US005454106A

United States Patent [19]

Burns et al.

[11] **Patent Number: 5,454,106**

[45] **Date of Patent: Sep. 26, 1995**

[54] **DATABASE RETRIEVAL SYSTEM USING NATURAL LANGUAGE FOR PRESENTING UNDERSTOOD COMPONENTS OF AN AMBIGUOUS QUERY ON A USER INTERFACE**

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[21] Appl. No.: **62,502**

[22] Filed: **May 17, 1993**

[51] **Int. Cl.**[6] **G06F 17/30**

[52] **U.S. Cl.** **395/600**; 364/419.08; 364/963.1; 364/974.6; 364/DIG. 2

[58] **Field of Search** 395/600, 419; 364/419

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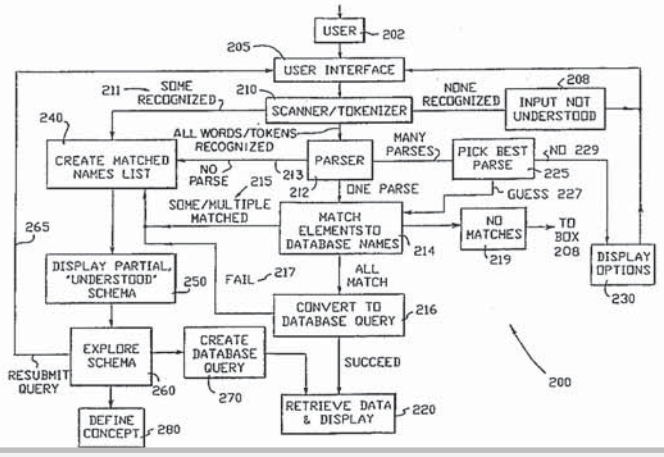
[57] **ABSTRACT**

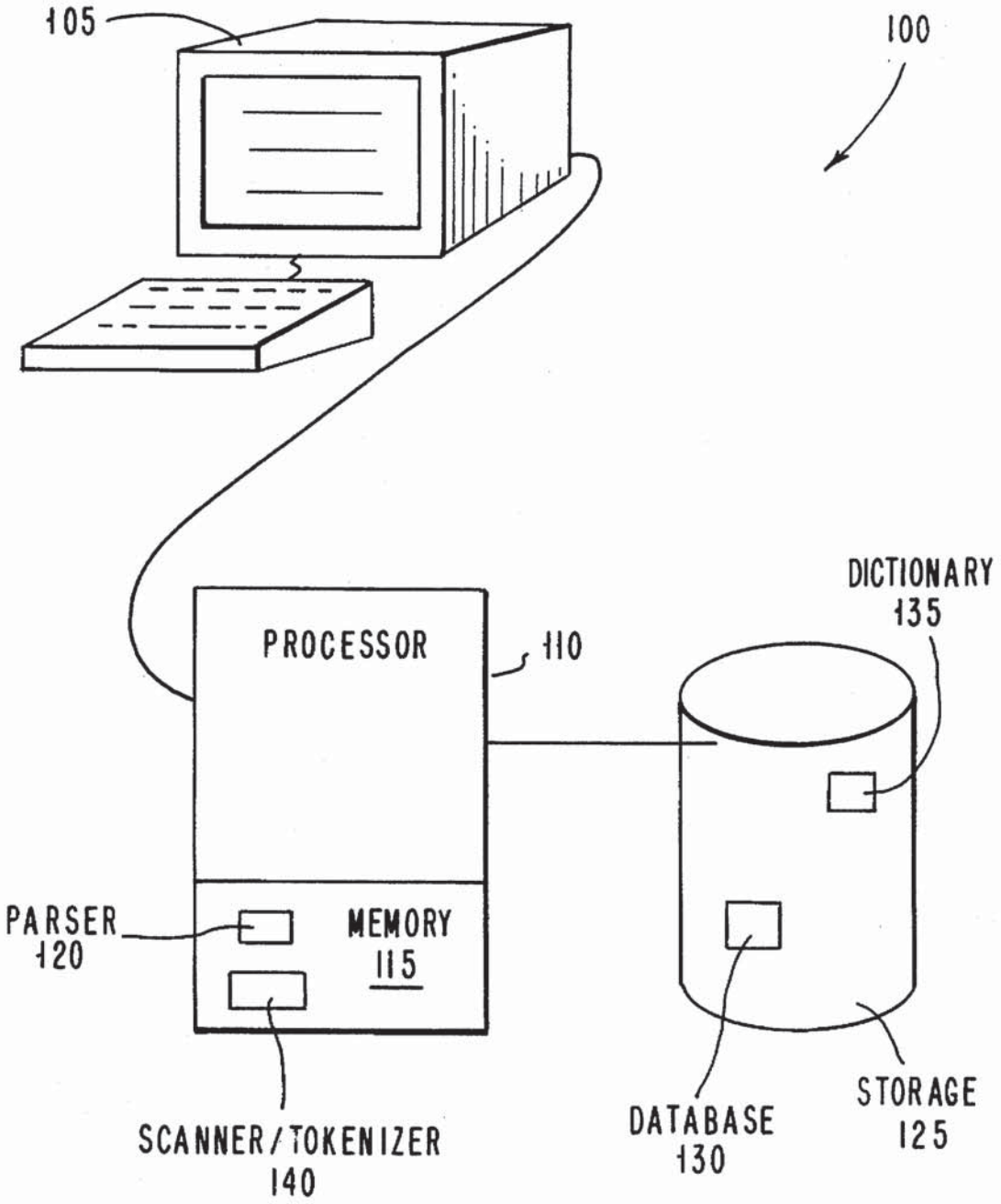
Information is retrieved from a database using natural language (NL) queries and graphical interfaces and displays. A query is separated into tokens which are parsed into elements. The parsed elements are matched to a list of database names. If all the parsed elements can be uniquely matched to database names, a database query is constructed and used to query the database to retrieve information and to present to a user. However, when an ambiguous query is encountered, i.e. all of whose elements cannot be uniquely matched with database names, the understood components of the ambiguous query, i.e., those elements matching database names, are presented the user along with relationships of the elements to other names in the database so that the user can use an interface to explore the database by accessing and displaying this database information and these relationships.



