



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

(10) **Patent No.:** **US 7,672,464 B2**
(45) **Date of Patent:** **Mar. 2, 2010**

(54) **LOCATING AND CORRECTING UNDESIRABLE EFFECTS IN SIGNALS THAT REPRESENT TIME-BASED MEDIA**

(75) Inventors: **Curt Bianchi**, Saratoga, CA (US);
Nikhil Bhatt, Cupertino, CA (US);
Christopher Moullos, Cupertino, CA (US)

(73) Assignee: **Apple Inc.**, Cupertino, CA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 68 days.

(21) Appl. No.: **11/636,429**

(22) Filed: **Dec. 8, 2006**

(65) **Prior Publication Data**

US 2007/0135954 A1 Jun. 14, 2007

Related U.S. Application Data

(63) Continuation of application No. 10/407,900, filed on Apr. 4, 2003, now Pat. No. 7,319,761.

(51) **Int. Cl.**

H04R 29/00 (2006.01)
H03G 7/00 (2006.01)
G06F 17/00 (2006.01)
G06F 3/00 (2006.01)
G06F 3/16 (2006.01)

(52) **U.S. Cl.** **381/56**; 381/106; 700/94; 715/716; 715/727

(58) **Field of Classification Search** 381/56, 381/106, 94.8, 94.3; 704/503; 715/727, 715/716; 700/94

See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

4,398,061 A	8/1983	McMann, Jr.	
6,055,495 A *	4/2000	Tucker et al.	704/210
6,192,183 B1 *	2/2001	Taniguchi et al.	386/52
6,403,871 B2 *	6/2002	Shimizu et al.	84/622
2003/0014135 A1	1/2003	Moullos	
2004/0199277 A1	10/2004	Bianchi et al.	

OTHER PUBLICATIONS

Higgins, D., "Wave Corrector v3.0 Vinyl/Tape to CD-R Processing Digital Audio Editing for the PC User Manual," Jul. 22, 2004, Ganymede Test & Measurement, v3.0, from <<http://web.archive.org/web/20040722132002/www.wavecor.co.uk/help300.pdf>> (86 pgs).

* cited by examiner

Primary Examiner—Vivian Chin

Assistant Examiner—Douglas J Suthers

(74) *Attorney, Agent, or Firm*—Hickman Palermo Truong & Becker LLP; Daniel D. Ledesma

(57) **ABSTRACT**

The invention describes a graphical method for detecting and adjusting audio overload conditions. The graphical user interface provides a user complete playback control of several audio tracks, detection of overload conditions such as audio clipping, and graphical methods to correct the overload conditions. The graphical interface provides drag handles which the user can use to adjust the various characteristics of an audio file. The characteristics, such as amplitude and tempo, may be adjusted as a function of time.

