

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

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

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

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(65) **Prior Publication Data**

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**Related U.S. Application Data**

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(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

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(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**

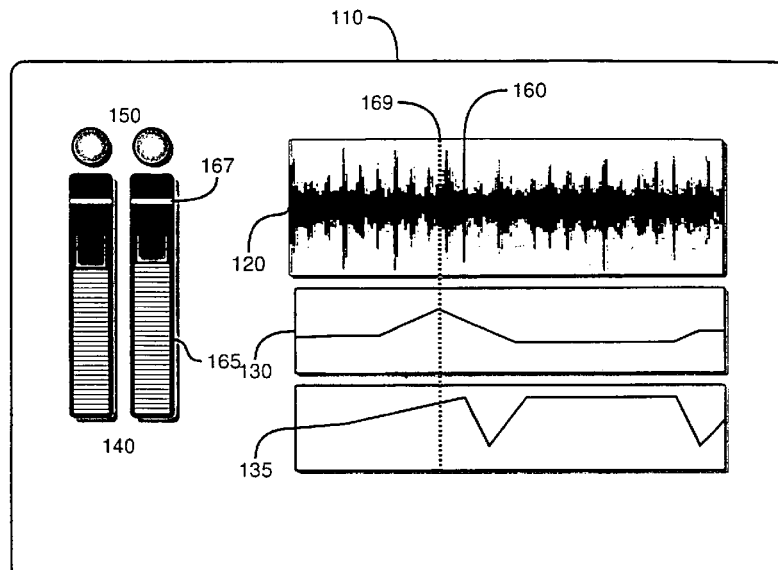


Figure 1

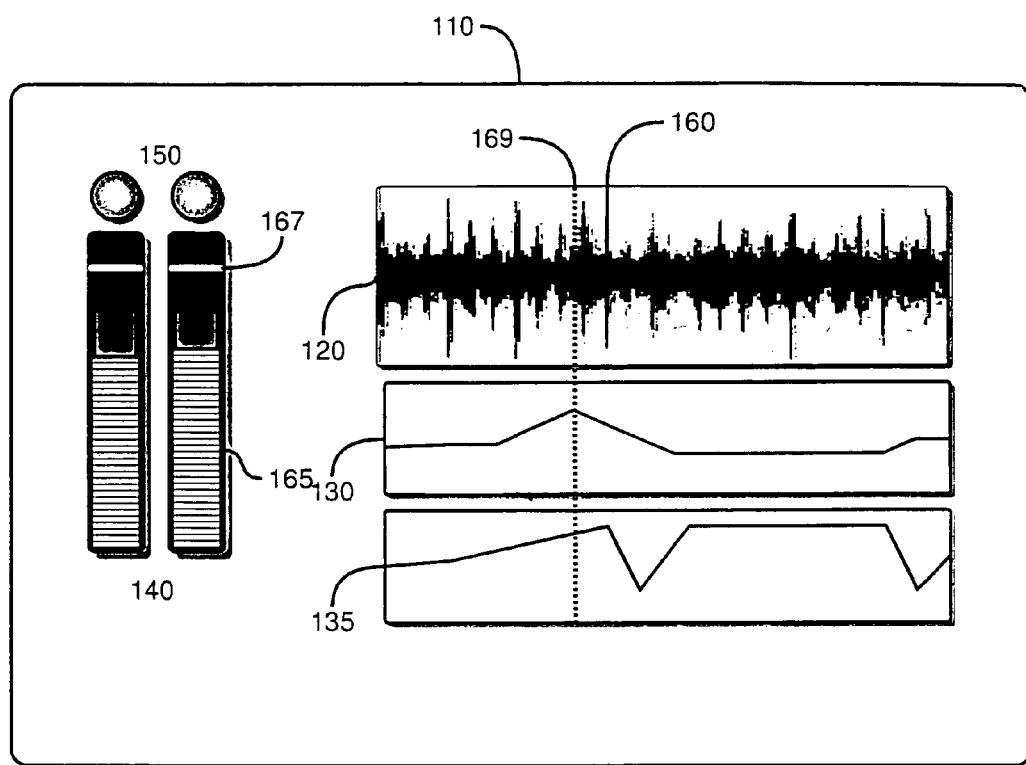


