US010971140B2

(12) **United States Patent**
Catchpole

(10) **Patent No.: US 10,971,140 B2**
(45) **Date of Patent: Apr. 6, 2021**

(54) **SPEECH RECOGNITION CIRCUIT USING PARALLEL PROCESSORS**

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **16/266,265**

(22) Filed: **Feb. 4, 2019**

(65) **Prior Publication Data**

US 2019/0172447 A1 Jun. 6, 2019

Related U.S. Application Data

(63) Continuation of application No. 15/392,396, filed on Dec. 28, 2016, now Pat. No. 10,217,460, which is a (Continued)

(30) **Foreign Application Priority Data**

Feb. 4, 2002 (GB) 0202546

(51) **Int. Cl.**
G10L 15/32 (2013.01)
G10L 15/187 (2013.01)
(Continued)

(52) **U.S. Cl.**
CPC ***G10L 15/187*** (2013.01); ***G10L 15/05*** (2013.01); ***G10L 15/34*** (2013.01)

(58) **Field of Classification Search**
CPC G10L 15/32; G10L 15/34
See application file for complete search history.

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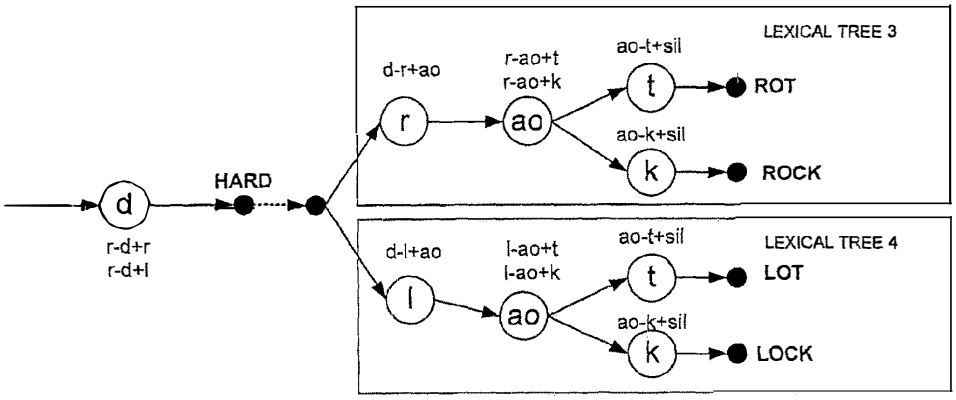
(57) **ABSTRACT**

A speech recognition circuit comprises an input buffer for receiving processed speech parameters. A lexical memory contains lexical data for word recognition. The lexical data comprises a plurality of lexical tree data structures. Each lexical tree data structure comprises a model of words having common prefix components. An initial component of each lexical tree structure is unique. A plurality of lexical tree processors are connected in parallel to the input buffer for processing the speech parameters in parallel to perform parallel lexical tree processing for word recognition by accessing the lexical data in the lexical memory. A results memory is connected to the lexical tree processors for storing processing results from the lexical tree processors and lexical tree identifiers to identify lexical trees to be processed by the lexical tree processors. A controller controls the lexical tree processors to process lexical trees
(Continued)



identified in the results memory by performing parallel processing on a plurality of said lexical tree data structures.

8 Claims, 6 Drawing Sheets

Related U.S. Application Data

continuation of application No. 14/309,476, filed on Jun. 19, 2014, now Pat. No. 9,536,516, which is a continuation of application No. 13/253,223, filed on Oct. 5, 2011, now Pat. No. 8,768,696, which is a continuation of application No. 12/554,607, filed on Sep. 4, 2009, now Pat. No. 8,036,890, which is a continuation of application No. 10/503,463, filed as application No. PCT/GB03/00459 on Feb. 4, 2003, now Pat. No. 7,587,319.

