
			TECHNICAL FIELDS SEARCHED (IPC)
			F24D
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 10 October 2014	Examiner Blot, Pierre-Edouard
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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10-10-2014

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
JP 2003287242 A	10-10-2003	JP 4049602 B2 JP 2003287242 A	20-02-2008 10-10-2003
JP 2010144986 A	01-07-2010	JP 5173780 B2 JP 2010144986 A	03-04-2013 01-07-2010
GB 769230 A	06-03-1957	NONE	

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EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82