

EXHIBIT C

(12) **United States Patent**
Coss, Jr. et al.

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(54) **METHOD AND APPARATUS FOR FAULT DETECTION OF A PROCESSING TOOL AND CONTROL THEREOF USING AN ADVANCED PROCESS CONTROL (APC) FRAMEWORK**

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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 556 days.

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(51) **Int. Cl.⁷** **G06F 11/00**

(52) **U.S. Cl.** **714/48; 700/109; 700/95; 714/742**

(58) **Field of Search** **714/4, 48, 742; 700/109, 139, 95; 438/14**

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,661,669	A	8/1997	Mozumder et al.	364/552
5,740,062	A	4/1998	Berken et al.	364/478.06
5,859,964	A	1/1999	Wang et al.	395/185.01
6,061,640	A *	5/2000	Tanaka et al.	702/81
6,115,643	A *	9/2000	Stine et al.	700/110
6,161,054	A *	12/2000	Rosenthal et al.	700/121
6,232,134	B1 *	5/2001	Farber et al.	438/9
6,263,255	B1 *	7/2001	Tan et al.	700/121
6,314,385	B1 *	11/2001	Kim et al.	702/184

6,315,574	B1 *	11/2001	Kamieniecki et al.	439/16
6,336,055	B1 *	1/2002	Cho	700/121
6,408,399	B1 *	6/2002	Baughman	714/4
6,532,555	B1 *	3/2003	Miller et al.	714/48
6,546,508	B1 *	4/2003	Sonderman et al.	714/48
6,556,881	B1 *	4/2003	Miller	700/108
6,606,582	B1 *	8/2003	Brinkman et al.	702/188

FOREIGN PATENT DOCUMENTS

WO	WO 01/18623	A1	3/2001	G05B/19/418
WO	WO 01/25865	A1	4/2001	G05B/19/418

OTHER PUBLICATIONS

International PCT Search Report dated July 3, 2001 (PCT/US01/21159; TT3217-PCT).

* cited by examiner

Primary Examiner—Scott Baderman

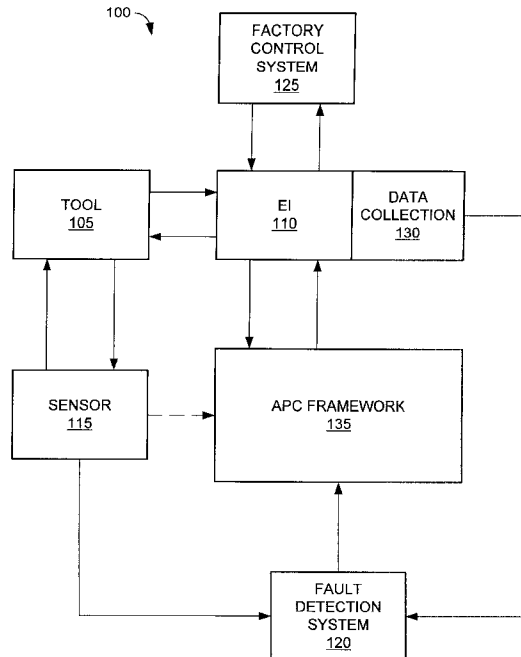
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(57) **ABSTRACT**

A method and apparatus for providing fault detection in an Advanced Process Control (APC) framework. A first interface receives operational state data of a processing tool related to the manufacture of a processing piece. The state data is sent from the first interface to a fault detection unit. A fault detection unit determines if a fault condition exists with the processing tool based upon the state data. A predetermined action is performed on the processing tool in response to the presence of a fault condition. In accordance with one embodiment, the predetermined action is to shut-down the processing tool so as to prevent further production of faulty wafers.

