

Under the Paperwork Reduction Act of 1995 no persons are required to respond to a collection of information unless it displays a valid OMB control number

THIRD-PARTY SUBMISSION UNDER 37 CFR 1.290	Application Number (required): 12/687,996
(Do <u>not</u> submit this form electronically via EFS-Web)	

U.S. PATENTS AND U.S. PATENT APPLICATION PUBLICATIONS

Cite No.	Document Number	Issue Date or Publication Date	First Named Inventor
	Number-Kind Code ¹	MM/DD/YYYY	
1	US- 2004/0089983-A1	05/13/2004	Vikram R. Jamalabad
	US-		
	US-		
	US-		
	US-		
	US-		
	US-		
	US-		
	US-		
	US-		

FOREIGN PATENTS AND PUBLISHED FOREIGN PATENT APPLICATIONS

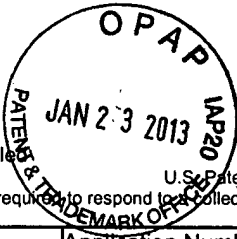
Cite No.	Country or Patent Office and Document Number	Publication Date	Applicant, Patentee or First Named Inventor	Translation Attached
	Country Code ² -Number ³ -Kind Code ⁴	MM/DD/YYYY		
2	EP-0666164-A2	08/09/1995	Steven R. Abrams	<input type="checkbox"/>
				<input type="checkbox"/>
				<input type="checkbox"/>
				<input type="checkbox"/>
				<input type="checkbox"/>
				<input type="checkbox"/>
				<input type="checkbox"/>
				<input type="checkbox"/>
				<input type="checkbox"/>

1. If known, enter kind of document by the appropriate symbols indicated on the document under WIPO Standard ST.16. See MPEP 901.04(a). 2. Enter the country or patent office that issued the document by two-letter country code under WIPO Standard ST.3. See MPEP 1851. 3. For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. 4. If known, enter kind of document by the appropriate symbols indicated on the document under WIPO Standard ST.16. See MPEP 901.04(a).

This collection of information is required by 35 U.S.C. 122(e) and 37 CFR 1.290. The information is required to obtain or retain a benefit by the public, which is to update (and by the USPTO to process) the file of a patent or reexamination proceeding. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 10 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Doc Code: IDS

Document Description: Information Disclosure Statement Filed



PTO/SB/429 (08-12)

Approved for use through 07/31/2015. OMB 0651-0062

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995 no persons are required to respond to a collection of information unless it displays a valid OMB control number

THIRD-PARTY SUBMISSION UNDER 37 CFR 1.290

(Page 2 of 2)

Application Number (required): 12/687,996

NON-PATENT PUBLICATIONS (e.g., journal article, Office action)

Cite No.	Author (if any), title of the publication, page(s) being submitted, publication date, publisher (where available), and place of publication (where available)	Translation Attached	Evidence of Publication Attached
3	E.E. Barton & I. Buchanan, "The Polygon Package," Computer-Aided Design vol. 12 no. 1, pp. 3-11, January 1980, Elsevier Ltd.	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>

STATEMENTS

The party making the submission is not an individual who has a duty to disclose information with respect to the above-identified application under 37 CFR 1.56.

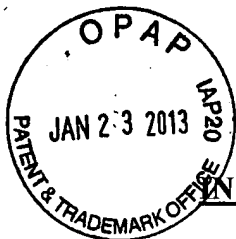
This submission complies with the requirements of 35 U.S.C. 122(e) and 37 CFR 1.290.

- The fee set forth in 37 CFR 1.290(f) is submitted herewith.
- The fee set forth in 37 CFR 1.290(f) is not required because this submission lists three or fewer total items and, to the knowledge of the person signing the statement after making reasonable inquiry, this submission is the first and only submission under 35 U.S.C. 122(e) filed in the above-identified application by the party making the submission or by a party in privity with the party.

