

(12) United States Patent

Zink et al.

(54) WIRELESS BATTERY CHARGING SYSTEM FOR EXISTING HEARING AIDS USING A DYNAMIC BATTERY AND A CHARGING PROCESSOR UNIT

- (76) Inventors: Uwe Zink, 4137 E. Brown St., Tucson, AZ (US) 85711; Gary Skuro, 12035 E. Dry Gultch Pl., Tucson, AZ (US) 85749
- (*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.
- (21) Appl. No.: 10/255,688
- (22) Filed: Sep. 27, 2002

(65) **Prior Publication Data**

US 2003/0048095 A1 Mar. 13, 2003

Related U.S. Application Data

- (62) Division of application No. 10/080,240, filed on Feb. 22, 2002, now Pat. No. 6,498,455.
- (60) Provisional application No. 60/270,147, filed on Feb. 22, 2001.
- (51) Int. Cl.⁷ H02J 7/00

(56) **References Cited**

(10) Patent No.:

(45) Date of Patent:

U.S. PATENT DOCUMENTS

4,032,959 A	* 6/1977	Boom et al 324/34
4,379,988 A	4/1983	Mattatall 320/108
5,712,919 A	1/1998	Ruhling 381/69.2
5,959,433 A	9/1999	Rohde 320/108
5,959,824 A	* 9/1999	Schultz et al 361/151
6,310,960 B1	10/2001	Saaski et al 381/323
6,473,511 B1	10/2002	Aceti et al 381/322

US 6,661,197 B2

Dec. 9, 2003

* cited by examiner

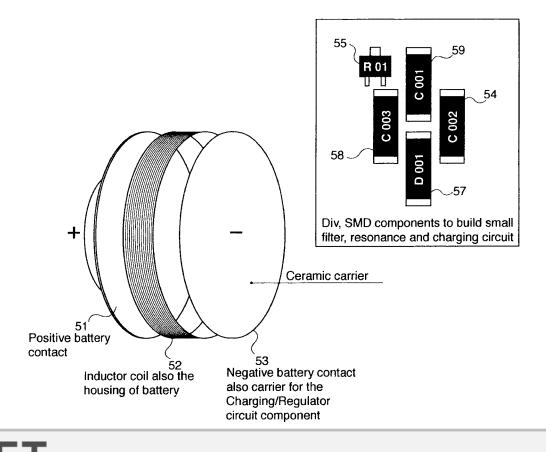
Primary Examiner-Lawrence Luk

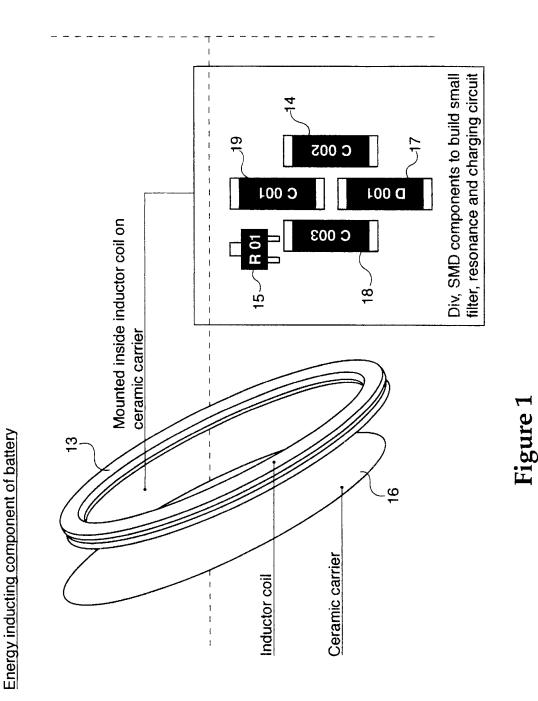
(74) Attorney, Agent, or Firm-Robert Platt Bell

