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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

3SHAPE A/S and 3SHAPE INC.
Petitioners

v.

MEDIT CORPORATION
Patent Owner

Case No. IPR2024-01266
Patent 9,262,864

**PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 9,262,864
UNDER 35 U.S.C. §§311–19 and 37 C.F.R. §42.100 *et seq.***

TABLE OF CONTENTS

	<u>Page</u>
I. INTRODUCTION	1
II. MANDATORY NOTICES PURSUANT TO 37 C.F.R. §42.8(a)(1)	1
A. Real Parties-In-Interest.....	1
B. Identification of Related Matters Under 37 C.F.R. §42.8(b)(2)	2
C. Lead and Backup Counsel.....	3
D. Service Information Under 37 C.F.R. §42.8(b)(4).....	4
III. PAYMENT OF FEES	4
IV. REQUIREMENTS UNDER 37 C.F.R. §42.104.....	4
A. Grounds for Standing	4
B. Identification of Challenges and Precise Relief Requested	5
C. Prior Art Qualification of Asserted References	5
V. BACKGROUND	6
A. The Purported Invention.....	6
B. The '864 Patent Examination History	7
C. Summary of the Applied Prior Art.....	8
1. Kawai (EX1010)	8
2. Quadling (EX1011).....	10
3. Durbin (EX1012)	11
D. Person of Ordinary Skill in the Art (“POSITA”).....	11
VI. CLAIM CONSTRUCTION	12
VII. PETITIONERS HAVE A REASONABLE LIKELIHOOD OF PREVAILING	13

A.	Claims 1, 2 and 15-20 Would Have Been Obvious Over Kawai in View of Quadling, and in Further View of Durbin (Ground 1).	13
1.	Claim 1 (Preamble): A method comprising:	13
a.	[1.1]: creating a three-dimensional model with a processor from a sequence of image sets stored in a memory, each image set including a plurality of images of a subject including dentition, each one of the plurality of images captured from a different optical axis, the plurality of images including at least one video image;	16
b.	[1.2]: rendering the three-dimensional model in a user interface of a display from a perspective;	20
c.	[1.3]: automatically selecting a video image with the processor from the sequence of image sets that contains a view of the subject most closely corresponding to the perspective;	21
d.	[1.4]: displaying the video image in the user interface of the display concurrently with the three-dimensional model; and	24
e.	[1.5]: providing a tool with the processor in the user interface for marking a margin of the dentition.	26
2.	Claim 2 (Preamble): A system comprising:	28
a.	[2.1]: a memory storing a three-dimensional model of a subject and a sequence of image sets used to create the three dimensional model, each image set including a plurality of images of a subject including dentition, each one of the plurality of images captured from a different optical axis, the plurality of images including at least one video image;	28

b.	[2.2]: a display configured to provide a user interface presenting the sequence of image sets; and.....	29
c.	[2.3]: a processor configured to render the three-dimensional model in the user interface from a perspective, select a video image from the sequence of image sets that contains a view of the subject most closely corresponding to the perspective, display the video image in the user interface concurrently with the three-dimensional model, and provide a tool for marking a margin of the dentition.	29
3.	Claim 15 (Preamble): A system comprising:.....	30
a.	[15.1]: displaying a three-dimensional model of dentition from a perspective in a display;.....	30
b.	[15.2]: providing a plurality of video images of the dentition in a memory;.....	30
c.	[15.3]: automatically selecting one of the plurality of video images with the processor that shows the dentition from the perspective; and	31
d.	[15.4]: displaying the one of the plurality of video images in a user interface of the display concurrently with the three-dimensional model as an aid to visually determining a margin of the dentition.	31
4.	Claim 16: The method of claim 15 further comprising displaying a margin on one or more of the three-dimensional model or the one of the plurality of video images.	32
5.	Claim 17: The method of claim 16 further comprising receiving a user modification of the margin and updating the display with a modified margin.	33
6.	Claim 18 (Preamble): A system comprising:.....	33

a.	[18.1]: a display having a window for displaying a three-dimensional model of dentition from a perspective;	33
b.	[18.2]: a camera providing a plurality of video images of the dentition; and.....	34
c.	[18.3]: a processor configured to select of one of the plurality of video images that shows the dentition from the perspective and display in a second window in the display the one of the plurality of video images concurrently with the three-dimensional model as an aid to visually determining a margin of the dentition.	35
7.	Claim 19: The system of claim 18 wherein the processor is configured to display a margin on one or more of the three-dimensional model or the one of the plurality of video images.	36
8.	Claim 20: The system of claim 19 wherein the processor is configured to receive a user modification of the margin and update the display with a modified margin.....	37
9.	Explanation of Why Claims 1, 2 and 15-20 Would Have Been Obvious	37
a.	Kawai combined with Quadling	37
b.	Difference between the claimed invention and the prior art.	37
c.	A POSITA would have had motivation to combine the disclosures of Kawai and Quadling.	38
d.	A POSITA would have had a reasonable expectation of success based on the disclosures of Kawai and Quadling and knowledge generally available in the art.....	40
e.	Kawai and Quadling, when combined with Durbin	42

f.	Difference between the claimed invention and the prior art.	42
g.	A POSITA would have had motivation to combine the disclosures of Kawai and Quadling with Durbin.	43
h.	A POSITA would have had a reasonable expectation of success based on the disclosures of Kawai, Quadling, and Durbin and knowledge generally available in the art.....	44
VIII.	OTHER CONSIDERATIONS	45
A.	Any Purported Secondary Considerations Evidence Does Not Overcome the Strong Evidence of the Obviousness of the Claims.....	45
B.	The Board Should Not Deny This Petition Under §314(a).....	46
C.	The Board Should Not Deny This Petition Under §325(d)	46
IX.	CONCLUSION.....	47
APPENDIX A—LIST OF EXHIBITS		
CERTIFICATE OF COMPLIANCE WITH 37 C.F.R. §42.24		
CERTIFICATE OF SERVICE		

TABLE OF AUTHORITIES

Cases	Page(s)
<i>Graham v. John Deere Co.</i> , 383 U.S. 1 (1966).....	13
<i>KSR Int’l Co. v. Teleflex Inc.</i> , 550 U.S. 398 (2007).....	13, 41, 45
<i>Puma N. Am., Inc. v. Nike, Inc.</i> , IPR2019-01058, Paper 10 (PTAB Oct. 31, 2019).....	47
<i>Sotera Wireless, Inc. v. Masimo Corp.</i> , IPR2020-01019, Paper 12 (PTAB Dec. 1, 2020)	46
<i>Toyota Motor Corp. v. Cellport Systems, Inc.</i> , IPR2015-00633, Paper 11 (PTAB Aug. 14, 2015).....	12
<i>Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.</i> , 200 F.3d 795 (Fed. Cir. 1999)	12
Statutes	
35 U.S.C. §102(b)	6
35 U.S.C. §103	5, 13
35 U.S.C. §§311–19	1
35 U.S.C. §312(a)(2).....	1
35 U.S.C. §314(a)	46
35 U.S.C. §318(a)	4
35 U.S.C. §325(d)	46

Rules

37 C.F.R. §42.8(a)(1)	1
37 C.F.R. §42.8(b)(1)	1
37 C.F.R. §42.8(b)(2)	2
37 C.F.R. §42.8(b)(3)	3
37 C.F.R. §42.8(b)(4)	4
37 C.F.R. §42.10(a)	3
37 C.F.R. §42.10(b)	4
37 C.F.R. §42.15(a)	4
37 C.F.R. §42.100 <i>et seq.</i>	1
37 C.F.R. §42.102(a)(2)	4
37 C.F.R. §42.104	4
37 C.F.R. §42.104(a)	4
37 C.F.R. §42.104(b)	5

I. INTRODUCTION

3SHAPE A/S and 3SHAPE INC. (“Petitioners”) respectfully request *inter partes* review for Claims 1, 2 and 15-20 of U.S. Patent No. 9,262,864 (“the ’864 Patent”) (EX1001) in accordance with 35 U.S.C. §§311–19 and 37 C.F.R. §42.100 *et seq.*

II. MANDATORY NOTICES PURSUANT TO 37 C.F.R. §42.8(a)(1)

A. Real Parties-In-Interest

Pursuant to 37 C.F.R. §42.8(b)(1), Petitioners certify that 3Shape A/S, 3Shape Inc., 3Shape Holding A/S, 3Shape Trios A/S, and 3Shape Poland sp. z.o.o. are real parties-in-interest. Out of an abundance of caution, 3Shape Germany GmbH, 3Shape France SAS, 3Shape Italy SRL, 3SHAPE UK LIMITED, 3SHAPE DOOEL Skopje, 3Shape S.A.S., 3Shape (Shanghai) Co., Ltd., 3Shape Do Brasil Soluções Tecnológicas Para Saude Ltda, 3Shape Australia Pty Ltd., 3Shape Trios Sociedad Limitada, 3Shape Japan GK, 3Shape Ukraine Ltd., SC Investment Company, LLC, SoundBite Technology, LLC, Shenzhen Full Contour Design Company Ltd., 3Shape Design Services Costa Rica, S.R.L., 3Shape Design Services, LLC, 3Shape A/S Medical Device Manufacturing (Shanghai) Co. Ltd., 3Shape Korea Ltd., 3Shape Manufacturing US LLC, 3Shape India Limited, EQT IX JAWS BIDCO S.A.R.L., Clausen Engineering APS, Tais Clausen, DM Family Office ApS, Deichmann Media APS, and Nikolaj Hoffmann Deichmann are also identified as real parties-in-interest, for purposes of compliance with 35 U.S.C. §312(a)(2).

