United States Patent [19]

Horner et al.

[54] **DIGITAL VOICE DETECTION APPARATUS AND METHOD USING TRANSFORM DOMAIN PROCESSING**

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[73] Assignee: **Hughes Aircraft Company,** Los Angeles, Calif.

[56]   **References Cited**

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[57]   **ABSTRACT**

A waveform characterizer apparatus is disclosed for extracting cepstrum pitch and spectral properties of a waveform signal such as the baseband audio output of a receiver. The apparatus employs Fourier processing, cepstral processing, magnitude detection, logarithms processing, frequency selective filtering and time/frequency windowing to extract cepstrum pitch and spectral rolloff characteristics which can then be used to determine the signal type. One application of the invention is in a digital voice/squelch apparatus.
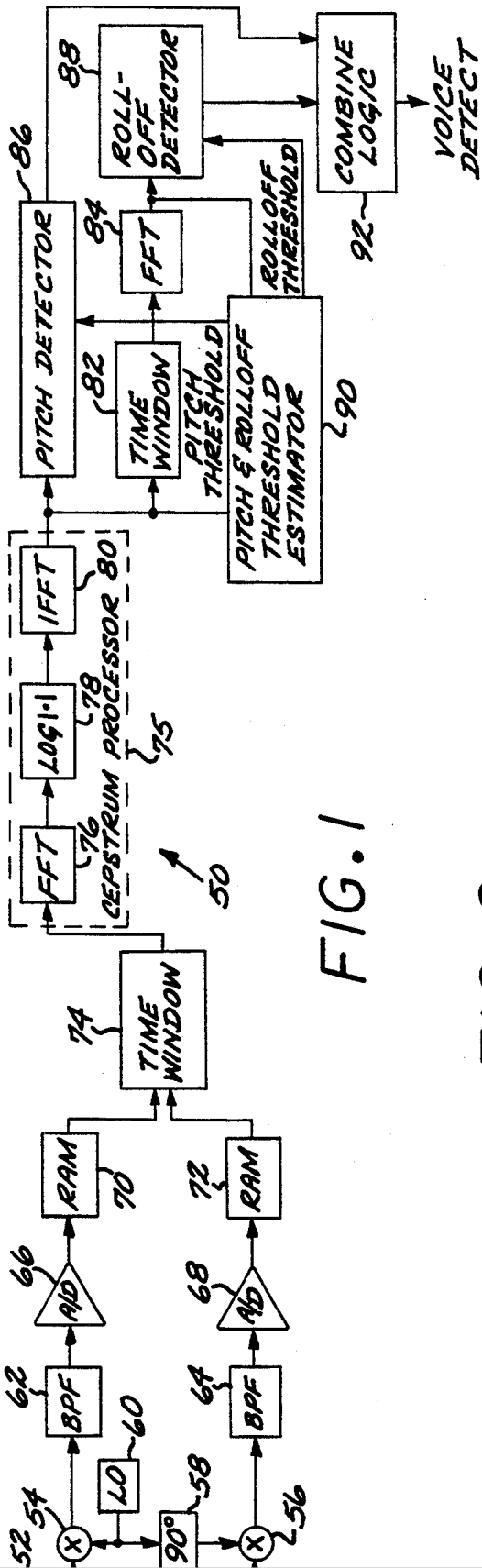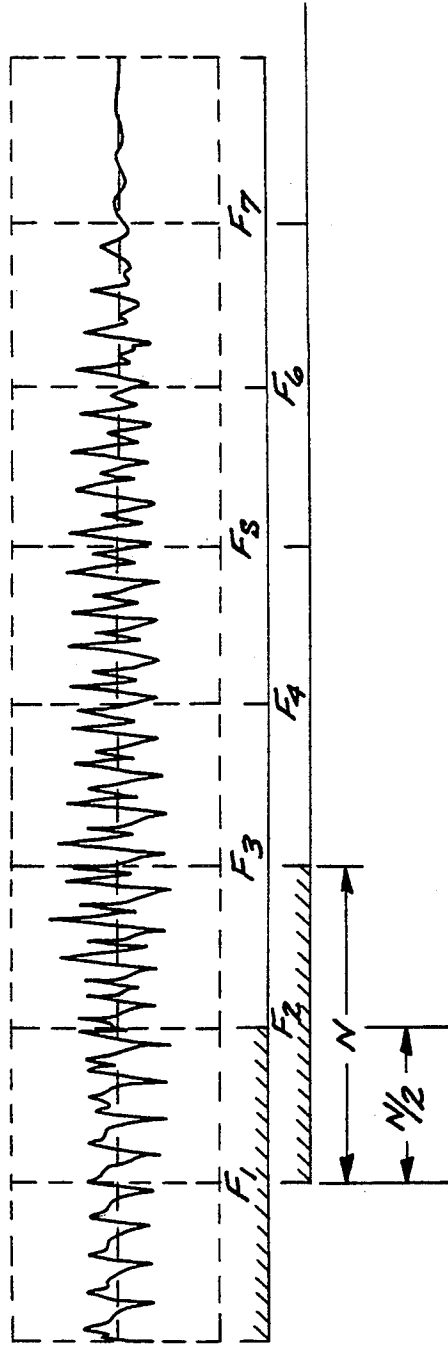
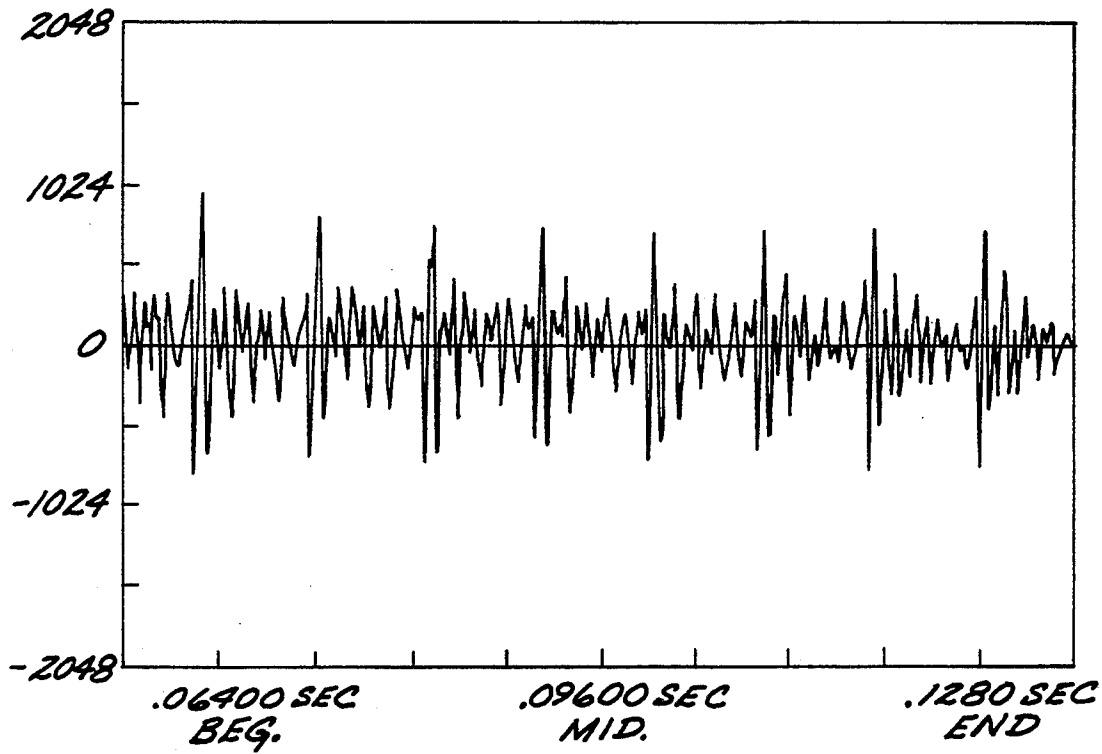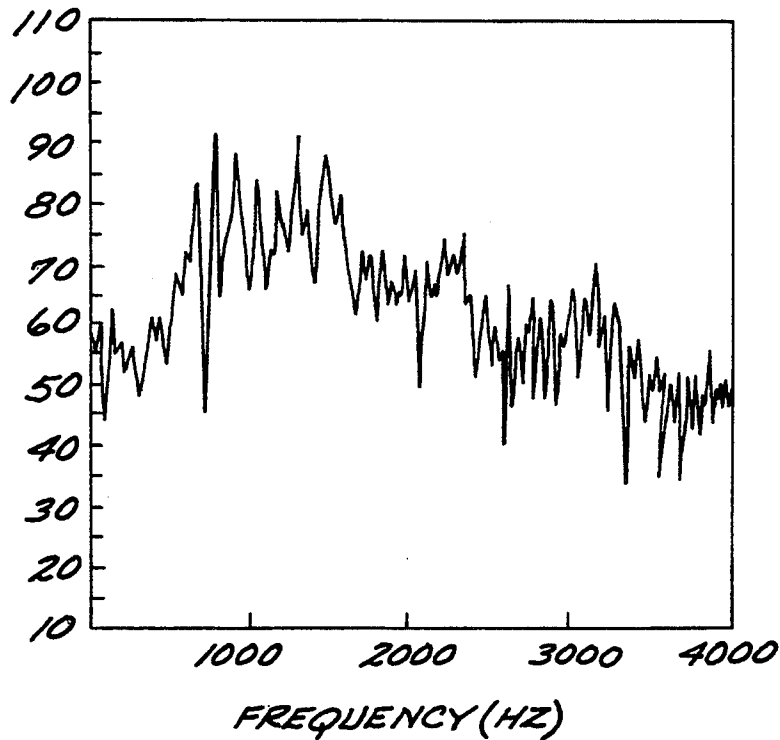**27 Claims, 8 Drawing Sheets**

