(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
22 June 2006 (22.06.2006)

PCT

(10) International Publication Number
WO 2006/063624 A1

(51) International Patent Classification[7]: H04R 25/00

(21) International Application Number:
PCT/EP2004/053547

(22) International Filing Date:
16 December 2004 (16.12.2004)

(25) Filing Language: English

(26) Publication Language: English

(71) Applicant *(for all designated States except US)*: **WIDEX A/S** [DK/DK]; Ny Vestergaardsvej 25, DK-3500 Varlose (DK).

(72) Inventors; and

(75) Inventors/Applicants *(for US only)*: **KLINKBY, Kristian, Tjalfe** [DK/DK]; Klosterbakken 3, DK-3500 Varlose (DK). **FOEH, Helge, Pontoppidan** [DK/DK]; Aldershvilevej 119, 1D, DK-2880 Bagsvaerd (DK). **THIEDE, Thilo, Volker** [DE/DK]; Fuglehavevej 35, DK-2750 Ballerup (DK).

(74) Agent: **BETTEN & RESCH**; Theatinerstr. 8, 80333 München (DE).

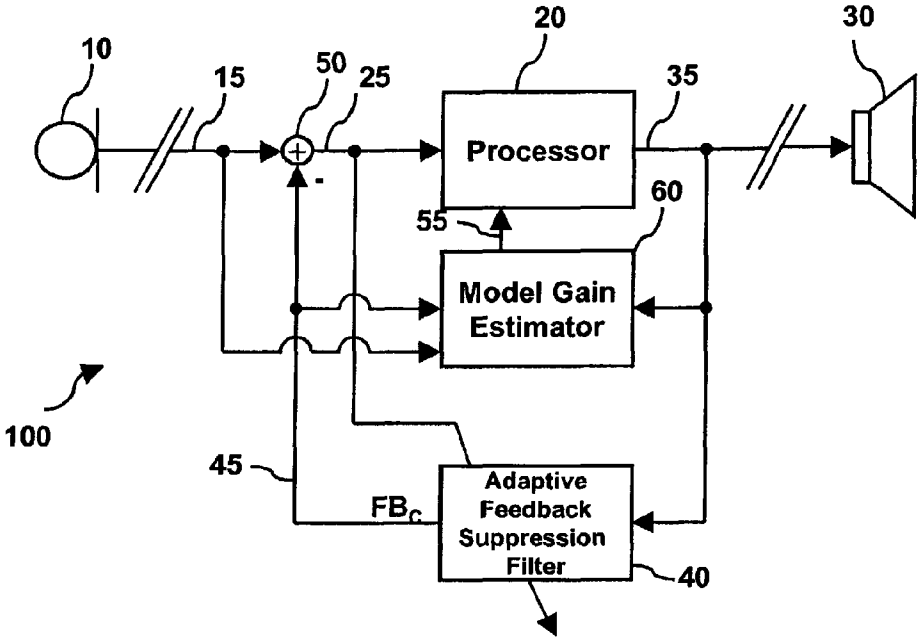
(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, 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, 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, MC, 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).

Published:
— *with international search report*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) **Title:** HEARING AID WITH FEEDBACK MODEL GAIN ESTIMATION



(57) **Abstract:** A hearing aid 100 comprises an input transducer 10 for transforming an acoustic input signal into an electrical input signal 15, a processor 20 for generating an electrical output signal by amplifying the electrical input signal with a processor gain, an output transducer 30 for transforming the electrical output signal into an acoustic output signal, an adaptive feedback suppression filter 40 for generating a feedback cancellation signal by using an error signal generated from the difference between the feedback cancellation signal and the electrical input signal, and a model gain estimator 60 generating an upper processor gain limit by determining the gain in the adaptive feedback suppression filter.

WO 2006/063624 A1