B. Identification of Related Matters Under 37 C.F.R. §42.8(b)(2)

The following is a list of any judicial or administrative matters that would affect, or be affected by, a decision in this proceeding:

Related District Court Proceedings

3Shape A/S v. Medit Corporation, Civ. Action No. 22-cv-00443 (W.D. Tex.) (“the 443 Litigation”); and

Medit Corporation v. 3Shape A/S, Civ. Action No. 23-cv-00658 (W.D. Tex.) (“Related Litigation”).¹

Related PTAB Proceeding

3Shape A/S v. Medit Corporation, Petition for *Inter Partes* Review of U.S. Patent No. 9,262,864, filed on August 14, 2024, Case No. IPR2024-01265.

¹ Medit filed its claim of patent infringement of U.S. Patent Nos. 7,912,257; 9,191,648; 9,245,374; and 9,262,864 as affirmative counterclaims in *3Shape A/S v. Medit Corp.*, Case No. :22-cv-00443 (W.D. Tex.) (the “443 Litigation”) on August 18, 2023. On September 8, 2023, the Court ordered Medit’s four affirmative counterclaims for patent infringement to be severed from the ’443 Litigation and be placed in a separate action. EX1016. Medit’s Answer to 3Shape’s Complaint and Affirmative Counterclaims then became the operative complaint in the Related Litigation. EX1015.

Related Applications

The '864 Patent issued from U.S. Patent Application No. 14/487,371, which is a continuation of U.S. Patent Application No. 12/666,464, filed on November 15, 2010 (U.S. Patent 8,866,883), which is a National Stage of PCT International Application No. PCT/US08/68522 (EX1003), which claims priority to U.S. Provisional Application No. 60/947,009, filed on June 29, 2007 (EX1004).

C. Lead and Backup Counsel

Pursuant to 37 C.F.R. §§42.8(b)(3) and 42.10(a), Petitioners hereby identify its lead and backup counsel as follows:

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Powers of Attorney are being filed concurrently herewith in accordance with 37 C.F.R. §42.10(b).

D. Service Information Under 37 C.F.R. §42.8(b)(4)

Petitioners consent to e-mail service at the addresses listed above.

III. PAYMENT OF FEES

The undersigned authorizes the Office to charge Deposit Account No. 02-4800 for fees required by 37 C.F.R. §42.15(a).

IV. REQUIREMENTS UNDER 37 C.F.R. §42.104

A. Grounds for Standing

Pursuant to 37 C.F.R. §42.104(a), Petitioners hereby certify that the '864 Patent is available for *inter partes* review in accordance with 37 C.F.R. §42.102(a)(2). Petitioners are not barred or estopped from requesting *inter partes* review challenging the claims of the '864 Patent on the grounds identified herein.

This Petition is filed within one year from the date on which Petitioners were served counterclaims by Patent Owner in the 443 Litigation, which asserted infringement of the '864 Patent. EX1015.

Neither Petitioners nor its privies have received a final written decision under 35 U.S.C. §318(a) regarding any claim of the '864 Patent on any ground that was raised or could have been raised by Petitioners or its privies in any *inter partes* review, post grant review, or covered business method patent review.

B. Identification of Challenges and Precise Relief Requested

Pursuant to 37 C.F.R. §42.104(b), Petitioners challenge Claims 1, 2 and 15-20 of the '864 Patent, and request that these claims be found unpatentable over the prior art for the reasons given below. Petitioners' Grounds for challenging the validity of Claims 1, 2 and 15-20 are as follows:

Ground	References	Basis	Claims Challenged
1	U.S. Patent No. 5,417,572 ("Kawai") (EX1010), in view of U.S. Patent Publication No. 2004/0254476 ("Quadling") (EX1011), and in further view of U.S. Patent Pub. No. 2002/0055082 ("Durbin") (EX1012)	§103	1, 2 and 15-20

In addition to the above prior art, Petitioners rely upon evidence listed in the Exhibit List, including the Declaration and *Curriculum Vitae* of Eli Saber, Ph.D. (EXs1006-1007). EX1006, ¶¶1-191 supports this Petition, and citations are provided below.

C. Prior Art Qualification of Asserted References

The '864 Patent was filed on September 16, 2014 as U.S. Patent Application No. 14/487,371 ("the '371 Application"). EX1001. The '371 Application is a continuation of U.S. Patent Application No. 12/666,464, filed on November 15, 2010 (U.S. Patent 8,866,883), which is a National Stage of PCT International

Application No. PCT/US08/68522, which claims priority to U.S. Provisional Application No. 60/947,009, filed on June 29, 2007.

Even if the '864 Patent is deemed entitled to its earliest priority date, all of the applied references in this Petition are prior art.

Kawai (EX1010), published no later than May 23, 1995, constitutes prior art at least under 35 U.S.C. §102(b).

Quadling (EX1011), published no later than December 16, 2004, constitutes prior art at least under 35 U.S.C. §102(b).

Durbin (EX1012), published no later than May 9, 2002, constitutes prior art at least under 35 U.S.C. §102(b).

V. BACKGROUND

A. The Purported Invention

The '864 Patent is generally directed to display of three-dimensional dental data acquired intraorally from a dental patient. EX1001, Abstract. More particularly, the claims challenged in this proceeding concern display of a three-dimensional dental model alongside still images that were acquired during a three-dimensional scan of the dentition, such that “the two views (model and still image) may be synchronized to provide a common perspective of the model's subject matter.” *Id.* According to the '864 Patent, that synchronized display “provides useful visual information for disambiguating surface features of the model during interactive

model processing steps such as marking a margin of a prepared tooth surface for a restoration.” *Id.* That marking of a margin of a prepared tooth surface for a restoration is a claimed feature of all the challenged independent claims.

B. The ’864 Patent Examination History

A single office action issued rejecting all claims over U.S. Pat. Pub. No. 2005/0089822 (“Geng”) (EX1013) as anticipated and Claim 1 as anticipated by U.S. Pat. Pub. No. 2006/0020363 (“Orth”) (EX1014). Germane to the challenged claims of this petition, Applicant amended independent Claims 1, 15, and 18² to recite display of a video image “concurrently with the three-dimensional model.”

In connection with these amendments, Applicant explained that “a system can store a three-dimensional model that was derived from a sequence of still frames of video data,” and that “the source data – the sequence of still frames from the video feed – can be retained to provide visually clear two-dimensional data of dental content from a variety of poses that were used to generate the three-dimensional model.” EX1002, pp. 52-53. Regarding the amendments, Applicant noted that “these two data sources can usefully be presented into a single workspace to concurrently provide the two different and useful sources of visual information as visual context for accurately determining a margin. The claims have been amended to clarify this

² The issued and pending claims share the same numbering.

inventive concept, and to more explicitly claim at least three distinct features: a three-dimensional model rendered in a display, two-dimensional source images for the model, also rendered in the display, and a margin marking tool that enable [sic] a user to mark margin data using both of these sources of visual information.” *Id.* at 53. Applicant successfully achieved allowance by arguing Geng (EX1013) and Orth (EX1014) both fail to disclose the claimed features of amended independent claims 1, 15, and 18 reciting display of a video image “concurrently with the three-dimensional model.” Instead, both of the applied references are directed solely to rendering and manipulation of three-dimensional models alone.

