



- (51) **International Patent Classification:**
G10K 11/178 (2006.01)
- (21) **International Application Number:**
 PCT/US2012/039336
- (22) **International Filing Date:**
 24 May 2012 (24.05.2012)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**
 61/493,162 3 June 2011 (03.06.2011) US
 13/458,585 27 April 2012 (27.04.2012) US
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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, 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, 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).

Declarations under Rule 4.17:

- as to applicant's entitlement to apply for and be granted a patent (Rule 4.1 7(H))
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.1 7(in))

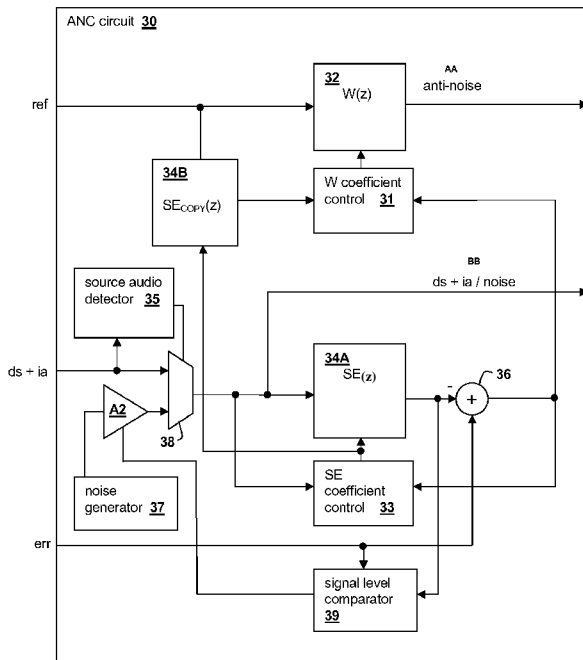
Published:

- with international search report (Art. 21(3))

[Continued on next page]

- (54) **Title:** CONTINUOUS ADAPTATION OF SECONDARY PATH ADAPTIVE RESPONSE IN NOISE-CANCELING PERSONAL AUDIO DEVICES

Fig. 3



(57) **Abstract:** A personal audio device, such as a wireless telephone, includes an adaptive noise canceling circuit (30) that adaptively generates an anti-noise signal from a reference microphone signal (ref) and injects the anti-noise signal into the speaker or other transducer output to cause cancellation of ambient audio sounds. An error microphone (err) is also provided proximate the speaker to provide an error signal indicative of the effectiveness of the noise cancellation. A secondary path estimating adaptive filter (SE, SE copy) is used to estimate the electro-acoustical path from the noise canceling circuit through the transducer so that source audio (ds) can be removed from the error signal. Noise (37) is injected either continuously and inaudibly below the source audio, or in response to detection that the source audio is low in amplitude, so that the adaptation of the secondary path estimating adaptive filter can be maintained, irrespective of the presence and amplitude of the source audio.

— before the expiration of the time limit for amending the (88) Date of publication of the international search report^{6 J} 3
claims and to be republished in the event of receipt of
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INTERNATIONAL SEARCH REPORT

International application No
PCT/US2012/039336

A. CLASSIFICATION OF SUBJECT MATTER
INV. G10K11/178
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)
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 practicable, search terms used)
EPO-Internal , WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

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X	US 2010/195844 AI (CHRISTOPH MARKUS [DE] ET AL) 5 August 2010 (2010-08-05) abstract; figures 4,7A,7B,8,9 paragraphs [0007] , [0024] , [0044] , [0045] , [0052] - [0054] , [0062] - [0064] -----	1-6, 8-14, 16-22 ,24
X	US 2008/181422 AI (CHRISTOPH MARKUS [DE]) 31 July 2008 (2008-07-31) abstract; figures 1, 14A, 14B paragraphs [0002] , [0080] - [0090] -----	1,7-9 , 15-17 , 23 ,24
A	US 2010/296666 AI (LIN CHUN-CHENG [TW]) 25 November 2010 (2010-11-25) abstract; figures 4,5 ,6 paragraphs [0027] - [0031] , [0039] , [0040] , [0043] -----	1-24
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Date of the actual completion of the international search 8 April 2013	Date of mailing of the international search report 12/04/2013
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INTERNATIONAL SEARCH REPORT

International application No
PCT/US2012/039336

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2002/003887 A1 (ZHANG MING [SG] ET AL) 10 January 2002 (2002-01-10) abstract; figure 3 paragraphs [0005] , [0026] , [0028] , [0030] -----	1-24

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No PCT/US2012/039336
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