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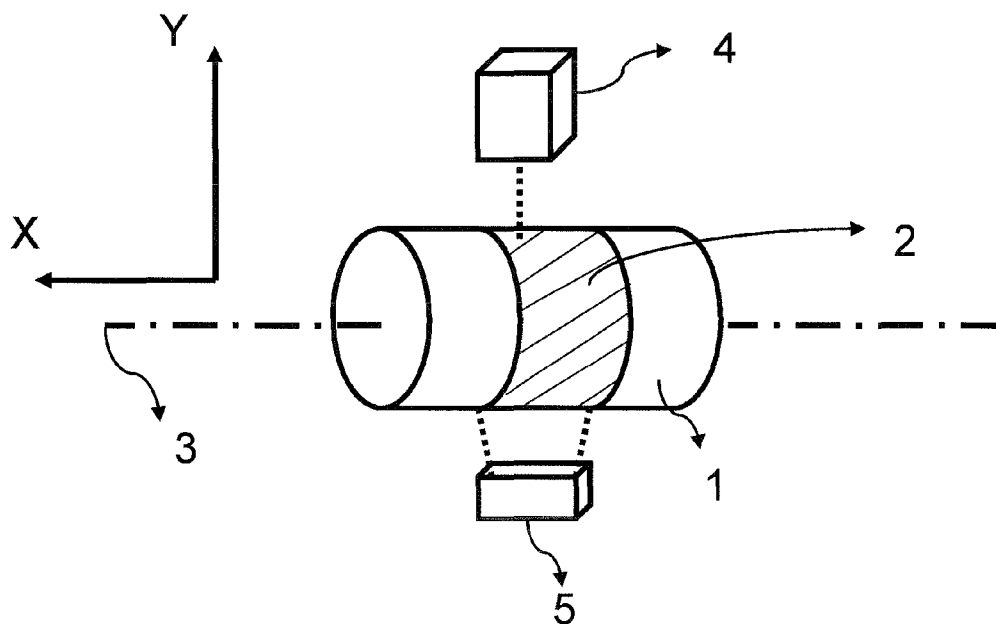
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[Continued on next page]

(54) **Title:** 3D-INKJET PRINTING METHODS



(57) **Abstract:** A 3D-inkjet printing method comprising the steps of: a) providing two or more fluids having a different composition to an inkjet printer; b) mixing the two or more fluids in a controlled amount; and c) jetting the mixture of the two or more fluids with the inkjet printer onto a support; d) at least partially curing the jetted mixture by actinic radiation or electron beam; and e) repeating steps b) to d) in order to build a 3D-relief on the support. Printed 3D-objects, inkjet fluid sets and inkjet printers are also disclosed.

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

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# INTERNATIONAL SEARCH REPORT

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**A. CLASSIFICATION OF SUBJECT MATTER**  
**INV. B29C67/00**

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)  
**B29C B41J**

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 practical, search terms used)

EPO-Internal , **WPI Data**

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X  Y          Y	US 2005/040564 A1 (OLIVER JONES [US] ET AL) 24 February 2005 (2005-02-24)  paragraphs [0004] - [0006], [0015], [0016], [0022], [0024], [0025], [0029] - [0031], [0038] figures 1-3  ----- WO 2004/063295 A (QINETIQ NANOMATERIALS LTD [GB]; WALKER LAURA DIANE [GB]) 29 July 2004 (2004-07-29) page 1, lines 3,4 page 2, line 24 - line 28 page 4, lines 7,8 page 8, line 12 - line 15 figures 1,2  ----- -/--	1-12, 14-19,22 20,21          20,21

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 'E' earlier document but published on or after the international filing date '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) 'O' document referring to an oral disclosure, use, exhibition or other means 'P' document published prior to the international filing date but later than the priority date claimed	'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 '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 '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. '&' document member of the same patent family
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Date of the actual completion of the international search	Date of mailing of the international search report
<b>10 July 2008</b>	17/07/2008

Name and mailing address of the ISA/ European Patent Office; P.B 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel (+31-70) 340-2040, Tx. 31 651 epo nl, Fax (+31-70) 340-3016	Authorized officer  <b>Ul Irich, Kl aus</b>
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International application No <b>PCT/EP2007/064161</b>
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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>EP 1 437 882 A (AGFA GEVAERT [BE])                      14 July 2004 (2004-07-14)                      thei whole document</p> <p align="center">-----</p>	11-13
A	<p>WO 03/016067 A (CORP Z [US])                      27 February 2003 (2003-02-27)                      line 18 - page 2, line 6                      page 2, line 17 - line 29                      page 11, line 27 - page 12, line 1</p> <p align="center">-----</p>	1-22
A	<p>WO 01/34371 A (CORP Z [US])                      17 May 2001 (2001-05-17)                      page 1, lines 10,11                      page 23, line 14 - line 25                      figure 2</p> <p align="center">-----</p>	1-22
A	<p>US 6 464 336 B1 (SHARMA RAVI [US])                      15 October 2002 (2002-10-15)                      column 3, line 34 - column 5, line 6                      figures 1,3</p> <p align="center">-----</p>	1-22
A	<p>US 6 550 892 B1 (SHARMA RAVI [US])                      22 April 2003 (2003-04-22)                      column 2, line 43 - column 3, line 11                      column 4, line 4 - line 40                      figure 1</p> <p align="center">-----</p>	1-22

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2005040564	A1	24-02-2005	NONE
UO 2004063295	A	29-07-2004	GB 2411406 A 31-08-2005
EP 1437882	A	14-07-2004	JP 2004203031 A 22-07-2004
WO 03016067	A	27-02-2003	CA 2447573 A1 27-02-2003 EP 1385704 A2 04-02-2004 JP 2004538191 T 24-12-2004
wo <b>0134371</b>	A	17-05-2001	CA 2388046 A1 17-05-2001 DE 60008778 D1 08-04-2004 DE 60008778 T2 10-02-2005 EP 1226019 A2 31-07-2002 HK 1048617 A1 03-12-2004 JP 2003515465 T 07-05-2003 US 2006208388 A1 21-09-2006
US 6464336	B1	15-10-2002	NONE
US 6550892	B1	22-04-2003	EP 1310374 A1 14-05-2003