As demonstrated below, the prior art relied upon in this Petition explicitly discloses the synchronized three-dimensional model and two-dimensional video image display that was absent from the prior art applied by the Examiner.

C. Summary of the Applied Prior Art

1. Kawai (EX1010)

Kawai also discloses a system for margin line definition and correction that displays a three-dimensional model and a two-dimensional “developed view” image concurrently as an aid to visually determine that margin line of the dentition. *See* Abstract and Figure 5. Kawai succinctly explains and illustrates its concurrent three-dimensional and two-dimensional image display (with annotations in **red**):

“FIG. 5 is a view, showing a three-dimensional shape and a development view [image], both shown in a display

device, in an embodiment of the margin line extracting method of the present invention.” EX1010, 2:17-20 (emphasis added).

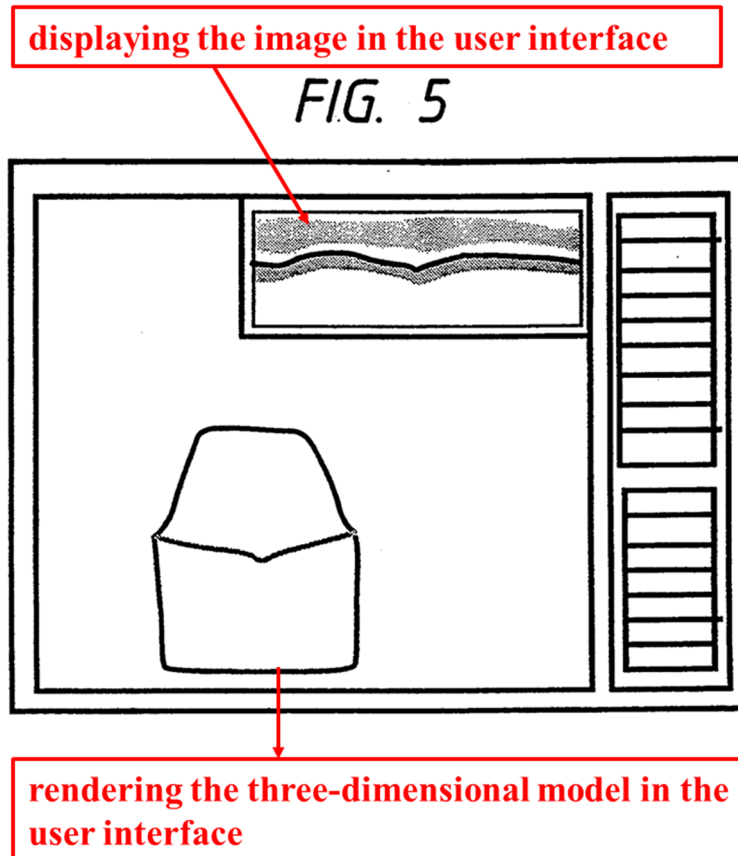
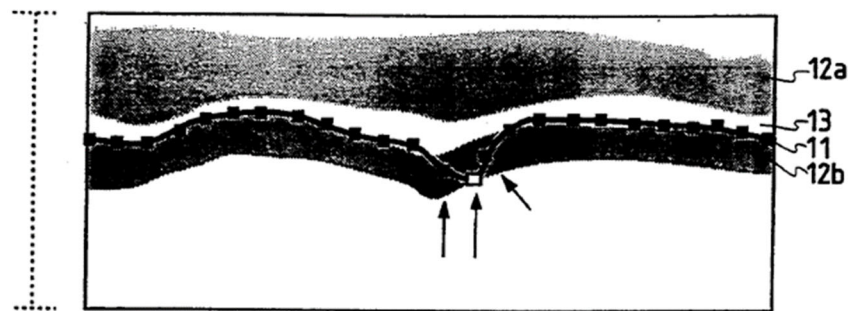


Figure 1A of Kawai and its associated disclosure explain its margin marking and correction tool:

“FIG. 1A shows the display of [a] point train of the margin area on the developed view, wherein said points are connected by straight lines, **and such connection can be made by hitting the points with a mouse.**” EX1010, 3:26-30 (emphasis added).

“Subsequently there is executed a correction operation for the point train of the margin area extracted by calculation and the lines connecting the points. Said correction is conducted by hitting a displayed point and moving said point by giving an amount of variation by keys or a dial.” EX1010, 3:35-40 (emphasis added); *see also* 3:52-60, 3:66-4:11, Claim 4; Claim 7.

FIG. 1A



Kawai explains that its system is usable with any one of a number of known three-dimensional measurement instruments. *See* EX1010, 2:31-35. Quadling—discussed below—discloses such a known three-dimensional measuring instrument.

2. Quadling (EX1011)

Quadling discloses a known three-dimensional measuring instrument, specifically designed to scan dentition. *See* EX1011, Abstract (“A intra-oral laser digitizer system provides a three-dimensional visual image of a real-world object such as a dental item through a laser digitization.”). Quadling explains that its scanner acquires a sequence of images that are stored in memory and from which a three-dimensional model is created with a processor. EX1011, ¶[0012] (“Multiple

images of the object may be recorded and processed by the computer to produce a 3D map of the object.”); *see also* Figure 1 and ¶[0067] (illustrating and discussing Quadling’s computer and image processor). Quadling’s images include video images acquired using a video camera as its image sensor. EX1011, ¶[0059].

3. Durbin (EX1012)

Durbin “relates to intra-oral methods and apparatus for optically imaging a structure and creating representative 3D models from the images.” EX1012, Abstract. Significant to this Petition, Durbin evidences the understanding of a POSITA concerning multi-aperture scanning systems and the capture of image sets with each image in the set captured from a different optical axis:

“FIG. 3 shows another embodiment with multiple image apertures that require only lateral motion. In this embodiment a plurality of image apertures 132A and the illuminator(s) 134A are mounted in a known orientation to one another on a laterally moveable apparatus. The number of image apertures and their orientation is selected to provide sufficient coverage and overlap of the dental structure to be modeled at the desired resolution. At each lateral position, an image from each of the apertures 132A is recorded for later processing.” EX1012, ¶[0047].

D. Person of Ordinary Skill in the Art (“POSITA”)

A POSITA is presumed to be aware of all pertinent art, thinks along conventional wisdom in the art, and is a person of ordinary creativity. Regarding the

'864 Patent, a POSITA would have at least a (1) bachelor's degree in electrical engineering, computer engineering, computer science, or an equivalent field, as well as at least two to three years of industry or research experience with computer vision/graphics making use of three-dimensional virtual models; or (2) a master's degree in electrical engineering, computer engineering, computer science, or an equivalent field with a focus in making use of three-dimensional virtual models in the area of computer vision/graphics. EX1006, ¶36.

VI. CLAIM CONSTRUCTION

The Board only construes the claims when necessary to resolve the underlying controversy. *Toyota Motor Corp. v. Cellport Systems, Inc.*, IPR2015-00633, Paper 11 at 16 (PTAB Aug. 14, 2015) (citing *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)). Given the Markman Order (EX1017) in the Related Litigation indicating that certain disputed terms are to take on their plain and ordinary meaning under the *Phillips* standard, Petitioner believes that no express constructions of the claims are necessary for this proceeding. Petitioners apply the plain and ordinary *Phillips* meaning in the Grounds below.

While the proper metes and bounds of these terms are disputed, the cited prior art falls within these bounds whatever they may be. The prior art meets the language of the claims regardless of whether a plain and ordinary meaning is applied or if Petitioner's non-adopted litigation construction is adopted. The Challenged Claims

are unpatentable under all the potential constructions. Petitioners are not waiving their right to contest indefiniteness in the Related Litigation by virtue of this Petition.

VII. PETITIONERS HAVE A REASONABLE LIKELIHOOD OF PREVAILING

Obviousness under 35 U.S.C. §103 is determined by evaluating several factual inquiries, namely the scope and content of the prior art, ascertaining the differences between the claimed invention and the prior art, and resolving the level of ordinary skill in the relevant art, as well as considering any objective evidence of “secondary considerations” relevant to obviousness. *Graham v. John Deere Co.*, 383 U.S. 1 (1966). Further, the purported invention of the ‘864 Patent is nothing more than the combination of well-known technologies and techniques yielding a predictable outcome. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 416 (2007).

The following explains why Claims 1, 2 and 15-20 of the ‘864 Patent are unpatentable over the prior art asserted in Ground 1.

