



- (51) International Patent Classification:
G10K 11/34 (2006.01)
- (21) International Application Number:
PCT/US2015/064139
- (22) International Filing Date:
4 December 2015 (04.12.2015)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
14/561,972 5 December 2014 (05.12.2014) US
14/827,315 15 August 2015 (15.08.2015) US
14/827,322 15 August 2015 (15.08.2015) US
14/827,319 15 August 2015 (15.08.2015) US
14/827,316 15 August 2015 (15.08.2015) US
14/827,317 15 August 2015 (15.08.2015) US
14/827,320 15 August 2015 (15.08.2015) US
- (71) Applicant: STAGES PCS, LLC [US/US]; 200 Princeton South Corporate Center Suite 110, Princeton, NJ 08628 (US).
- (72) Inventor: BENATAR, Benjamin, D.; c/o StageS PCS, LLC, 200 Princeton South Corporate Center, Suite 110, Princeton, NJ 08628 (US).
- (74) Agent: UNGERMAN, Mark, E.; Ungerman IP PLLC, 2305 Calvert Street, N.W., Washington, DC 20008 (US).
- (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, IR, IS, JP, KE, KG, KN, KP, KR, KZ, LA, LC, LK, LR, LS, 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, SA, 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, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE,

[Continued on next page]

(54) Title: ACTIVE NOISE CONTROL AND CUSTOMIZED AUDIO SYSTEM

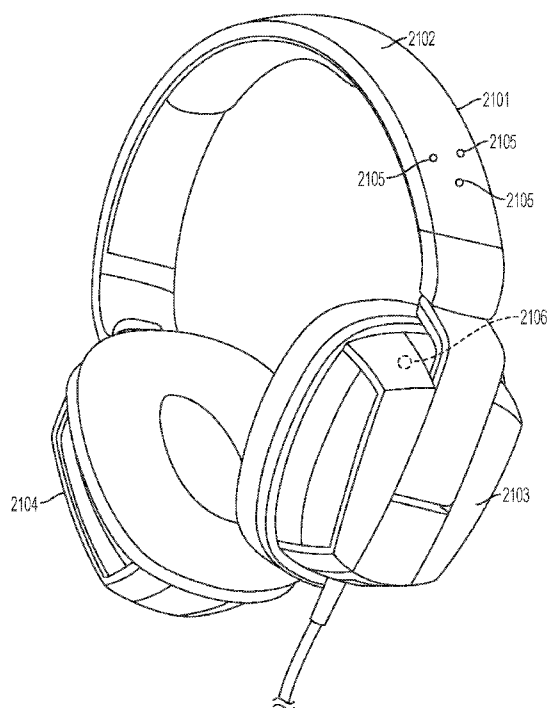


FIG. 21

(57) Abstract: An acoustic customization system to enhance a user's audio environment. One type of enhancement would allow a user to wear headphones and specify what ambient audio and source audio will be transmitted to the headphones. Added enhancements may include the display of an image representing the location of one or more audio sources referenced to a user, an audio source, or other location and/or the ability to select one or more of the sources and to record audio in the direction of the selected source(s). The system may take advantage of an ability to identify the location of an acoustic source or a directionally discriminating acoustic sensor, track an acoustic source, isolate acoustic signals based on location, source and/or nature of the acoustic signal, and identify an acoustic source. In addition, ultrasound may serve as an acoustic source and communication medium.



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, KM, 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))*

Declarations under Rule 4.17:

- *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*
- *of inventorship (Rule 4.17(iv))*

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

28 July 2016

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 15/64139

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - G10K 11/34 (2016.01)

CPC - G10K 11/34; G10L 2021/02166; H04R 3/005

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)

IPC(8)- G10K 11/34 (2016.01)

CPC - G10K 11/34; G10L 2021/02166; H04R 3/005

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

IPC(8)- G10K11/26,28,30,32,34 (2016.01)

CPC - G10K11/26,28,30,32,34; G10L2021/02166; H04R3/005; H04R2201/40; USPC - 381/56,74,92; 382/103

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
 PatBase, Proquest Dialog, Google Patents, Search terms used: location, position, microphone, accelerometer, spatialization, directional, acoustic, audio, sound, tracking, beam, forming, steering, memory, storage, record, playback, headphones, headset, personal, array, plural, multiple, speaker, head related transfer function, motion, sensor, det

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2014/0270231 A1 (DUSAN et al.) 18 September 2014 (18.09.2014), Fig 1, 2, abstract, para [0025], [0030], [0033], [0034], [0037]	1-7
---		-----
Y		8-16
Y	US 2006/0056638 A1 (SCHOBEN) 16 March 2006 (16.03.2006), abstract, para [0014], [0022]	8, 10-16
Y	US 6,959,075 B2 (CUTAIA et al.) 25 October 2005 (25.10.2005), Fig 1, 2, abstract, col 4, ln 51-57	9-16
Y	US 5,638,343 A (TICKNOR) 10 June 1997 (10.06.1997), abstract	16

☐ Further documents are listed in the continuation of Box C.


* 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 application or patent 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

"&" document member of the same patent family

Date of the actual completion of the international search

03 May 2016

Date of mailing of the international search report

02 JUN 2016

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US, Commissioner for Patents

P.O. Box 1450, Alexandria, Virginia 22313-1450

Facsimile No. 571-273-8300

Authorized officer:

Lee W. Young

PCT Helpdesk: 571-272-4300

PCT OSP: 571-272-7774