



US008031900B2

(12) **United States Patent**
Dyer et al.

(10) **Patent No.:** **US 8,031,900 B2**
(45) **Date of Patent:** **Oct. 4, 2011**

(54) **EARPHONE AMBIENT EARTIP**
(75) Inventors: **Medford Alan Dyer**, San Diego, CA (US); **Jerry J. Harvey**, Newport Beach, CA (US)
(73) Assignee: **Logitech International, S.A.** (CH)
(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 1434 days.

7,079,662 B2 * 7/2006 Niederdr 381/328
7,627,131 B2 * 12/2009 Nielsen et al. 381/328
2002/0139607 A1 10/2002 Wubker
2005/0249369 A1 11/2005 Angst et al.
2006/0137934 A1 * 6/2006 Kurth 181/135
* cited by examiner

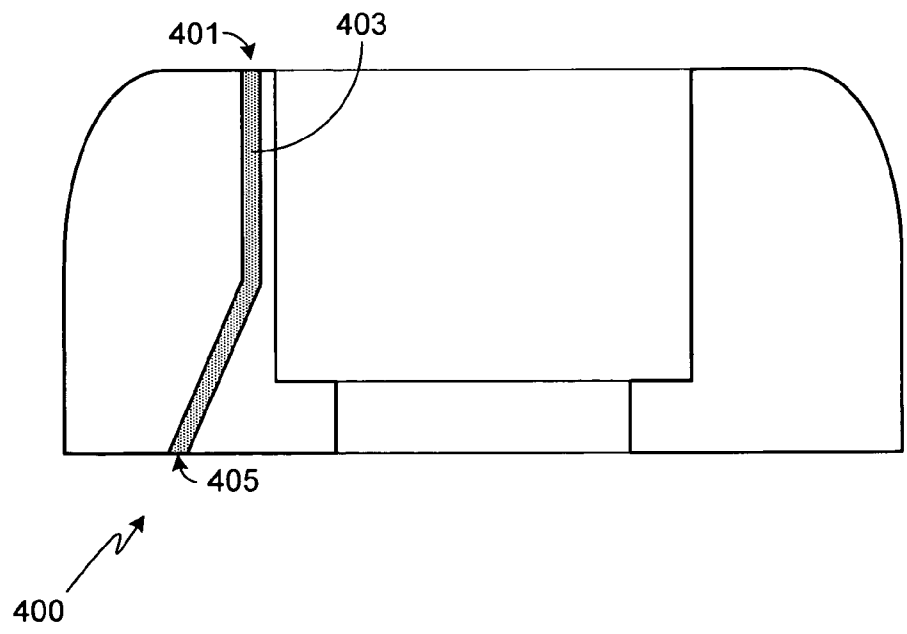
Primary Examiner — Davetta W Goins
Assistant Examiner — Jasmine Pritchard
(74) *Attorney, Agent, or Firm* — Patent Law Office of David G. Beck

(21) Appl. No.: **11/363,006**
(22) Filed: **Feb. 27, 2006**
(65) **Prior Publication Data**
US 2007/0201717 A1 Aug. 30, 2007
(51) **Int. Cl.**
H04R 25/00 (2006.01)
(52) **U.S. Cl.** **381/380**; 381/381; 381/322; 381/328;
181/130; 181/135
(58) **Field of Classification Search** 381/312,
381/322-330, 380-381; 181/130, 135
See application file for complete search history.

(57) **ABSTRACT**
An eartip that includes at least one acoustic material filled port is provided. The port and the acoustic material contained therein provide the eartip with a controlled acoustic leakage path, thus allowing the user to tailor the performance of the earphones to which the eartips of the invention are attached. The provided eartip is attachable to a standard, generic earpiece, for example through the use of interlocking members (e.g., channel/lip arrangement). At least one port, in addition to the central opening by which the eartip is attached to the earphone, extends through the eartip. The port can have a circular cross-section, arcuate cross-section, or other shape. If desired, for example to increase the port area, the eartip can be designed with multiple ports surrounding the central opening. Within the port is an acoustic material with the desired acoustic impedance. The eartip can be coded to allow identification of the acoustic qualities of a particular eartip.

(56) **References Cited**
U.S. PATENT DOCUMENTS
4,375,016 A * 2/1983 Harada 181/135
5,729,605 A 3/1998 Bobisuthi et al.

