

- [54] **METHOD AND APPARATUS FOR INDEXING, SEARCHING AND DISPLAYING DATA**
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Related U.S. Application Data

- [63] Continuation-in-part of Ser. No. 76,658, Jun. 14, 1993, Pat. No. 5,544,352.
- [51] **Int. Cl.⁶** **G06F 17/30**
- [52] **U.S. Cl.** **707/102; 707/104; 707/5**
- [58] **Field of Search** **707/102, 104, 707/5**

[56] **References Cited**

U.S. PATENT DOCUMENTS

4,868,733	9/1989	Fujisawa et al.	707/5
5,265,065	11/1993	Turtle	395/600
5,287,493	2/1994	Jacopi	707/4
5,386,556	1/1995	Hedlin et al.	707/4
5,471,611	11/1995	McGregor	707/4
5,544,352	8/1996	Egger	707/5
5,546,517	8/1996	Marks et al.	707/501
5,586,311	12/1996	Davies et al.	707/1
5,630,120	5/1997	Vachey	707/2
5,649,193	7/1997	Sumita et al.	707/103

OTHER PUBLICATIONS

- Agosti, et al., "a Two-level Hypertext Retrieval Model for Legal Data," SIGIR '91 (1991).
- Fowler, et al., "Integrating Query, Thesaurus and Documents Through a Common Visual Representation," SIGIR '91 (1991).
- Rose & Belew, "Legal Information Retrieval: A Hybrid Approach," ICAIL '89 (1989).
- Belew, Richard, "A Connectionist Approach to Conceptual Information Retrieval," ICAIL '87 (1987).

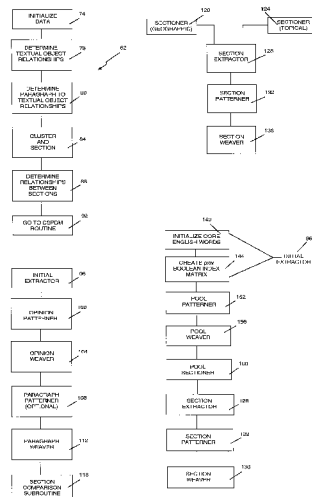
- Gelbart & Smith, "Beyond Boolean Search: Flexicon, A Legal Text-Based Intelligent System," ICAIL '91 (1991).
- Lin, "A Self-Organizing Semantic Map for Information Retrieval," SIGIR '91 (1991).
- Turtle & Croft, "Interference Networks for Document Retrieval," SIGIR '90 (1990).
- Uzzi, V-Search Integration Toolkit for Folio Views, User's Manual, 6 Dec. 1995.
- Uzzi, V-Search Publisher's Toolkit, Beta Release 2.0, User's Manual, Dec. 8, 1995.

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[57] **ABSTRACT**

A computer research tool for indexing, searching and displaying data is disclosed. Specifically, a computer research tool for performing computerized research of data including textual objects in a database or a network and for providing a user interface that significantly enhances data presentation is described. Textual objects and other data in a database or network is indexed by creating a numerical representation of the data. The indexing technique called proximity indexing generates a quick-reference of the relations, patterns and similarity found among the data in the database. Proximity indexing indexes the data by using statistical techniques and empirically developed algorithms. Using this proximity index, an efficient search for pools of data having a particular relation, pattern or characteristic can be effectuated. The Computer Search program, called the Computer Search Program for Data represented in Matrices (CSPDM), provides efficient computer search methods. The CSPDM rank orders data in accordance with the data's relationship to time, a paradigm datum, or any similar reference. An alternative embodiment of the invention employs a cluster link generation algorithm which uses links and nodes to index and search a database or network. The algorithm searches for direct and indirect links to a search node and retrieves the nodes which are most closely related to the search node. The user interface program, called the Graphical User Interface (GUI), provides a user friendly method of interacting with the CSPDM program and prepares and presents a visual graphical display. The graphical display provides the user with a two or three dimensional spatial orientation of the data.