A. Claims 1, 2 and 15-20 Would Have Been Obvious Over Kawai in View of Quadling, and in Further View of Durbin (Ground 1).

The following sections explain where each element of Claims 1, 2 and 15-20 is found in the prior art of Kawai in view of Quadling, and in further view of Durbin. EX1006, ¶53.

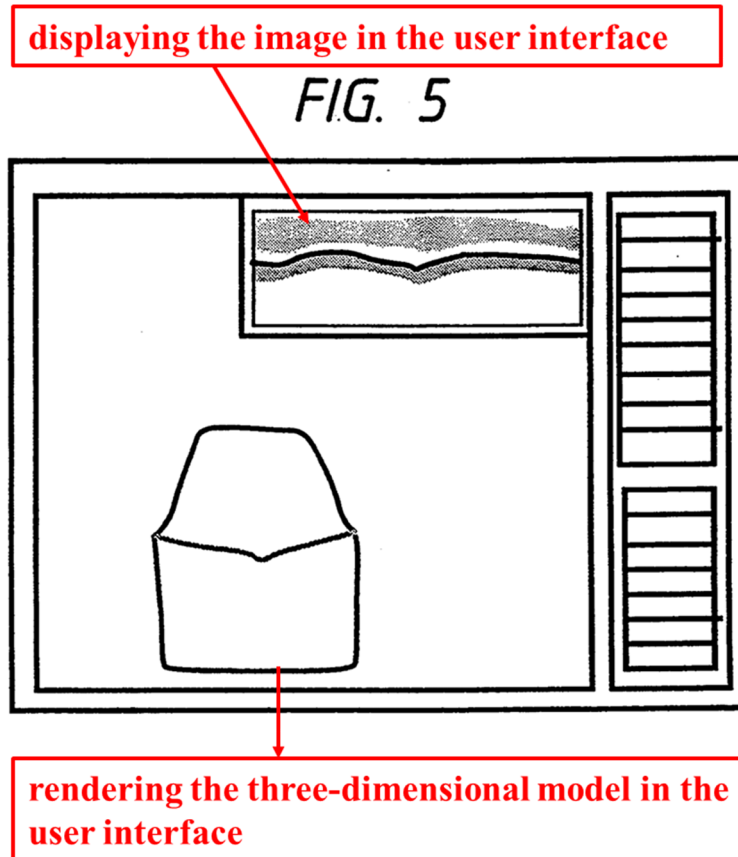
1. Claim 1 (Preamble): A method comprising:

Kawai discloses a method that includes the steps (among others) of creating a creating a three-dimensional model [1.1] and rendering that three-dimensional

model in a user interface from a perspective [1.2], automatically selecting an image that contains a view of dentition corresponding to the perspective [1.3], displaying the image in the user interface concurrently with the three-dimensional model [1.4], and providing a tool in the user interface for marking a margin of the dentition [1.5]. EX1006, ¶54.

Kawai succinctly explains and illustrates its concurrent three-dimensional and two-dimensional image display (with annotations in **red**):

“FIG. 5 is a view, showing a three-dimensional shape and a development view [image], both shown in a display device, in an embodiment of the margin line extracting method of the present invention.” EX1010, 2:17-20 (emphasis added).



EX1006, ¶¶55-56.

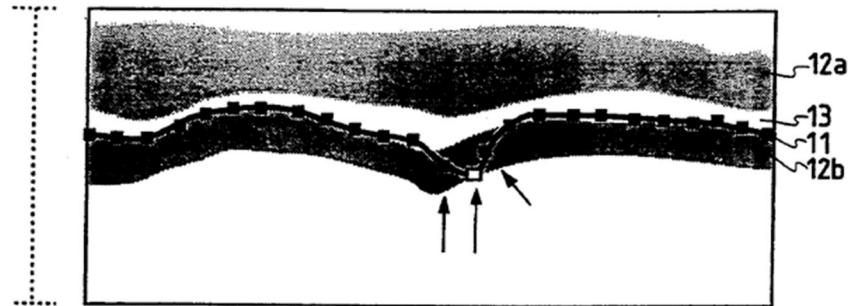
Kawai also succinctly explains and illustrates its tool in the user interface for marking a margin of the dentition:

“FIG. 1A shows the display of [a] point train of the margin area on the developed view, wherein said points are connected by straight lines, **and such connection can be made by hitting the points with a mouse.**” EX1010, 3:26-30 (emphasis added).

“Subsequently there is executed a correction operation for the point train of the margin area extracted by calculation and the lines connecting the points. Said correction is

conducted by hitting a displayed point and moving said point by giving an amount of variation by keys or a dial.” EX1010, 3:35-40 (emphasis added); *see also* 3:52-60, 3:66-4:11, Claim 4; Claim 7.

FIG. 1A



EX1006, ¶¶57-58.

- a. [1.1]: creating a three-dimensional model with a processor from a sequence of image sets stored in a memory, each image set including a plurality of images of a subject including dentition, each one of the plurality of images captured from a different optical axis, the plurality of images including at least one video image;

Kawai explains its three-dimensional model of an abutment tooth (*i.e.*, a tooth for a crown preparation) may be obtained using known three-dimensional measuring instruments:

“At first, the shape of a plaster cast of the abutment tooth, prepared in the same manner as in the conventional art, is measured to obtain shape data of said abutment tooth. Said measurement can be achieved by a known technology, such as by CT scanning or by a three-dimensional

measuring instrument. Thus the data indicating the three-dimensional shape of the abutment tooth are obtained from the measurement data.” EX1010, 2:31-35 (emphasis added).

EX1006, ¶61.

Quadling discloses such a known three-dimensional measuring instrument, specifically designed to scan dentition. *See* EX1011, Abstract (“A intra-oral laser digitizer system provides a three-dimensional visual image of a real-world object such as a dental item through a laser digitization.”). While Kawai’s disclosure is directed to scanning a plaster model outside the mouth, its disclosure is not limited to scanning of dentition in that form, and a POSITA would have appreciated that Quadling’s more sophisticated in-vivo scanner was capable of scanning a plaster model outside the mouth and also in-vivo scanning to provide the three-dimensional model data useable by Kawai’s disclosure. EX1006, ¶¶62-63.

Quadling explains that its scanner acquires a sequence of images that are stored in memory and from which a three-dimensional model is created with a processor. EX1011, ¶[0012] (“Multiple images of the object may be recorded and processed by the computer to produce a 3D map of the object.”); *see also* Figure 1 and ¶[0067] (illustrating and discussing Quadling’s computer and image processor). EX1006, ¶64.

Quadling's stored two-dimensional images used to create its three-dimensional model are sets of images, and each one of the plurality of images in each image set was captured from a different optical axis. As explained by Quadling:

“Multiple images of the object may be recorded and processed by the computer to produce a 3D map of the object. **The multiple images can be captured from multiple positions and orientations with respect to the object.** The individual images are merged to create an overall 3D map of the object.” EX1011, ¶[0012] (emphasis added).

EX1006, ¶¶65-66.

While Quadling does not expressly state precisely how its two-dimensional images were obtained from different optical axes and stored in its sets, multi-aperture scanner/camera arrangements were known to obtain a plurality of two-dimensional image sets such that “each one of the plurality of images in each image set [is] captured from a different optical axis.” In such arrangements, images are obtained from different optical axes and stored in sets not by simply moving the imaging apparatus (e.g. an intra-oral scanner) relative to the structure being imaged, but instead multiple images from different optical axes are captured at the same overall position of the imaging apparatus relative to the structure being imaged using the multiple apertures. EX1006, ¶¶67-68.

Additionally, the '864 Patent acknowledges that multi-aperture scanner/camera systems were known to obtain a plurality of two-dimensional image sets such that “each one of the plurality of images in each image set [is] captured from a different optical axis.” As stated by the '864 Patent:

“While Rohály discloses one multi-aperture system, it will be appreciated that any multi-aperture system suitable for reconstructing a three-dimensional point cloud from a number of two-dimensional images may similarly be employed.” EX1001, 9:9-13.

EX1006, ¶¶69-70.

Durbin discloses a multi-aperture arrangement that a POSITA would have understood is exemplary of how the two-dimensional images of Quadling’s system would have been captured and organized to implement its system:

“FIG. 3 shows another embodiment with multiple image apertures that require only lateral motion. In this embodiment a plurality of image apertures 132A and the illuminator(s) 134A are mounted in a known orientation to one another on a laterally moveable apparatus. The number of image apertures and their orientation is selected to provide sufficient coverage and overlap of the dental structure to be modeled at the desired resolution. At each lateral position, an image from each of the apertures 132A is recorded for later processing.” EX1012, ¶[0047].

