



(43) International Publication Date  
6 September 2013 (06.09.2013)

(51) International Patent Classification:

F24D 17/00 (2006.01) F24D 19/00 (2006.01)  
F24D 17/02 (2006.01)

(21) International Application Number:

PCT/GB2013/050506

(22) International Filing Date:

28 February 2013 (28.02.2013)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

1203642.2 1 March 2012 (01.03.2012) GB

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(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM,

DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

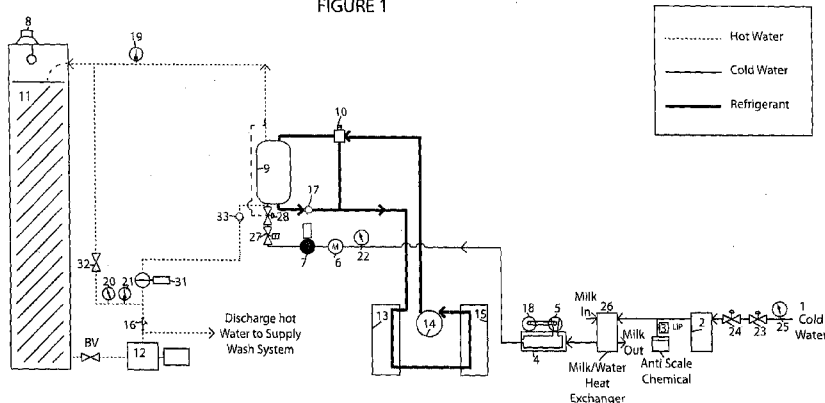
- with international search report (Art. 21(3))
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))

(88) Date of publication of the international search report:

21 November 2013

(54) Title: HEAT RECOVERY

FIGURE 1



(57) Abstract: A heat recovery system arranged to heat water includes at least one heat exchanger(9) arranged to heat water by heat exchange with waste heat. A storage reservoir (11) is arranged to store water heated by the heat exchanger(9). The heat exchanger(9) is switchable between a first mode of operation in which water is circulated by a pump (12) in a circuit that includes the storage reservoir (11) and the heat exchanger (9), and a second mode of operation in which water is circulated by the pump (12) in a circuit that by-passes the heat exchanger (9). Heated water of at least a desired minimum temperature can be supplied to at least one outlet during both the first and second modes of operation.

**INTERNATIONAL SEARCH REPORT**

International application No  
PCT/GB2013/050506

**A. CLASSIFICATION OF SUBJECT MATTER**  
 INV. F24D17/00 F24D17/02 F24D19/00  
 ADD.  
 According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**  
 Minimum documentation searched (classification system followed by classification symbols)  
 F24D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
 EPO-Internal, WPI Data

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X A	EP 1 884 648 A1 (LG ELECTRONICS INC [KR]) 6 February 2008 (2008-02-06) paragraphs [0032] - [0086], [0127], [0130], [0160] - [0191] figures 2-6, 8, 9	1,2, 11-15 3-5,8-10
A	----- WO 2011/045767 A2 (CHANSE [BE]; FEYTEN MARC MARIE PAUL CHRISTIAN [BE]) 21 April 2011 (2011-04-21) the whole document	1,4,14, 15
A	----- AU 2009 201 076 A1 (WU JIE QIN) 5 November 2009 (2009-11-05) the whole document	3,4,8-10
A	----- GB 2 459 955 A (SUNAMP LTD [GB]) 18 November 2009 (2009-11-18) the whole document	6,7

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Date of the actual completion of the international search

Date of mailing of the international search report

17 September 2013

24/09/2013

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# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/GB2013/050506

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 1884648	A1	06-02-2008	CN 101113852 A
			EP 1884648 A1
			KR 20080009953 A
			US 2008023961 A1
-----			
WO 2011045767	A2	21-04-2011	BE 1019045 A5
			EP 2488794 A2
			WO 2011045767 A2
-----			
AU 2009201076	A1	05-11-2009	NONE
-----			
GB 2459955	A	18-11-2009	CN 102077050 A
			EP 2297538 A2
			GB 2459955 A
			JP 2011521192 A
			US 2011226440 A1
			WO 2009138771 A2
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