

Petition For *Inter Partes* Review
U.S. Patent No. 9,336,336

Paper No. _____

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

EXOCAD GMBH AND EXOCAD AMERICA, INC.
Petitioner,

v.

3SHAPE A/S,
Patent Owner.

Patent No. 9,336,336
Issue Date: May 10, 2016
Title: 2D IMAGE ARRANGEMENT

Inter Partes Review No. Unassigned

**PETITION FOR *INTER PARTES* REVIEW
UNDER 35 U.S.C. §§ 311-319 AND 37 C.F.R. § 42.100 *ET SEQ.***

TABLE OF CONTENTS

	<u>Page</u>
NOTICE OF LEAD AND BACKUP COUNSEL.....	1
NOTICE OF EACH REAL-PARTY-IN-INTEREST.....	1
NOTICE OF RELATED MATTERS	1
NOTICE OF SERVICE INFORMATION.....	2
I. GROUNDS FOR STANDING	2
II. STATEMENT OF PRECISE RELIEF REQUESTED	2
III. THRESHOLD REQUIREMENT	2
IV. STATEMENT OF REASONS FOR RELIEF REQUESTED	3
A. Introduction	3
B. The '336 Patent and Its Claims	5
C. Prosecution of the '336 Patent	6
D. Level of Ordinary Skill in the Art	7
V. CLAIM CONSTRUCTION	8
VI. DETAILED EXPLANATION OF GROUNDS FOR UNPATENTABILITY	12
A. [Ground 1] Claims 1-14, 16-20, 22-30 Are Anticipated by Malfliet, or Alternatively Rendered Obvious by Malfliet Alone or in View of Kopelman.....	12
1. Overview of Malfliet.....	12
2. Overview of Kopelman.....	17
3. Overview of Wiedmann.....	19

4.	Independent Claims 1 and 29 Are Anticipated by Malfliet or, in the Alternative, Rendered Obvious by Malfliet and Kopelman/Wiedmann	21
5.	Dependent Claims 2-14, 16-20 22-28 and 30	40
6.	Rationale to Combine	58
B.	[Ground 2] Claim 15 Is Obvious Based on Malfliet (with or without Wiedmann or Kopelman) in view of Lehman	62
C.	[Ground 3] Claim 21 Is Obvious Based on Malfliet (with or without Wiedmann or Kopelman) in view of Seeger	64
D.	[Ground 4] Claims 6-8 Are Obvious Based on Malfliet (with or without Wiedmann or Kopelman) in view of MacDougald	64
VII.	THE PROPOSED GROUNDS ARE NOT REDUNDANT	66
VIII.	THE PROPOSED GROUNDS ARE NOT SUBSTANTIALLY THE SAME AS THOSE PRESENTED TO THE PATENT EXAMINER.....	67
IX.	CONCLUSION.....	67
	PAYMENT OF FEES UNDER 37 C.F.R. §§ 42.15(A) AND 42.103	68
	CERTIFICATE OF SERVICE.....	69
	CERTIFICATE OF COMPLIANCE	70

EXHIBIT LIST

Ex. #	Exhibit
1001	U.S. Pat. No. 9,336,336 to Deichmann <i>et al.</i> (“the ’336 patent”)
1002	Declaration of Joseph Mundy, Ph.D.
1003	<i>Curriculum Vitae</i> of Joseph Mundy, Ph.D.
1004	Image File Wrapper for the ’336 patent
1005	U.S. Patent No. 7,156,655 to Sachdeva <i>et al.</i>
1006	International Publication Number WO 2008/128700 A1 to Malfliet <i>et al.</i>
1007	Wiedmann, Oliver, “According to the Laws of Harmony ... to find the right tooth shape with the assistance of the computer,” Digital Dental News, 2 nd Volume, April 2008 (Translation and Original)
1008	U.S. Patent No. 6,845,175 to Kopelman <i>et al.</i>
1009	U.S. Patent No. 6,568,936 to MacDougald
1010	Lehman, Thomas M., <i>et al.</i> , “Survey: Interpolation Methods in Medical Image Processing,” IEEE Transactions on Medical Imaging, Vol. 18, No. 11, November 1999
1011	U.S. Patent Publication No. US2002/0075389 to Seeger
1012	Definition of “virtual” from www.webopedia.com

NOTICE OF LEAD AND BACKUP COUNSEL

Lead Counsel: Matthew B. Lowrie, (Reg. No. 38,228), (617) 342-4000

Backup Counsel: Christopher J. McKenna, (Reg. No. 53,302), (617) 342-4000

Address: Foley & Lardner LLP, 111 Huntington Avenue, Suite 2600, Boston,
MA 02199.

Fax: 617-342-4001

NOTICE OF EACH REAL-PARTY-IN-INTEREST

Petitioners list the real-parties-in-interest as exocad GmbH, exocad America, Inc., Ivory GmbH, Ivory Holding GmbH, Ivory Global Holdings GmbH, CETP III Ivory SARL (“CETP” is Carlyle Europe Technology Partners”), CETP III Participations SARL, SICAR, and Carlyle Europe Technology Partners III, L.P.¹

NOTICE OF RELATED MATTERS

U.S. Patent No. 9,336,336, (“the ’336 patent”) is currently asserted in *3Shape A/S v. exocad GmbH, and exocad America, Inc.*, Case No. 1:17-cv-00239-ER-MPT (D. Del.). Petitioners are also filing another IPR against the ’336 patent concurrently with this Petition.

¹ None of the entities other than exocad GmbH and exocad America, Inc. meet the definition of a real-party-in-interest, but Petitioners nonetheless list those additional entities as real-parties-in-interest in this matter.

Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.