(51) **Int. Cl.**

G10L 15/34	(2013.01)
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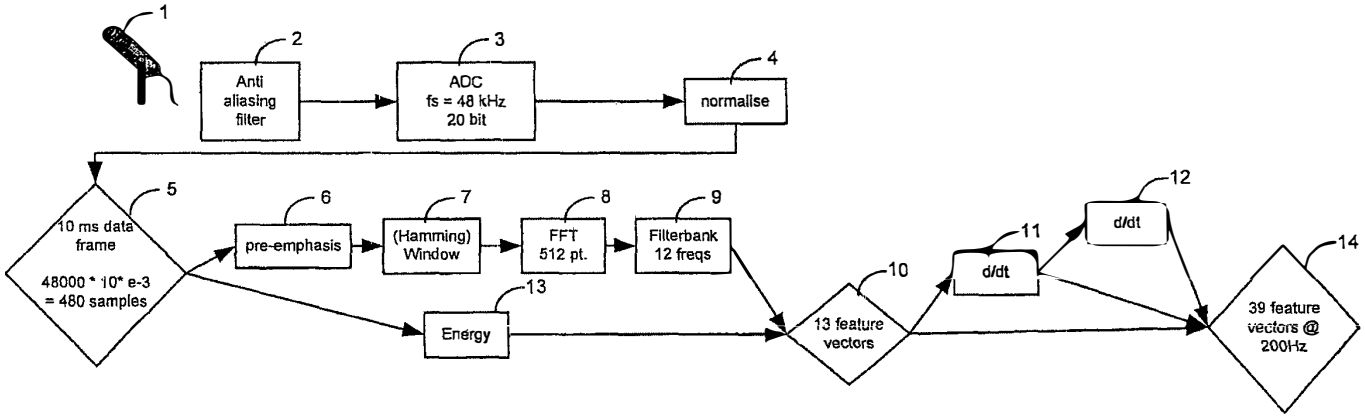

