EXHIBIT D

(12) **United States Patent**
Mata et al.

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(54) **AGENT REACTIVE SCHEDULING IN AN AUTOMATED MANUFACTURING ENVIRONMENT**

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **11/151,098**

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Related U.S. Application Data

(63) Continuation of application No. 10/135,145, filed on Apr. 30, 2002, now Pat. No. 6,907,305.

(51) **Int. Cl.**[7] **G06F 19/00**
(52) **U.S. Cl.** **700/99**; 700/100; 700/121; 705/8
(58) **Field of Search** 700/99, 100, 101, 700/117, 121; 705/8

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Primary Examiner—Jayprakash N. Gandhi
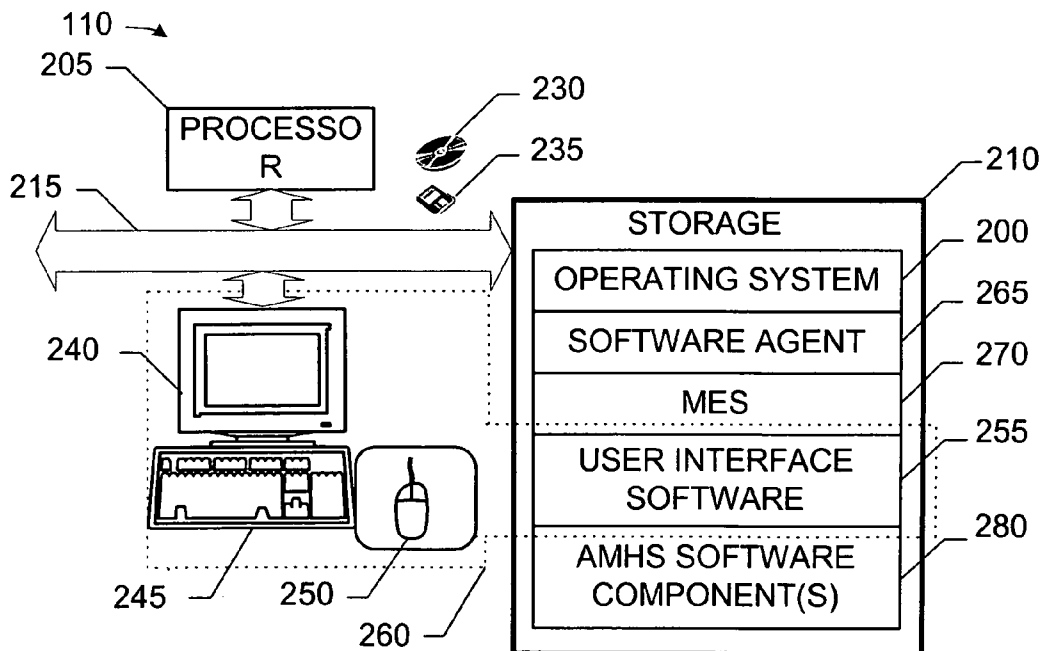(74) *Attorney, Agent, or Firm*—Williams, Morgan & Amerson, P.C.

