

[54] METHOD AND APPARATUS FOR PROVIDING IMPLICIT COMPUTER-IMPLEMENTED ASSISTANCE

FOREIGN PATENT DOCUMENTS

0441089A2 8/1991 European Pat. Off. .
1-130291 5/1989 Japan .

[75] Inventors: William W. Luciw, Morgan Hill; Stephen P. Capps, San Carlos; Lawrence G. Tesler, Portola Valley, all of Calif.

OTHER PUBLICATIONS

Wilensky, Robert; Arens, Yigal; and Chin, David, "Talking to UNIX in English: An Overview of UC," Communications of the ACM, Jun. 1984, vol. 27, No. 6, pp. 574 to 593.
Tello, Ernest R., "Natural Language Systems," Savvy PC, Clout 2, Q&A, Lotus HAL, Mastering AI Tools and Techniques, Chapter 2, pp. 25 to 64.

[73] Assignee: Apple Computer, Inc., Cupertino, Calif.

[21] Appl. No.: 424,959

(List continued on next page.)

[22] Filed: Apr. 19, 1995

Related U.S. Application Data

[60] Division of Ser. No. 99,861, Jul. 30, 1993, Pat. No. 5,477, 447, which is a continuation-in-part of Ser. No. 889,225, May 27, 1992, Pat. No. 5,390,281.

[51] Int. Cl.⁶ G06F 17/30

[52] U.S. Cl. 395/338; 395/336

[58] Field of Search 395/155, 156, 395/157, 159, 161, 149, 336, 337, 338, 968, 759, 12, 51, 62; 364/419.08, 419.19, 419.1, 419.14, 419.15, 419.13

[56] References Cited

U.S. PATENT DOCUMENTS

Re. 34,476	12/1993	Norwood	382/186
4,670,848	6/1987	Schramm et al.	395/60
4,713,775	12/1987	Scott et al.	395/50
4,736,296	4/1988	Katayama et al.	395/759
4,862,390	8/1989	Weiner	395/336 X
4,875,187	10/1989	Smith	395/141
4,918,723	4/1990	Iggulden et al.	379/100
4,945,504	7/1990	Nakama et al.	364/709.11
4,953,106	8/1990	Gansner et al.	395/140
4,974,191	11/1990	Amirghodsi et al.	395/759
5,091,790	2/1992	Silverberg	358/434
5,103,498	4/1992	Lanier	395/68
5,109,509	4/1992	Katayama et al.	395/759
5,239,617	8/1993	Gardner et al.	395/12

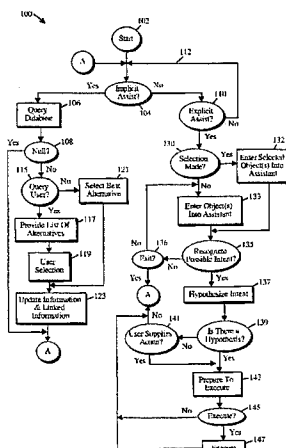
(List continued on next page.)

Primary Examiner—Kee M. Tung
Assistant Examiner—Crescelle N. dela Torre
Attorney, Agent, or Firm—Hickman Beyer & Weaver

[57] ABSTRACT

A method and apparatus for providing computer-assisted implicit and explicit assistance. If no implicit assist actions are desired or indicated, a logical process is initiated to determine whether explicit assistance should be undertaken. If implicit assistance is indicated, a list of action alternatives is displayed for the user. If explicit assistance is desired by the user, particular object(s) from which the assistance may be inferred are entered into an assistance operation. An attempt is made to recognize possible intents expressed by the objects entered into the assistance process. If no user intent is, in fact, recognized, the assist operation is usually terminated. If a possible intent is recognized, the actual intent is hypothesized. A check is further undertaken, to determine whether a hypothesis is in fact available. If no hypothesis is found, the process permits the user to supply a proposed action. If no hypothesis is found and no user action is proposed, assistance efforts terminate. However, if a hypothesis is available, preparations for execution are undertaken. A final inquiry is made as to whether to undertake the hypothesized assist. If the response to an inquiry whether to assist as hypothesized is affirmative, execution of the hypothesized action is undertaken. A pen-based computer preferably implements the indicated functions.

