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(71) Applicant (for all designated States except US): **STRIX LIMITED** [GB/GB]; Forrest House, Ronaldsway, Isle of Man IM9 2RG (GB).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **GARVEY, Vincent, Joseph** [GB/GB]; Longmead, Ballakillowey, Colby (GB). **MOUGHTON, Colin** [GB/GB]; Geay Varrey, Four Roads, Port St Mary (GB). **NICHOL, Norman, Eric** [GB/GB]; 71 Murrays Lake Drive, Mount Murray, Santon (GB).

(74) Agent: **FRANK B. DEHN & CO.**; St Bride's House, 10 Salisbury Square, London EC4Y 8JD (GB).

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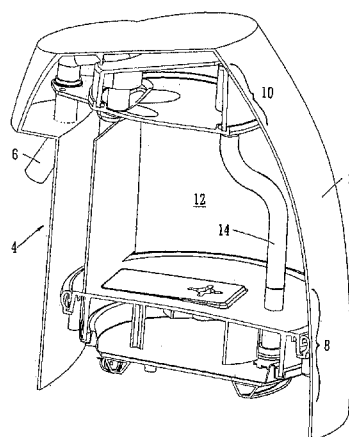


FIG. 1

(57) Abstract: An apparatus for heating a measured amount of water comprises a heating (chamber 8), a dispensing chamber (10) and a conduit for conveying water from the heating chamber to an inlet of the dispensing chamber (14). The apparatus is arranged such that an increase in pressure associated with boiling forces heated water into the conduit 14 and then into the dispensing chamber (10).

INTERNATIONAL SEARCH REPORT

International application No

PCT/GB2008/004252

A. CLASSIFICATION OF SUBJECT MATTER
INV. A47J27/21

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)

A47J

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 practical, search terms used)

EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	GB 2 064 078 A (CALOMAX ENG LTD) 10 June 1981 (1981-06-10)	1-4
Y	page 2, line 13 - page 5, line 30; figures -----	5
X	EP 0 811 345 A (BRAVILOR BONAMAT B V [NL] BRAVILOR HOLDING B V [NL]) 10 December 1997 (1997-12-10)	1
Y	column 2, line 44 - column 4, line 44; figures -----	5
X	US 2004/118292 A1 (FONT VICENC [ES] ET AL) 24 June 2004 (2004-06-24)	1-4
	paragraphs [0048] - [0068]; figures -----	
X	EP 1 738 675 A (SHAO ZHICHENG [CN]) 3 January 2007 (2007-01-03)	1
	paragraphs [0011] - [0020]; figures -----	

☐ Further documents are listed in the continuation of Box C.☒ See patent family annex.

* Special categories of cited documents :

A document defining the general state of the art which is not considered to be of particular relevance

E earlier document but published on or after the international filing date

L document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

O document referring to an oral disclosure, use, exhibition or other means

P document published prior to the international filing date but later than the priority date claimed

T later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

X document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

Y document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

Z document member of the same patent family

Date of the actual completion of the international search

27 February 2009

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03/07/2009

Name and mailing address of the ISA/

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2260 HV Rijswijk
Tel. (+31-70) 340-2040,
Fax: (+31-70) 340-3016

Authorized officer

De Terlizzi, Marino

INTERNATIONAL SEARCH REPORT

International application No.
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Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This International search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers allsearchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search reportcovers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

see additional sheet(s)

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- ☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-5

an apparatus for heating a measured amount of water having a heating chamber, a dispensing chamber and a conduit for conveying liquid from the heating chamber to the inlet of the dispensing chamber, such inlet being configured to pass steam from said conduit through water held in the dispensing chamber

2. claims: 6-46

a liquid heating apparatus having a heating chamber, a dispensing chamber and means for conveying liquid from the heating chamber to the dispensing chamber, the apparatus comprising an outlet from the dispensing chamber configured to set up a siphon when the liquid in the dispensing chamber has reached a predetermined level

3. claims: 47-49

a liquid heating vessel comprising a heating chamber, liquid reservoir and a valve therebetween, the valve being configured to open to allow fluid communication between the heating chamber and the liquid reservoir in response to a threshold pressure differential across the valve, wherein the threshold pressure differential is higher in one direction than in the other

4. claims: 50-53

a liquid heating apparatus comprising a liquid receiving chamber and an electric heating element, the apparatus having a first configuration in which the heating element can operate to heat all of the liquid in the liquid receiving chamber; and a second configuration in which a heating chamber is defined in which the heating element can heat a smaller volume of liquid, the apparatus comprising means for switching between the two configurations

5. claim: 54

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

an apparatus for boiling a measured amount of water comprising a heating chamber , a heating element and thermal sensing means to switch off power to the heating element when a predetermined temperature has been reached, wherein said predetermined temperature is set such that the water has not boiled when the heating element is switched off but the residual heat in the element is sufficient to continue heating the water to boiling

INTERNATIONAL SEARCH REPORT

International application No
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Patent document cited in search report		Publication date	Patent family member(s)	Publication date
GB 2064078	A	10-06-1981	NONE	
EP 0811345	A	10-12-1997	AT 209461 T	15-12-2001
			DE 69708507 D1	10-01-2002
			DE 69708507 T2	23-05-2002
			DK 811345 T3	11-03-2002
			ES 2168570 T3	16-06-2002
			NL 1003276 C2	10-12-1997
			NL 1003276 A1	10-12-1997
			PT 811345 E	31-05-2002
US 2004118292	A1	24-06-2004	AT 373437 T	15-10-2007
			AU 2003283318 A1	14-07-2004
			CN 1722971 A	18-01-2006
			DE 10260039 A1	08-07-2004
			WO 2004056245 A1	08-07-2004
			EP 1571950 A1	14-09-2005
			ES 2291708 T3	01-03-2008
			JP 2006510420 T	30-03-2006
			RU 2344741 C2	27-01-2009
EP 1738675	A	03-01-2007	AT 429839 T	15-05-2009
			AU 2005235393 A1	03-11-2005
			CA 2563919 A1	03-11-2005
			WO 2005102124 A1	03-11-2005
			CN 1561890 A	12-01-2005
			JP 2007532276 T	15-11-2007
			US 2007169629 A1	26-07-2007