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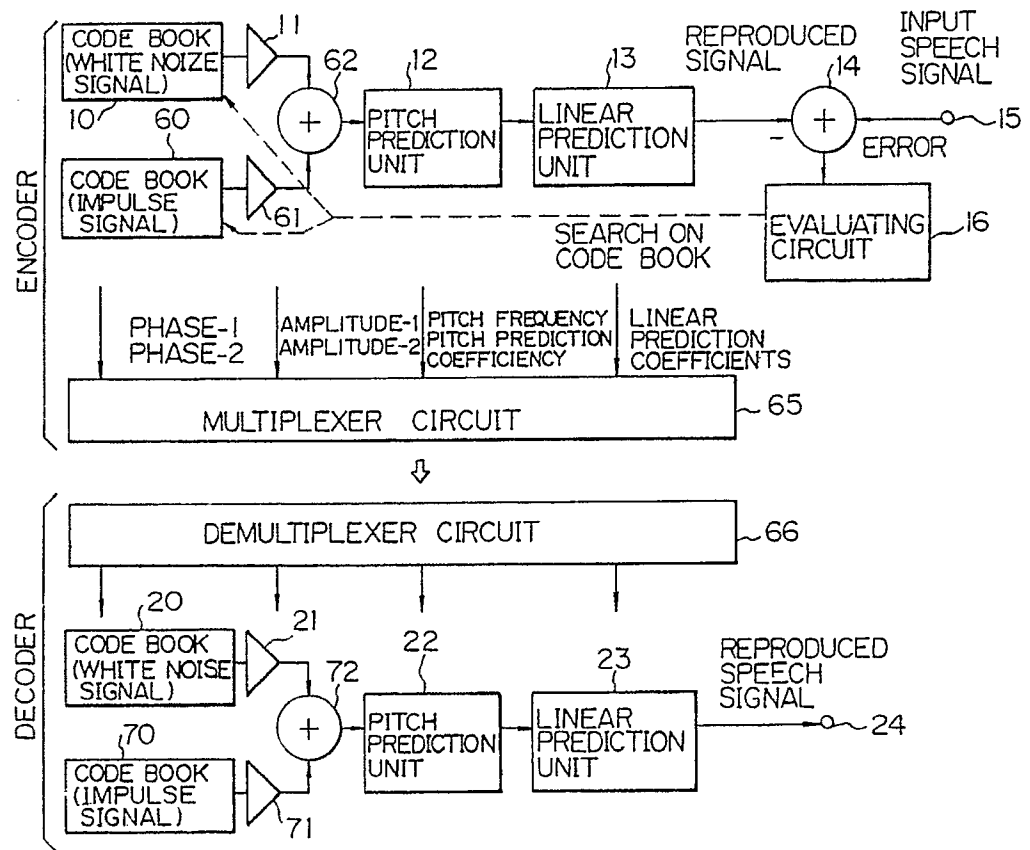W-8000 München 81(DE)

(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.

EP 0 405 548 A3

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-IECEJ-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	TECHNICAL FIELDS SEARCHED (Int. Cl.5) 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	Date of completion of search	Examiner
The Hague	27 May 91	ARMSPACH J.F.A.M.