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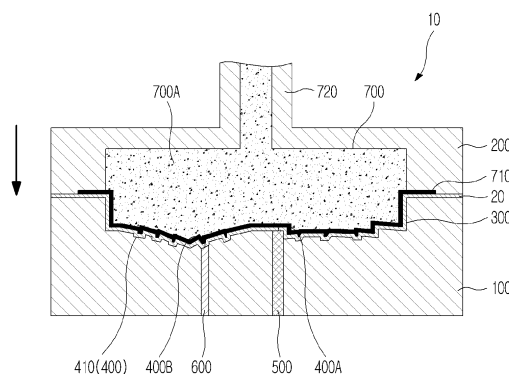
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(54) **Patterning apparatus and patterning method using the same**

(57) A patterning apparatus (10) includes a first die (100) and a second die (200) to press a metal member (20), a liquid type medium containing unit (700) to contain a liquid type medium (700A), a three-dimensional forming unit (300) formed at at least one of the first (100) and second (200) dies, the three-dimensional forming unit (300) contacting the metal member when the medium presses the metal member (20), and a pattern processing unit (400) formed at the three-dimensional forming unit (300). A patterning method includes providing a metal

member (20) to a first die (100), moving a second die (200) downward to the top of the metal member (20), providing a liquid type medium (700A) to the metal member (20), pressing the metal member (20) using the medium (700A) such that the metal member (20) contacts a three-dimensional forming unit (300) formed at at least one of the first (100) and second (200) dies, and pressing the metal member (20) such that the metal member (20) contacts a pattern processing unit (400) formed at the three-dimensional forming unit (300).

FIG. 2





EUROPEAN SEARCH REPORT

Application Number
EP 10 18 7544

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	EP 1 666 170 A1 (NAKAMURA KATSUAKI [JP]) 7 June 2006 (2006-06-07) * the whole document * -----	1-14	INV. B44B5/00 B21D26/021
X	EP 0 974 411 A1 (MELEGHY HYDROFORMING GMBH & CO [DE]) 26 January 2000 (2000-01-26) * the whole document * -----	1-14	
X	EP 1 413 370 A1 (ARACO KK [JP]) 28 April 2004 (2004-04-28) * paragraph [0078] - paragraph [0079]; figures 1-4 * -----	1-14	
X	JP 2002 102949 A (HONDA MOTOR CO LTD) 9 April 2002 (2002-04-09) * the whole document * -----	1-14	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (IPC)
			B44B B21D
Place of search		Date of completion of the search	Examiner
Munich		13 February 2014	Vinci, Vincenzo
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.**

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The members are as contained in the European Patent Office EDP file on
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13-02-2014

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
EP 1666170	A1	07-06-2006	CN 1842381 A	04-10-2006
			EP 1666170 A1	07-06-2006
			JP 4673221 B2	20-04-2011
			KR 20060117304 A	16-11-2006
			US 2007018356 A1	25-01-2007
			WO 2005021178 A1	10-03-2005

EP 0974411	A1	26-01-2000	AT 208667 T	15-11-2001
			DE 19833550 A1	03-02-2000
			EP 0974411 A1	26-01-2000
			ES 2169581 T3	01-07-2002
			US 6286351 B1	11-09-2001

EP 1413370	A1	28-04-2004	DE 60308789 T2	16-08-2007
			EP 1413370 A1	28-04-2004
			JP 2004195548 A	15-07-2004
			US 2004079128 A1	29-04-2004

JP 2002102949	A	09-04-2002	JP 4486244 B2	23-06-2010
			JP 2002102949 A	09-04-2002
