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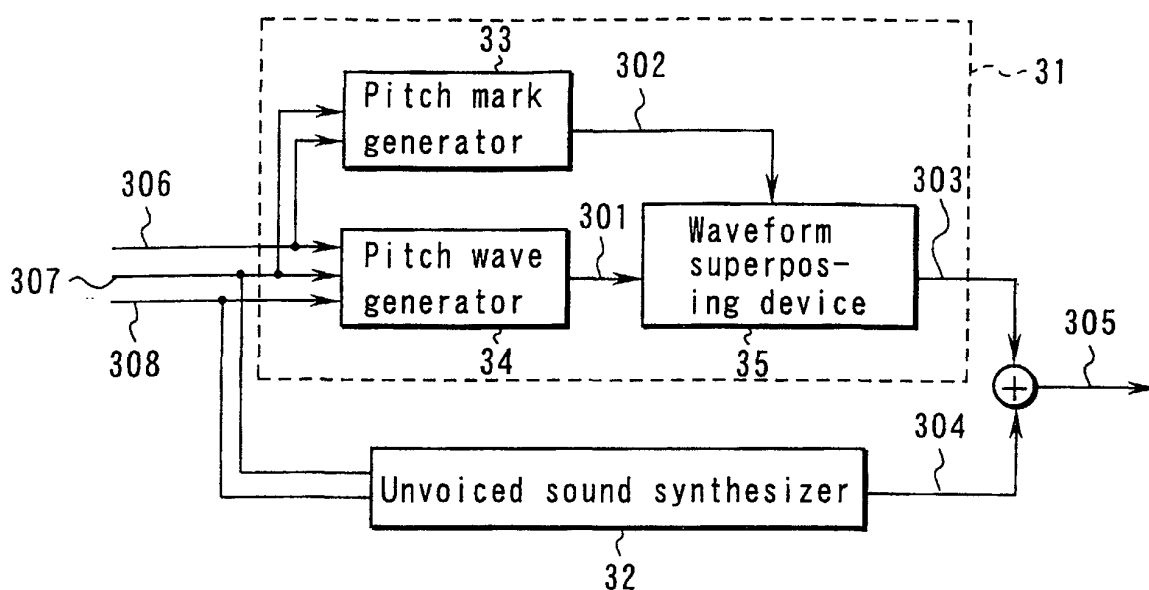
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(54) **Speech synthesis method and speech synthesizer**

(57) A speech synthesis method comprises selecting a predetermined formant parameters from formant parameters according to a pitch pattern, phoneme duration, and phoneme symbol string, generating a plurality of sine waves based on formant frequency and formant phase of the formant parameters selected, multiply-

ing the sine waves by windowing functions of the selected formant parameters, respectively, to generate a plurality of formant waveforms, adding the formant waveforms to generate a plurality of pitch waveforms, and superposing the pitch waveforms according to a pitch period to generate a speech signal.



**FIG. 1**



European Patent  
Office

# EUROPEAN SEARCH REPORT

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EP 02 25 2159

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
Y	WOUTERS J, MACON M W: "Control of Spectral Dynamics in Concatenative Speech Synthesis" IEEE TRANSACTIONS ON SPEECH AND AUDIO PROCESSING, vol. 9, no. 1, January 2001 (2001-01), pages 30-38, XP002243376 * page 32, column 2, paragraph 1 - paragraph 2 * * page 35, column 2 *	1-19	G10L13/02
Y	RODET X: "Time-domain formant-wave-function synthesis" COMPUTER MUSIC JOURNAL, vol. 8, 1984, pages 9-11, XP008018015 * page 11, column 2 - page 12, column 2 *	1-19	
A	CHAZAN D ET AL: "Speech reconstruction from mel frequency cepstral coefficients and pitch frequency" IEEE INTERNATIONAL CONFERENCE ON ACOUSTICS, SPEECH AND SIGNAL PROCESSING, vol. 3, 5 June 2000 (2000-06-05), pages 1299-1302, XP010507585 Istanbul, Turkey		TECHNICAL FIELDS SEARCHED (Int.Cl.7) G10L
A	STYLIANOU Y: "On the implementation of the harmonic plus noise model for concatenative speech synthesis" IEEE INTERNATIONAL CONFERENCE ON ACOUSTICS, SPEECH AND SIGNAL PROCESSING, vol. 2, 5 June 2000 (2000-06-05), pages 957-959, XP010504883 Istanbul, Turkey		
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 16 June 2003	Examiner Köster, S
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons &amp; : member of the same patent family, corresponding document</p>			

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