20 Claims, 18 Drawing Sheets



U.S. PATENT DOCUMENTS

5,255,386	10/1993	Prager	395/605
5,390,281	2/1995	Luciw et al.	395/12
5,432,902	7/1995	Matsumoto	395/338
5,477,447	12/1995	Luciw et al.	395/759
5,535,323	7/1996	Miller et al.	395/338

OTHER PUBLICATIONS

O'Connor, Rory J., "Apple Banking on Newton's Brain", *San Jose Mercury News*, Wednesday, Apr. 22, 1992.

Hendrix, Gary G. and Walter, Brett A., "The Intelligent Assistant: Technical Considerations Involved in Designing Q&A's Natural-language Interface", *Byte Magazine*, Dec. 1987, vol. 12, Issue 14, p. 251.

Edwards, John R., "Q&A: Integrated Software with Macros and an Intelligent Assistant", *Byte Magazine*, Jan. 1986, vol. 11, Issue 1, pp. 120-122.

Goldberg, Cheryl, "IBM Drawing Assistant: Graphics for the EGA", *PC Magazine*, Dec. 24, 1985, vol. 4, Issue 26, p. 255.

Garretson, R., "IBM Adds 'Drawing Assistant' Design Tool to Graphics Series", *PC Week*, Aug. 13, 1985, vol. 2, Issue 32, p. 8.

Glinert-Stevens, Susan, "Microsoft Publisher: Desktop Wizardry", *PC Sources*, Feb., 1992, vol. 3, Issue 2, p. 357.

Nilsson, B.A., "Microsoft Publisher is an Honorable Start for DTP Beginners", *Computer Shopper*, Feb. 1992, vol. 12, Issue 2, p. 426.

Poor, Alfred, "Microsoft Publisher", *PC Magazine*, Nov. 26, 1991, vol. 10, Issue 20, p. 40, evaluates Microsoft Publisher.

Rampe, Dan, et al. In a Jan. 9, 1989 news release, Claris Corporation announced two products, SmartForm Designer and SmartForm Assistant, which provide "Intelligent Assistance", such as custom help messages, choice lists, and data-entry validation and formatting.

Berry, Deanne, et al. In an Apr. 10, 1990 news release, Symantec announced a new version of MORE (TM).

Elofson, G. and Konsynski, B., "Delegation Technologies: Environmental Scanning with Intelligent Agents", *Journal of Management Information Systems*, Summer 1991, vol. 8, Issue 1, pp. 37-62.

Nadoli, Gajanana and Biegel, John, "Intelligent Agents in the Simulation of Manufacturing Systems", *Proceedings of the SCS Multiconference on AI and Simulation*, 1989.

Sharif Heger, A. and Koen, B. V., "KNOWBOT: an Adaptive Data Base Interface", *Nuclear Science and Engineering*, Feb. 1991, vol. 107, No. 2, pp. 142-157, describes an adaptive interface KNOWBOT.

Ohsawa, I. and Yonezawa, A., "A Computational Model of an Intelligent Agent Who Talks with a Person", *Research Reports on Information Sciences, Series C*, Apr. 1989, No. 92, pp. 1-18.

Ratcliffe, Mitch and Gore, Andrew, "Intelligent Agents take U.S. Bows.", *MacWeek*, Mar. 2, 1992, vol. 6, No. 9, p. 1.

Boy, Guy A., *Intelligent Assistant Systems*, Harcourt Brace Jovanovich, 1991, uses the term "Intelligent Assistant Systems".

Microsoft Windows User's Guide for the Windows Graphical Environment; Version 3.0; Microsoft Press copyright 1990-1995.

