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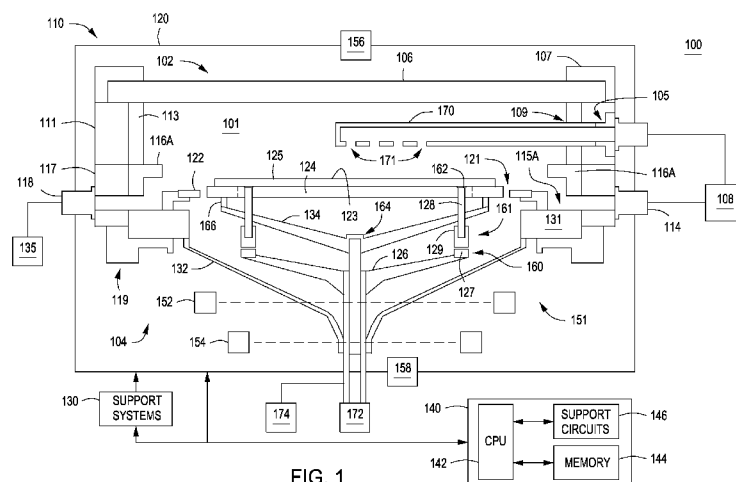


FIG. 1

(57) **Abstract:** Methods and apparatus for deposition of materials on substrates are provided herein. In some embodiments, an apparatus may include a process chamber having a substrate support; a heating system to provide heat energy to the substrate support; a gas inlet port disposed to a first side of the substrate support to provide at least one of a first process gas or a second process gas across a processing surface of the substrate; a first gas distribution conduit disposed above the substrate support and having one or more first outlets disposed along the length of the first gas distribution conduit to provide a third process gas to the processing surface of the substrate, wherein the one or more first outlets are substantially linearly arranged; and an exhaust manifold disposed to a second side of the substrate support opposite the gas inlet port to exhaust the process gases from the process chamber.

A. CLASSIFICATION OF SUBJECT MATTER***H01L 21/205(2006.01)i, H01L 21/8238(2006.01)i***

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean utility models and applications for utility models

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Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKOMPASS(KIPO internal) & Keywords: chamber, substrate, heat, gas, inlet, distribution, and exhaust

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X Y	US 2009-0283038 A1 (GUNJI ISAO et al.) 19 November 2009 See paragraphs [0063]–[0099] and figure 1.	1, 14 13, 15
Y	US 2008-0069951 A1 (JUAN CHACIN et al.) 20 March 2008 See paragraph [0076] and figure 11.	13
Y	US 06095085A A (AGARWAL; VISHNU K.) 01 August 2000 See column 5, lines 25–28; and figure 1.	15
A	US 6450117 B1 (MURUGESH; LAXMAN et al.) 17 September 2002 See column 3, line 21 – column 7, line 44; and figure 1A.	1–15



Further documents are listed in the continuation of Box C.



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