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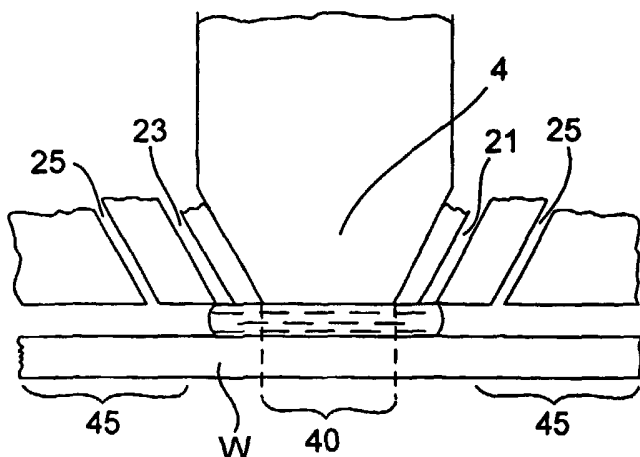
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- (71) Applicant (for all designated States except US): **NIKON CORPORATION** [JP/JP]; 2-3 Marunouchi, 3-Chome, Chiyoda-ku, Tokyo 100-8331 (JP).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): **COON, Derek** [US/US]; 875 Newport Circle, Redwood City, CA 94065 (US). **HAZELTON, Andrew, J.** [US/US]; 409 Phelps Road, San Carlos, CA 94070 (US).
- (74) Agent: **NISHIMURA, Keiichi**; Beyer Weaver & Thomas LLP, P.O. Box 778, Berkeley, CA 94704-0778 (US).
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(54) Title: IMMERSION LITHOGRAPHY FLUID CONTROL SYSTEM



(57) Abstract: A fluid control system for immersion lithography is formed with an optical member (4) such as a lens, a workpiece (W) such as a semiconductor wafer with a surface disposed opposite to the optical member with a gap in between, a fluid-supplying device (21) for providing an immersion fluid (7) such as water to a specified exposure area (40) in the gap, and a fluid control device (25) that activates a force on the fluid so that the immersion fluid is retained in the exposure area and its vicinity at least while the immersion lithography operation is being carried out. A pressured gas may be caused to apply a hydrodynamic force on the fluid to keep it in its place.

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/09911

A. CLASSIFICATION OF SUBJECT MATTER
 IPC(7) : G03B 27/52, 27/42; G02B 1/06
 US CL : 355/30, 53; 359/509, 665
 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; 359/509, 665; 378/34

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	WO 99/49,504 A1 (FUKAMI ET AL) 30 September 1999 (30.09.1999) See Figures 1, 2, and 3, and page 2, lines 36-51, and page 3, lines 11-22, of translation.	1, 13 ----- 2-12, 14-45
A	US 2002/0163629 A1 (SWITKES ET AL) 07 November 2002 (07.11.2002) See Figures 1A and 5.	1, 13
A	US 3,648,587 A (STEVENS) 14 March 1972 (14.03.1972) See Figure 1.	1, 13
A	US 4,480,910 A (TAKANASHI ET AL) 06 November 1984 (06.11.1984) See Figure 2.	1, 13
A	US 4,509,852 A (TABARELLI ET AL) 09 April 1985 (09.04.1985) See Figure 3.	1, 13
A	JP 10-303114 A (USHIDA ET AL) 13 November 1998 (13.11.1998) See Figures 1 and 3.	1, 13
A	JP 06-124873 A (TAKAHASHI ET AL) 06 May 1994 (06.05.1994) See Figure 1.	1, 13

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
"E" earlier application or patent published on or after the international filing date	"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
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"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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 Authorized officer: *Judelle Garkov*, Jose Dees, Telephone No. (571) 272-1569

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/09911

Continuation of B. FIELDS SEARCHED Item 3:

EAST TEXT SEARCH

(immersion near9 (liquid or fluid)) and (wafer or substrate) and (optical or projection)