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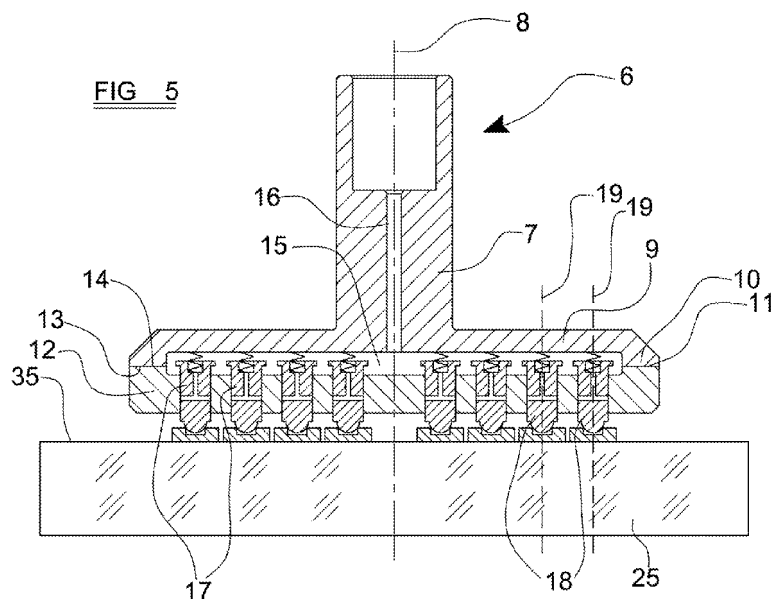
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(54) **Tool for smoothing or polishing optical surfaces**

(57) There is disclosed a tool for smoothing or polishing an optical surface (35). The tool comprises a body part (6) which is rotatable about an axis of rotation (8), a plurality of pads (26) arranged in an array to bear against said optical surface (35) for movement across the surface (35) as the tool is rotated about said axis of rotation (8), wherein said pads (26) are each mounted for substantially linear movement relative to said body part (6) in a direction substantially normal to said surface (35) in the

region where the pad contacts the surface and universal pivotal movement relative to said body part (6). The pads (26) are biased towards said optical surface (35). In a preferred arrangement, a plurality of pistons (18) are mounted for individual reciprocating movement relative to the body part (6) along respective longitudinal axes (19), each of said pistons (18) having a distal end (21) to which a respective said pad (26) is universally articulated, wherein said pistons (18) are each biased towards said optical surface (35).





## EUROPEAN SEARCH REPORT

Application Number  
EP 11 15 2330

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
Y	JP 10 286777 A (NIPPON KOGAKU KK) 27 October 1998 (1998-10-27) * the whole document *	1-4,10, 12-15	INV. B24B13/02 B24B13/01
Y	WO 01/56740 A1 (ZEISS CARL [DE]; ZEISS STIFTUNG [DE]; KUEBLER CHRISTOPH [DE]) 9 August 2001 (2001-08-09) * figure 1 * * page 2, line 19 - line 25 *	1-4,10, 12-15	
Y	JP 9 323249 A (NIPPON KOGAKU KK) 16 December 1997 (1997-12-16) * the whole document *	1-4, 12-15	
			TECHNICAL FIELDS SEARCHED (IPC)
			B24B
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 9 November 2012	Examiner Endres, Mirja
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons ..... & : member of the same patent family, corresponding document	

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**ANNEX TO THE EUROPEAN SEARCH REPORT  
ON EUROPEAN PATENT APPLICATION NO.**

EP 11 15 2330

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.  
The members are as contained in the European Patent Office EDP file on  
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09-11-2012

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
JP 10286777 A	27-10-1998	NONE	
-----			
WO 0156740 A1	09-08-2001	AU 3728501 A	14-08-2001
		DE 10100860 A1	23-08-2001
		EP 1251997 A1	30-10-2002
		EP 1386694 A1	04-02-2004
		JP 4945771 B2	06-06-2012
		JP 2003525756 A	02-09-2003
		TW 558477 B	21-10-2003
		US 2003045211 A1	06-03-2003
		US 2005037695 A1	17-02-2005
		US 2008020691 A1	24-01-2008
		WO 0156740 A1	09-08-2001
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JP 9323249 A	16-12-1997	NONE	
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