

Filed on behalf of Patent Owner 3Shape A/S

By: Todd R. Walters, Esq.
Roger H. Lee, Esq.
Mythili Markowski, Ph.D., Esq.
BUCHANAN INGERSOLL & ROONEY PC
1737 King Street, Suite 500
Alexandria, Virginia 22314
Main Telephone (703) 836-6620
Main Facsimile (703) 836-2021
todd.walters@bipc.com
roger.lee@bipc.com
mythili.markowski@bipc.com

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

EXOCAD GMBH and EXOCAD AMERICA, INC.
Petitioners

v.

3SHAPE A/S
Patent Owner

Case No. IPR2018-00788
Patent 9,336,336

DECLARATION OF DR. ELI SABER, PH.D.

3SHAPE EXHIBIT 2001
Exocad v. 3Shape

TABLE OF CONTENTS

I. INTRODUCTION 1

II. QUALIFICATIONS 3

III. COMPENSATION AND PRIOR TESTIMONY 7

IV. UNDERSTANDING OF THE GOVERNING LAW AND PERSPECTIVES APPLIED..... 8

 A. Types of Claims..... 8

 B. Unpatentability Based On Anticipation 8

 C. Unpatentability Based On Obviousness..... 9

 D. Interpreting Patent Claims in *Inter Partes* Review Proceedings 9

 E. Relevant Time Period for Analysis 10

 F. Bases for My Opinion 11

 G. A Person of Ordinary Skill in the Art (“POSITA”) 11

V. TECHNICAL BACKGROUND OF THE ’336 PATENT 11

VI. BROADEST REASONABLE CONSTRUCTION OF CLAIM TERMS 13

 A. Construction of “of at least part of an oral cavity of the patient” 13

 B. Construction of “arrange the at least one 2D image relative to the 3D virtual model in a virtual 3D space such that the at least one 2D image and the 3D virtual model are aligned when viewed from a viewpoint and remain separate representations after being arranged” 15

 C. Construction of “render a part of the at least one 2D image that includes teeth at least partly or wholly transparent” 16

VII. THE CLAIMS OF THE '336 PATENT ARE NEITHER ANTICIPATED BY NOR RENDERED OBVIOUS OVER THE ART CITED BY PETITIONER.....17

A. Wiedmann Does Not Anticipate Claims 1-5, 7-11, 13, 14, 16-18, 22-24, and 27-30. (Ground 1)17

1. Petitioner inappropriately relies on the same “optimum tooth shape” disclosure of Wiedmann to allegedly satisfy two distinct elements recited in the claims.17

2. Wiedmann does not disclose a 3D virtual model “of at least part of an oral cavity of the patient.”21

3. Wiedmann does not disclose that “the 3D virtual model and the at least one 2D image are both visualized *in the 3D space*” under Petitioner’s own construction.23

4. Wiedmann does not disclose the claimed feature “remain separate representations after being arranged.”27

5. Petitioner fails to demonstrate that claims 6-8 are anticipated by Wiedmann.29

B. Claims 1-14, 16-20, and 22-30 Would Not Have Been Obvious Over Wiedmann in view of Sachdeva. (Ground 1).....29

1. There is no reason with rational underpinnings for why a POSITA would have replaced the optimum tooth shape of Wiedmann with a 3D virtual model which is of at least part of an original oral cavity of the patient that is provided prior to designing the recited restoration.....30

2. There is no reason with rational underpinnings for modifying Wiedmann such that the 3D virtual model and the 2D image are both visualized *in the 3D space*.....31

a. Wiedmann’s system already allows the user to preview the treatment before the treatment is actually done, without any need to modify the system to visualize in the 3D space.32

- b. Petitioner’s conclusory assertions are unsupported by any credible evidence.33
- 3. Like Wiedmann, Sachdeva fails to disclose or suggest the claimed feature “remain separate representations after being arranged.”36
- C. Sachdeva Does Not Anticipate Claims 1-14, 16-20, and 22-30. (Ground 5)36
 - 1. Sachdeva does not disclose that “the at least one 2D image and the 3D virtual model are aligned...and remain separate representations after being arranged.”36
 - a. Contrary to Petitioner’s assertion, Sachdeva discloses that the morphable model 102 is 3D, not 2D.....37
 - b. The virtual patient model in Sachdeva is a “composite, combined digital representation”—not a 2D image and a 3D virtual model that are aligned and remain separate representations after being arranged.42
 - 2. Sachdeva does not disclose “either virtually cut[ting] at least a part of teeth out of the at least one 2D image or render[ing] a part of the at least one 2D image that includes teeth at least partly or wholly transparent.”50
 - a. Contrary to Petitioner’s assertion, Sachdeva explicitly discloses that the morphable face model in Fig. 6 includes teeth.....50
 - b. Petitioner does not even allege that a part of the X-ray image *that includes the teeth* in Sachdeva is partly or wholly transparent.....52
 - c. The “virtually cut/render transparent” limitation requires an active step of causing a part of the 2D image to become partly or wholly transparent.53

3. Sachdeva does not anticipate the dependent claims.54

 a. Sachdeva does not anticipate dependent claims 6-8.54

 b. Sachdeva does not anticipate dependent claim 9.55

D. Claims 1-14, 16-20, and 22-30 Would Not Have Been Obvious Over Sachdeva in View of Kopelman. (Ground 5).....55

 1. A POSITA would not have combined Sachdeva with Kopelman as Petitioner alleges.....56

 a. There is no reason to replace Sachdeva’s 3D morphable model with a 2D image as Petitioner alleges.56

 b. Contrary to the claims which require a 2D image and 3D virtual model to be aligned and remain separate representations, Kopelman discloses *combining* 2D and 3D image data.58

 2. Petitioner makes no assertion that it would have been obvious to modify Sachdeva to arrive at “either virtually cut[ting] at least a part of teeth out of the at least one 2D image or render[ing] a part of the at least one 2D image that includes teeth at least partly or wholly transparent.”63

E. Claims 6-8 Would Not Have Been Obvious. (Grounds 4, 8)64

F. Lehman and Seeger Fail to Cure the Above-Described Deficiencies of Wiedmann and Sachdeva. (Grounds 2, 3, 6, 7)68

VIII. Conclusion69

APPENDIX 1

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.