Figure 2

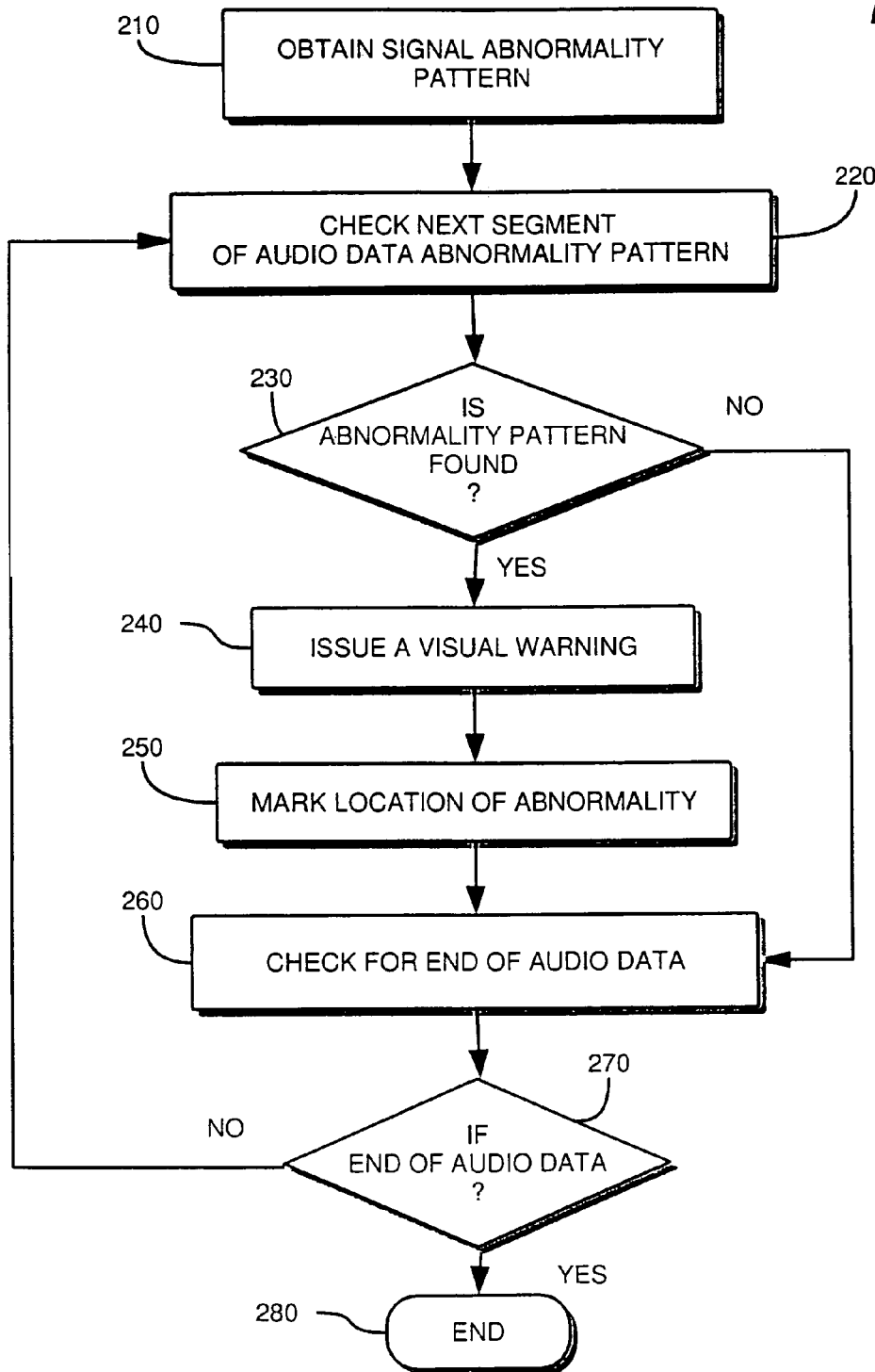


Figure 3

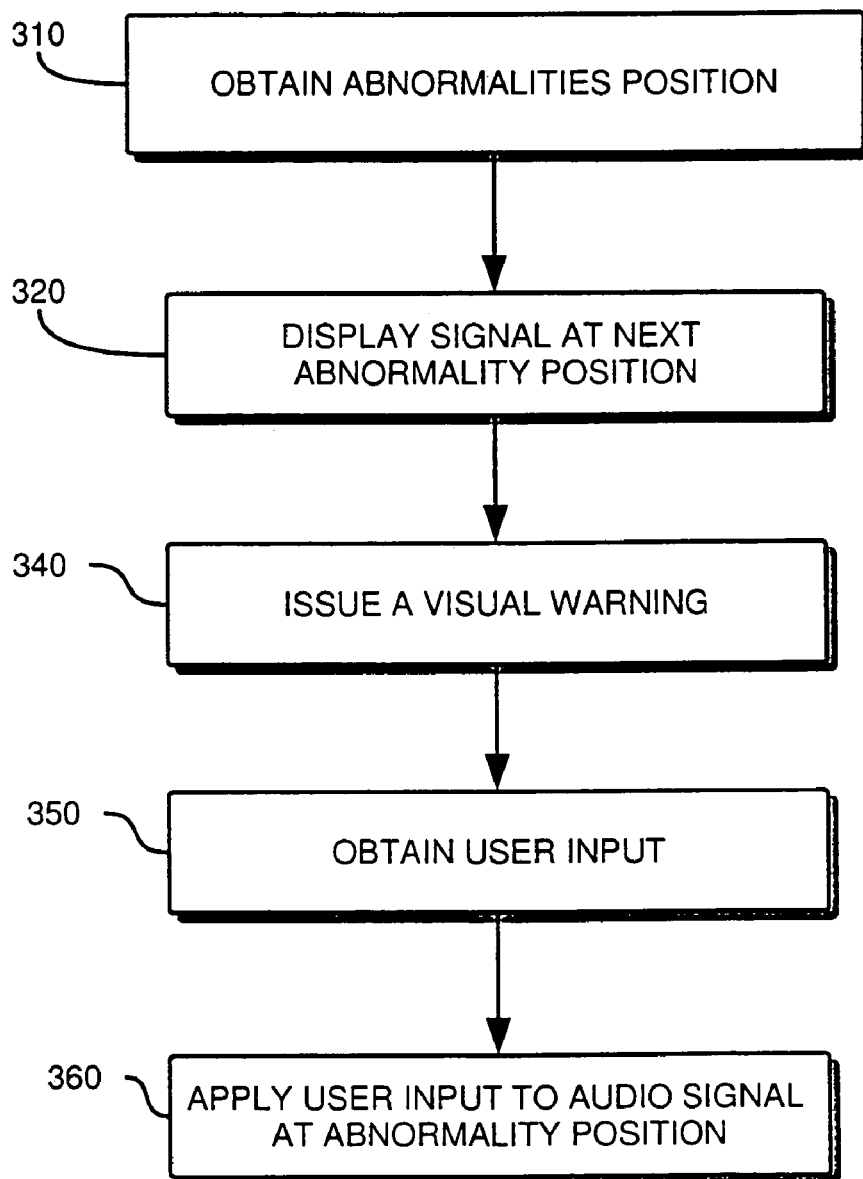
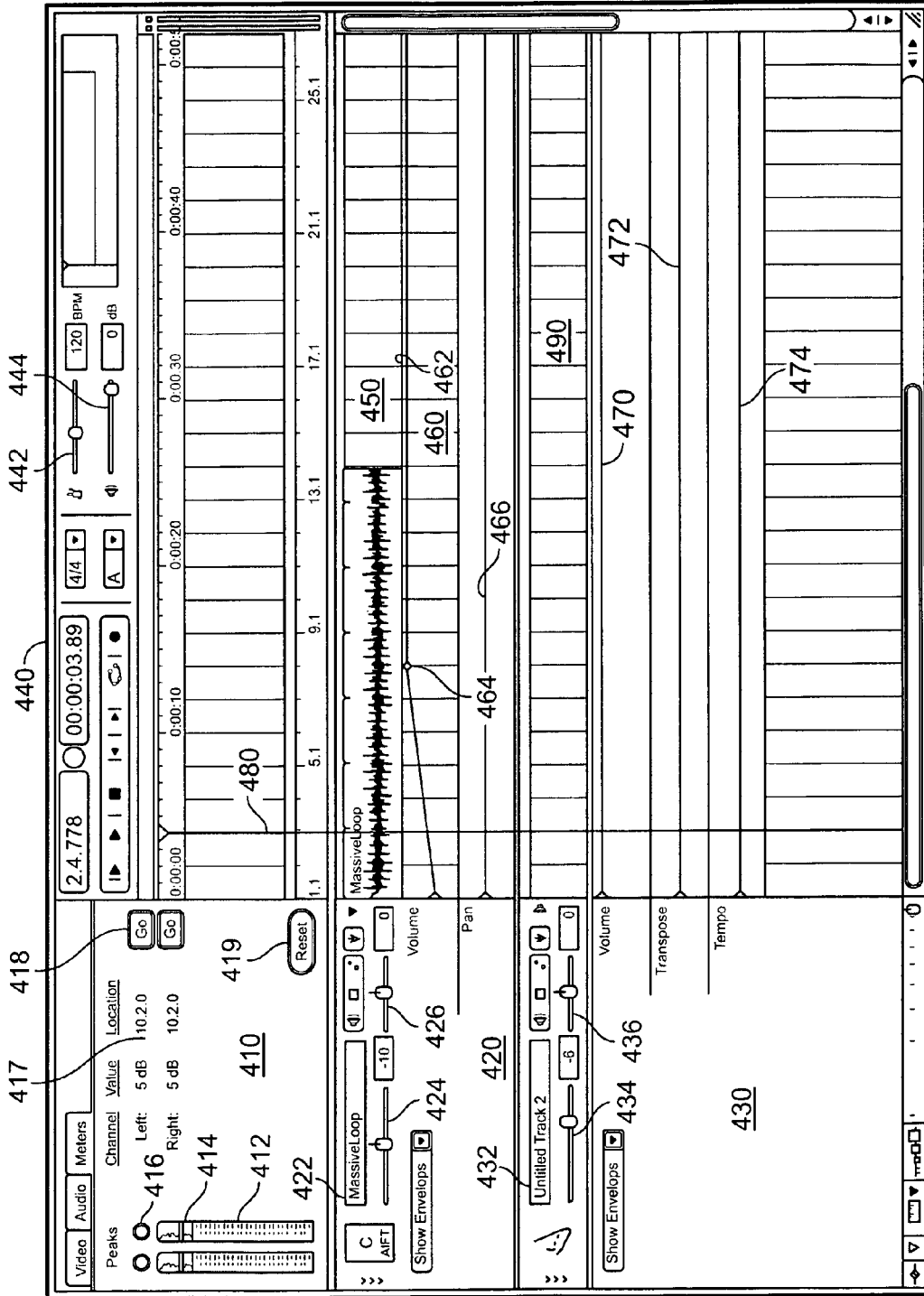


Figure 4



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