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European Patent Office
Office européen des brevets



Publication number:

0 405 548 A3

(12)

EUROPEAN PATENT APPLICATION

(21) Application number: **90112351.3**

(51) Int. Cl.⁵: **G10L 9/14**

(22) Date of filing: **28.06.90**

(30) Priority: **28.06.89 JP 166180/89**
30.06.89 JP 168645/89
27.07.89 JP 195302/89

(43) Date of publication of application:
02.01.91 Bulletin 91/01

(84) Designated Contracting States:
DE FR GB

(88) Date of deferred publication of the search report:
28.08.91 Bulletin 91/35

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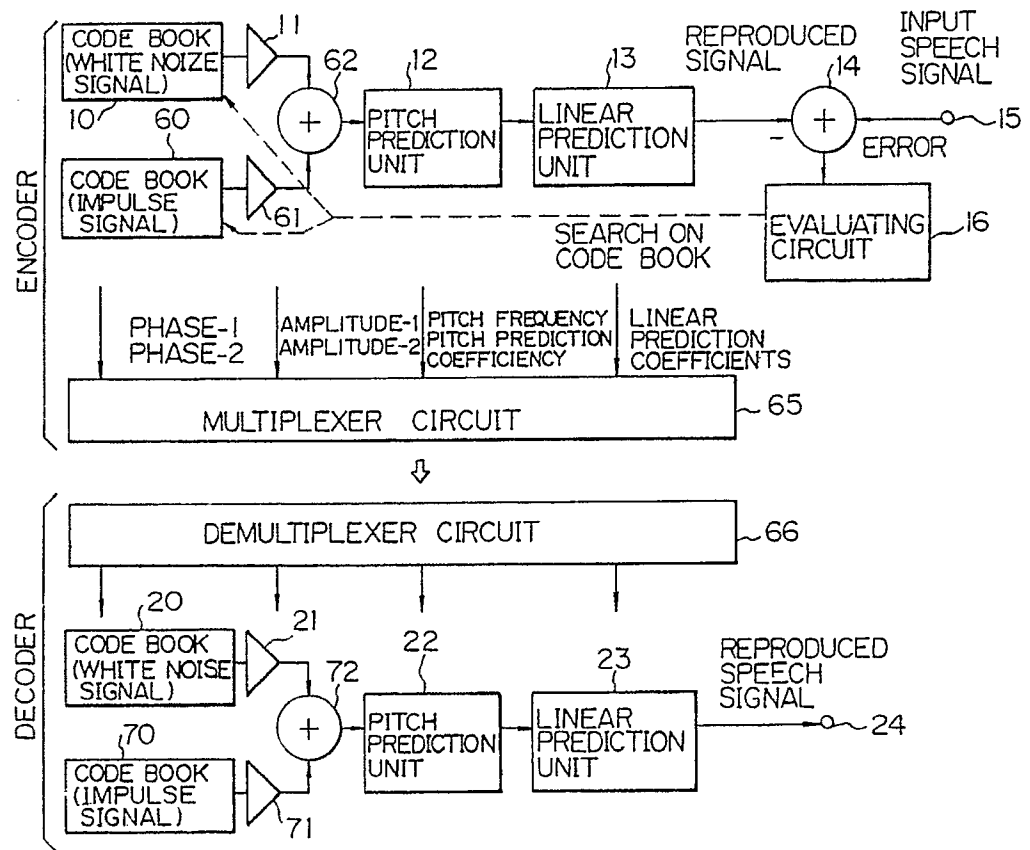
(54) **System for speech coding and apparatus for the same.**

(57) A CELP type of speech signal coding system, wherein a code vector obtained by applying linear prediction to a vector of a residual speech signal of white noise stored in a code book and a pitch prediction vector obtained by applying linear prediction to a residual signal of a preceding frame given a delay corresponding to a pitch frequency are added, use is made of an impulse vector obtained by applying linear prediction to a residual signal vector of impulses having a predetermined relationship with the vectors of the white noise code book, variable

gains are given to at least the above code vector and impulse vector, a reproduced signal is produced, and this reproduced signal is used for identification of the input speech signal, thus enabling the creation of a pulse series corresponding to the sound source of voiced speech sounds, enabling accurate evaluation and identification of a pulse-like sound source of voiced speech sounds and enabling improvement of the quality of the reproduced speech while reducing the amount of information transmitted.

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Fig.5





EUROPEAN SEARCH REPORT

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.5)
A	SIGNAL PROCESSING IV: THEORIES AND APPLICATIONS, PROCEEDINGS OF EUSIPCO'88, FOURTH EUROPEAN SIGNAL PROCESSING CONFERENCE, Grenoble, 5th - 8th September 1988, vol. II, pages 859-862, North-Holland, Amsterdam, NL; D. LIN: "Vector excitation coding using a composite source model" * Page 860: "A composite source model" * -- --	1,17	G 10 L 9/14
A	ICASSP'89, 1989 INTERNATIONAL CONFERENCE ON ACOUSTICS, SPEECH, AND SIGNAL PROCESSING, Glasgow, 23rd - 26th May 1989, vol. 1, pages 53-56, IEEE, New York, US; A. BERGSTRÖM et al.: "Code-book driven glottal pulse analysis" * Paragraph 2: "Code-book organisation" * -- --	1,13,17	
A	ICASSP'88, 1988 INTERNATIONAL CONFERENCE ON ACOUSTICS, SPEECH, AND SIGNAL PROCESSING, New York, New York City, 11th - 14th April 1988, pages 151-154, IEEE, New York, US; P. KROON et al.: "Strategies for improving the performance of CELP coders at low bit rates" * Page 153, left-hand column, 4 last lines * -- --	1,2	
A	ICASSP'86, IEEE-ICEJ-ASJ INTERNATIONAL CONFERENCE ON ACOUSTICS, SPEECH, AND SIGNAL PROCESSING, Tokyo, 7th - 11th April 1986, vol. 1, pages 461-464, IEEE, New York, US; D. LIN: "A novel LPC synthesis model using a binary pulse source excitation" * Page 462, left-hand column, lines 1-18,42-50 * -- --	1,3,4,7	G 10 L 9/14
A	IEEE TRANSACTIONS ON ACOUSTICS, SPEECH, AND SIGNAL PROCESSING, vol. ASSP-32, no. 4, August 1984, pages 851-858, IEEE, New York, US; S.Y. KWON et al.: "An enhanced LPC vocoder with no voiced/unvoiced switch" * Figure 4 * -- -- -- --	10,20	
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of search 27 May 91	Examiner ARMPACH J.F.A.M.
<div>CATEGORY OF CITED DOCUMENTS</div> <div>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 T: theory or principle underlying the invention</div> <div>E: earlier patent document, but published on, or after the filing date D: document cited in the application L: document cited for other reasons ----- &: member of the same patent family, corresponding document</div>			