(57) ABSTRACT

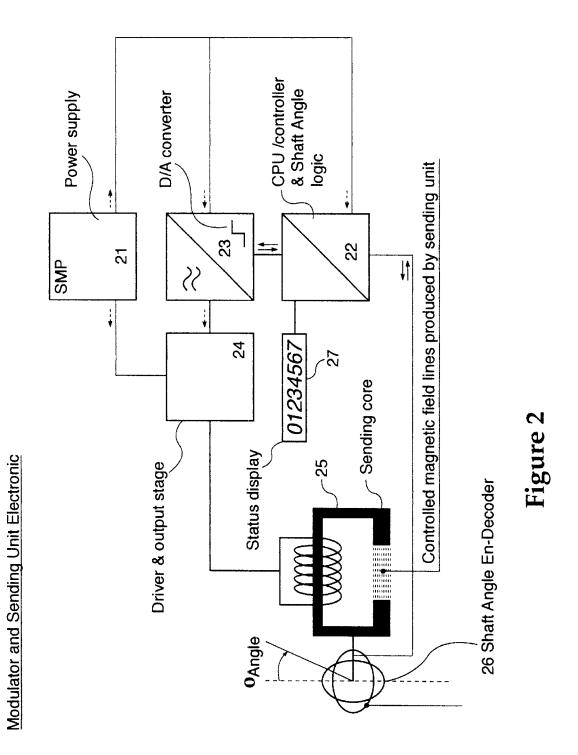
A rechargeable battery which may be used with most presently available hearing aids (or other appliances) with no modification to the existing hearing aid is needed in order to use the described wireless charging system. The battery may be known a "Dynamic battery" as the battery is actively charged by means of an inductor circuit built into the battery housing itself or added onto the battery. The hearing aid may simply be placed within the charger housing (or cradle) to charge the battery. No electrical connection by either wires or electrical contacts is needed to recharge the battery, which is located inside the hearing aid housing. Moreover, the battery need not be removed from the hearing aid (or other appliance).

12 Claims, 5 Drawing Sheets





DOCKET A L A R M Find authenticated court documents without watermarks at <u>docketalarm.com</u>.



DOCKET ALARM Find authenticated court documents without watermarks at <u>docketalarm.com</u>.

 \bigcirc

RM

Δ

Mounting of battery

At conventional overall size of battery, the inducting circuit takes approx. 25% of the body space

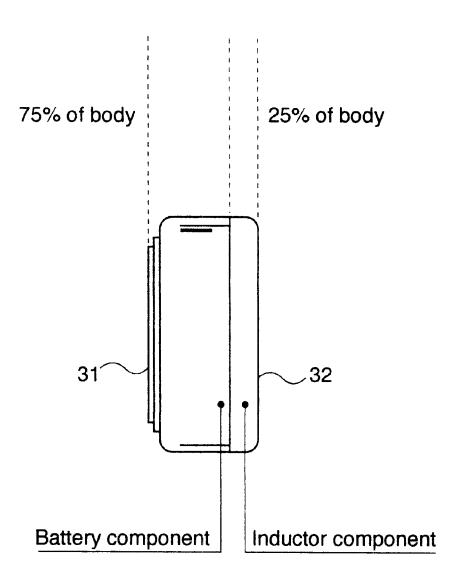
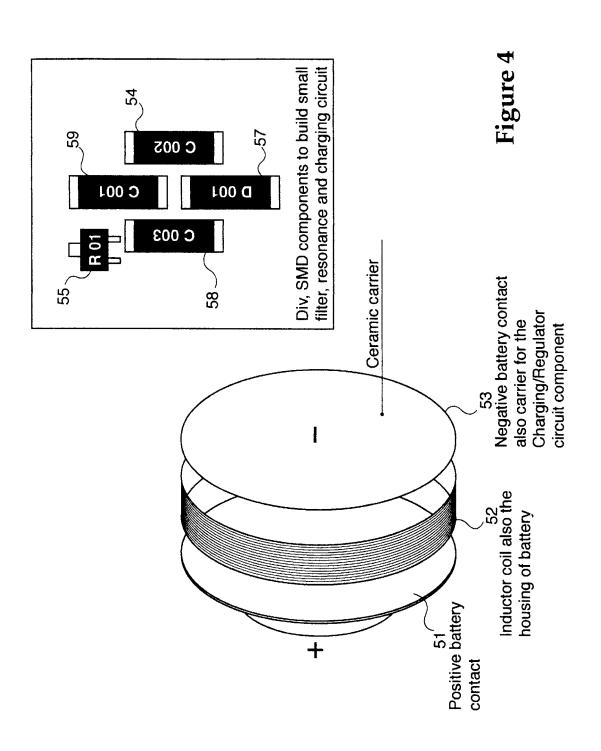


Figure 3

Find authenticated court documents without watermarks at docketalarm.com.



DOCKET A L A R M Find authenticated court documents without watermarks at <u>docketalarm.com</u>.

DOCKET A L A R M



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.