EX1006, ¶71.

Additionally, Quadling's plurality of images also include video images acquired using a video camera as its image sensor:

"The image sensor 111 captures an image of the scanned surface of the object 108. The image sensor 111 may be a photo-sensitive or light sensitive device or electronic circuit capable of generating signal representative of intensity of a light detected. The image sensor 111 may include an array of photodetectors. The array of photodetectors may be a charge coupled device ("CCD") or a CMOS imaging device, or other array of light sensitive sensors capable of generating an electronic signal representative of a detected intensity of the light. The image sensor 111 may comprise a commercially available CCD or CMOS high resolution video camera having imaging optics, with exposure, gain and shutter control, such as the Silicon Imaging USB Camera SI-1280F-U." EX1011, ¶[0059] (emphasis added).

EX1006, ¶72.

b. [1.2]: rendering the three-dimensional model in a user interface of a display from a perspective;

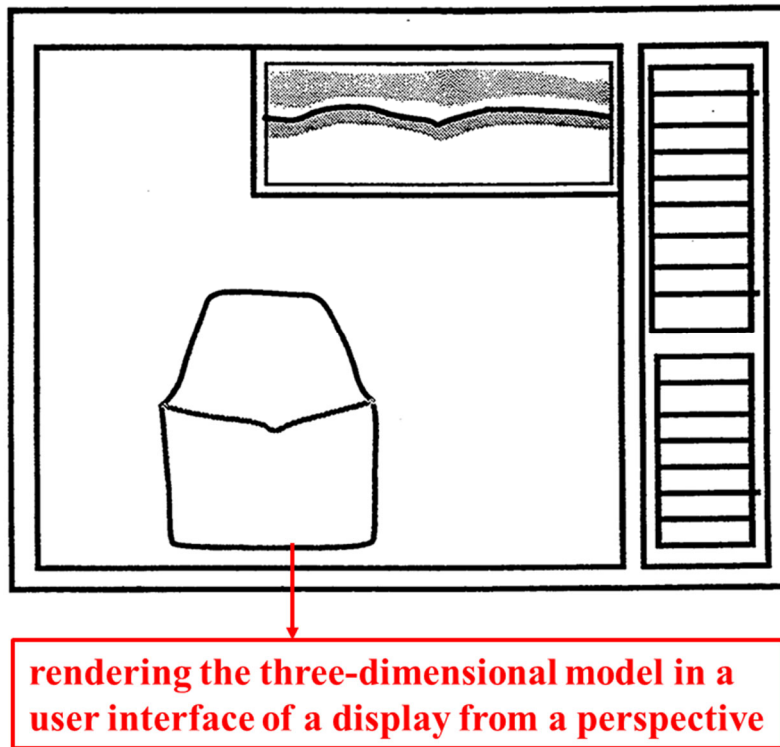
Kawai's system renders its three-dimensional model in a user interface of a display from a perspective:

"The developed view of the abutment tooth and the three-dimensional shape thereof can be simultaneously displayed as shown in FIG. 5, wherein in addition to the

display of the three-dimensional shape of the abutment tooth, the developed view is displayed in the upper part.”

EX1010, 3:61-65 (emphasis added).

FIG. 5



EX1006, ¶¶75-76.

- c. [1.3]: automatically selecting a video image with the processor from the sequence of image sets that contains a view of the subject most closely corresponding to the perspective;

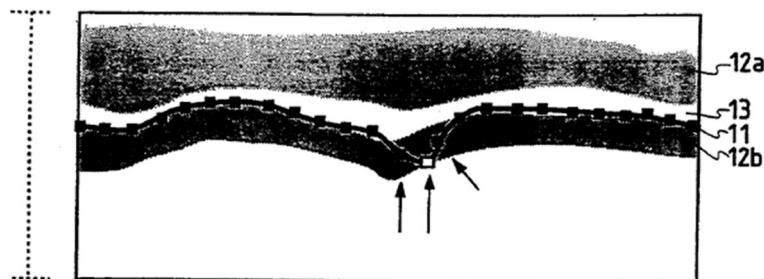
Kawai’s system discloses display of a two-dimensional “developed view” image of its margin line preparation to assist a user in defining that margin line:

“Amounts of variation of data representing the shape of an abutment tooth are determined, and a train of points is extracted from the amounts of variation. Then a developed

view of the surface shape of the abutment tooth is displayed, and the obtained train of points is also displayed in the developed view. The margin line for designing the artificial crown is determined, based on thus displayed train of points.” EX1010, Abstract (emphasis added).

“The train of points representing the margin area is displayed on the corresponding position on said development view. FIG. 1A shows the display of said point train of the margin area on the developed view, wherein said points are connected by straight lines, and such connection can be made by hitting the points with a mouse.” EX1010, 3:26-30 (emphasis added).

FIG. 1A



EX1006, ¶¶79-80.

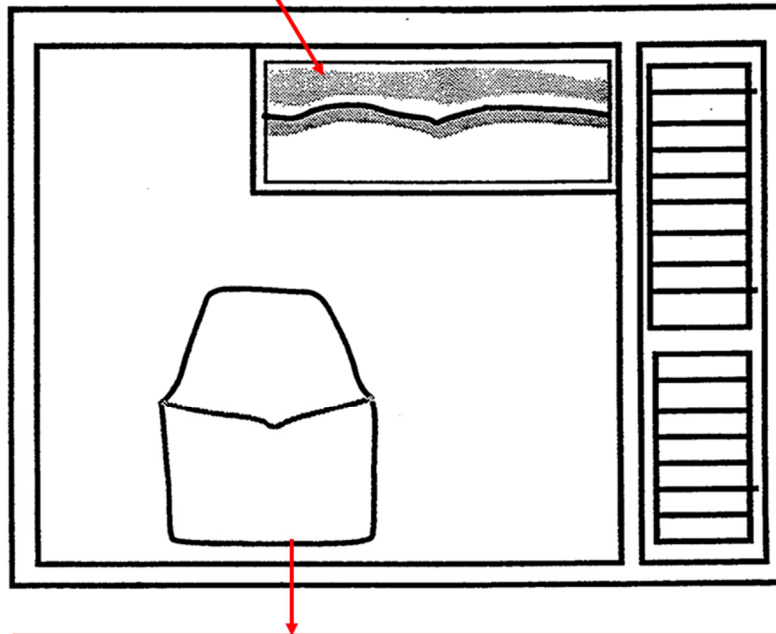
Kawai’s “developed view” image is displayed from a view of the subject most closely corresponding to the perspective of its rendered three-dimensional model. As explained and illustrated by Kawai (annotations in **red**):

“The developed view of the abutment tooth and the three-dimensional shape thereof can be simultaneously

displayed as shown in FIG. 5, wherein in addition to the display of the three-dimensional shape of the abutment tooth, the developed view is displayed in the upper part.”
EX1010, 3:61-65 (emphasis added).

displaying the two-dimensional “developed view” from a view of the subject most closely corresponding to the perspective of the rendered three-dimensional model

FIG. 5



rendering the three-dimensional model in a user interface of a display from a perspective

EX1006, ¶¶81-82.

Here, Kawai does not disclose that its two-dimensional “developed view” image is a “video image” as claimed. Instead, Kawai discloses a computationally expensive approach of deriving the two-dimensional “developed view” from the

three-dimensional data of its three-dimensional model. *See* EX1010, 3:17-25 (“Said development view is obtained by developing the lateral surface of the three-dimensional shape of the abutment tooth and displaying said lateral surface in planar form. More specifically the developed data of the abutment tooth are prepared by developing the cylindrical surface from a broken line L shown in FIG. 2B, and the development view is displayed, based on said developed data.”). EX1006, ¶¶83-84.

