United States Patent [19]

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

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

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

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Related U.S. Application Data

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[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

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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.
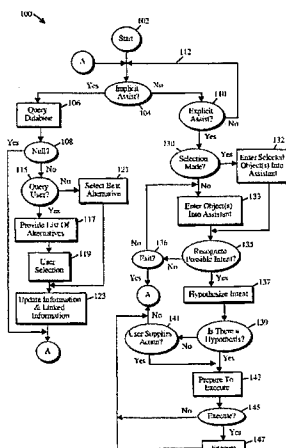
20 Claims, 18 Drawing Sheets

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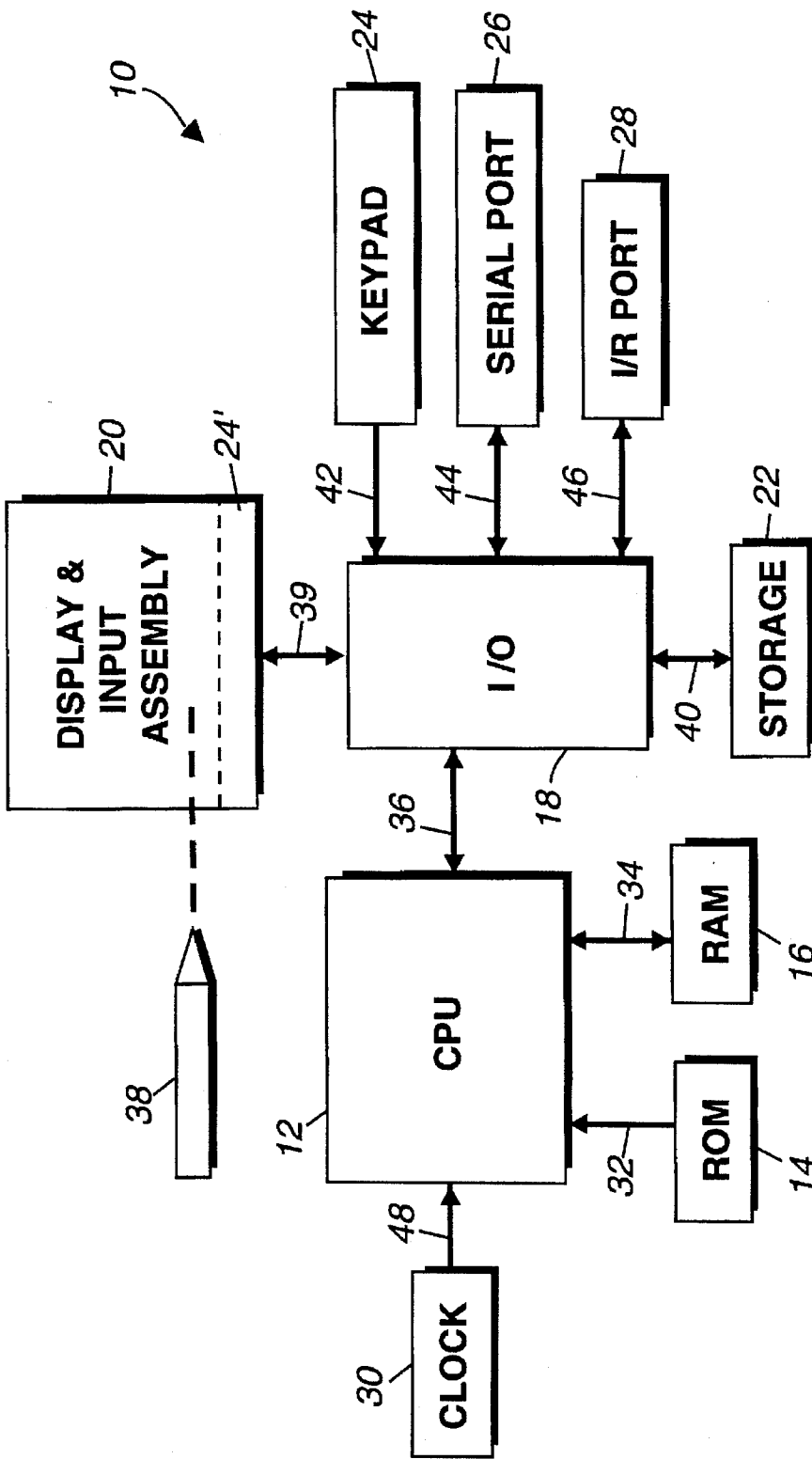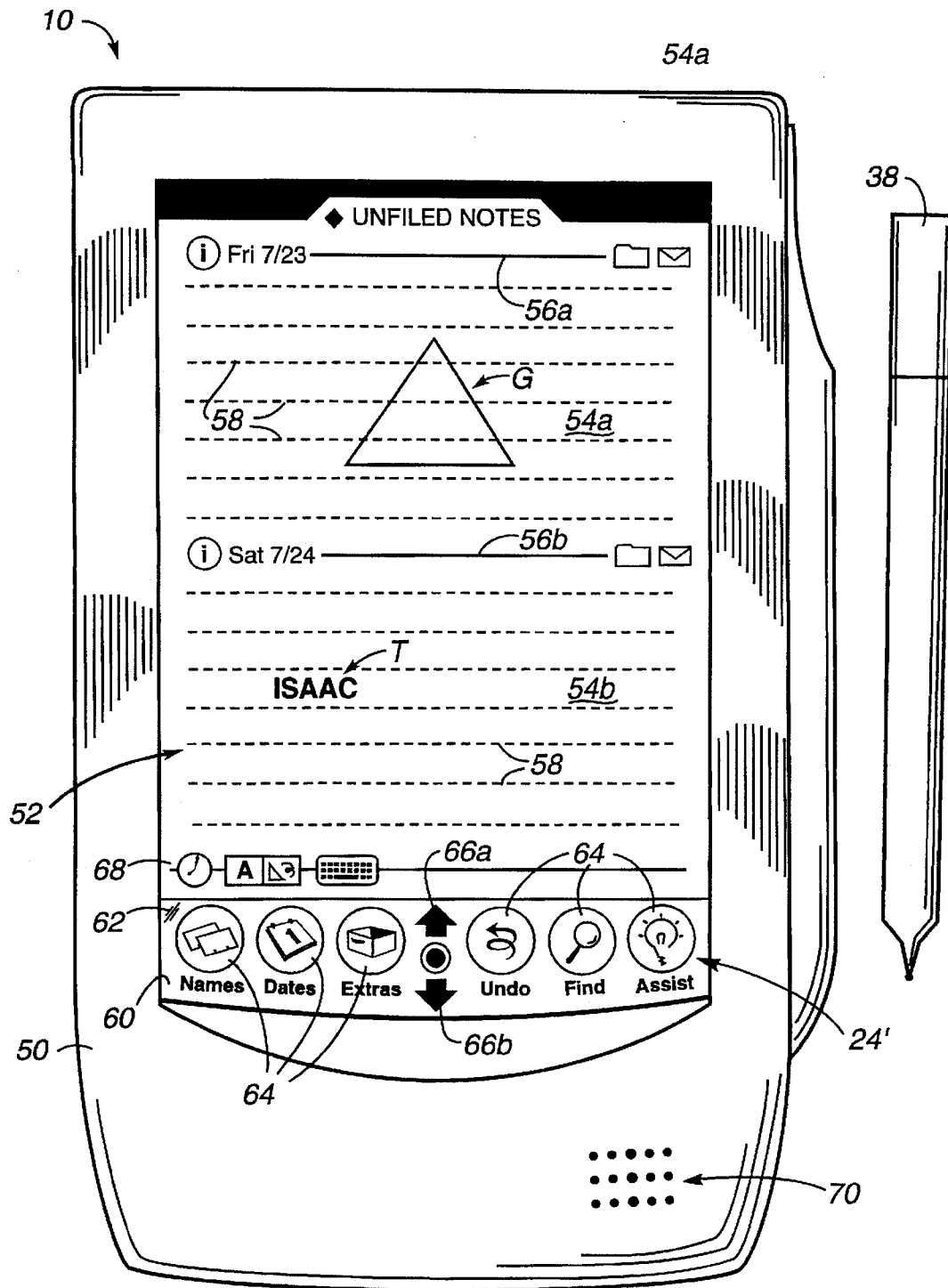
Figure 1

Figure 2

100

102

Start

A

112

Implicit Assist?   104

Yes   No

Query Database   106

Explicit Assist?   110

No

Yes

130

Selection Made?

Yes

Enter Selected Object(s) Into Assistant   132

No

Yes

Null?   108

No

Query User?   115

No

Select Best Alternative   121

Enter Object(s) Into Assistant   133

Yes

Provide List Of Alternatives   117

No   136

Exit?