The interface can take the form of views on a graphical interface. Using the displayed information, the user can create associations between database names and components not understood in the query. In other words, database names can be associated with the natural language words or phrases. These associations are added to the system knowledge and used to respond to future queries. In this way, the system learns, i.e., by using the added associations the system is able to respond to queries that it was unable to respond in a satisfactory manner before the association was added.

14 Claims, 7 Drawing Sheets

FIG. 1



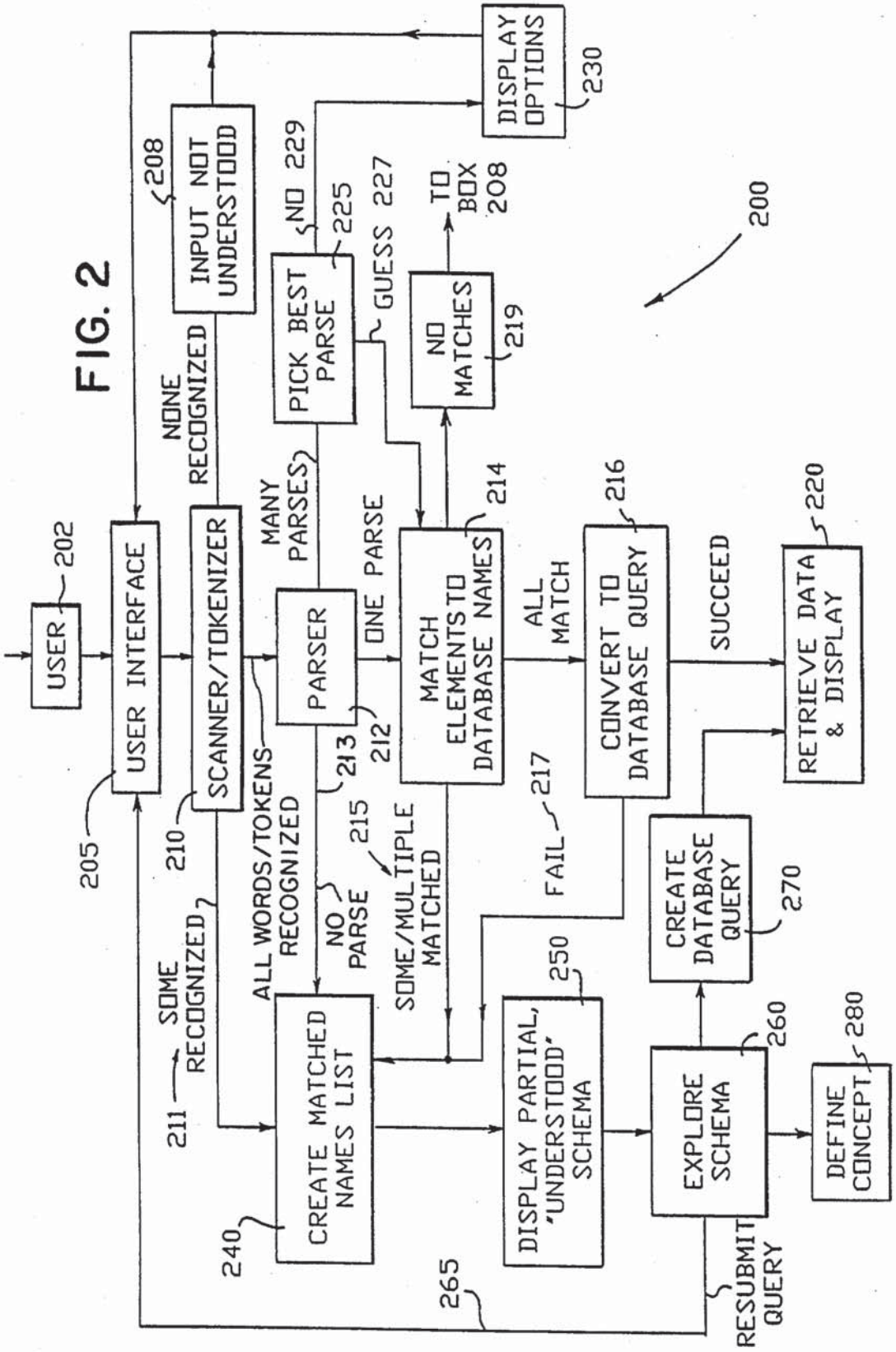


FIG. 2

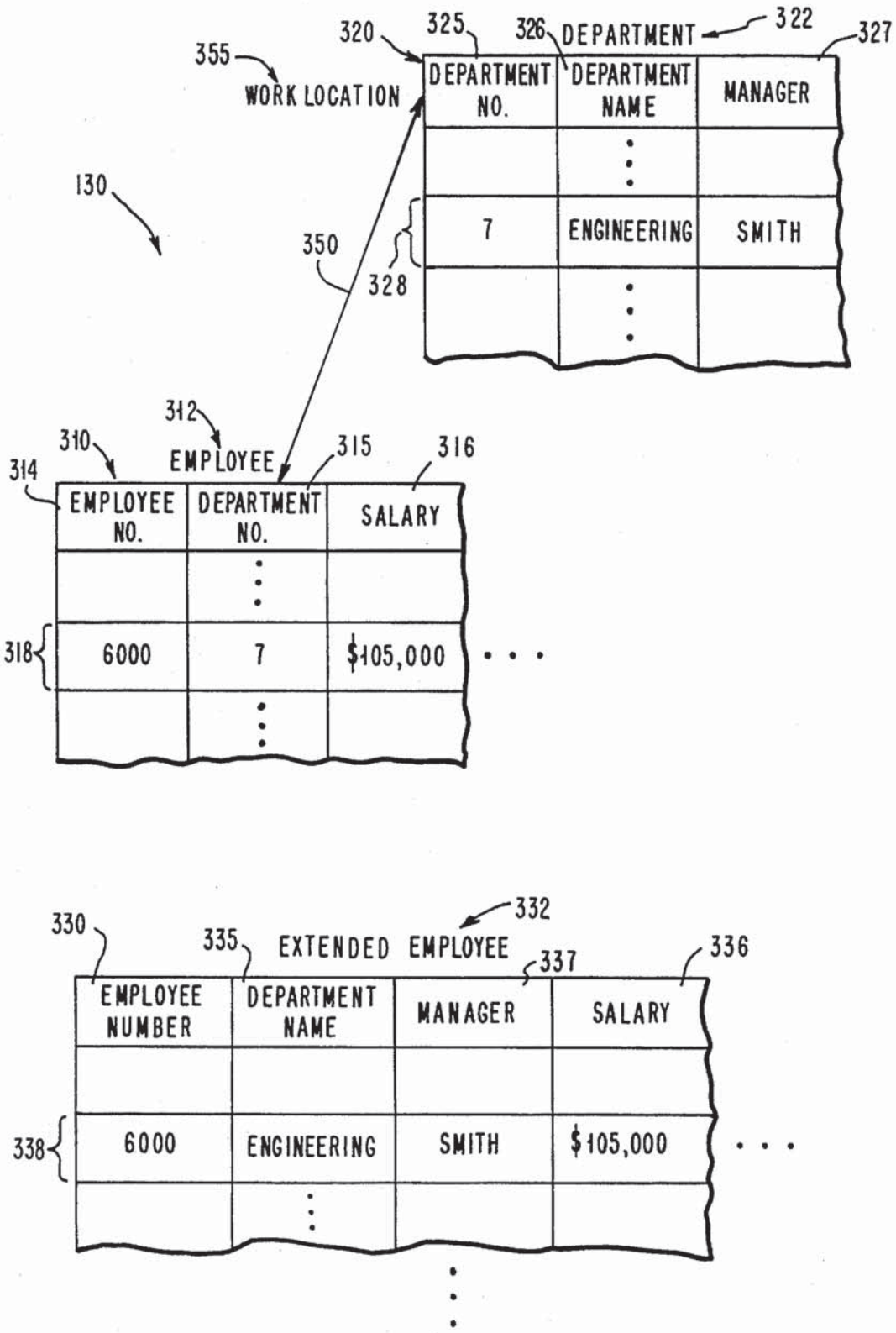


FIG. 3

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