23 Claims, 4 Drawing Sheets

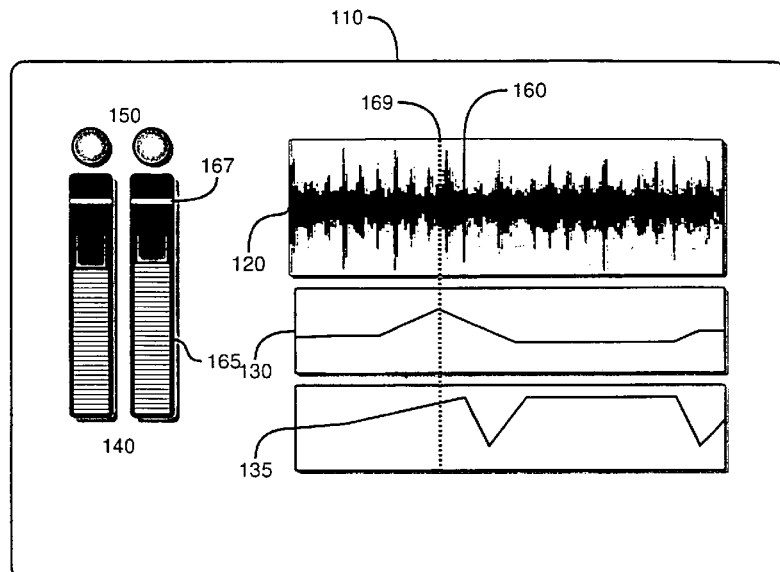


Figure 1

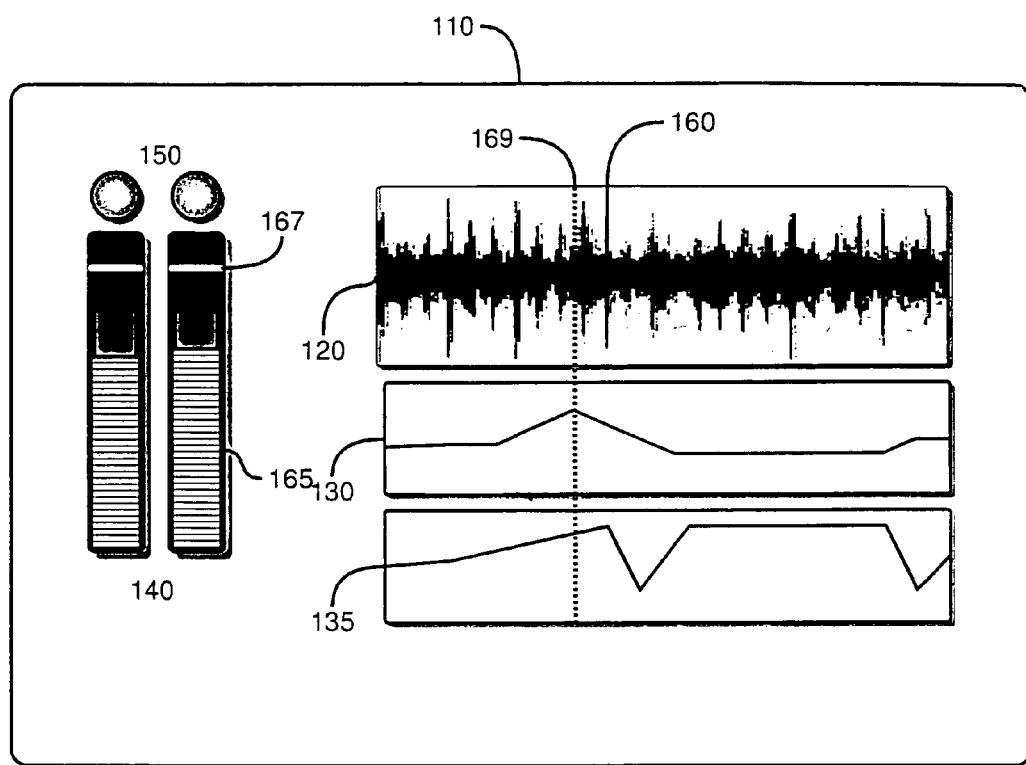


