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(12) **United States Patent**
Weber

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(54) **OBJECT INTERACTIVE USER INTERFACE USING SPEECH RECOGNITION AND NATURAL LANGUAGE PROCESSING**

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Related U.S. Application Data

(63) Continuation-in-part of application No. 09/166,199, filed on Oct. 5, 1998, which is a continuation-in-part of application No. 09/150,459, filed on Sep. 9, 1998.

(51) **Int. Cl.**[7] **G01L 15/18**

(52) **U.S. Cl.** **704/257**; 704/275; 704/10; 704/9; 707/3

(58) **Field of Search** 704/9, 10, 251, 704/252, 253, 257, 235, 270, 275; 707/4, 3

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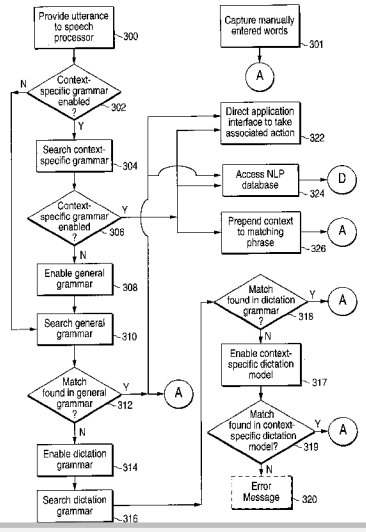
(57) **ABSTRACT**

A system and method for interacting with objects, via a computer using utterances, speech processing and natural language processing. A Data Definition File relates networked objects and a speech processor. The Data Definition File encompasses a memory structure relating the objects, including grammar files, a context-specific dictation model, and a natural language processor. The speech processor searches a first grammar file for a matching phrase for the utterance, and for searching a second grammar file for the matching phrase if the matching phrase is not found in the first grammar file. The system also includes a natural language processor for searching a database for a matching entry for the matching phrase; and an application interface for performing an action associated with the matching entry if the matching entry is found in the database. The system utilizes context-specific grammars and dictation models, thereby enhancing speech recognition and natural language processing efficiency. Additionally, for each user the system adaptively and interactively "learns" words and phrases, and their associated meanings, storing the adaptive updates into user voice profiles. Because the user voice profiles can be stored locally or remotely, users can access the adaptively learned words and phrases at various locations.

