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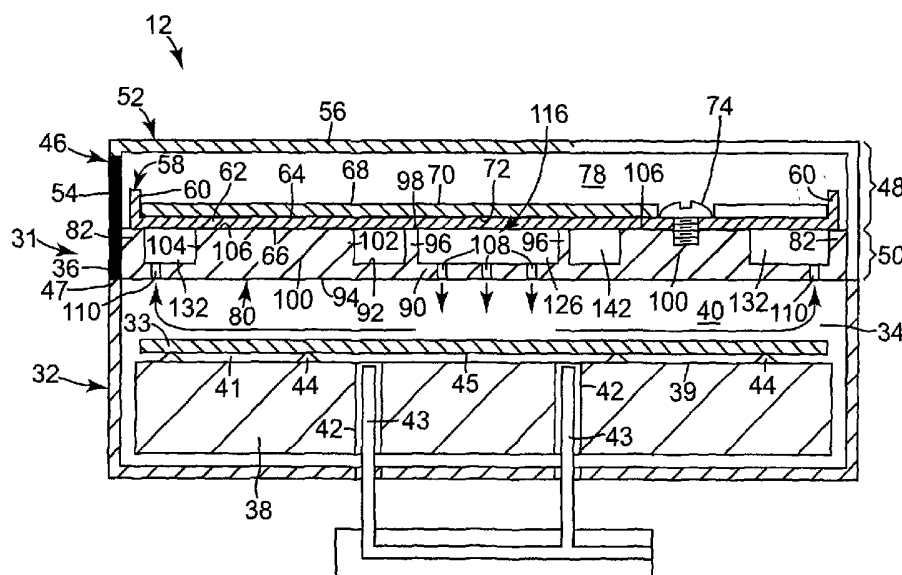
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[Continued on next page]

(54) Title: THERMAL PROCESS STATION WITH HEATED LID



(57) Abstract: Methods and apparatuses to improve the temperature uniformity of a workpiece (33) being processed on a heated platen (38) of a thermal processing station (10). A heated platen (38) is enclosed in a housing (31) incorporating an additional heat source (68) that uniformly outputs thermal energy into the process chamber (34) in which the heated platen (38) is positioned. In preferred embodiments, this heat source is positioned in the lid (46) of the housing. It is additionally preferred that the heated lid (46) includes features that provide a gas flow path to introduce to and/or purge gas from the process chamber (34). In terms of photoresist performance, the improved thermal uniformity provided by using such an additional heat source in the housing, e.g., in the lid, offers improved line width control and line uniformity across a wafer.



— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/24089

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : F27D 1/18; C23C 16/00

US CL : 432/250, 253; 118/725, 728; 219/457

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)

U.S. : 432/250, 253, 258, 247, 237; 118/725, 728; 219/457, 444.1, 390, 405, 443.1; 392/416, 418

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
None

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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6,394,797 B1 (SUGAYA et al) 28 May 2002 (28.05.2002), entire document.	1, 12, 21
A	US 5,906,683 A (CHEN et al) 25 May 1999 (25.05.1999), entire document.	1-23
A	US 6,416,318 B1 (LEE et al) 09 July 2002 (09.07.2002), entire document.	1-23
A	US 6,423,947 B2 (WOMACK et al) 23 July 2002 (23.07.2002), entire document.	1-23
A	US 6,600,138 B2 (HAUF et al) 29 July 2003 (29.07.2003), entire document.	1-23
A	US 6,644,964 B2 (SHIRAKAWA et al) 11 November 2003 (11.11.2003), entire document.	1-23

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

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"A" document defining the general state of the art which is not considered to be of particular relevance	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
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"O" document referring to an oral disclosure, use, exhibition or other means	
"P" document published prior to the international filing date but later than the priority date claimed	

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INTERNATIONAL SEARCH REPORT

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Continuation of B. FIELDS SEARCHED Item 3:

USPAT

search term: wafer, substrate, heat, platen, upper, lower, semiconductor, platen, lid, cover, thermal