33 Claims, 56 Drawing Sheets



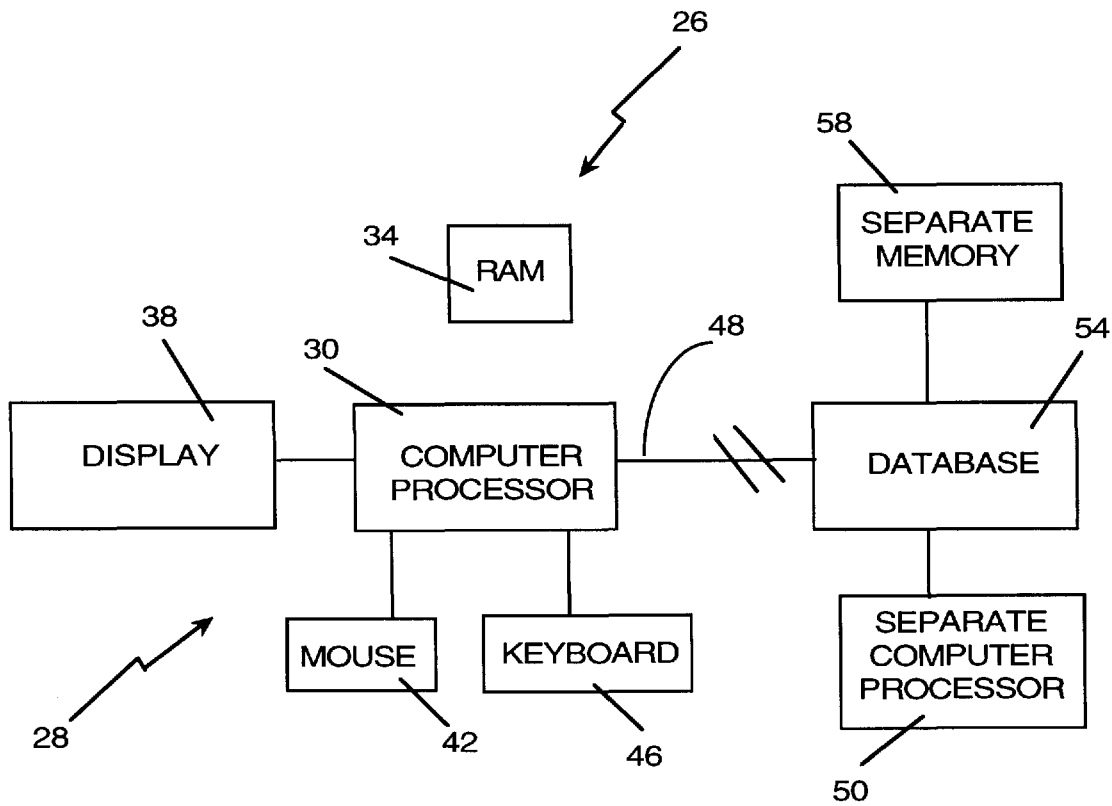


Fig. 1

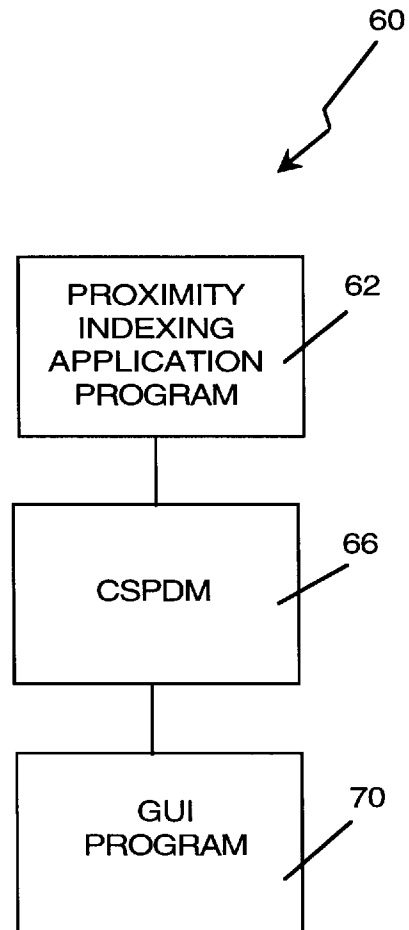


Fig. 2