Fig 1

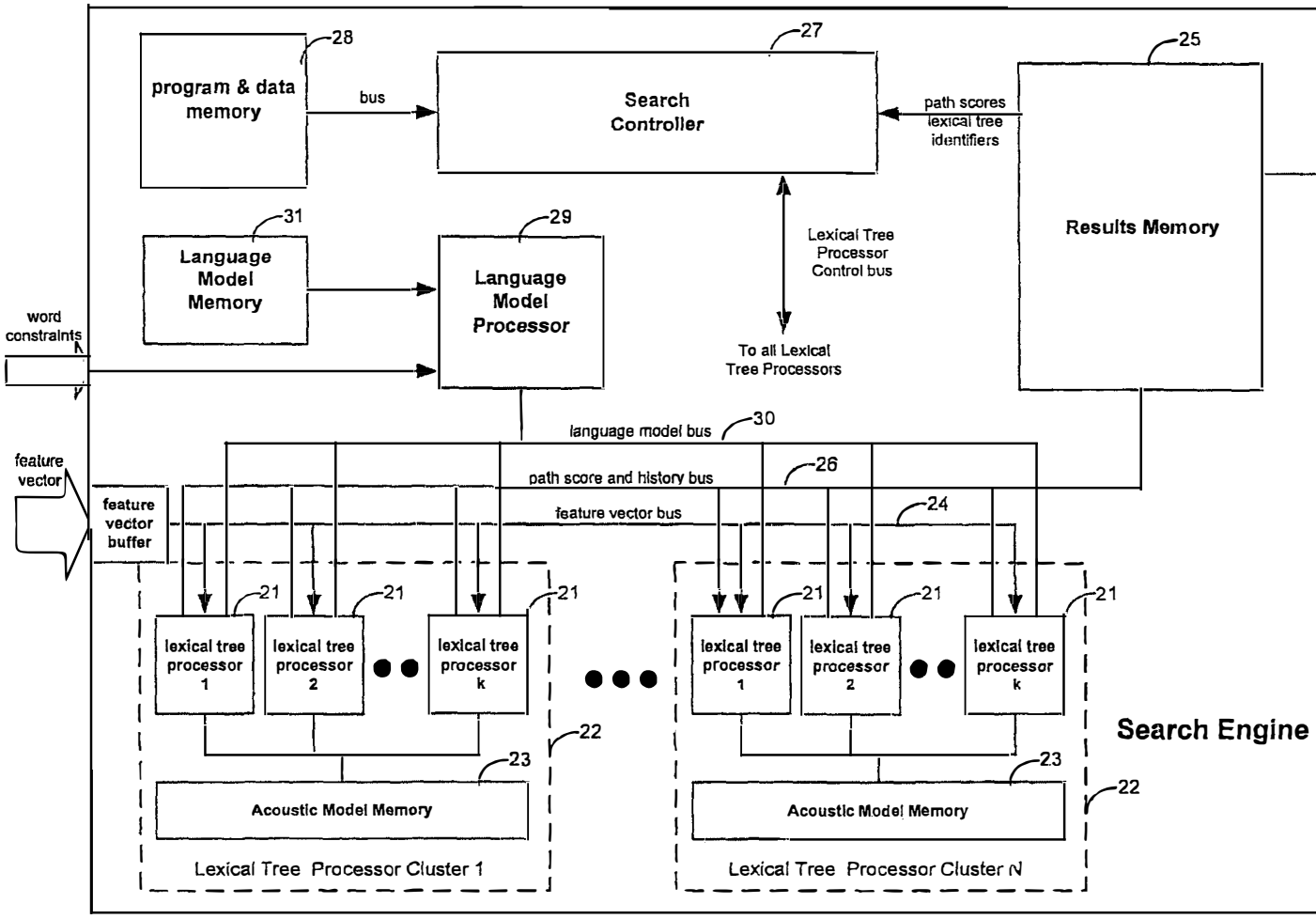

Fig 2

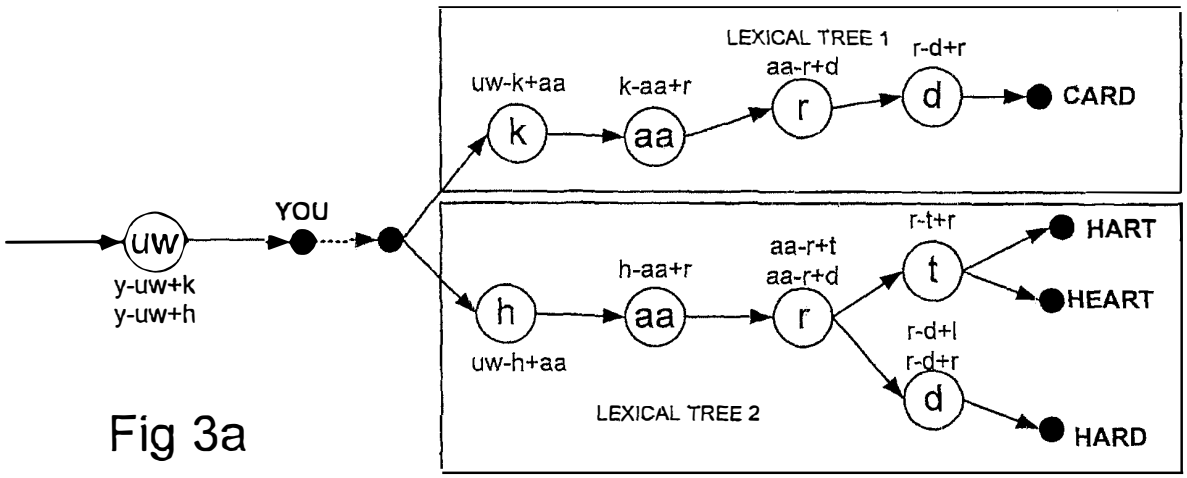

Fig 3a

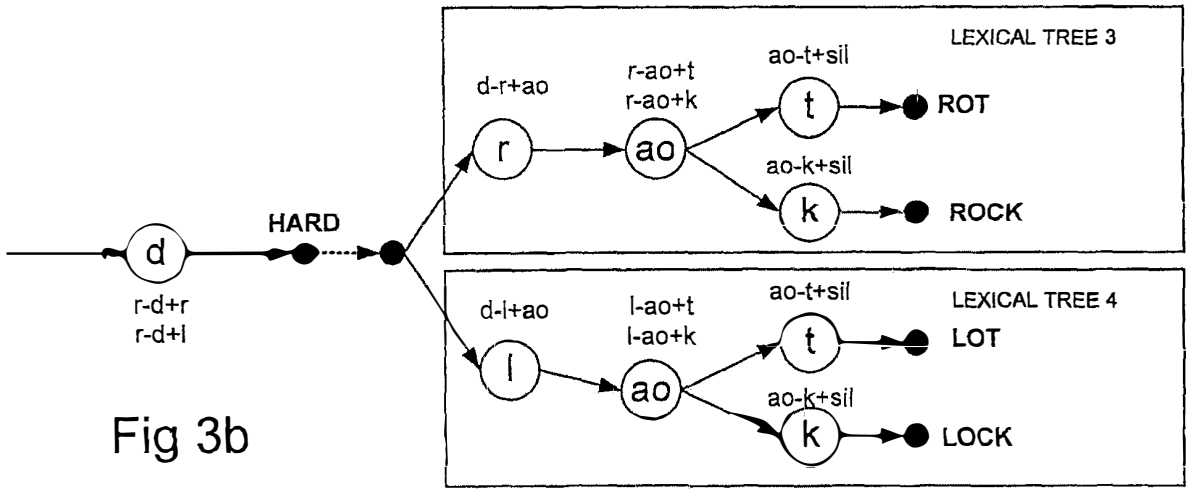

Fig 3b

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