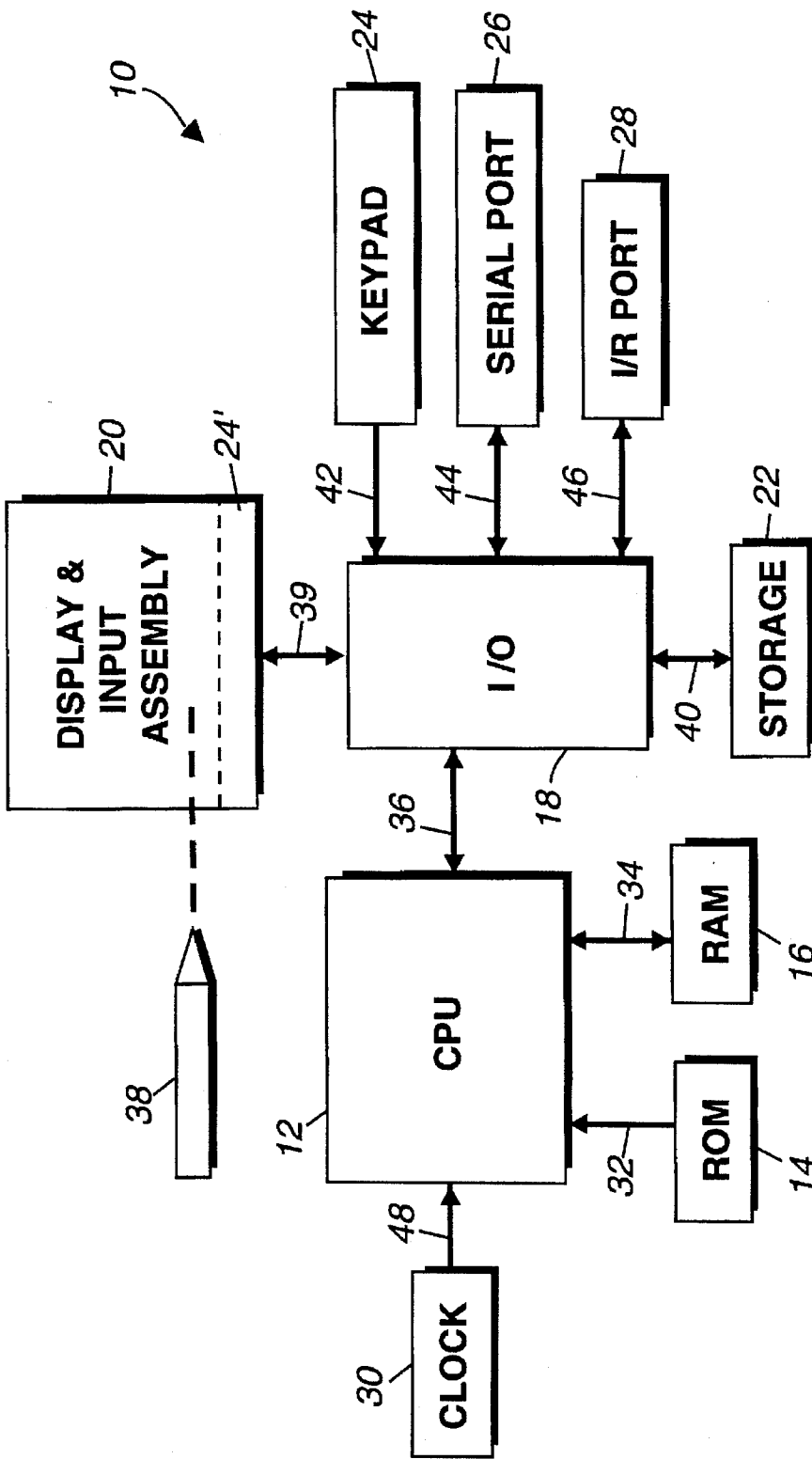


Figure 1