As explained with reference to Element [1.1], Quadling discloses acquisition and storage of a plurality of video images used to create its three-dimensional model. In the combination of Kawai with Quadling, a POSITA would use the computationally inexpensive approach of automatically selecting one of Quadling’s *existing* plurality of video images used to create its three-dimensional model as the “developed view” in place of Kawai’s derived approach. That selection would be of a video image containing a view of the subject most closely corresponding to the perspective (of the three-dimensional model) to achieve the same assistance value in defining a margin line of the “developed view” as disclosed in Kawai. EX1006, ¶¶85-87.

d. [1.4]: displaying the video image in the user interface of the display concurrently with the three-dimensional model; and

As explained above with reference to Element [1.3], in the combination of Kawai and Quadling a POSITA would configure the system to select one of

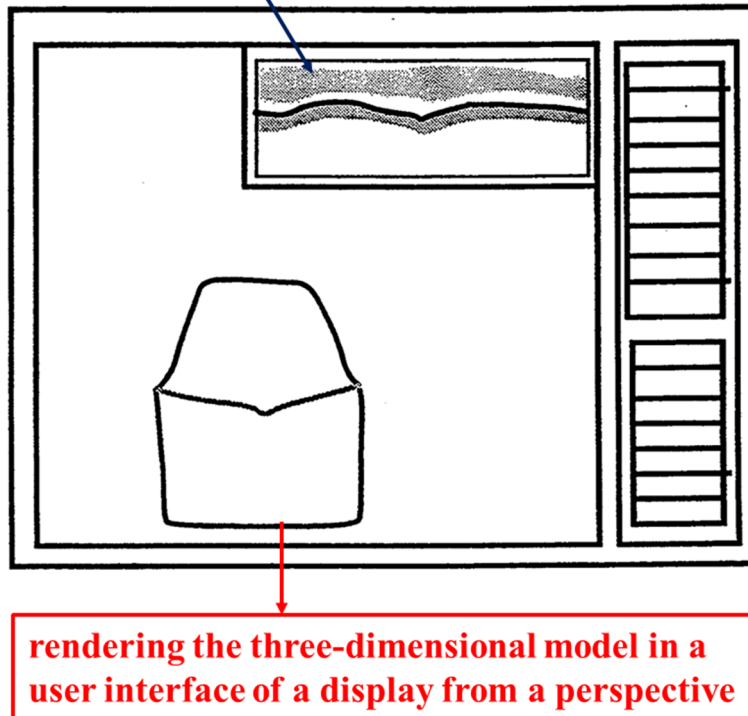
Quadling's *existing* plurality of video images used to create its three-dimensional model as the "developed view." That "developed view" video image would be displayed concurrently with the three-dimensional model. EX1006, ¶¶90-91.

Kawai's "developed view" image is displayed from a view of the subject most closely corresponding to the perspective of its rendered three-dimensional model. Kawai's "developed view" image and its three-dimensional model are displayed in the user interface concurrently. As noted in the annotations below (in blue and red) Quadling's existing video image would be substituted for Kawai's "developed view" image.

"The developed view of the abutment tooth and **the three-dimensional shape** thereof can be **simultaneously displayed** as shown in FIG. 5, wherein in addition to the display of the three-dimensional shape of the abutment tooth, the developed view is displayed in the upper part." EX1010, 3:61-65 (emphasis added).

displaying an automatically selected “video image” from Quadling as the “developed view” from a view of the subject most closely corresponding to the perspective of the rendered three-dimensional model

FIG. 5



rendering the three-dimensional model in a user interface of a display from a perspective

EX1006, ¶¶92-95.

- e. [1.5]: providing a tool with the processor in the user interface for marking a margin of the dentition.

Kawai discloses a tool in the user interface for marking a margin of the dentition. That tool is manipulatable using Kawai’s computer mouse. As explained by Kawai with reference to using the tool on the “developed view” image:

“The train of points representing the margin area is displayed on the corresponding position on said

development view. FIG. 1A shows the display of said point train of the margin area on the developed view, wherein said points are connected by straight lines, **and such connection can be made by hitting the points with a mouse.**” EX1010, 3:26-30 (emphasis added).

“Subsequently there is executed a correction operation for the point train of the margin area extracted by calculation and the lines connecting the points. Said correction is conducted by **hitting a displayed point and moving said point by giving an amount of variation by keys or a dial.**” EX1010, 3:35-40 (emphasis added); *see also* 3:52-60, 3:66-4:11, Claim 4; Claim 7.

EX1006, ¶¶98-100.

Kawai’s tool also allows manipulation of the margin line directly on the three-dimensional model, and any movement of the margin line on either the “developed view” or the three-dimensional model is reflected on both:

“The point train and the connecting lines, representing the margin area, can be displayed both in the three-dimensional shape and in the developed view. The above-mentioned correcting operation for the points may be conducted on the display of the three-dimensional shape, but is more easily conducted on the two-dimensional developed view.

The amount of movement of the point for correction is reflected both on the developed data and on the three-dimensional data. Consequently, when the point is moved on the developed view, the corresponding point in the display of the three-dimensional shape may also be moved in corresponding manner.” EX1010, 3:66-4:10.

EX1006, ¶101.

2. Claim 2 (Preamble): A system comprising:

Kawai in view of Quadling discloses a system with each of the claimed features of Claim 2, as detailed below. *See also* Claim 1 (detailing the method of 2D and 3D display, and margin line definition of Kawai’s system, as modified by Quadling’s scanner disclosure). EX1006, ¶103.

- a. [2.1]: a memory storing a three-dimensional model of a subject and a sequence of image sets used to create the three dimensional model, each image set including a plurality of images of a subject including dentition, each one of the plurality of images captured from a different optical axis, the plurality of images including at least one video image;**

Kawai alone discloses a memory storing a three-dimensional model of a subject, and the rendering of that model in a user interface, as discussed above in reference to Element [1.1]. A POSITA would have appreciated that the three-dimensional model is stored in a memory in order to be rendered and displayed. EX1006, ¶¶105-106.

As discussed above with reference to Element [1.1], Quadling provides a known a three-dimensional measuring instrument, specifically designed to scan dentition. And, Quadling stores a plurality of video images captured from different optical axes – when further understood in combination with Durbin – where those images are acquired using a video camera as its image sensor meeting this Element [2.1]. EX1006, ¶¶107-108.

b. [2.2]: a display configured to provide a user interface presenting the sequence of image sets; and

Kawai’s display provides a user interface that presents its “developed view” image and allows a user to define and make corrections to a margin line, as explained above with reference to Elements [1.3] - [1.5]. EX1006, ¶111.

c. [2.3]: a processor configured to render the three-dimensional model in the user interface from a perspective, select a video image from the sequence of image sets that contains a view of the subject most closely corresponding to the perspective, display the video image in the user interface concurrently with the three-dimensional model, and provide a tool for marking a margin of the dentition.

As discussed above with reference to Element [1.2], Kawai renders its three-dimensional model from a perspective in its user interface. EX1006, ¶114.

As explained above with reference to Element [1.3], Kawai’s system discloses display of a two-dimensional “developed view” image of its margin line preparation to assist a user in defining that margin line, and that “developed view” image is

displayed from a view of the subject most closely corresponding to the perspective of its rendered three-dimensional model. The discussion of Elements [1.3] and [1.4] is also equally applicable here regarding selection of Quadling's existing video image and display of the same concurrently with the three-dimensional model from a view of the subject (dentition). Lastly, as explained with reference to Element [1.5], Kawai discloses a tool in the user interface for marking a margin of the dentition. EX1006, ¶¶115-117.

3. Claim 15 (Preamble): A system comprising:

Kawai in view of Quadling discloses a system with each of the claimed features of Claim 15, as detailed below. *See also* Claim 1 (detailing the method of 2D and 3D display, and margin line definition of Kawai's system, as modified by Quadling's scanner disclosure). EX1006, ¶119.

a. [15.1]: displaying a three-dimensional model of dentition from a perspective in a display;

Kawai discloses display of a three-dimensional model of dentition from a perspective in a display, as detailed above with reference to Element [1.2]. EX1006, ¶121.

b. [15.2]: providing a plurality of video images of the dentition in a memory;

Quadling discloses providing a plurality of video images of the dentition in a memory, as detailed above with reference to Element [1.1]. EX1006, ¶124.

- c. **[15.3]: automatically selecting one of the plurality of video images with the processor that shows the dentition from the perspective; and**

As explained above with reference to Element [1.3], the combination of Kawai and Quadling discloses automatically selecting one of Quadling's *existing* plurality of video images used to create its three-dimensional model as the "developed view" in place of Kawai's derived approach. That selection would be of a video image containing a view of the subject most closely corresponding to the perspective (of the three-dimensional model) to achieve the same assistance value in defining a margin line of the "developed view" as disclosed in Kawai. EX1006, ¶¶127-128.