19 Claims, 8 Drawing Sheets



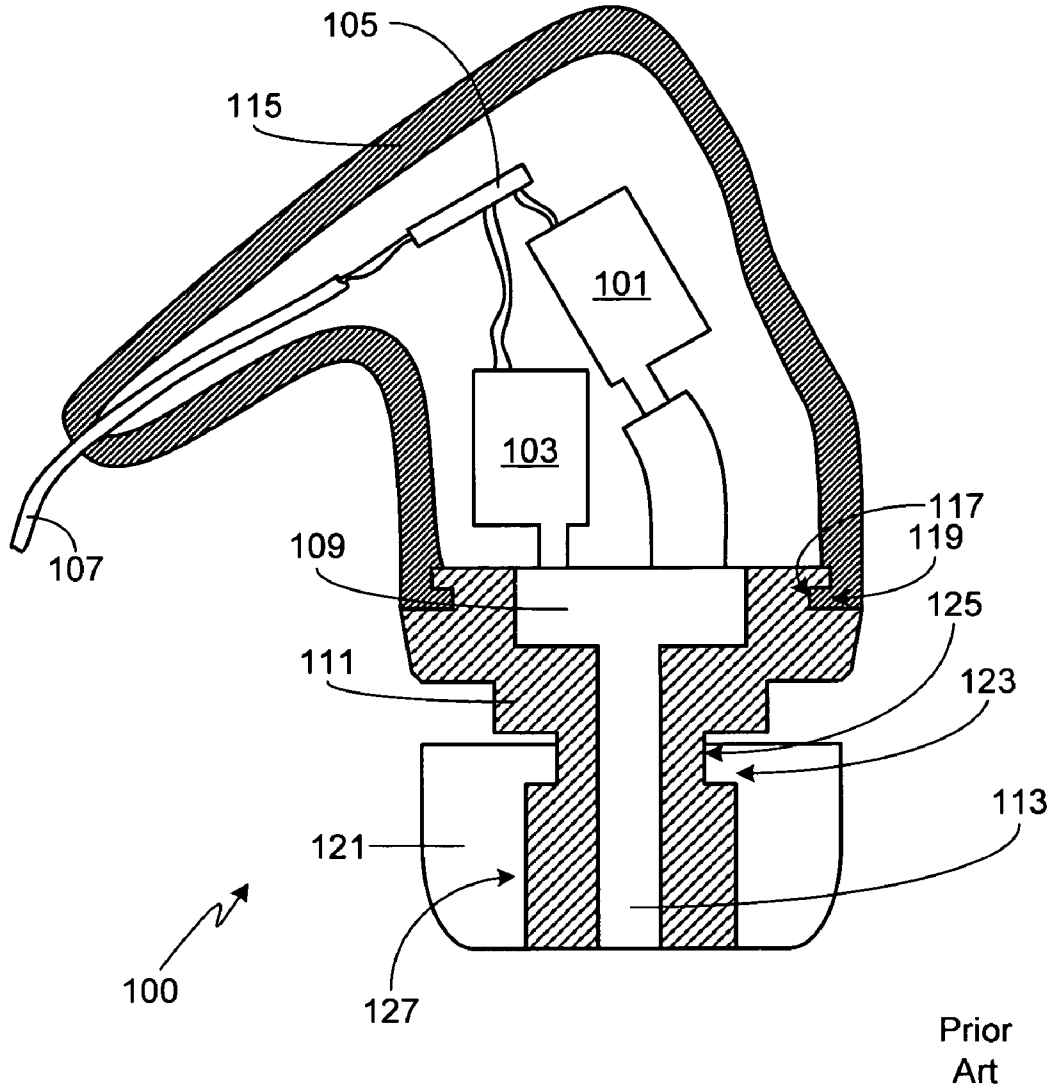