Figure 2

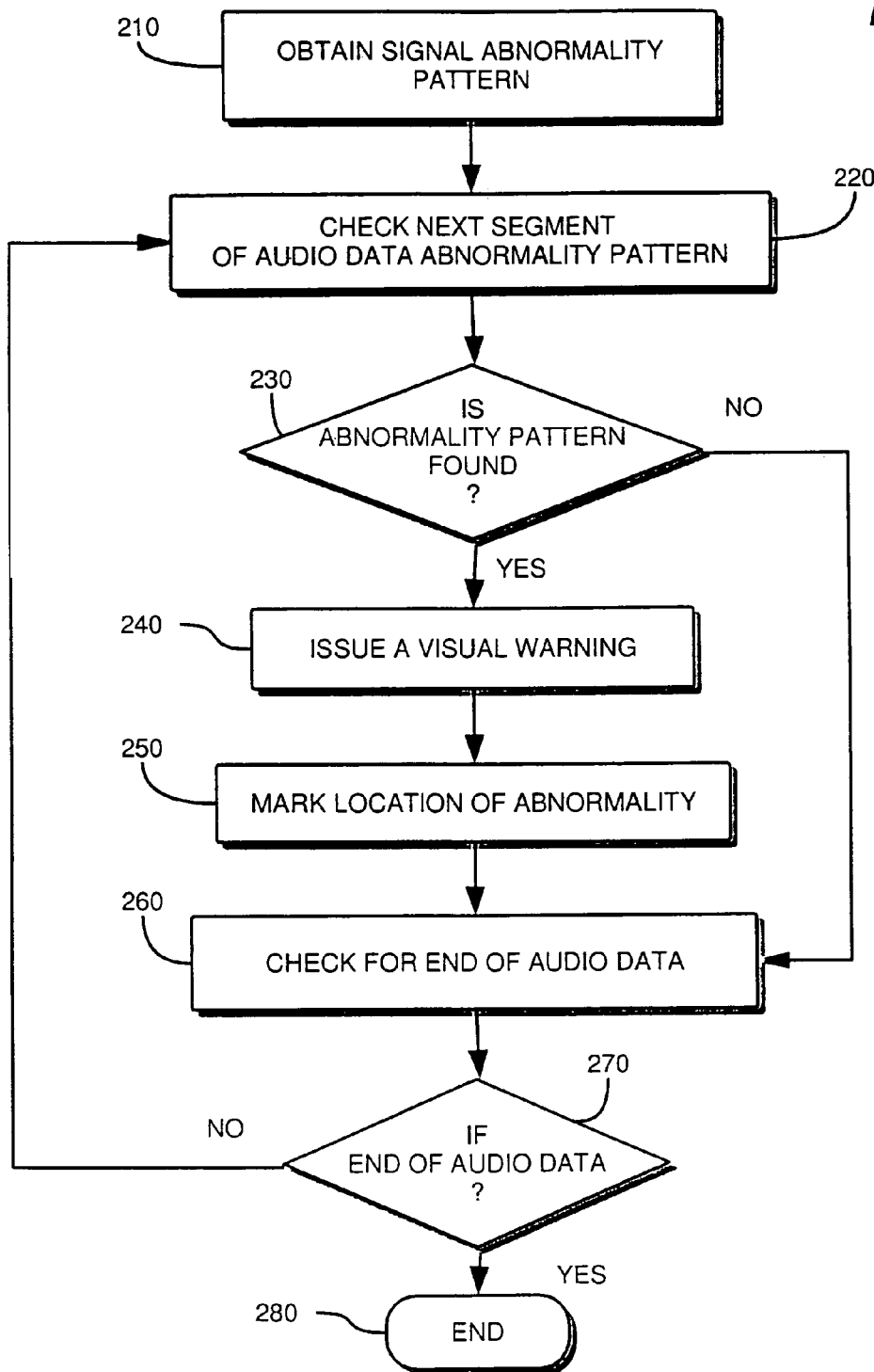


Figure 3

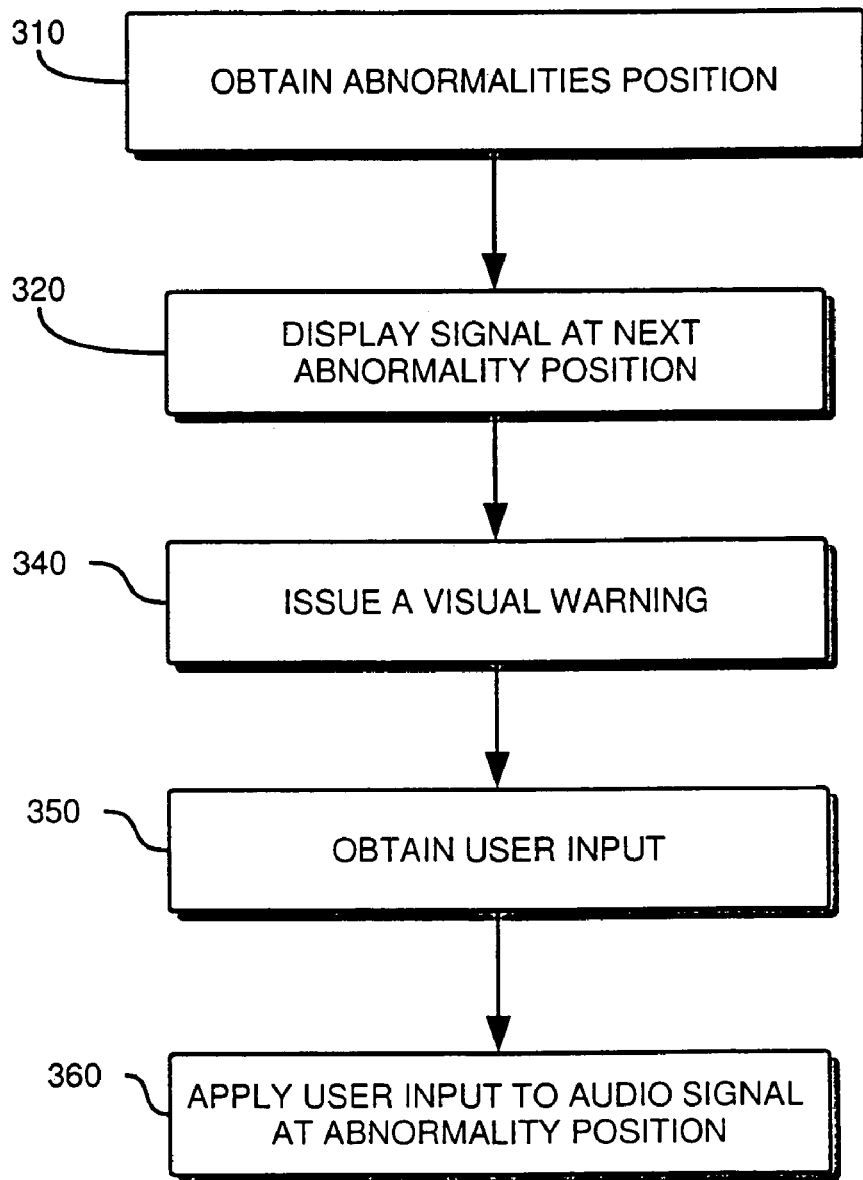
