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(54) **Title:** SELECTIVE LASER SOLIDIFICATION APPARATUS AND METHOD

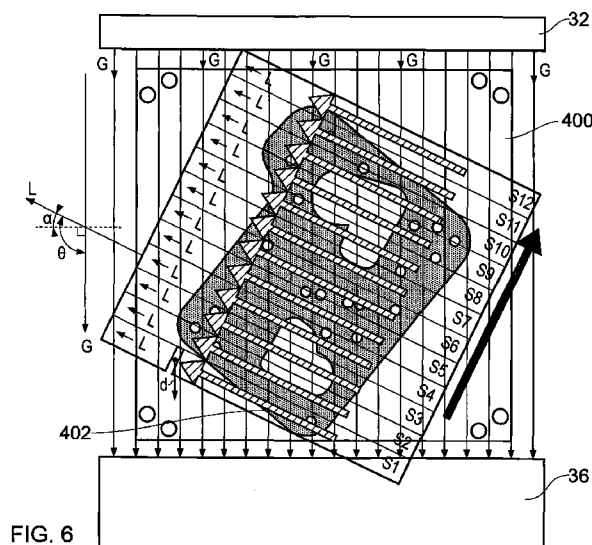


FIG. 6

(57) **Abstract:** Selective laser solidification apparatus (2) is described that comprises a powder bed (6; 200; 300) onto which a powder layer (400; 500) can be deposited and a gas flow unit (30) for passing a flow of gas over the powder bed along a predefined gas flow direction (G). A laser scanning unit (20) is provided for scanning a laser beam (22) over the powder layer (400; 500) to selectively solidify at least part of the powder layer (400; 500) to form a required pattern (402; 502). The required pattern (402; 502) is formed from a plurality of stripes or stripe segments (S1-S12) that are formed by advancing the laser beam (22) along the stripe or stripe segment (S1-S12) in a stripe formation direction (L). The stripe formation direction (L) is arranged so that it always at least partially opposes the predefined gas flow direction (G). A corresponding method is also described.

INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER

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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 B22F B28B

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)

EP0-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	WO 92/08592 A1 (DTM CORP [US]) 29 May 1992 (1992-05-29) page 1, line 5 - line 7 page 3, line 25 - page 5, line 6 page 9, paragraph page 11, line 4 - line 30 page 14, line 19 - page 16, line 7 page 17, line 31 - page 18, line 25 figures 1-6	1,2, 5-15,17
X	DE 10 2004 031881 A1 (CONCEPT LASER GMBH [DE] CL SCHUTZRECHTSVERWALTUNGS GMB [DE]) 26 January 2006 (2006-01-26) paragraph [0001] paragraph [0004] - paragraph [0005] paragraph [0017] - paragraph [0024] claims; figures ----- -/--	1,2, 5-15,17



Further documents are listed in the continuation of Box C.



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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.
X	FERRAR B ET AL: "Gas flow effects on selective laser melting (SLM) manufacturing performance", JOURNAL OF MATERIALS PROCESSING TECHNOLOGY, ELSEVIER, NL, vol. 212, no. 2, 26 September 2011 (2011-09-26), pages 355-364, XP028119930, ISSN: 0924-0136, DOI: 10.1016/J.JMATPROTEC.2011.09.020 [retrieved on 2011-10-02] page 356, left-hand column, paragraph 1 page 356, right-hand column - page 357, left-hand column, paragraph 2.4 page 361, right-hand column, paragraph 4 - page 363, left-hand column -----	1-14,16,17
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INTERNATIONAL SEARCH REPORT

Information on patent family members

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