76 Claims, 12 Drawing Sheets



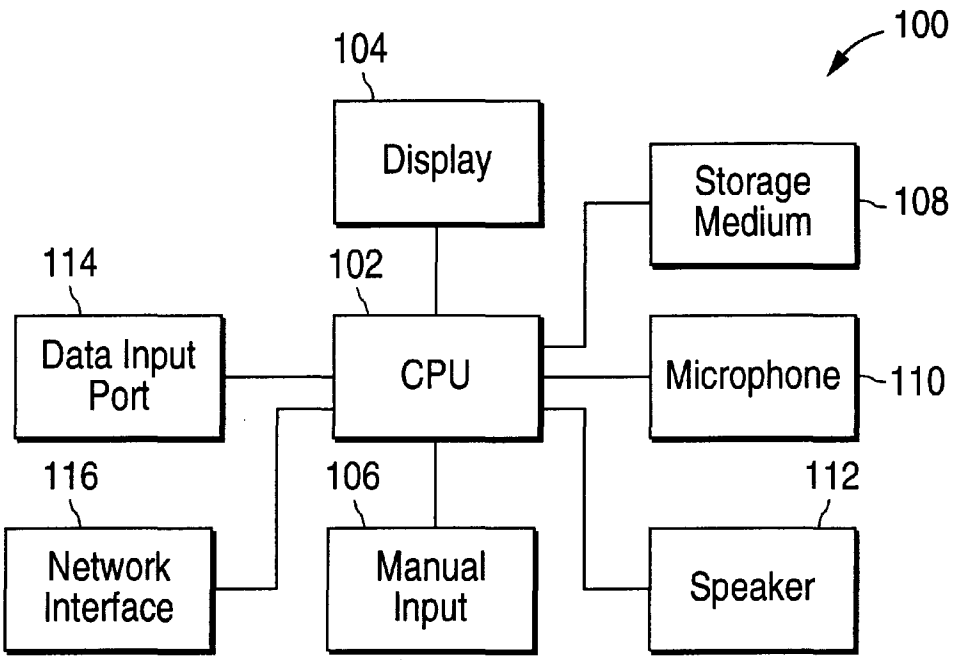


FIG. 1

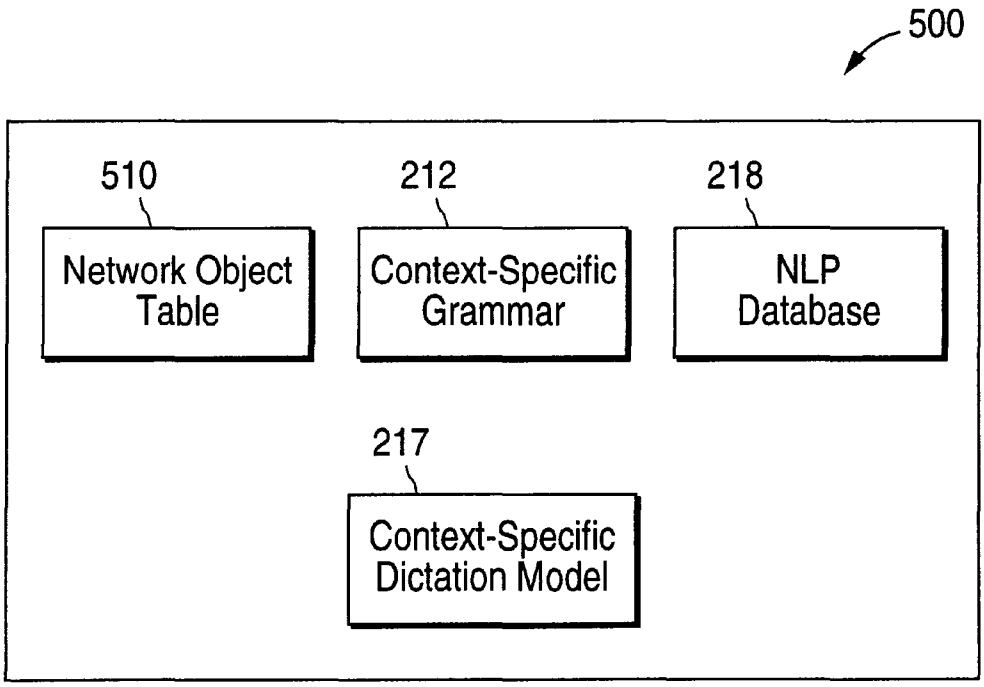