FIG. 1

FIG. 3
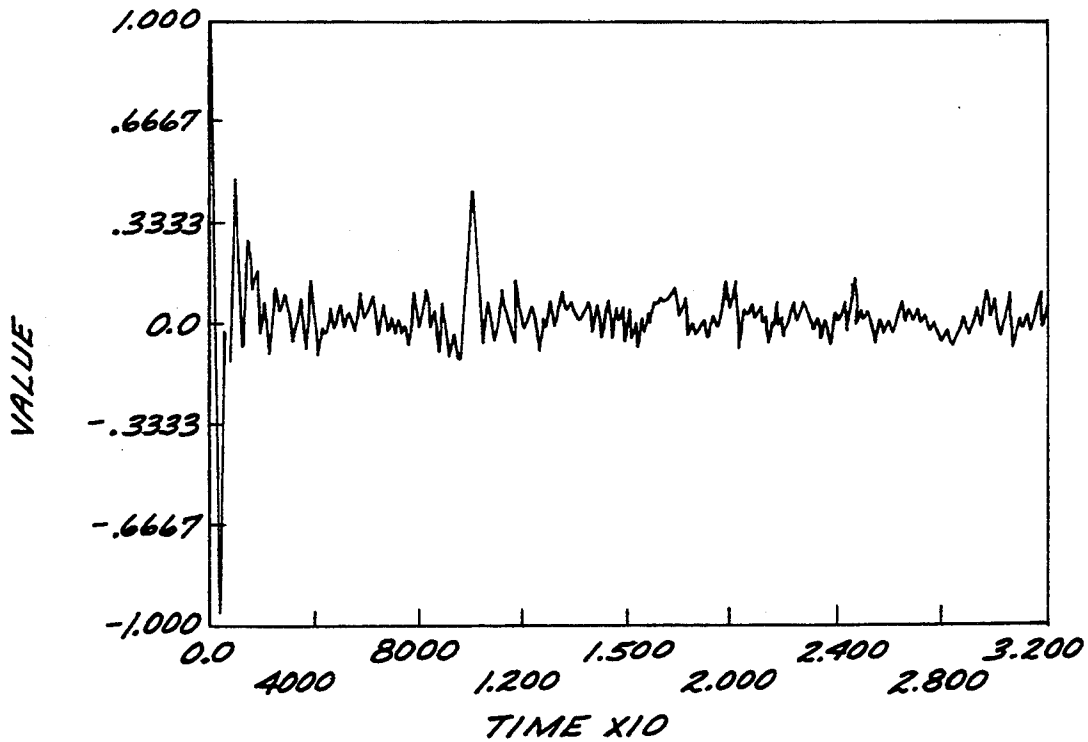
FIG.2A

FREQUENCY (HZ)