- d. **[15.4]: displaying the one of the plurality of video images in a user interface of the display concurrently with the three-dimensional model as an aid to visually determining a margin of the dentition.**

As explained above with reference to Element [1.4], the combination of Kawai and Qualding would involve selection of one of Quadling's *existing* plurality of video images used to create its three-dimensional model as Kawai's "developed view." That "developed view" video image would be displayed concurrently with the three-dimensional model, and Kawai's "developed view" is specifically disclosed as an aid to visually determine a margin of the dentition. EX1006, ¶¶131-132.

4. **Claim 16: The method of claim 15 further comprising displaying a margin on one or more of the three-dimensional model or the one of the plurality of video images.**

Kawai discloses display of the margin line on both its three-dimensional image and its “developed view” (which would include Quadling’s substituted video image as the “developed view”).

“The point train and the connecting lines, representing the margin area, can be displayed both in the three-dimensional shape and in the developed view. The above-mentioned correcting operation for the points may be conducted on the display of the three-dimensional shape, but is more easily conducted on the two-dimensional developed view.

The amount of movement of the point for correction is reflected both on the developed data and on the three-dimensional data. Consequently, when the point is moved on the developed view, the corresponding point in the display of the three-dimensional shape may also be moved in corresponding manner.” EX1010, 3:66-4:10 (emphasis added).

EX1006, ¶135.

5. Claim 17: The method of claim 16 further comprising receiving a user modification of the margin and updating the display with a modified margin.

Kawai discloses user modification of the margin line on either of the three-dimensional model or the “developed view” (which would include Quadling’s substituted video image as the “developed view”), and updating of the same on the display of both, as discussed above with reference to Element [1.5]. EX1006, ¶138.

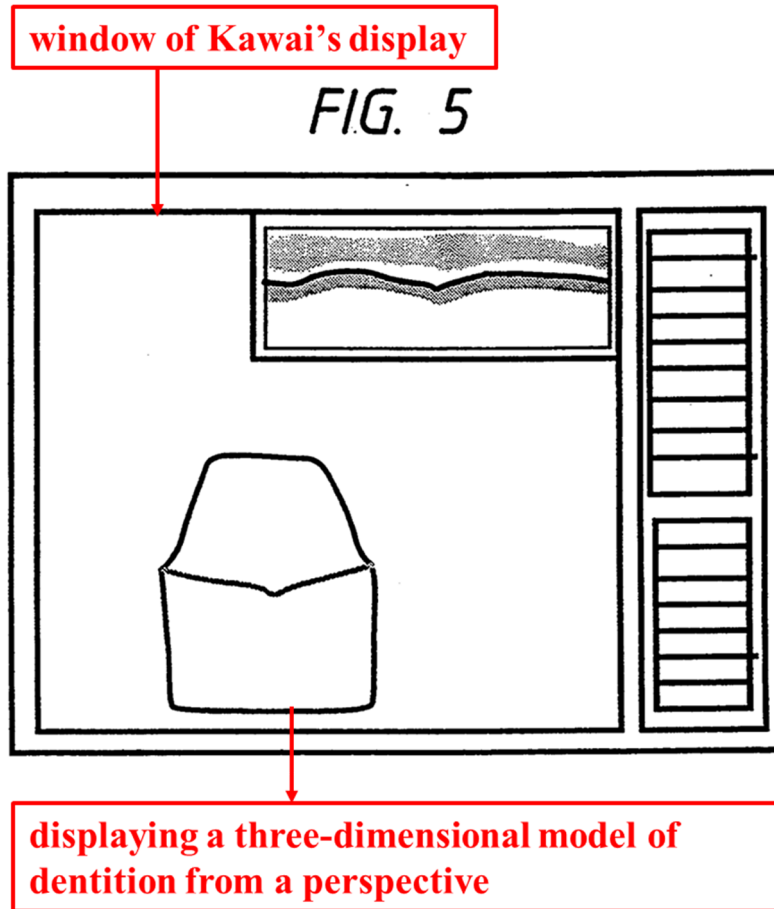
6. Claim 18 (Preamble): A system comprising:

Kawai in view of Quadling discloses a system with each of the claimed features of Claim 18, as detailed below. *See also* Claim 1 (detailing the method of 2D and 3D display, and margin line definition of Kawai’s system, as modified by Quadling’s scanner disclosure). EX1006, ¶140.

a. [18.1]: a display having a window for displaying a three-dimensional model of dentition from a perspective;

Kawai discloses a display having a window for displaying a three-dimensional model of dentition from a perspective:

“The developed view of the abutment tooth and **the three-dimensional shape** thereof can be simultaneously **displayed** as shown in FIG. 5, wherein in addition to the display of the three-dimensional shape of the abutment tooth, the developed view is displayed in the upper part.” EX1010, 3:61-65 (emphasis added).



EX1006, ¶¶142-143.

- b. [18.2]: a camera providing a plurality of video images of the dentition; and

In the combination of Kawai with Quadling, Quadling's scanner includes a video camera that provides a plurality of video images of the dentition:

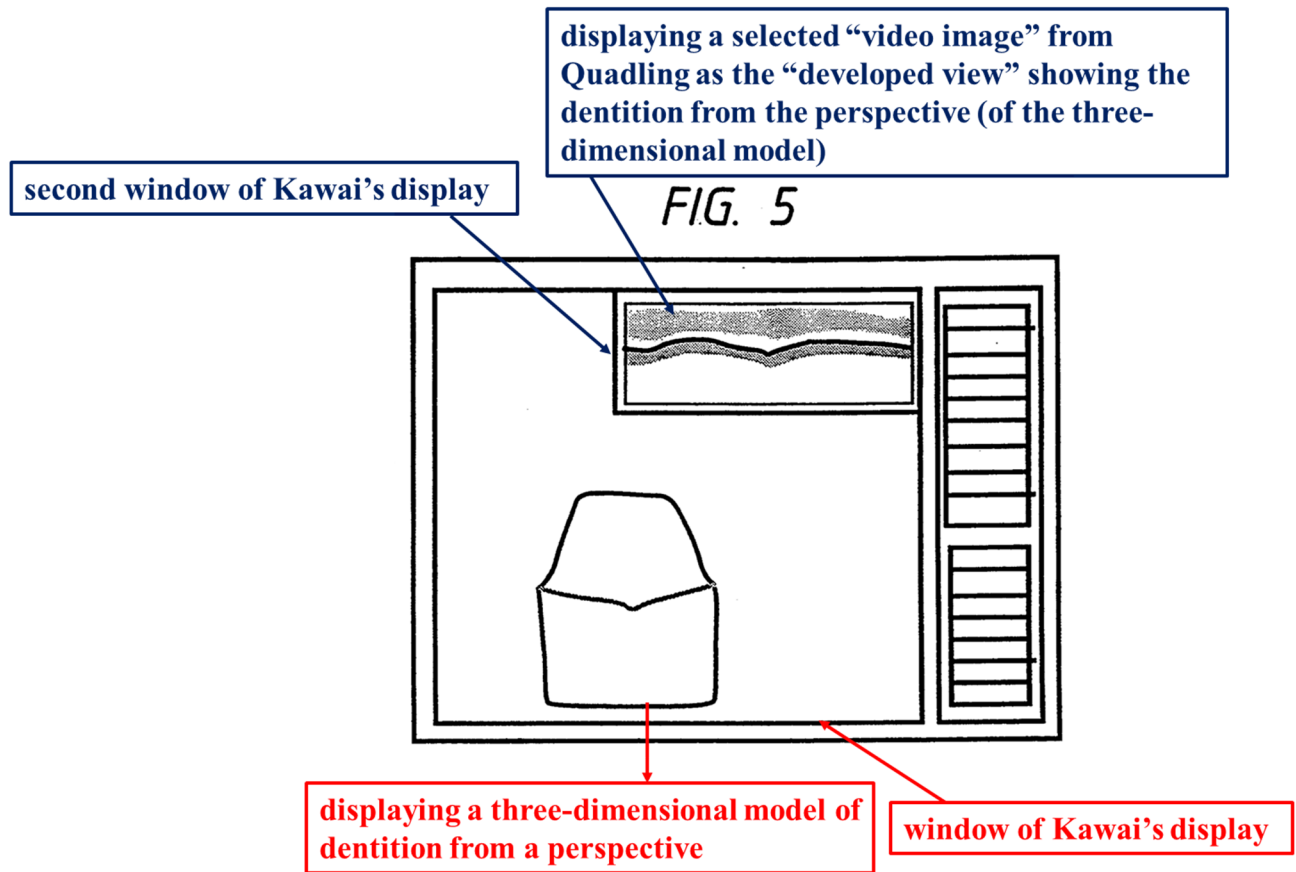
“The image sensor 111 captures an image of the scanned surface of the object 108. The image sensor 111 may be a photo-sensitive or light sensitive device or electronic circuit capable of generating signal representative of intensity of a light detected. The image sensor 111 may include an array of photodetectors. The array of

photodetectors may be a charge coupled device (“CCD”) or a CMOS imaging device, or other array of light sensitive sensors capable of generating an electronic signal representative of a detected intensity of the light. The image sensor 111 may comprise a commercially available CCD or CMOS high resolution video camera having imaging optics, with exposure, gain and shutter control, such as the Silicon Imaging USB Camera SI-1280F-U.” EX1011, ¶[0059] (emphasis added).