FIG. 5

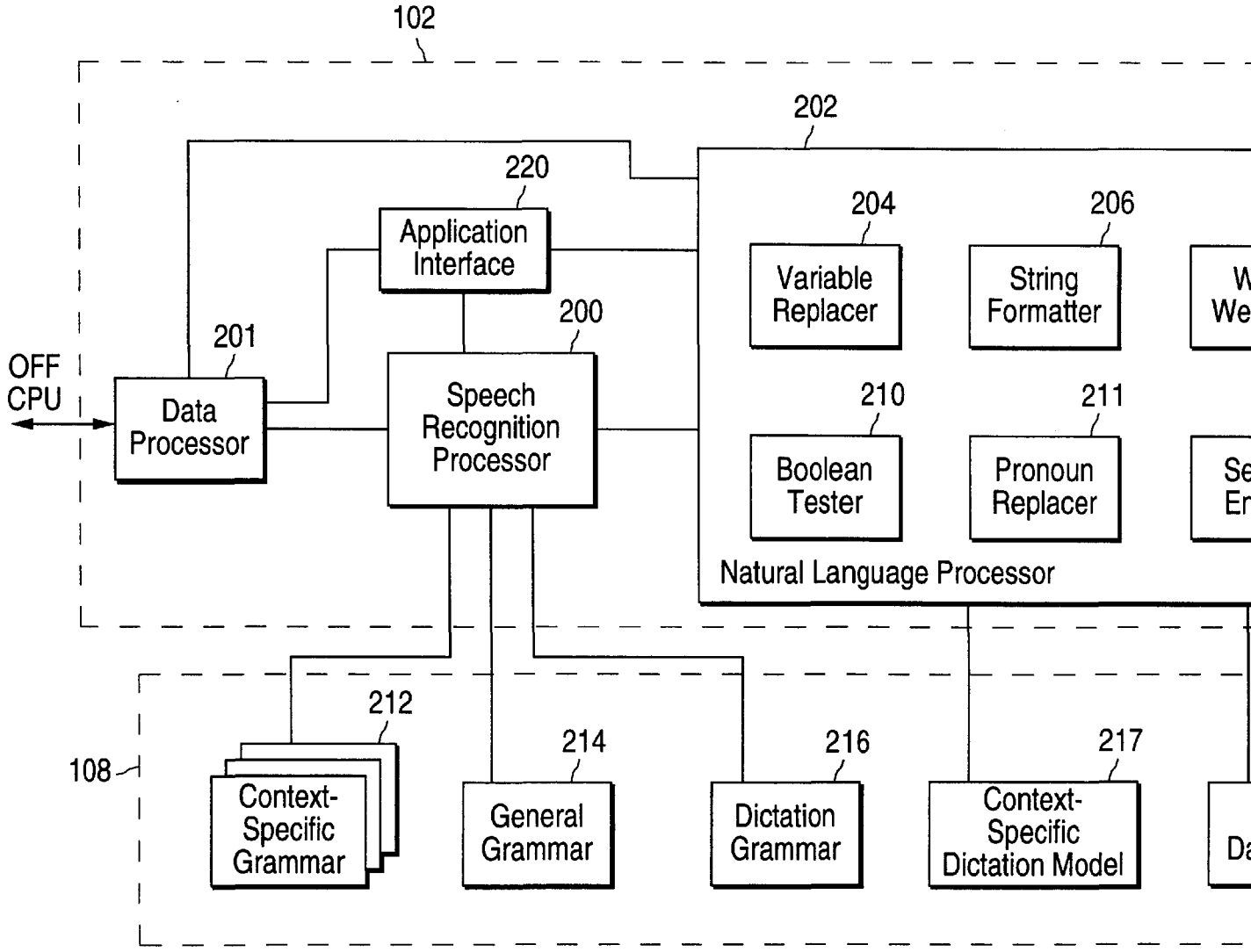


FIG. 2

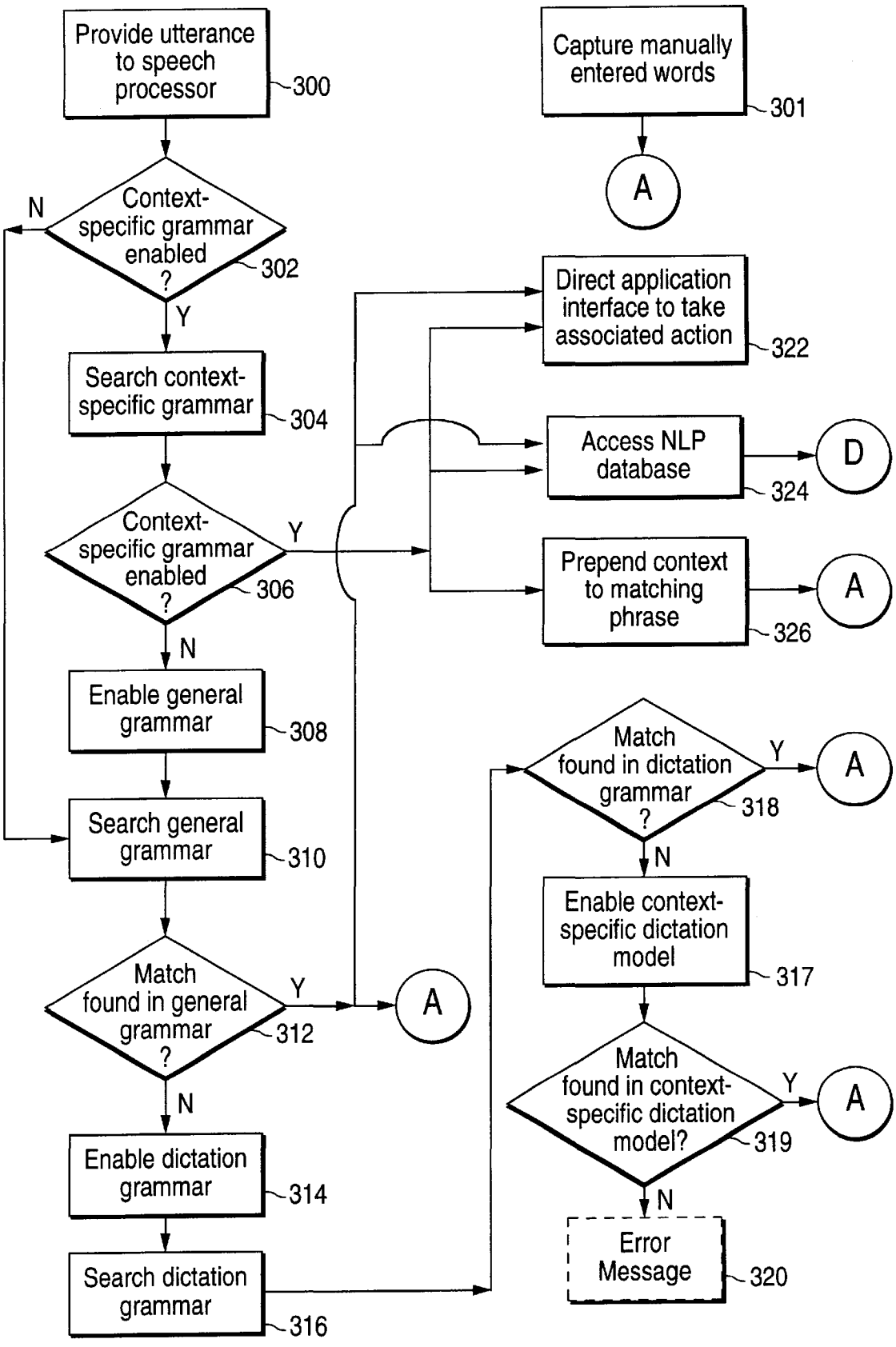