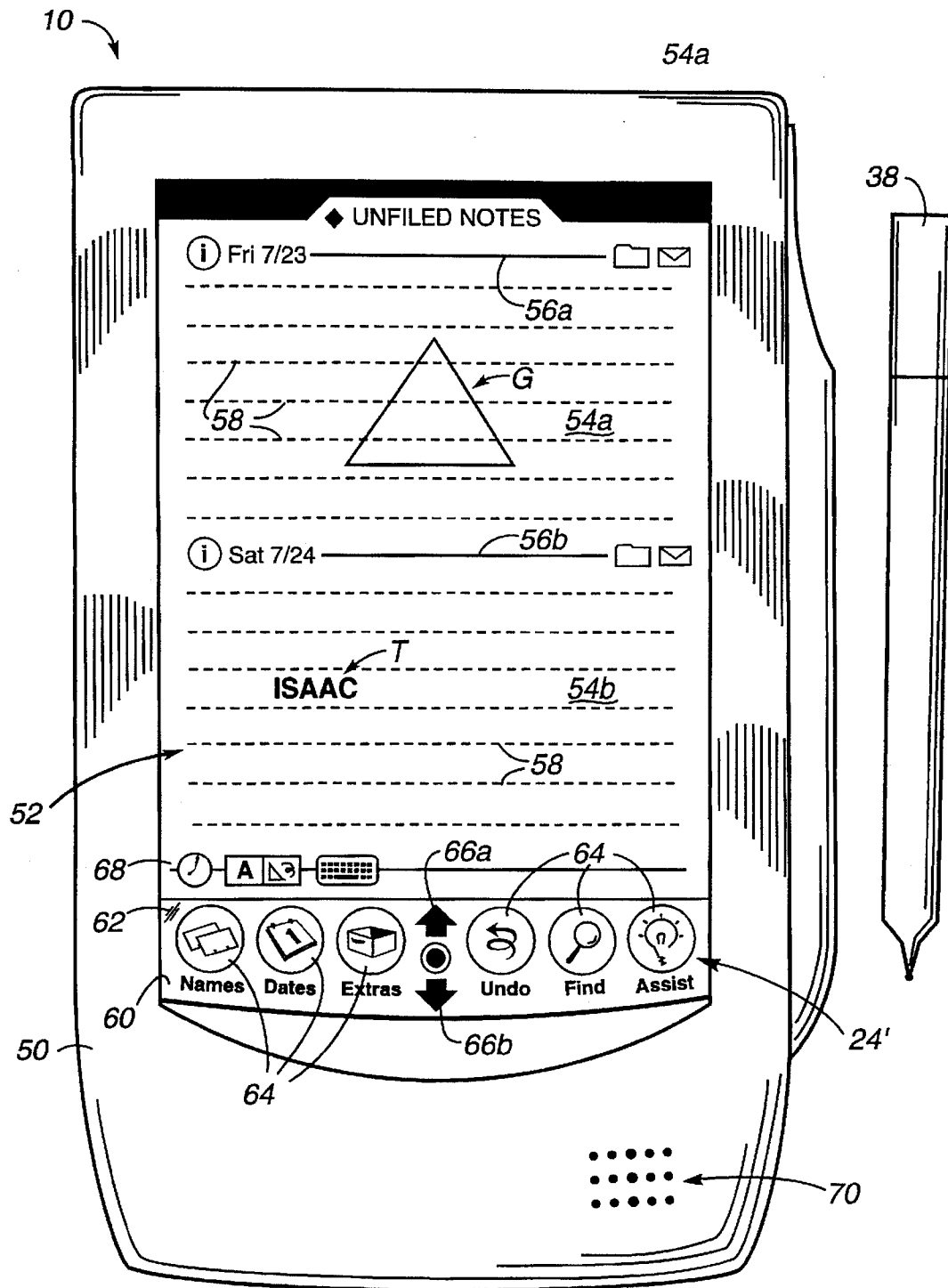


Figure 2

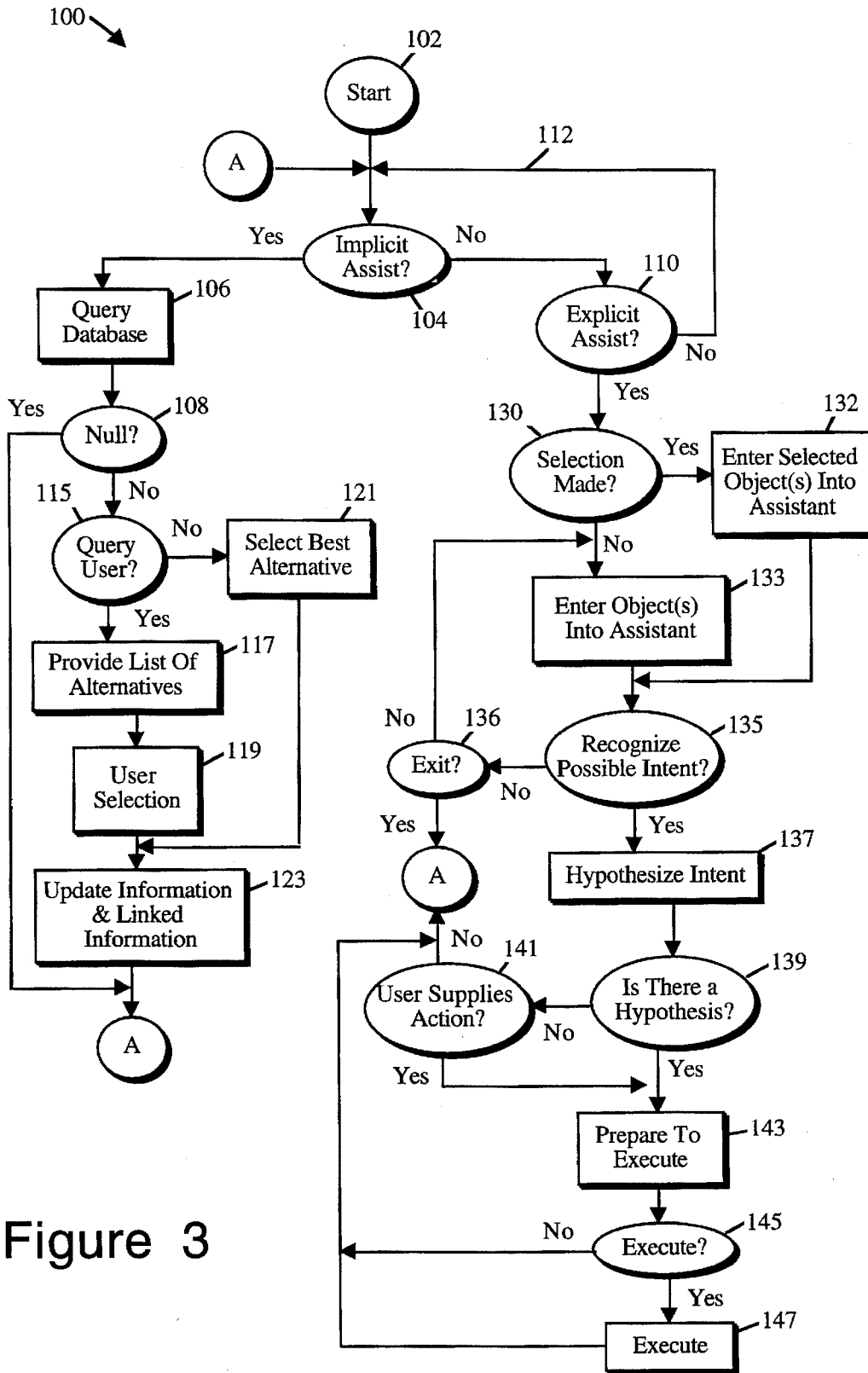


Figure 3

Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.