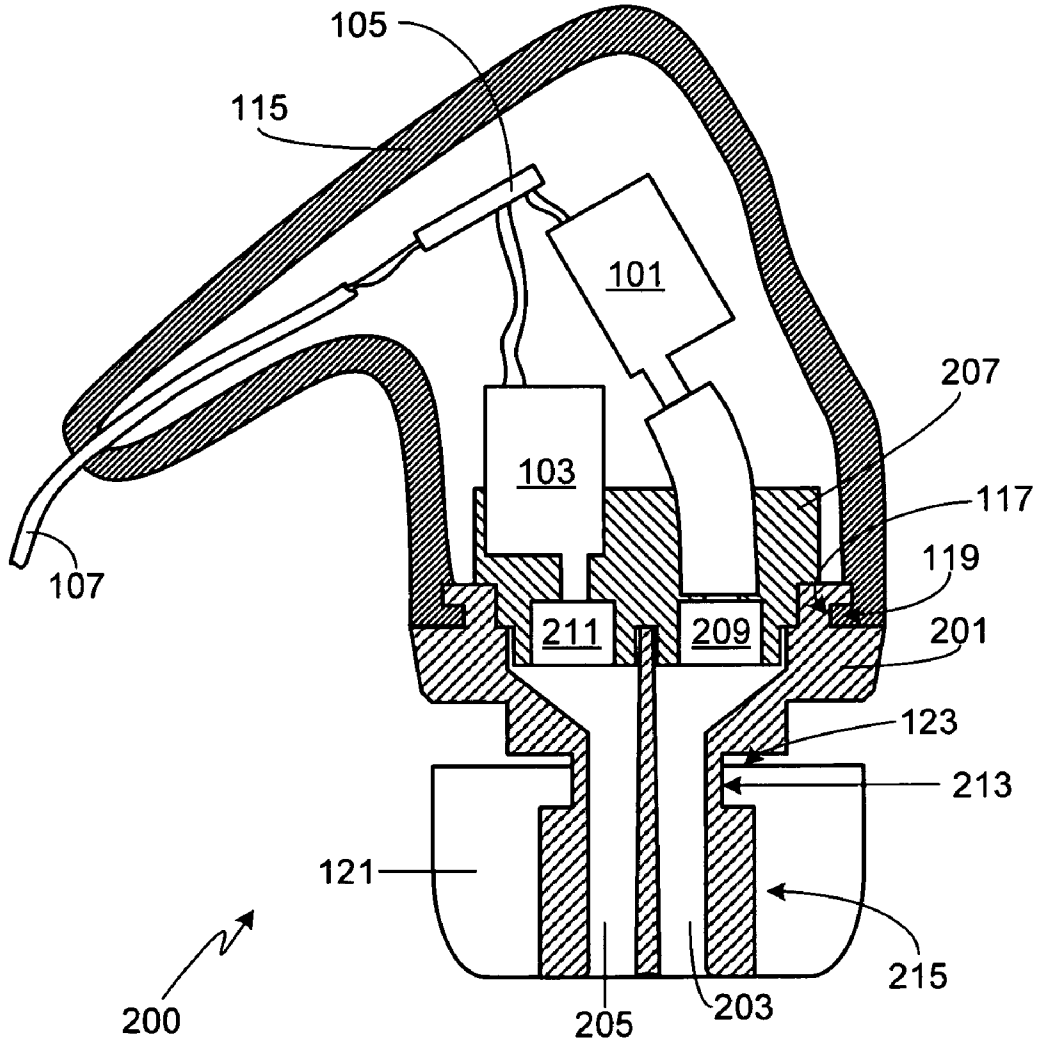


