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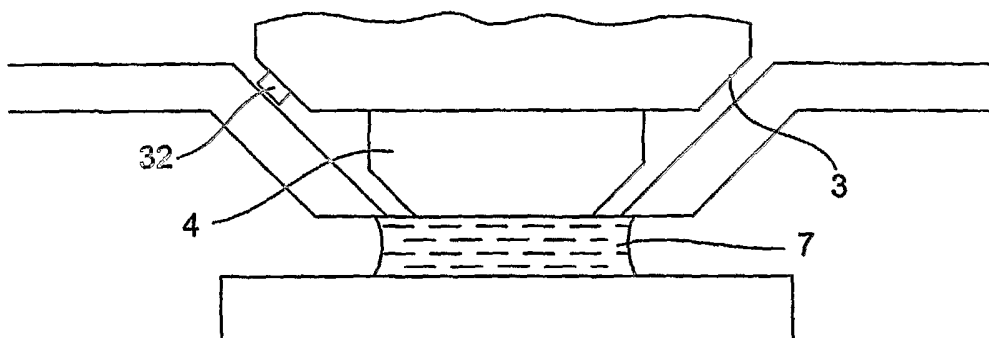
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(54) Title: CLEANUP METHOD FOR OPTICS IN IMMERSION LITHOGRAPHY

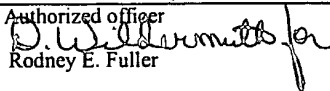


(57) Abstract: An immersion lithography apparatus has a reticle stage (RST) arranged to retain a reticle (R), a working stage (9) arranged to retain a workpiece (W), and an optical system including an illumination source (1) and an optical element (PL) opposite the workpiece for having an image pattern of the reticle projected by radiation from the illumination source. A gap is defined between the optical element (4) and the workpiece (W), and a fluid supplying device serves to supply an immersion liquid (7) into this gap such that the supplied immersion liquid contacts both the optical element (4) and the workpiece (W) during an immersion lithography process. A cleaning device (30) is incorporated for removing absorbed liquid from the optical element (4) during a cleanup process. The cleaning device may make use of a cleaning liquid having affinity to the absorbed liquid, heat, a vacuum condition, ultrasonic vibrations or cavitating bubbles for the removal of the absorbed liquid.

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/10309

<b>A. CLASSIFICATION OF SUBJECT MATTER</b> IPC(7) : G03B 27/42 US CL : 355/53 According to International Patent Classification (IPC) or to both national classification and IPC		
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<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6,496,257 B1 (TANIGUCHI et al) 17 December 2002 (17.12.2002), column 19, lines 5-57.	1-41
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/> See patent family annex.		
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Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703) 305-3230		Authorized officer  Rodney E. Fuller Telephone No. 571-272-2800