17 Claims, 5 Drawing Sheets



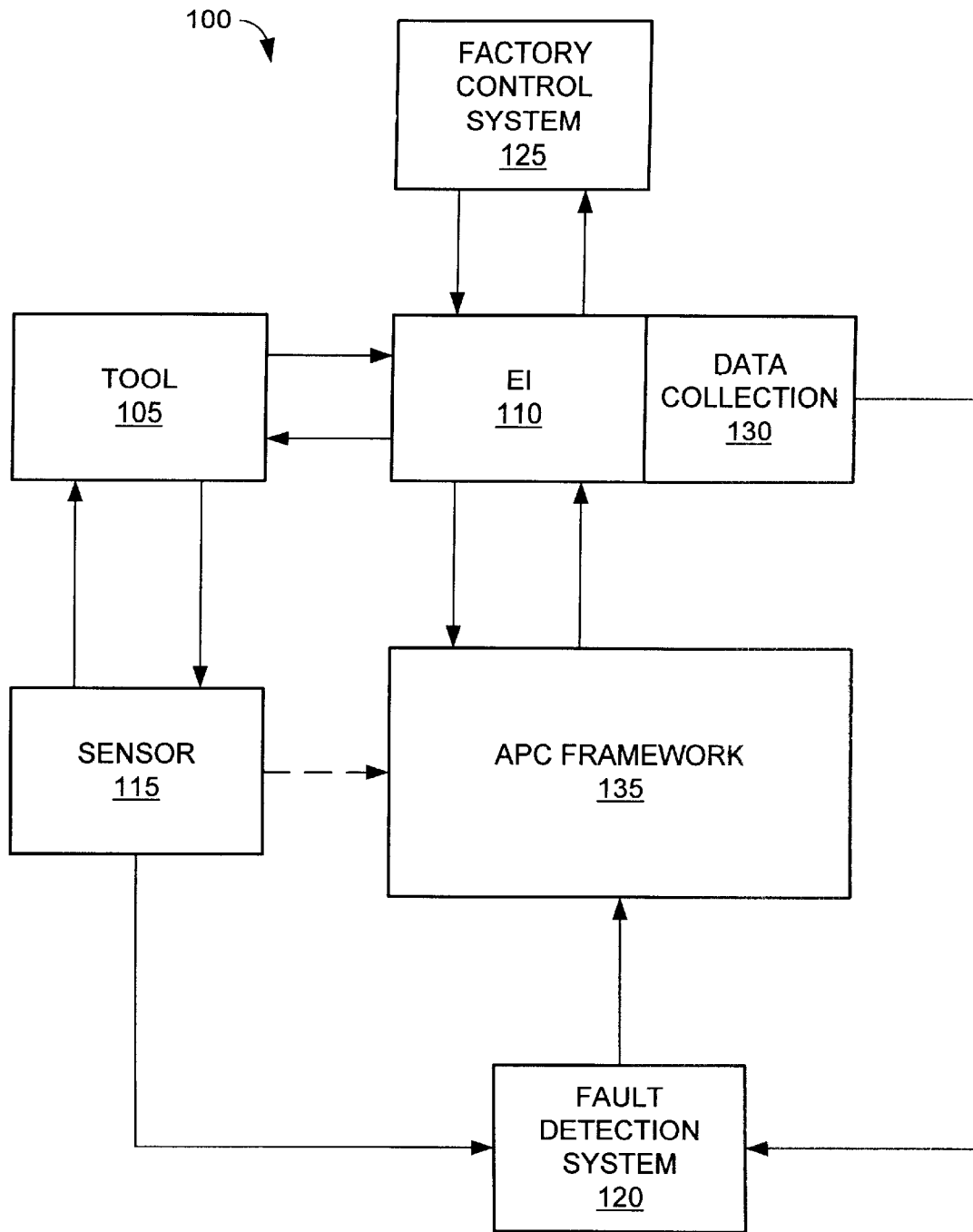


Figure 1

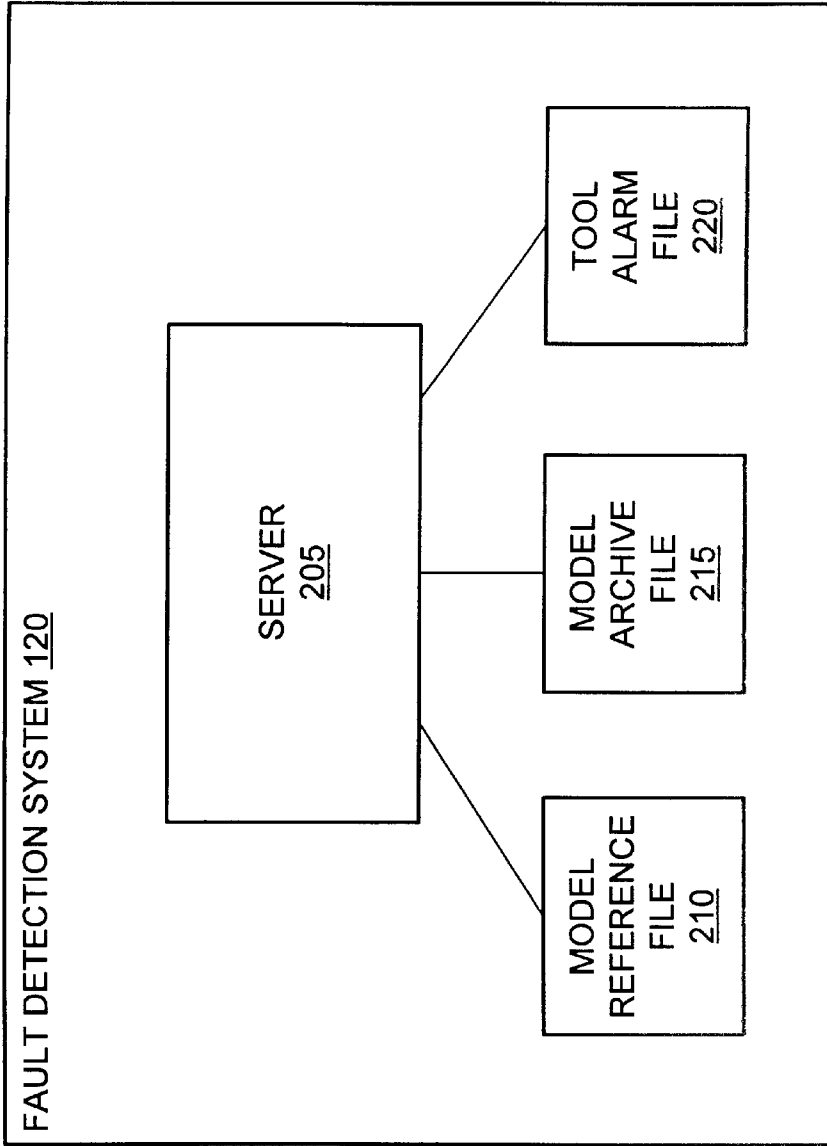