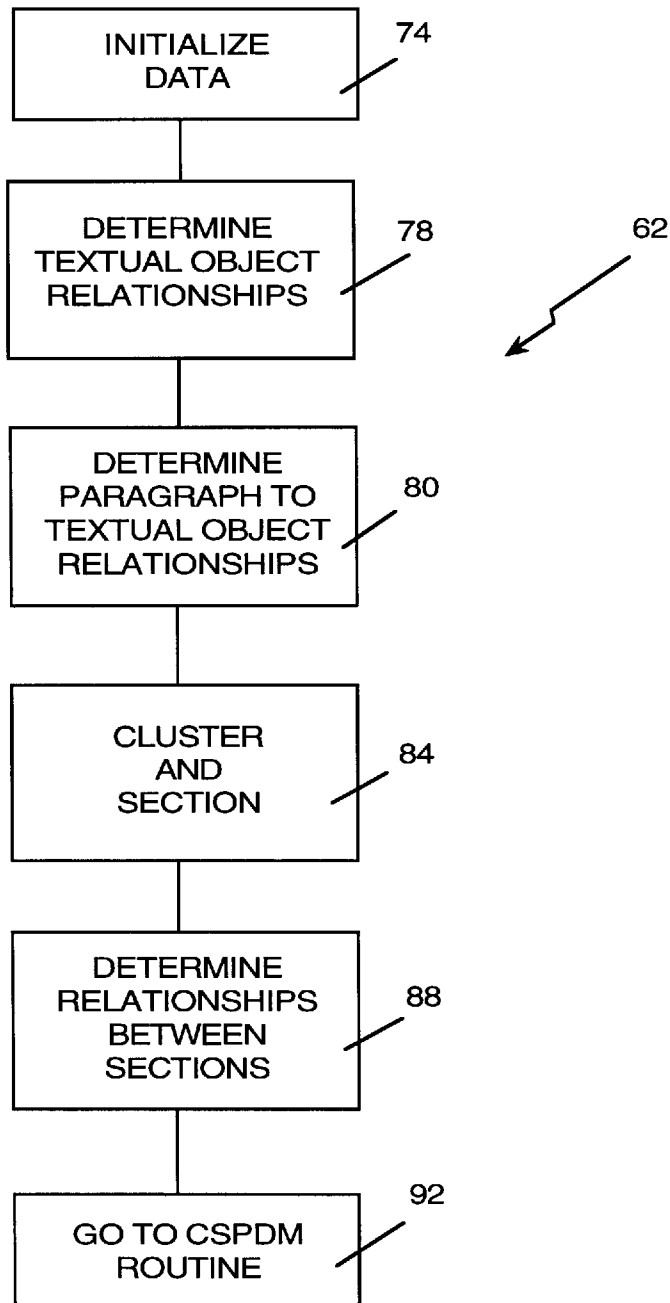


Fig. 3A

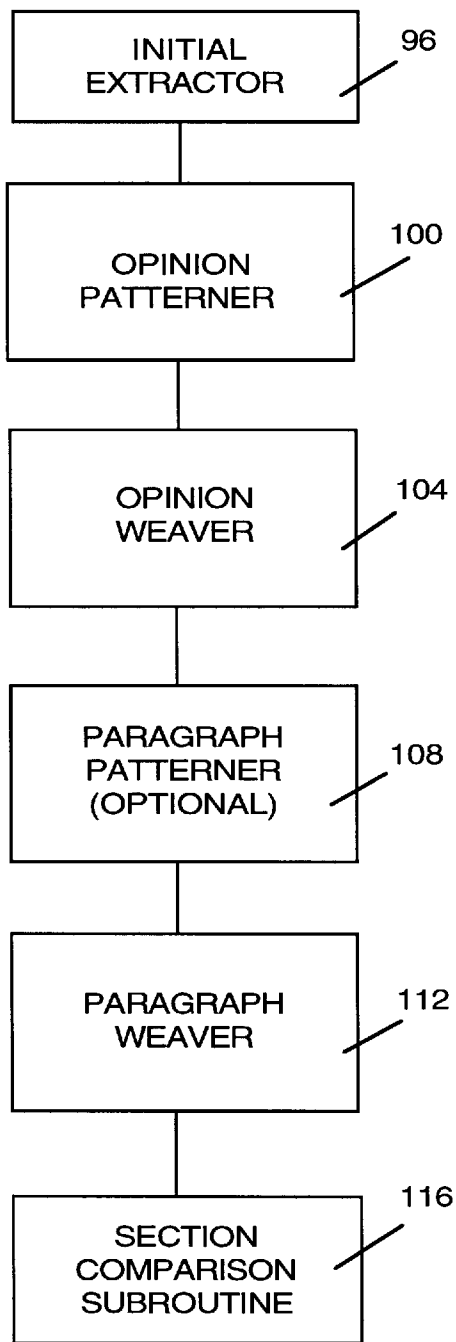


Fig. 3B

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