

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
28 February 2008 (28.02.2008)

PCT

(10) International Publication Number
WO 2008/023287 A3

- (51) International Patent Classification:
G10K 11/30 (2006.01)
- (21) International Application Number:
PCT/IB2007/051329
- (22) International Filing Date: 12 April 2007 (12.04.2007)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
60/823,282 23 August 2006 (23.08.2006) US
- (71) Applicant (for all designated States except US): **KONINKLIJKE PHILIPS ELECTRONICS N.V.** [NL/NL]; Groenewoudseweg 1, NL-5621 BA Eindhoven (NL).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): **SUIJVER, Jan Frederik** [NL/US]; P.O. Box 3001 345 Scarborough Road, Briarcliff Manor, New York 10510-8001 (US). **FERNANDEZ, Anna T.** [US/US]; P.O. Box 3001 345 Scarborough Road, Briarcliff Manor, New York

10510-8001 (US). **HALL, Christopher S.** [US/US]; P.O. Box 3001 345 Scarborough Road, Briarcliff Manor, New York 10510-8001 (US).

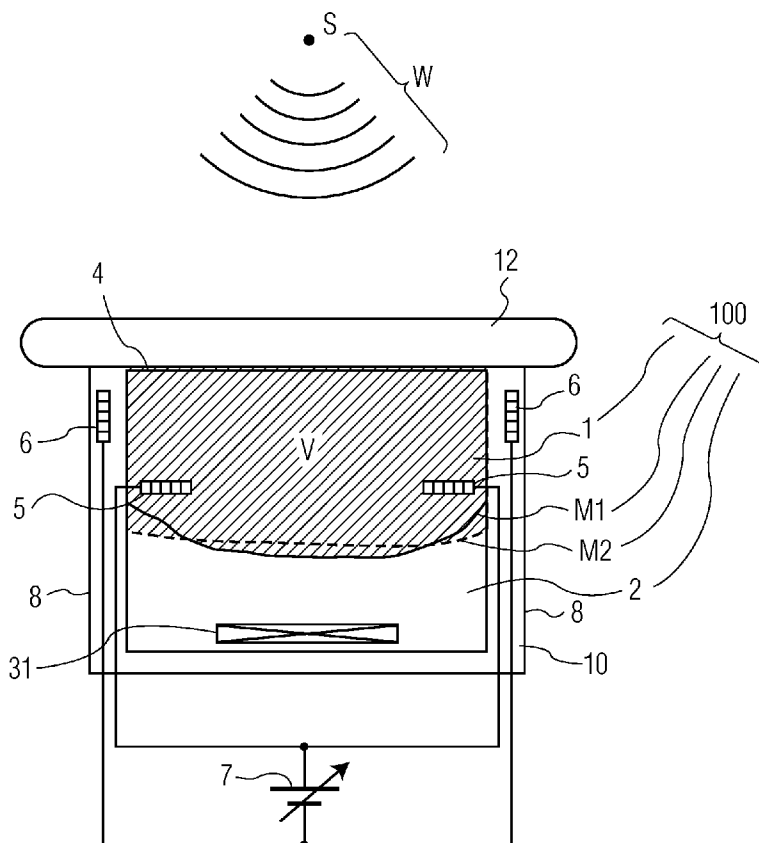
(74) Common Representative: **KONINKLIJKE PHILIPS ELECTRONICS N.V.**; c/o David L. BARNES, P.O. Box 3001, 345 Scarborough Road, Briarcliff Manor, NY 10510-8001 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, 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, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, 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, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,

[Continued on next page]

(54) Title: DEVICE CONTAINING A FLUID REFRACTING ULTRASOUND MODALITY



(57) Abstract: An acoustic device is disclosed having a variably refracting acoustic fluid interface (100) including the boundary between two separate fluid media (1, 2), means for directing acoustic waves (2) onto the interface, and an acoustic generator or transducer located (31) in one of the fluid media with the acoustic generator having an impedance that is substantially equal to the one said fluid media to minimize signal loss and reflection.

Fig. 1

WO 2008/023287 A3



ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,
FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, PL,
PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM,
GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

— *as to the applicant's entitlement to claim the priority of the
earlier application (Rule 4.17(iii))*

Published:

— *with international search report*
— *before the expiration of the time limit for amending the
claims and to be republished in the event of receipt of
amendments*

Declarations under Rule 4.17:

— *as to applicant's entitlement to apply for and be granted a
patent (Rule 4.17(ii))*

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

12 March 2009

INTERNATIONAL SEARCH REPORT

International application No.
PCT/IB2007/051329A. CLASSIFICATION OF SUBJECT MATTER
INV. G10K11/30

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)
G10K

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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	FR 2 569 513 A (DEVEL APPLIC PHYSIQ EXPLOIT [FR]) 28 February 1986 (1986-02-28) abstract; figure 1 page 2, line 36 - page 4, line 2 -----	1-6, 9, 10, 15
Y	US 5 873 845 A (CLINE HARVEY ELLIS [US] ET AL) 23 February 1999 (1999-02-23). column 3, lines 26-39; figure 3 -----	1-6, 9, 10, 15
A	US 5 477 736 A (LORRAINE PETER W [US]) 26 December 1995 (1995-12-26) abstract; figure 2 columns 1,5 ----- -/--	1-15

 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

14 January 2009

Date of mailing of the international search report

22/01/2009

Name and mailing address of the ISA/

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040,
Fax: (+31-70) 340-3016

Authorized officer

Vollmer, Thorsten

INTERNATIONAL SEARCH REPORT

International application No
PCT/IB2007/051329

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>WO 2005/122139 A (KONINKL PHILIPS ELECTRONICS NV [NL]; KUIPER STEIN [FR]; HENDRIKS BERNA) 22 December 2005 (2005-12-22) cited in the application the whole document</p> <p style="text-align: center;">-----</p>	1-15
A	<p>EP 0 486 815 A (DORNIER MEDIZINTECHNIK [DE]) 27 May 1992 (1992-05-27) cited in the application the whole document</p> <p style="text-align: center;">-----</p>	1-15

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/IB2007/051329

Patent document cited in search report	A	Publication date	Patent family member(s)	Publication date
FR 2569513	A	28-02-1986	NONE	
US 5873845	A	23-02-1999	NONE	
US 5477736	A	26-12-1995	JP 8051689 A US 5565628 A	20-02-1996 15-10-1996
WO 2005122139	A	22-12-2005	CN 1965348 A US 2008264716 A1	16-05-2007 30-10-2008
EP 0486815	A	27-05-1992	DE 4037160 A1 JP 4266750 A US 5240005 A	27-05-1992 22-09-1992 31-08-1993