



(43) International Publication Date
16 December 2010 (16.12.2010)

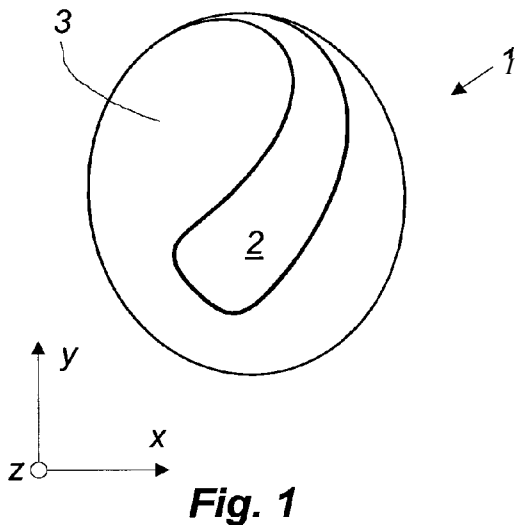
(10) International Publication Number
WO 2010/142290 A1

- (51) **International Patent Classification:**
H04M 1/05 (2006.01)
- (21) **International Application Number:**
PCT/DK2009/000139
- (22) **International Filing Date:**
9 June 2009 (09.06.2009)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (71) **Applicant (for all designated States except US):** GN NETCOM A/S [DK/DK]; Lautrupbjerg 7, DK-2750 Ballerup (DK).
- (72) **Inventors; and**
- (75) **Inventors/Applicants (for US only):** **BIRGEN, Johan** [SE/SE]; Vimpelgatan 21, S-211 14 Malmö (SE). **SORENSEN, Michael** [DK/DK]; Jyllingeparken 84, DK-4040 Jyllinge (DK).
- (74) **Agent:** LARSEN & BIRKEHOLM A/S; Skandinavisk Patentbureau, Banegardspladsen 1, P.O. Box 362, DK-1570 Copenhagen V (DK).
- (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, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, 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, 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, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) **Title:** AN EARPHONE SYSTEM COMPRISING AN EARPHONE AND A PORTABLE HOLDING DEVICE

(57) **Abstract:** An earphone system (1; 23) comprising a wireless earphone (2; 20, 21) and a portable holding device (3; 22). The earphone (2; 20, 21) comprises an ear hook (8) for attaching the earphone (2; 20, 21) to the ear (14) of a user. The holding device (3; 22) comprises an outer surface (25) with an earphone recess (4; 30, 31) adapted for receiving the earphone (2; 20, 21) with the ear hook (8), such that the ear hook (8) follows the outer surface (25) of the holding device (3; 22), and attachment means for attaching the earphone (2; 20, 21) in the earphone recess (4; 30, 31).



WO 2010/142290 A1

Samsung v. GUI
IPR2021-00335
Exhibit 1018



Published:

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

Title: An earphone system comprising an earphone and a portable holding device

5 Technical Field

The invention relates to an earphone system comprising a wireless earphone and a portable holding device, wherein the earphone comprises an ear hook for attaching the earphone to the ear of a user and the holding
10 device comprises an outer surface.

Background Art

15 Wireless earphones suitable for use with mobile phones are normally called headsets and are - when not in use - often carried by the owner in a pocket, pouch, bag or suitable holding device. Some earphones are provided with a holding device adapted for use with that specific earphone. A holding device protects the earphone and prevents it from being tangled or caught
20 with other items in the pocket or bag. Some holding devices also function as chargers for recharging the earphone battery, when the earphone is arranged in the holding device. Thus, the holding device can work as a charging cradle, which via a transformer is connected to an electrical outlet. Some holding devices also comprise a charging battery for charging the
25 earphone and thereby extending talk time and stand by time while the user being away from a wall plug. Motorola Mini H9 is such an earphone system.

There exist many different types of wireless earphones. An earphone typically comprises at least one earphone and a wearing device for
30 attaching the earphone to the head of the user, such that sound from the earphone speaker enters the ear canal. The earphones can be secured to a

user's head by different wearing devices. As examples, these can comprise a headband, a neckband, an "earring" surrounding the outer ear, an earbud, an ear gel, an ear mold or an ear hook. When ear buds, ear gels and ear molds are used as wearing devices, the earphone is simply
5 attached to the user by inserting the wearing device into the ear of user, where it is held in place by the inner sides of the external ear or the ear canal.

An ear hook, which sometimes is referred to as ear clip, ear loop, ear hanger, or ear brace, is a curved or essentially C-shaped device, which is
10 attached to or is an integrated part of an earphone device. In order to mount the earphone on the ear, the ear hook is arranged around the auricle, such that it partly encircles the root of the auricle and extends in the so-called post auricular sulcus. The term "root of the auricle" refers to the
15 area of the outer ear where it protrudes from the side of the head. Postauricular sulcus is the depression behind the ear next to the head. The "auricle" is the externally visible cartilaginous structure of the external ear. Synonyms for auricle are "pinna" or "outer ear".

EP 1 414 221 B1 (Sony Ericsson Mobile Communications AB) discloses an earphone system comprising a wireless earphone and a carrying device, wherein the earphone comprises an ear hook for attaching the earphone to the ear of a user and the holding device comprises an outer surface. The
20 holding device is embodied as a box with a hinged lid. The carrying device protects the earphone well but suffers from some drawbacks when it comes
25 to user friendliness.

When earphones are provided with microphones and adapted for two-way communication, they are normally referred to as headsets. This invention
30 covers these headsets. However, the invention also covers hearing aids that amplify and modulate sounds for the wearer.

Disclosure of Invention

The object of the invention is to improve an earphone system according to the preamble of claim 1. The earphone system according to the invention is
5 characterised in that the outer surface has an earphone recess adapted for receiving the earphone with the ear hook, such that the ear hook follows the surface of the holding device, and attaching means for attaching the earphone in the earphone recess. With such a system, it is possible to
10 remove the earphone of the type which comprising an ear hook in a quick way. This is particularly advantageous if there is a phone call and the user needs to respond quickly. Furthermore, the holding device can be embodied sturdier as no movable or detachable lid is required.

According to an embodiment, the ear hook has an outer surface, which is
15 aligned with the outer surface of the holding device, when the earphone is received by the earphone recess.

Preferably, the outer surface of the ear hook and the outer surface of the holding device together provide a continuous surface, when the earphone is
20 received by the earphone recess. Thus, a particularly smooth surface can be obtained, which minimizes the risk of the earphone being tangled with other devices when carried in a pocket, bag or the like.

According to an embodiment, the holding device opposite the earphone
25 recess comprises a release recess, which together with the earphone recess forms a through-going hole, so that a user via the release recess can press the earphone out of engagement with the earphone recess. With such an embodiment, the user can push the earphone out of engagement
30 with the earphone recess with his/her finger or the like.

30

Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.