Signature	<i>Kit Walsh</i>	Date	1/22/2013
Name (Printed/Typed)	Kit Walsh	Reg. No., if applicable	

Examiner Signature*		Date Considered	
---------------------	--	-----------------	--

*EXAMINER: Signature indicates all items listed have been considered, except for citations through which a line is drawn. Draw line through citation if not considered. Include a copy of this form with next communication to applicant.



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No: 12/687,996 Confirmation No.: 2663
Inventor(s): Erik K. Heide
Filed: January 15, 2010
Art Unit: 2121
Examiner: Von Buhr, Maria N.
For: Method for Generating and Building Support Structures with
Deposition-Based Digital Manufacturing Systems

Petitioners: Electronic Frontier Foundation

THIRD-PARTY PREISSUANCE SUBMISSION UNDER 37 C.F.R. § 1.290
CONCISE DESCRIPTION OF RELEVANCE

Cite No. 1 – Document Number US 2004/0089983

Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Dear Examiner Von Buhr:

Listed on accompanying Form PTO/SB/429 are documents that may be considered material to the patentability of this application pursuant to 37 C.F.R. § 1.290. Copies of the patents or publications cited are enclosed, except as waived by 37 C.F.R. § 1.290(d)(3).

In accordance with 37 C.F.R. § 1.290(d)(2), Petitioners' undersigned representative submits the following concise description of relevance for the Jamalabad reference (US 2004/0089983) ("Jamalabad"), Cite No. 1 on Form PTO/SB/429:

Jamalabad discloses a method for generating removable support structures having substantially less volume and requiring less build time than conventional support structures in Fused Deposition Modeling (FDM) systems. *See* Jamalabad at ¶¶ 0007, 0017-0018, 0071. Such a method is significantly similar to the support generation technique for deposition-based digital manufacturing systems described in ¶¶ 0002-0004, 0014 of the Specification and recited by Claims 1-3, 8-9, 13, and 15-16 of the instant

Application. Specifically, Jamalabad teaches a method for generated minimized support structures that accepts two-dimensional curves—which can be approximated as poly-lines or a series of ordered points—for each layer as input, representing the inner and outer perimeters of the model material. *See* Jamalabad at ¶¶ 0018-0019, 0076. Such two-dimensional curves and ordered points are analogous to the boundary polygon and vertices of a layer of support structure recited by independent Claims 1, 8, and 15, and their respective dependent claims.

Jamalabad also teaches that the layers of support material are to be processed iteratively from top to bottom, with each layer indented or offset from the layer immediately above it. *See* Jamalabad at ¶¶ 0072-0076; 0091-0097; Fig 18. This method performs the same function as the polygon offsetting procedures recited in Claims 1-4, 8-11, 13, and 15-17. Moreover, Jamalabad teaches that the indent should vary between about one-tenth and about one-half of a bead diameter, much as ¶¶ 0037, 0041-0042 of the Specification require the first, second, and third “vertex travel distance[s]” vary between about 15% and 50% of the road width. *See* Jamalabad at ¶¶ 0072-0074. Thus, Figures 14A-15C (described in ¶¶ 0071-0077) of Jamalabad illustrate cross-sectional views of generated support structures that are substantially similar to the planar views illustrated in Figures 4A-6H of the Application. Finally, Jamalabad teaches a procedure for tool path generation for minimized support structures, as recited by Claims 14 and 15 of the Application. *See* Jamalabad at ¶ 0020-0021, 0077, 0101; Fig. 20.

Should Examiner or the Office find that the above statement of relevance, or any portion thereof, is non-compliant with some requirement of 37 C.F.R. § 1.290, Petitioners respectfully request the third-party submission be entered if the error is of such minor character that it does not raise an ambiguity as to the content of the submission. *See* 70 Fed. Reg. 42,150, 42,168 (July 17, 2012).

