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(54) **Title:** DIRECT PRINTING TO FABRIC

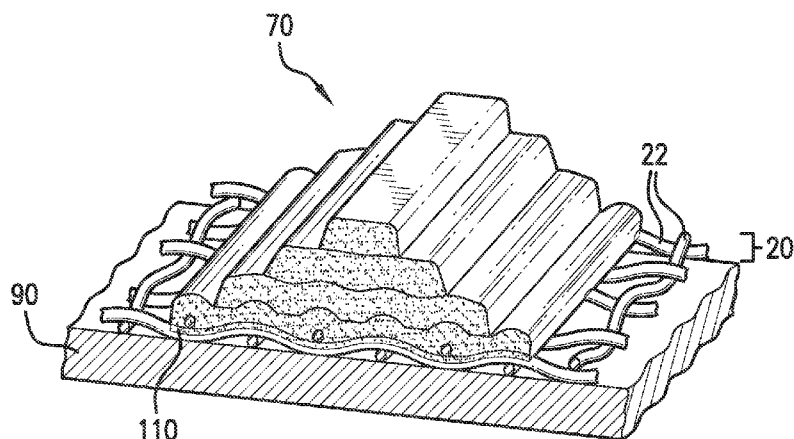


FIG. 12

(57) **Abstract:** Methods and systems are disclosed for three-dimensional printing directly onto an article of apparel. Disclosed is a method and system for direct three-dimensional printing onto an article of apparel, including designing a three-dimensional pattern for printing onto the article, positioning at least a portion of the article on a tray in a three-dimensional printing system, the portion being positioned substantially flat on the tray, printing a three-dimensional material directly onto the article using the designed pattern, curing the printed material, and removing the article from the three-dimensional printing system.



INTERNATIONAL SEARCH REPORT

International application No
PCT/US2013/050879

A. CLASSIFICATION OF SUBJECT MATTER

INV. B29C67/00 A43B23/02 B29C70/68 A43B3/00
ADD.

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 A43B A43D

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)

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	US 2010/095557 A1 (JARVIS KELLY B [US]) 22 April 2010 (2010-04-22) the whole document	1-37
X	US 2008/147219 A1 (JONES DAVID P [US] ET AL) 19 June 2008 (2008-06-19) paragraph [0011] - paragraph [0017] paragraph [0031] - paragraph [0039] paragraph [0056] - paragraph [0061] paragraph [0142] - paragraph [0155] paragraph [0192] - paragraph [0196] paragraph [0207] figures ----- -/-	1-37



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 application or patent 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

Date of the actual completion of the international search

7 November 2013

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18/02/2014

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INTERNATIONAL SEARCH REPORT

International application No
PCT/US2013/050879

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 03/041875 A1 (VANTICO AG [CH]; MATSUMOTO YONETATSU [JP]; STUDER PEGGY DIANE [FR]; ZH) 22 May 2003 (2003-05-22) page 2, paragraph 5 - page 4, paragraph 2 page 6, paragraph 3 - page 7, paragraph 2 page 10, paragraph 4 - page 11, paragraph 2 page 12, paragraph 5 - page 18, paragraph 2 -----	1-37
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X	US 2012/105534 A1 (BODAY DYLAN J [US] ET AL) 3 May 2012 (2012-05-03) figures 2,3 paragraph [0014] - paragraph [0047] -----	1-13
X	US 2012/055044 A1 (DOJAN FREDERICK J [US] ET AL) 8 March 2012 (2012-03-08) paragraph [0026] - paragraph [0029] paragraph [0035] paragraph [0038] - paragraph [0039] paragraph [0043] - paragraph [0050] -----	1-37
X,P	EP 2 594 146 A1 (ADIDAS AG [DE]) 22 May 2013 (2013-05-22) the whole document -----	1-13

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2013/050879

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-37

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- ☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-37

method and system for fabricating an article of apparel by
printing three-dimensional material directly onto portions
of the article

2. claim: 38

system for 3D printing comprising print server and switching
device

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2013/050879

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