Recognize Possible Intent?   135

User Selection   119

Yes

A

No

Yes

Hypothesize Intent   137

Update Information & Linked Information   123

A

No   141

User Supplies Action?

Is There a Hypothesis?   139

Yes

No

Yes

Prepare To Execute   143

No

Execute?   145

Yes

Execute   147

Figure 3

DOCKET ALARM
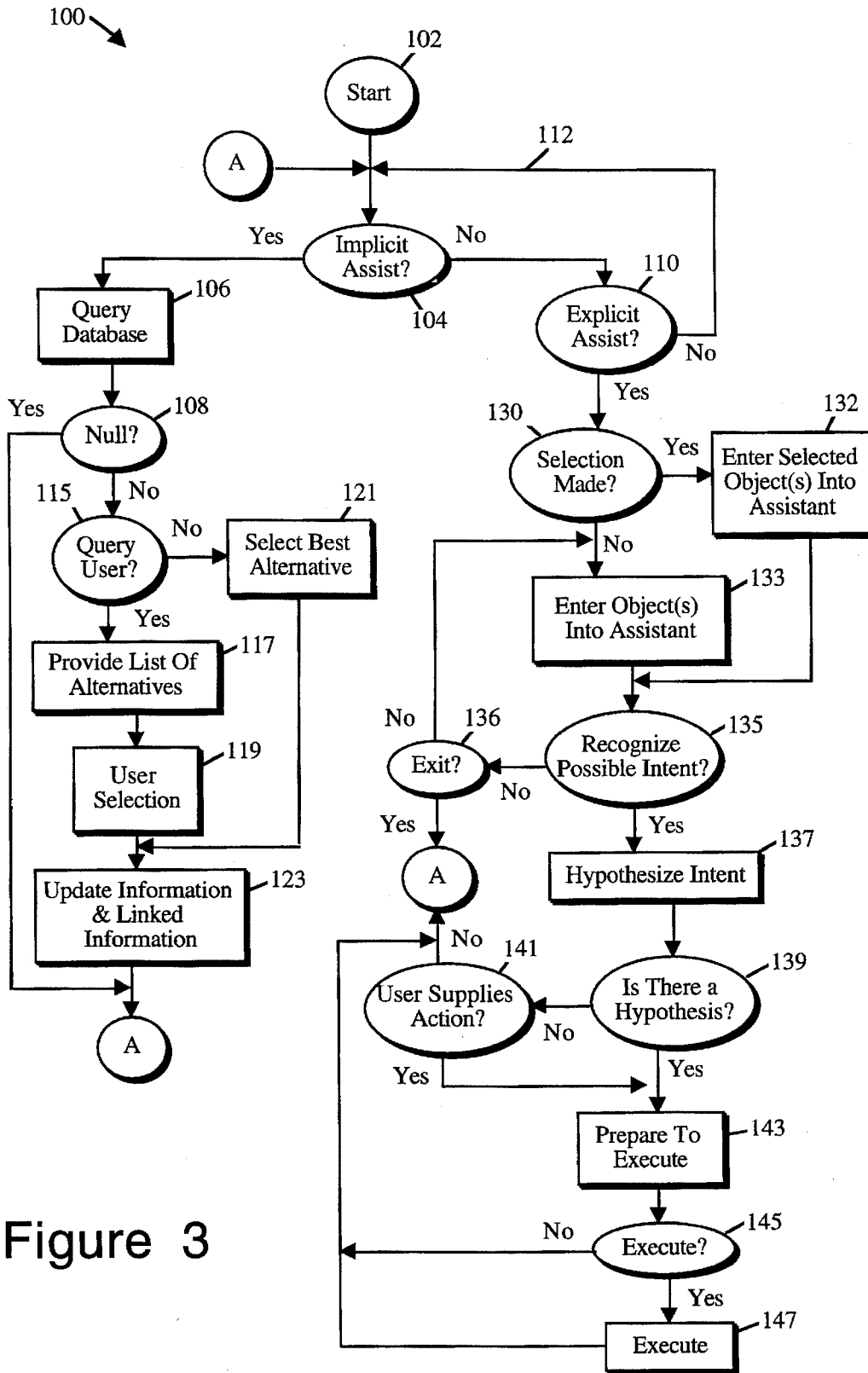
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