Respectfully submitted,

ELECTRONIC FRONTIER FOUNDATION

By its counsel,

A handwritten signature in black ink that reads "Kit Walsh". The signature is written in a cursive style and is positioned above a solid horizontal line.

Kit Walsh
Clinical Instructional Fellow, Cyberlaw Clinic,
Berkman Center for Internet and Society
Harvard Law School
23 Everett Street, 2nd Floor
Cambridge, MA 02138
Phone: (617) 495-7547
Fax: (617) 495-7641

Date: January 22, 2013

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No: 12/687,996 Confirmation No.: 2663
Inventor(s): Erik K. Heide
Filed: January 15, 2010
Art Unit: 2121
Examiner: Von Buhr, Maria N.
For: Method for Generating and Building Support Structures with
Deposition-Based Digital Manufacturing Systems

Petitioners: Electronic Frontier Foundation

THIRD-PARTY PREISSUANCE SUBMISSION UNDER 37 C.F.R. § 1.290
CONCISE DESCRIPTION OF RELEVANCE

Cite No. 2 – Document Number EP-0666164 A2

Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Dear Examiner Von Buhr:

Listed on accompanying Form PTO/SB/429 are documents that may be considered material to the patentability of this application pursuant to 37 C.F.R. § 1.290. Copies of the patents or publications cited are enclosed, except as waived by 37 C.F.R. § 1.290(d)(3).

In accordance with 37 C.F.R. § 1.290(d)(2), Petitioners' undersigned representative submits the following concise description of relevance for the Abrams reference (EP-0666164 A2) ("Abrams"), Cite No. 2 on Form PTO/SB/429:

Abrams discloses a part fabrication method that substantially reduces the manufacturing time and amount of support material required for a large class of geometries, including those that comprise an "overhang." *See* Abrams at col. 2, ll. 14-18, 22-27, 44-58; col. 3, ll. 1-3. Such a method is substantially similar in its approach and its intended benefits to the structure generation technique described in ¶ 0014 of the Specification and recited by Claims 1-20 of the instant Application. Specifically, Abrams

teaches a continuous extrusion part fabrication method whereby new material is “shelved” horizontally out from the base material such that the moment induced by vertical gravitational force on an unsupported overhang is substantially resisted by adhesion of the new material to the base material. *See* Abrams at col. 1, ll. 31-47; col. 2, ll. 28-41; col. 4, ll. 28-32. Such an extrusion-based system is an example of a deposition-based digital manufacturing system as described in ¶¶ 0002-0004 of the Specification and recited by Claims 1-3, 8-9, 13, and 15-16. Though much of Abrams is directed to building layers of model material, as shown in Figures 5-7, a preferred embodiment teaches the use of shelving in generating support structures, as shown in Figure 4. *See* Abrams at col. 10, ll. 21-44; Figs. 4-7. The polygon offsetting procedures recited in Claims 1-4, 8-11, 13, 15-17 of the Application operate on this same shelving principal; thus, Figures 4A, 4H, 5H, and 6H in the Application are analogous to Figures 5, 6, and 7 in Adams. In particular, the first, second, and third “vertex travel distance[s]” described in ¶¶ 0037, 0041-0042 of the Specification correspond to the “shelf distance” taught by Abrams. *See* Abrams col. 4, ll. 28-32; col. 10, ll. 42-44. Similarly, “road width” described in ¶¶ 0032, 0037 of the Specification and recited in Claims 2-3, 9, 13, 16-17 corresponds to “bead width” in Abrams. *See* Abrams col. 5, ll. 27-30; Fig. 4. Finally, Abrams teaches a path generation procedure for the extruded model material, reminiscent of the “tool path” recited in Claims 14 and 15. *See* Abrams cols. 7-10.

Should Examiner or the Office find that the above statement of relevance, or any portion thereof, is non-compliant with some requirement of 37 C.F.R. § 1.290, Petitioners respectfully request the third-party submission be entered if the error is of such minor character that it does not raise an ambiguity as to the content of the submission. *See* 70 Fed. Reg. 42,150, 42,168 (July 17, 2012).