Figure 2

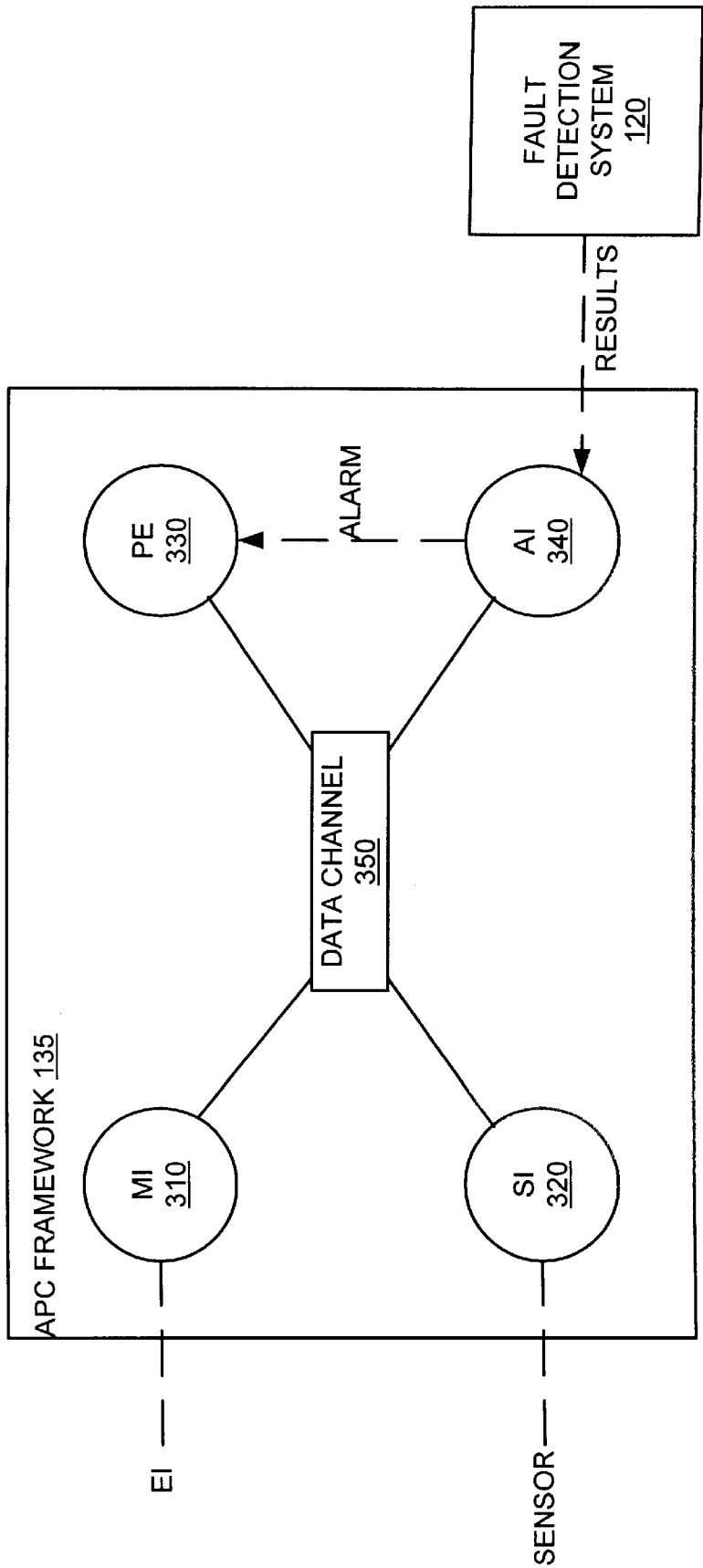


Figure 3

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