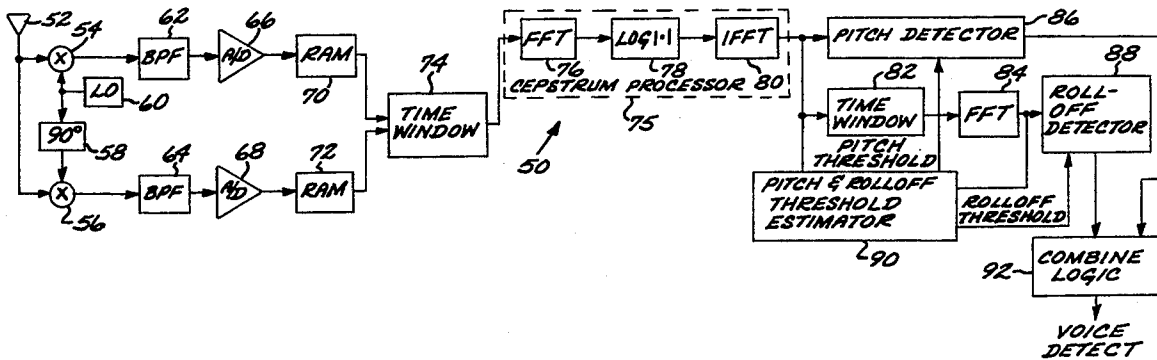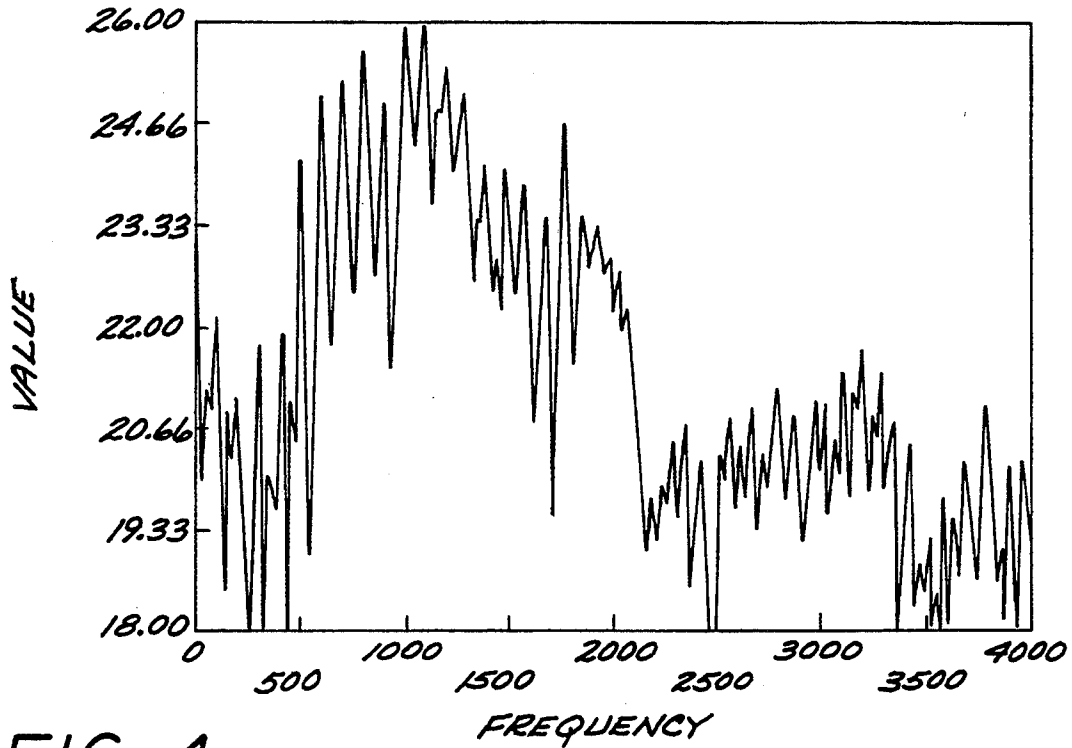
FIG.4