Respectfully submitted,

ELECTRONIC FRONTIER FOUNDATION

By its counsel,



Kit Walsh
Clinical Instructional Fellow, Cyberlaw Clinic,
Berkman Center for Internet and Society
Harvard Law School
23 Everett Street, 2nd Floor
Cambridge, MA 02138
Phone: (617) 495-7547
Fax: (617) 495-7641

Date: January 22, 2013

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No: 12/687,996 Confirmation No.: 2663
Inventor(s): Erik K. Heide
Filed: January 15, 2010
Art Unit: 2121
Examiner: Von Buhr, Maria N.
For: Method for Generating and Building Support Structures with
Deposition-Based Digital Manufacturing Systems

Petitioners: Electronic Frontier Foundation

THIRD-PARTY PREISSUANCE SUBMISSION UNDER 37 C.F.R. § 1.290
CONCISE DESCRIPTION OF RELEVANCE

Cite No. 3 – “The Polygon Package”

Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Dear Examiner Von Buhr:

Listed on accompanying Form PTO/SB/429 are documents that may be considered material to the patentability of this application pursuant to 37 C.F.R. § 1.290. Copies of the patents or publications cited are enclosed, except as waived by 37 C.F.R. § 1.290(d)(3).

In accordance with 37 C.F.R. § 1.290(d)(2), Petitioners' undersigned representative submits the following concise description of relevance for the Barton reference (“The Polygon Package”) (“Barton”), Cite No. 3 on Form PTO/SB/429:

Barton discloses a set of geometric operations—including intersection, inflation and deflation—that may be performed on two-dimensional polygons. *See* Barton at 3. Such polygons include those with holes or voids within their boundaries, as depicted in Figures 2 and 4, which are similar in configuration to those depicted in Figures 4A-6GH and recited in Claims 1-20 of the instant Application. *See* Barton at 3-4. Barton teaches a polygon inflation operation that expands all “anti-clockwise sheets” (i.e., outer boundary

polygons) and contracts all “clockwise sheets” (i.e., inner boundary polygons) by a given distance, which is equivalent to the “offsetting” polygon operations recited in Claims 1-4, 8, 10, and 15 and described in the Specification on pages 9-17. *See* Barton at 9. Barton also teaches a similar deflation operation. *See* Barton at 9. Barton further teaches a set of unary polygon operations (self-union, overlap, and underlap) employed to discover and repair malformed polygons, such as those produced by intersecting edges after an inflation or deflation operation. *See* Barton at 9-11. These operations are similar to the “safety zone polygon” and uniting procedures described in the Specification on page 9-16 and recited in Claims 5, 6, 11-13, and 18-19. In sum, the set of polygon operations taught by Barton are analogous to those operations recited in Claims 1-20. Compare, for example, the set of iterative polygon inflation operations in Figures 20(a)-(d) of Barton with those in Figures 4A, 4H, 5H, and 6H of the Application. *See* Barton at 9. In fact, for initial boundary polygons that are convex, the inflation and deflation operations of Barton perform the same function as Claims 1-20. *See* Specification at 12, ¶0045.

Should Examiner or the Office find that the above statement of relevance, or any portion thereof, is non-compliant with some requirement of 37 C.F.R. § 1.290, Petitioners respectfully request the third-party submission be entered if the error is of such minor character that it does not raise an ambiguity as to the content of the submission. *See* 70 Fed. Reg. 42,150, 42,168 (July 17, 2012).

Respectfully submitted,

ELECTRONIC FRONTIER FOUNDATION

By its counsel,



Kit Walsh
Clinical Instructional Fellow, Cyberlaw Clinic,
Berkman Center for Internet and Society
Harvard Law School
23 Everett Street, 2nd Floor
Cambridge, MA 02138
Phone: (617) 495-7547
Fax: (617) 495-7641

Date: January 22, 2013