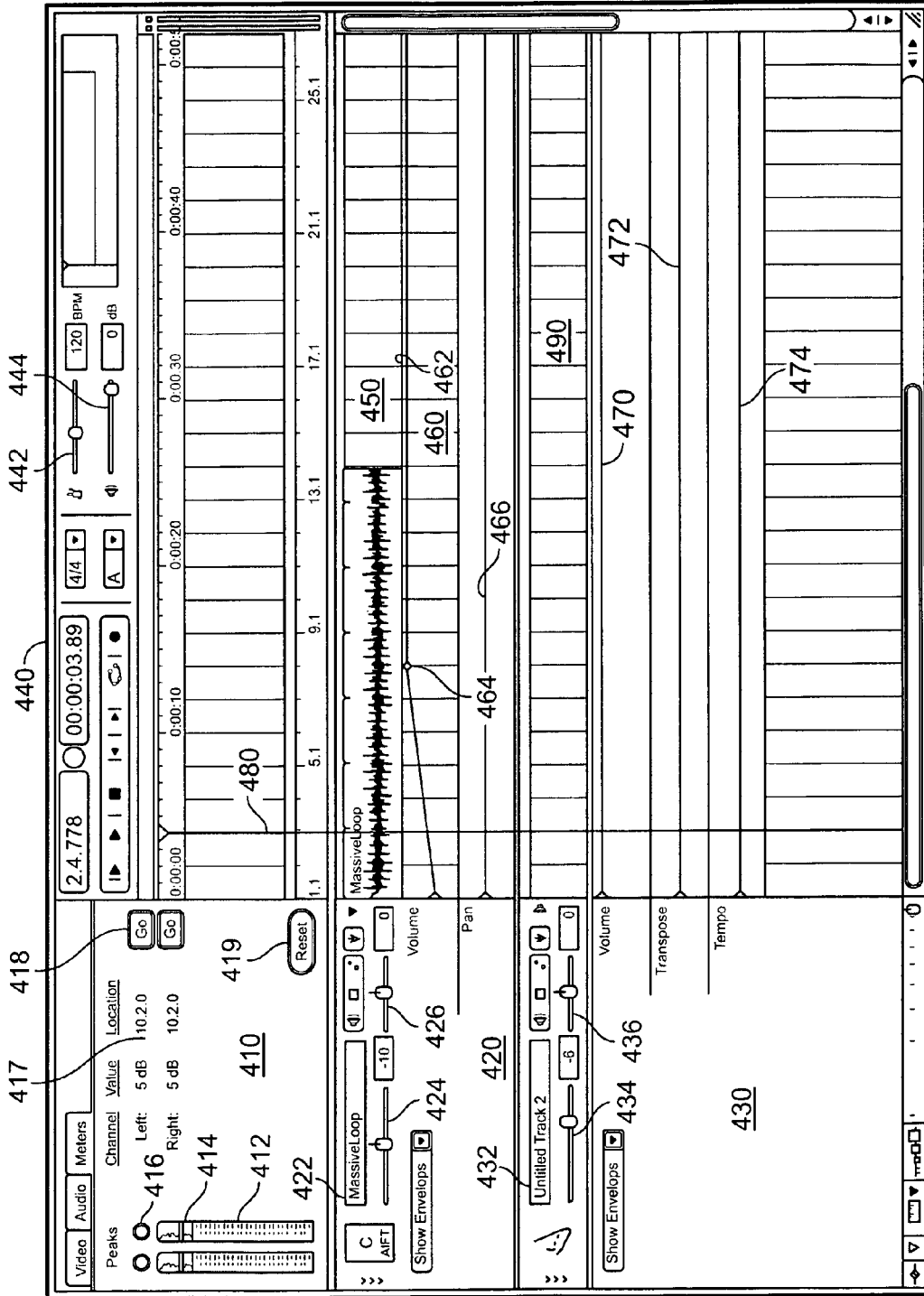


Figure 4



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.