(57) **ABSTRACT**

A method and apparatus for scheduling in an automated manufacturing environment, comprising are disclosed. The method includes detecting an occurrence of a predetermined event in a process flow; notifying a software scheduling agent of the occurrence; and reactively scheduling an action from the software scheduling agent responsive to the detection of the predetermined event. The apparatus is automated manufacturing environment including a process flow and a computing system. The computing system further includes a plurality of software scheduling agents residing thereon, the software scheduling agents being capable of reactively scheduling appointments for activities in the process flow responsive to a plurality of predetermined events.
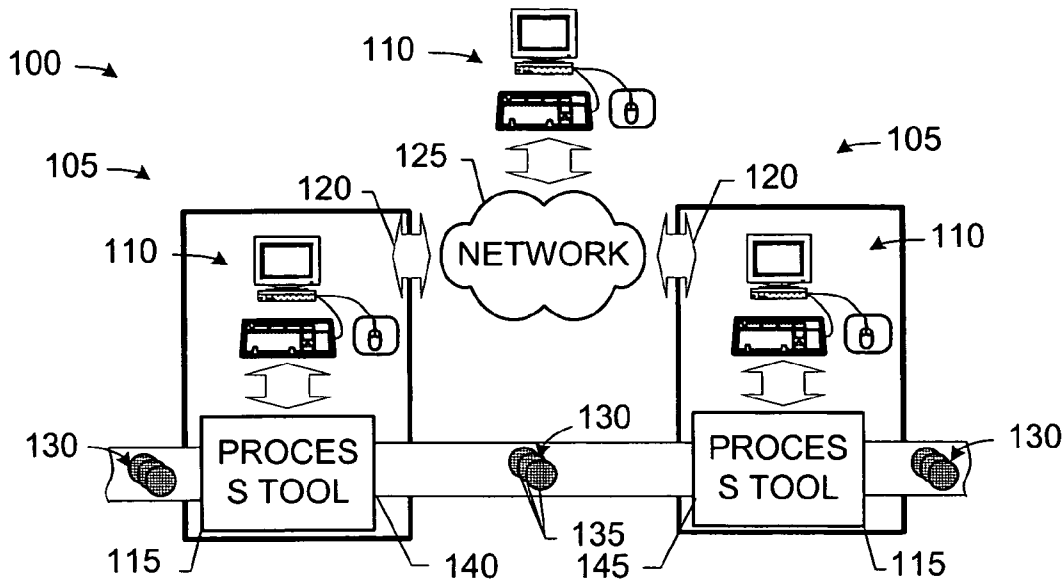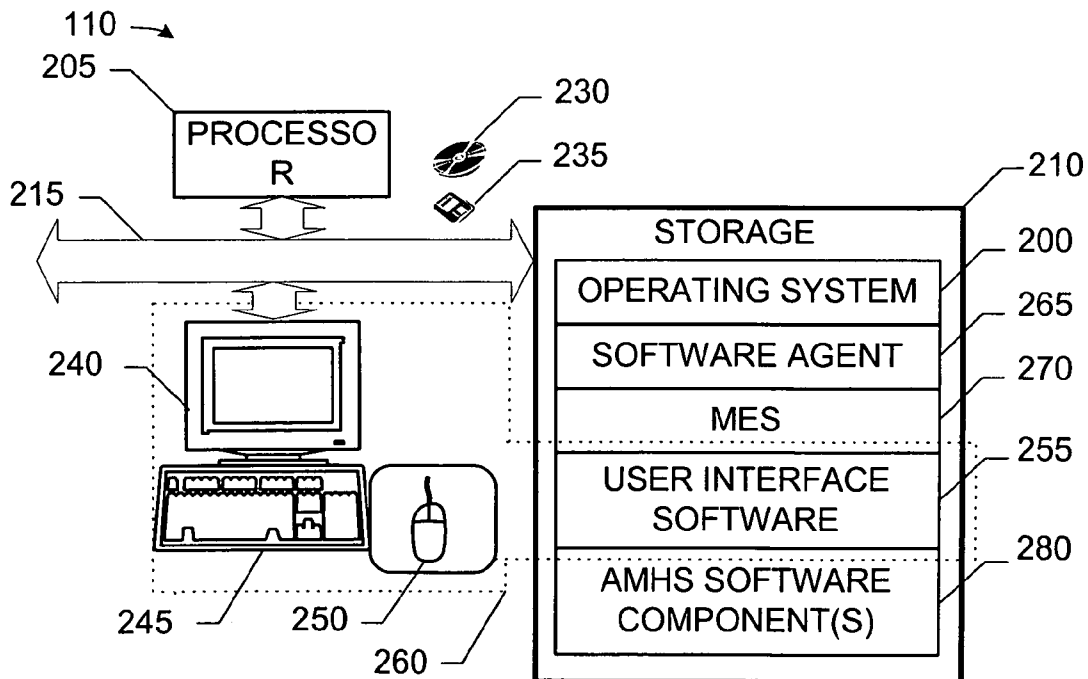
22 Claims, 6 Drawing Sheets