FIG. 1



Prior Art

FIG. 2

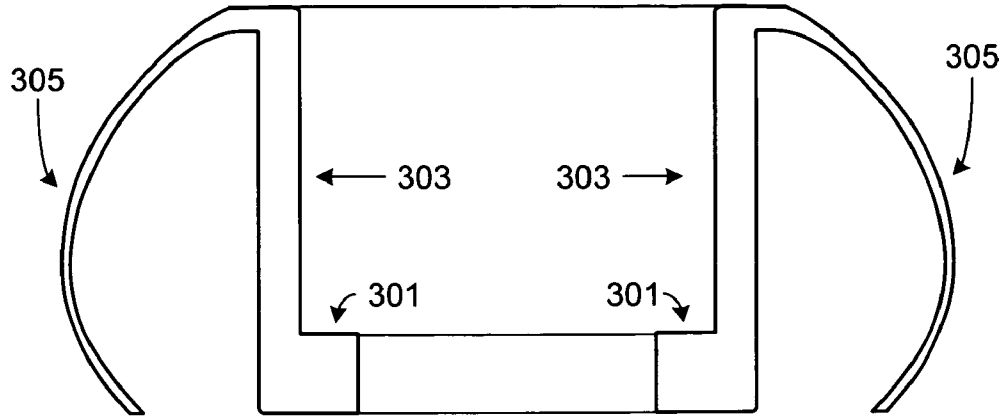


FIG. 3

Prior Art

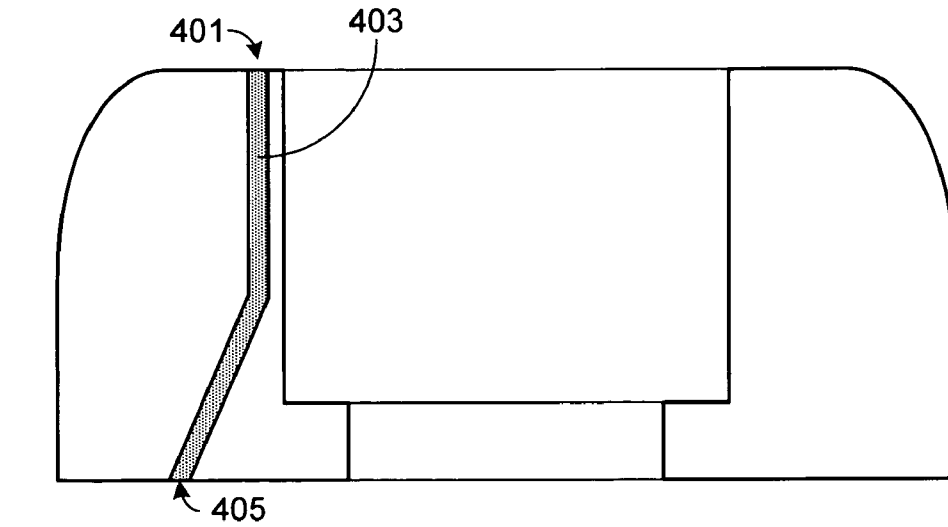


FIG. 4

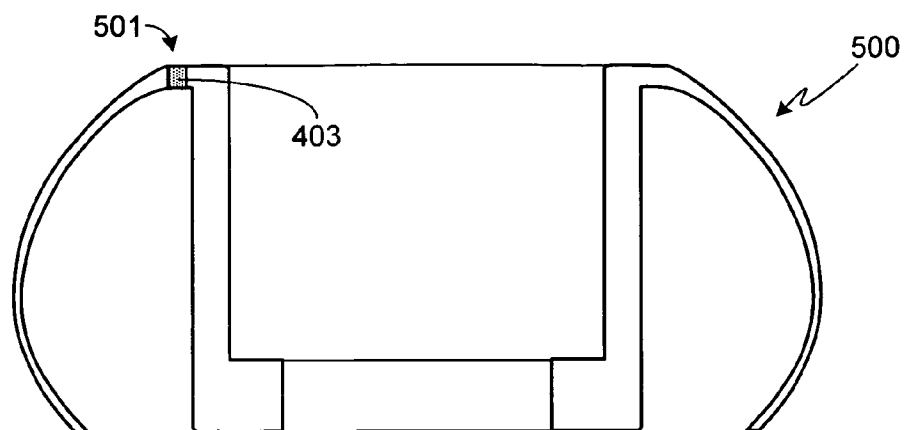


FIG. 5

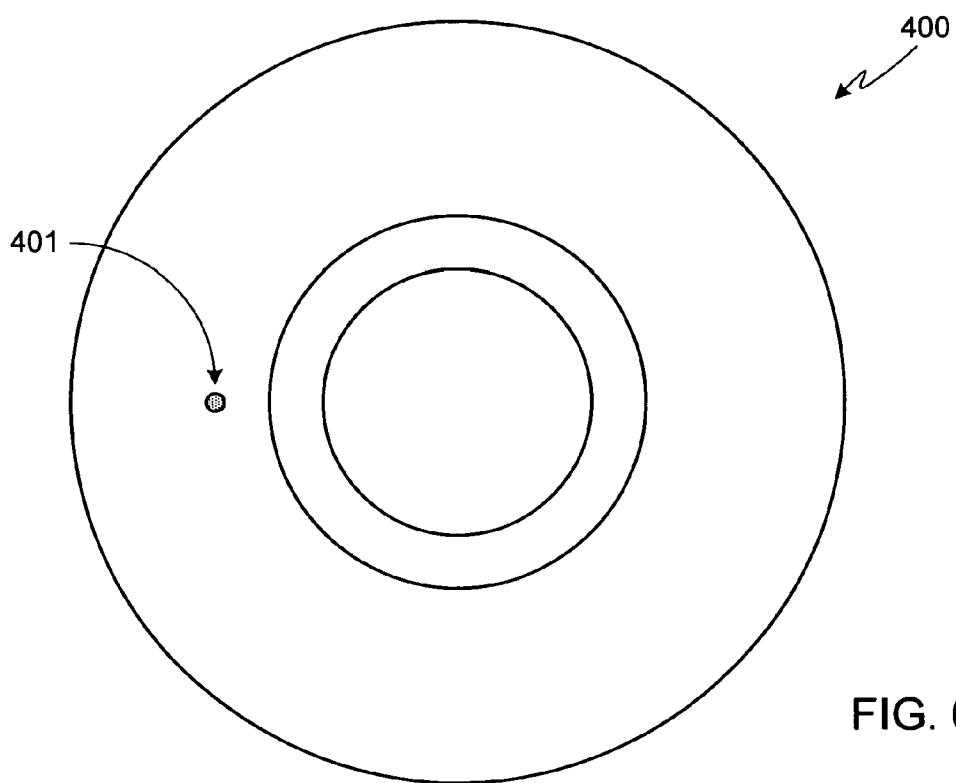


FIG. 6

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.