UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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EXOCAD GMBH AND EXOCAD AMERICA, INC.,
Petitioner,

v.

3SHAPE A/S,
Patent Owner.

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Case IPR2018-00788
Patent 9,336,336 B2

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Before SALLY C. MEDLEY, IRVIN E. BRANCH, and
FRANCES L. IPPOLITO, *Administrative Patent Judges*.

BRANCH, *Administrative Patent Judge*.

JUDGEMENT
Final Written Decision
Determining All Challenged Claims Unpatentable
35 U.S.C. § 318(a)

ORDER
Dismissing Patent Owner's Motion to Strike
Dismissing Patent Owner's Motion to Exclude Evidence
37 C.F.R. §§ 42.5, 42.64

I. INTRODUCTION

exocad GmbH, and exocad America, Inc. ("Petitioner") filed a Petition (Paper 1, "Pet.") requesting *inter partes* review of claims 1–30 of U.S. Patent No. 9,336,336 B2 (Ex. 1001, "the '336 patent"). 3Shape A/S ("Patent Owner") filed a Preliminary Response. Paper 6 ("Prelim. Resp."). On October 3, 2018, we entered our Decision on Institution (Paper 7, "Dec." or "Decision") instituting *inter partes* review of all challenged claims under all asserted grounds. Dec. 33.

After institution of trial, Patent Owner filed a Patent Owner Response (Paper 23, "Resp."), Petitioner filed a Reply (Paper 26, "Reply"), and Patent Owner filed a Sur- Reply (Paper 31, "Sur-Reply"). To support its arguments, Petitioner relies on the testimony of Dr. Joseph L. Mundy (*see* Exs. 1003, 1023), while Patent Owner relies on testimony from Dr. Eli Saber (*see* Ex. 2001).

Per our authorization, Patent Owner filed a motion to strike certain arguments and evidence in petitioner's reply. Paper 29; Paper 30 ("Mot. Strike"). Petitioner filed an opposition to Patent Owner's motion to strike (Paper 33, "Opp. Strike").

Additionally, Patent Owner filed a motion to exclude certain evidence in Petitioner's reply. Paper 36 ("Mot. Exclude"). Petitioner filed an opposition to Patent Owner's motion to exclude (Paper 37, "Opp. Exclude") and Patent Owner filed a reply in support of the motion to exclude (Paper 38, "Reply Exclude").

Oral argument was held on June 24, 2019 in Alexandria, Virginia, and a transcript of the hearing is included in the record. Paper 42 ("Tr.").

We have authority under 35 U.S.C. § 6. Petitioner bears the burden of proving unpatentability of the challenged claims, and the burden of persuasion never shifts to Patent Owner. *Dynamic Drinkware, LLC v. Nat'l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015). To prevail, Petitioner must prove unpatentability by a preponderance of the evidence. *See* 35 U.S.C. § 316(e); 37 C.F.R. § 42.1(d). This Final Written Decision is issued pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73. Having reviewed the arguments of the parties and the supporting evidence, we find that Petitioner has demonstrated by a preponderance of the evidence that all challenged claims 1–30 of the '336 patent are unpatentable. Our determination is summarized in the table at the conclusion of this decision.

A. *Real Parties in Interest*

Petitioner identifies the following parties as real parties in interest: 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. Pet. 1.[1]

Patent Owner identifies only itself as a real party in interest. Paper 3.

B. Related Matters

The parties state that the '336 patent is asserted in *3Shape A/S v. exocad GmbH, and exocad America, Inc.*, Case No. 1:17-cv-00239- ER-MPT (D. Del.). The '336 patent was also the subject of a petition filed in IPR2018-00785. Pet. 1; Paper 3, 1. An *inter partes* review was not instituted in IPR2018-00785. *Exocad GmbH v. 3Shape A/S*, IPR2018-00785, Paper 8 (PTAB Oct. 3, 2018).

C. The '336 Patent

The '336 patent involves computer-implemented dental restoration design. Ex. 1001, 1:5–6 ("a method of visualizing and modeling a set of teeth for a patient"). The '336 patent explains that dental restoration modeling combines facial imagery with a 3D model of the patient's oral structure, to thereby allow visualization of the patient's post-restoration appearance. *Id.* at 19:43–20:29. The 3D model is then usable for manufacturing the restoration. *Id.* at 20:26–29.

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[1] Petitioner states "[n]one of the entities other than exocad GmbH and exocad America, Inc. meet the definition of a real-party-in-interest, but Petitioner nonetheless lists those additional entities as real-parties-in-interest in this matter." Pet. 1, n. 1. Based on the complete record, we observe that there appear to be no substantive, dispositive, or procedural issues that rest on determining whether these listed entities are real-parties-in-interest.

The '336 patent acknowledges that "[v]isualization and modeling or design of teeth [were] known in the field of dental restorations" but distinguishes its method because it "may be performed faster than prior art methods." *Id.* at 1:13–14, 3:38–39. Among the reasons given is that the '336 patent's 2D facial imagery "is not superimposed or overlaid onto the 3D virtual model for creating one representation with all data included" as is the case in the prior art, which "requires more time and exhaustive data processing." *Id.* at 3:30–37. In particular, the '336 patent explains that at least one 2D image of the patient's facial features is arranged relative to the 3D model in 3D virtual space yet the image and the model "remain as separate data representations which are not merged or fused together into one representation." *Id.* at 3:25–28. Figures 3A and 3B, reproduced below, are illustrative.
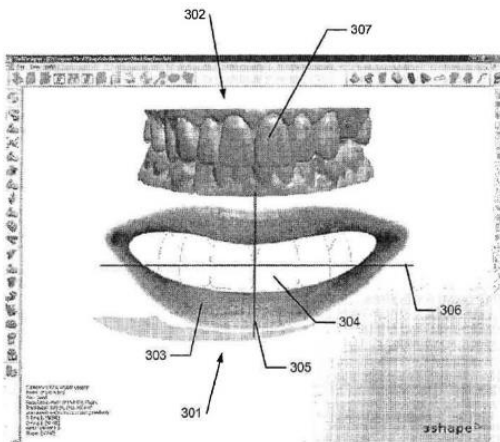

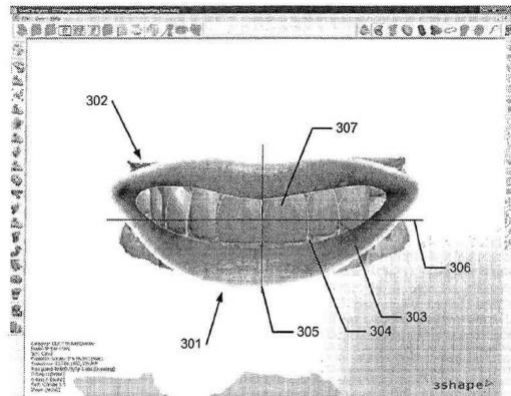Fig. 3A   Fig. 3B

Figures 3A and 3B depict visualizing and arranging a 2D image and a 3D model. The 3D model 302 and the 2D image 301 are depicted separately in Figure 3A and depicted aligned in Figure 3B. *Id.* at 20:54–21:3. The

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