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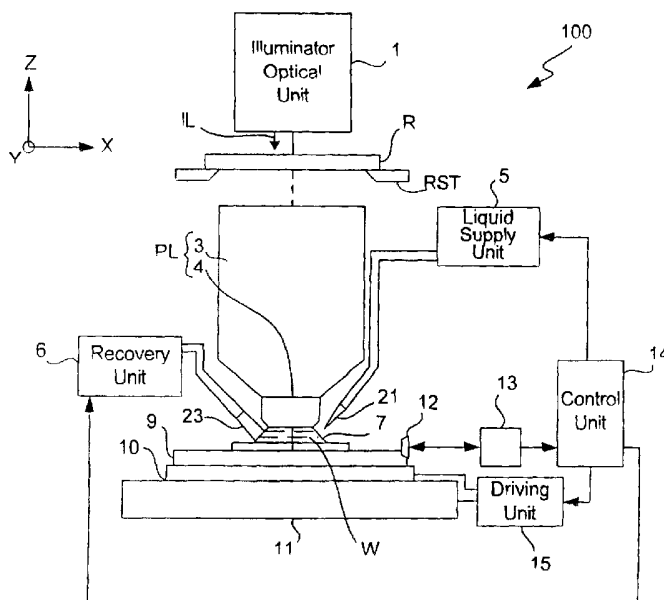
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[Continued on next page]

(54) Title: LIQUID JET AND RECOVERY SYSTEM FOR IMMERSION LITHOGRAPHY



(57) Abstract: A liquid jet and recovery system for an immersion lithography apparatus (100) has arrays of nozzles arranged to have their openings located proximal to an exposure region through which an image pattern is projected on a workpiece (W) such as a wafer. These nozzles are each adapted to serve selectively either as a source nozzle (21) for supplying a fluid (7) into the exposure region or as a recovery nozzle (23) for recovering the fluid from the exposure region. A fluid controlling device (14) functions to cause nozzles on selected one or more sides of the exposure region to serve as source nozzles and those on selected one or more of the remaining sides to serve as recovery nozzles such that a desired flow pattern can be established for the convenience of immersion lithography.



TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

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.

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A. CLASSIFICATION OF SUBJECT MATTER

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US CL : 355/30, 53, 55

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. : 355/30, 53, 55, 72

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

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 --- A	WO99/49504 A1 (FUKAMI ET AL) 30 September 1999 (30.09.1999) see figures 1-3 and 6	1-6, 31-35, 37-39, 41-47, 49, 50-55, 57-59, 61-67, 69, 70 ----- 7-30, 36, 40, 48, 56, 60, 68, 71-74
A	DD 221 563 A1 (PFORR ET AL) 24 April 1985 (24.04.1985) see figures 1 and 3	1-74
A	US 5,825,043 A (SUWA) 20 October 1998 (20.10.1998) see figure 9	1-74

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

☐ See patent family annex.

* Special categories of cited documents:	
"A" document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
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"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"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:

EAST TEXT

Search Terms: immersion and nozzle\$4 and (lithograph\$4 or wafer or substrate)