100 →

110 →

105 →

105 →

120

125

120

110 →

110

NETWORK

130

130

130

PROCES S TOOL

PROCES S TOOL

130

115

140

135
145

115

FIG. 1

110 →

205

230

235

210

PROCESSO R

STORAGE

200

215

OPERATING SYSTEM

265

SOFTWARE AGENT

270

MES

255

240

USER INTERFACE SOFTWARE

280

245

250

260

AMHS SOFTWARE COMPONENT(S)

FIG. 2

FIG. 3

FIG. 4

DOCKET ALARM
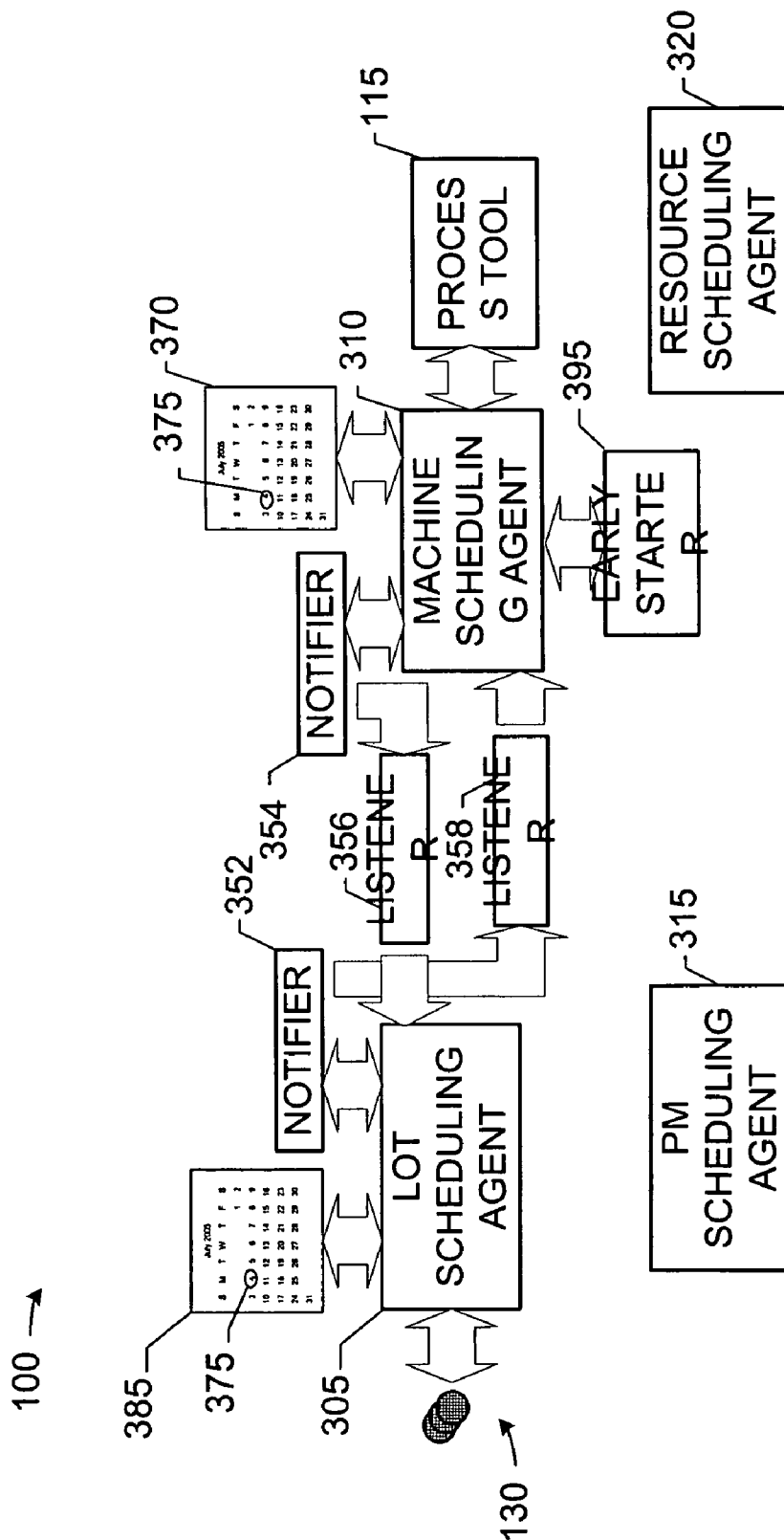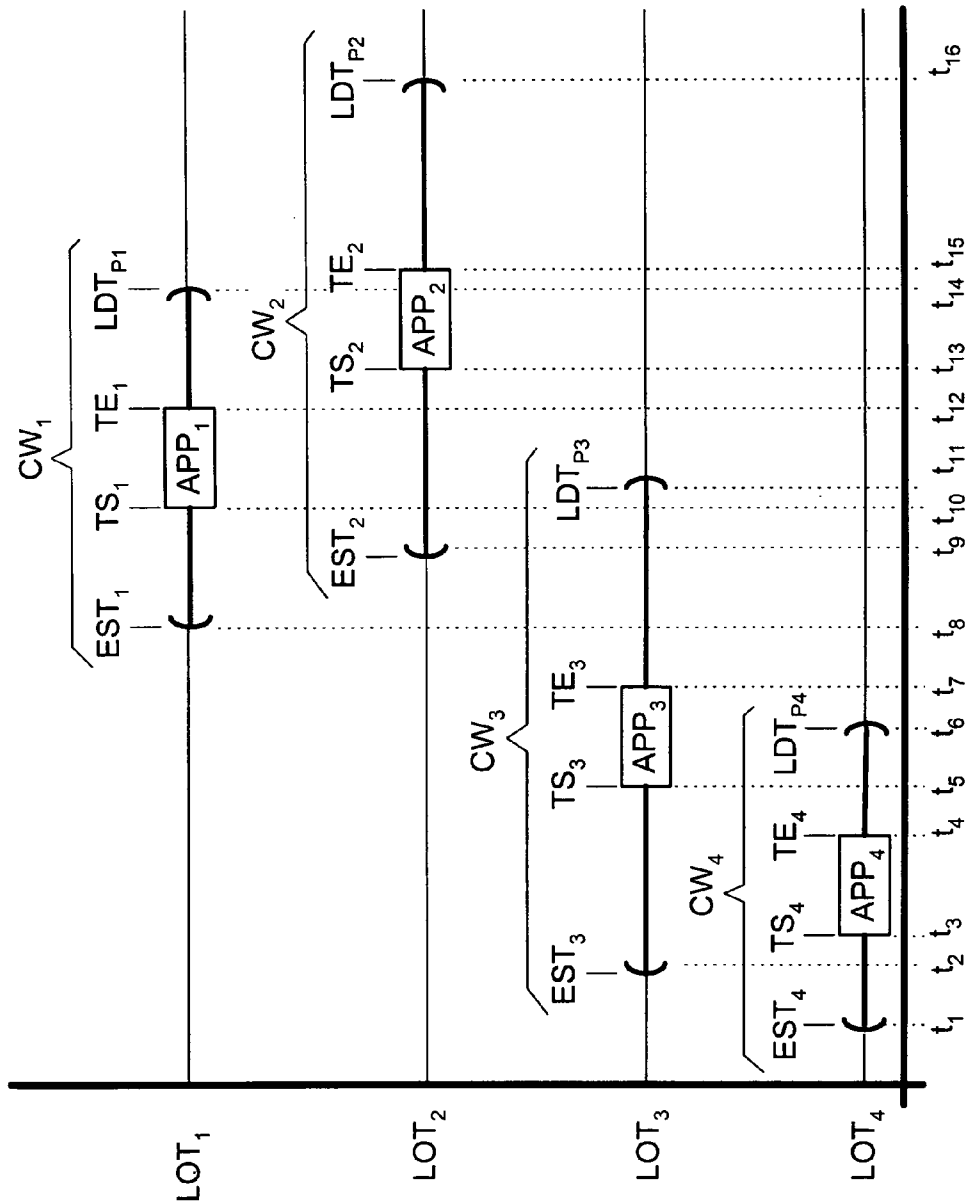
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