FIG. 3A

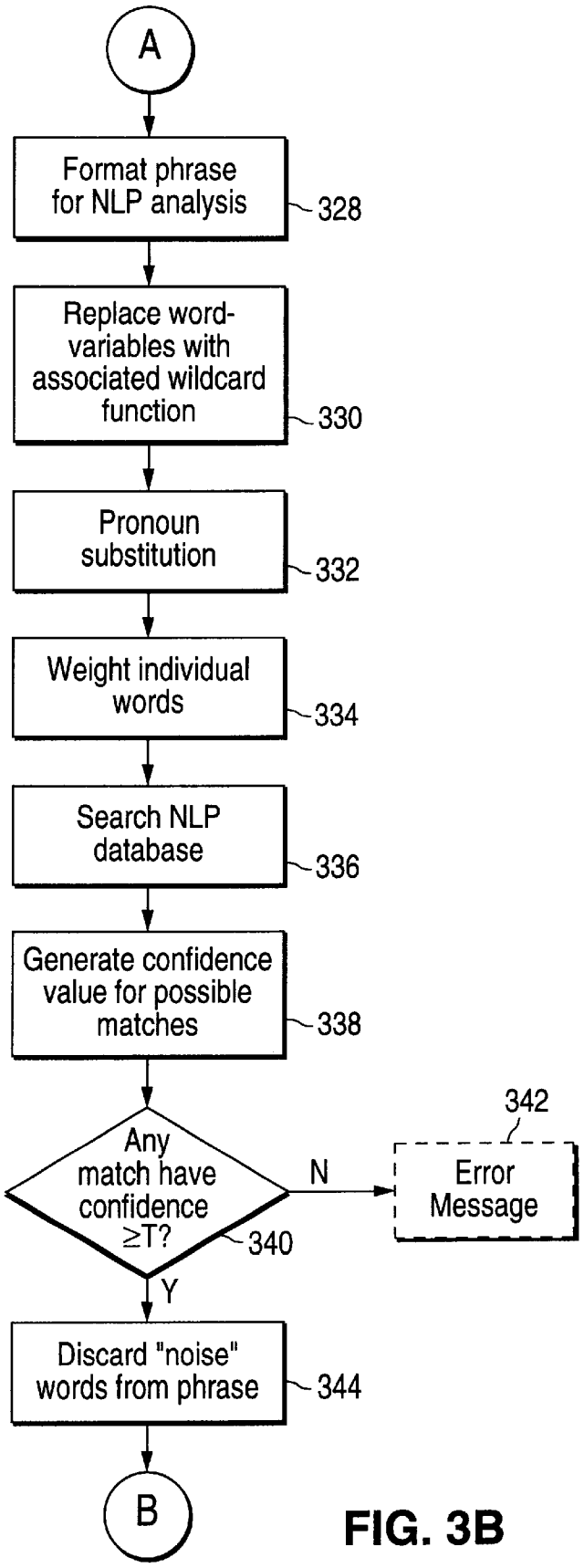


FIG. 3B

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