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- [54] **METHOD AND APPARATUS FOR SPEECH ANALYSIS AND SYNTHESIS USING LATTICE LADDER NOTCH FILTERS**
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- [58] Field of Search **704/258, 500, 704/219**

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[57] ABSTRACT

A method and apparatus for analyzing and synthesizing speech includes a programmable lattice-ladder notch filter which may be programmed to exhibit both filter poles and filter zeros and thereby exhibit a power spectral density with a better fit to that of a speech frame such that, when energized by a selected signal sample, a more accurate regeneration of speech is achieved. The filter parameters may be reliably and systematically determined as a single solution to a mathematical analysis given a set of gain parameters matching the observed covariance data and having a prescribed set of transmission zeros. These transmission zeros may either be preselected as a design specification, or recovered from analysis of the speech data. A speech frame may be analyzed and provide a set of parameters which may be transmitted to a remote location where a synthesizer may accurately reproduce the speech frame.

32 Claims, 3 Drawing Sheets