FIG.5A

FIG.5B

FIG.6

DOCKET ALARM
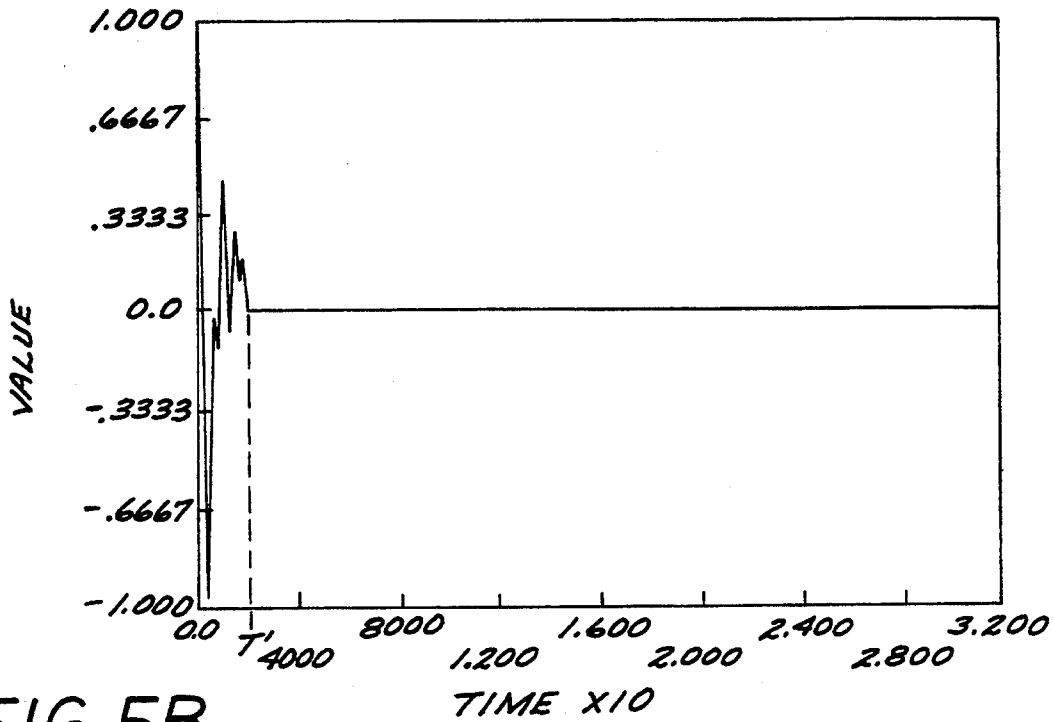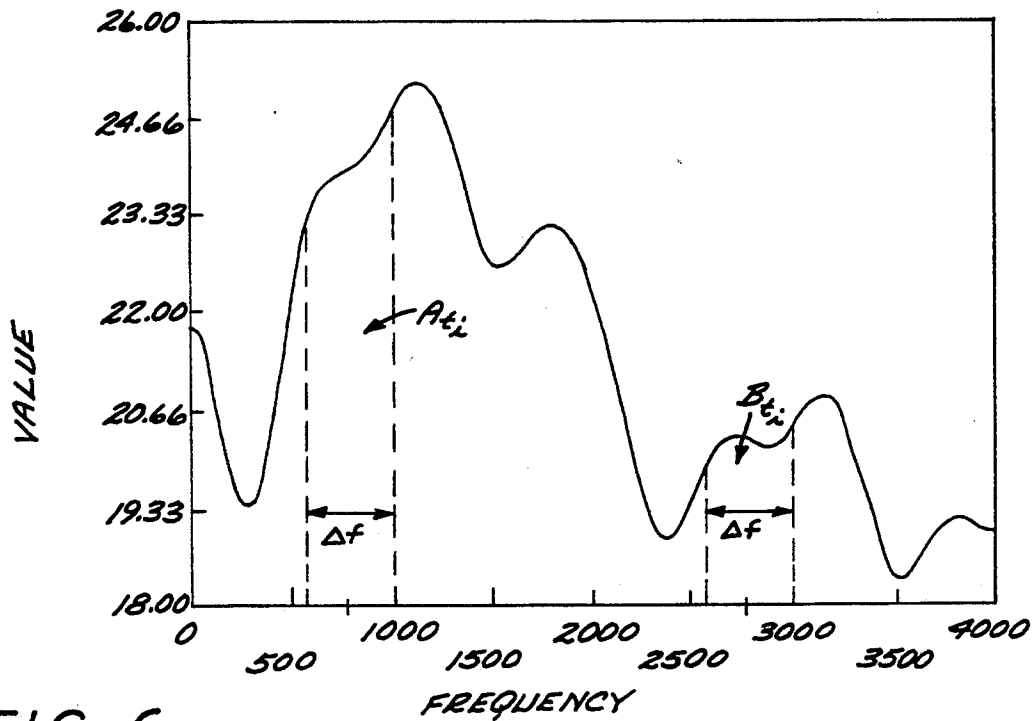
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