EX1006, ¶146.

- c. **[18.3]: a processor configured to select of one of the plurality of video images that shows the dentition from the perspective and display in a second window in the display the one of the plurality of video images concurrently with the three-dimensional model as an aid to visually determining a margin of the dentition.**

As explained above with reference to Element [1.3], the combination of Kawai and Quadling discloses selecting one of Quadling’s *existing* plurality of video images used to create its three-dimensional model as the “developed view” in place of Kawai’s derived approach. That selection would be of a video image that shows the dentition from the perspective (of the three-dimensional model) to achieve the same assistance value in defining a margin line of the “developed view” as disclosed in Kawai. As noted in the annotations below (in **blue** and **red**) Quadling’s existing video image would be substituted for Kawai’s “developed view” image and would be displayed in a second window concurrently with the three-dimensional model.



EX1006, ¶¶149-151.

7. **Claim 19:** The system of claim 18 wherein the processor is configured to display a margin on one or more of the three-dimensional model or the one of the plurality of video images.

Kawai discloses display of the margin line on both its three-dimensional image and its “developed view” (which would include Quadling’s substituted video image as the “developed view”). *See* EX1010, 3:66-4:10; EX1006, ¶154.

8. Claim 20: The system of claim 19 wherein the processor is configured to receive a user modification of the margin and update the display with a modified margin.

Kawai discloses user modification of the margin line on either of the three-dimensional model or the “developed view” (which would include Quadling’s substituted video image as the “developed view”), and updating of the same on the display of both, as discussed above with reference to Element [1.5]. EX1006, ¶157.

9. Explanation of Why Claims 1, 2 and 15-20 Would Have Been Obvious

Claims 1, 2 and 15-20 would have been obvious over Kawai in view of Quadling, and in further view of Durbin. EX1006, ¶159.

a. Kawai combined with Quadling

This section explains the obviousness analysis with respect to the combination of Kawai and Quadling. Following this section is an explanation of the obviousness analysis of the combination of Kawai and Quadling with Durbin. EX1006, ¶160.

b. Difference between the claimed invention and the prior art.

As discussed in §VII.A.c, Kawai discloses all the features of the method and systems of Claims 1, 2 and 15-20 with the exception of its two-dimensional “developed view” image being a “video image” as claimed. Quadling discloses video images used to construct three-dimensional models of dentition and the associated limitations of Claims 1, 2 and 15-20. EX1006, ¶¶161-162.

c. A POSITA would have had motivation to combine the disclosures of Kawai and Quadling.

A POSITA would have had express motivation to combine the system of Kawai with Quadling’s known three-dimensional measuring instrument, specifically designed to scan dentition. *See* EX1011, Abstract (“A intra-oral laser digitizer system provides a three-dimensional visual image of a real-world object such as a dental item through a laser digitization.”). Kawai expressly states that its three-dimensional model of an abutment tooth (*i.e.*, a tooth for a crown preparation) may be obtained using known three-dimensional measuring instruments:

“At first, the shape of a plaster cast of the abutment tooth, prepared in the same manner as in the conventional art, is measured to obtain shape data of said abutment tooth. Said measurement can be achieved by a **known technology**, such as by CT scanning or by **a three-dimensional measuring instrument**. Thus the data indicating the three-dimensional shape of the abutment tooth are obtained from the measurement data.” EX1010, 2:31-35 (emphasis added).

EX1006, ¶¶163-164.

Quadling discloses such a known three-dimensional measuring instrument. A POSITA would need to reference scanning disclosure, such as that provided by Quadling, to implement Kawai’s system. EX1006, ¶165.

Quadling's scanner also provides intra-oral scanning as opposed to the Kawai's suggested need to first create a plaster model of an abutment tooth. This advancement in scanning technology represents a significant improvement in the form of speed and accuracy, as was recognized by the prior art. *See e.g.*, EX1012, ¶¶[0010]-[0012] (discussing advantages of direct intra-oral scanning over traditional model preparation including that "Dental patients typically experience discomfort when the dentist takes an impression of the patient's teeth...Automated scanning techniques have been developed as alternatives to the mold casting procedure. Because these techniques can create a digital representation of the teeth, they provide the advantage of creating an 'impression' that is immediately transmittable from the patient to a dental laboratory...[such methods] can provide details of orally situated dental formations thus enabling diagnosis and the preparation of precision moldings and fabrications that will provide greater comfort and longer wear to the dental patient."); EX1018, 1:6-15 ("A great variety of methods and systems have been developed for direct optical measurement of teeth and the subsequent automatic manufacture of dentures. The term "direct optical measurement" signifies surveying of teeth in the oral cavity of a patient. This facilitates the obtainment of digital constructional data necessary for the computer-assisted design (CAD) or computer-assisted manufacture (CAM) of tooth replacements without having to make any cast impressions of the teeth. Such systems typically includes [sic] an optical probe

coupled to an optical pick-up or receiver such as charge coupled device (CCD) and a processor implementing a suitable image processing technique to design and fabricate virtually the desired product.”). EX1006, ¶¶166-167.

Quadling also provides readily substitutable elements into Kawai’s disclosure in the form of its three-dimensional model of dentition, and its video images (used to create the three-dimensional model) to be substituted for Kawai’s “developed view.” The details of that substitution are provided above with reference to Element [1.3] in Ground 1. Here, Kawai discloses a relatively complex approach involving deriving the two-dimensional “developed view” from the three-dimensional data of its three-dimensional model. *See* EX1010, 3:17-25. By contrast, Quadling provides the ability to select *existing* video images for concurrent display with a three-dimensional model, reducing the overall complexity and computational expense of displaying a two-dimensional “developed view” image along with a three-dimensional model as an aid to visually determine a margin of the dentition—the focus of Kawai’s disclosure. EX1006, ¶¶168-171.

d. A POSITA would have had a reasonable expectation of success based on the disclosures of Kawai and Quadling and knowledge generally available in the art.

A POSITA would have had a reasonable expectation of success in making the combination of Kawai with Quadling’s scanner disclosure because Kawai is agnostic

regarding its three-dimensional measurement technique, and expressly motivates a POSITA to look to known methods:

“At first, the shape of a plaster cast of the abutment tooth, prepared in the same manner as in the conventional art, is measured to obtain shape data of said abutment tooth. Said measurement can be achieved by a **known technology**, such as by CT scanning or by **a three-dimensional measuring instrument**. Thus the data indicating the three-dimensional shape of the abutment tooth are obtained from the measurement data.” EX1010, 2:31-35 (emphasis added).

EX1006, ¶172.

Combining the disclosures of Kawai with Quadling would only require the use of “known methods”—using each in the same way they were used as disclosed. Specifically, Kawai discloses display on a user interface of a three-dimensional model of dentition and a two-dimensional “developed view” image in the same perspective view, and Quadling provides the three-dimensional instrument used to capture the underlying images of the dentition and create the three-dimensional model of the dentition. None of the components or methods would need to be used in an unexpected or unintended way. Each would be fulfilling its original purpose and used in an expected way. EX1006, ¶¶173-175. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 416 (2007) (“The combination of familiar elements according to

known methods is likely to be obvious when it does no more than yield predictable results. . . . [W]hen a patent claims a structure already known in the prior art that is altered by the mere substitution of one element for another known in the field, the combination must do more than yield a predictable result.”).

The combination of Kawai and Quadling renders obvious all the recited features of Claims 1, 2 and 15-20, when also combined with Durbin as discussed directly below. EX1006, ¶176.

e. Kawai and Quadling, when combined with Durbin

This section explains the obviousness analysis with respect to the combination of Kawai and Quadling with Durbin.

f. Difference between the claimed invention and the prior art.

As discussed in §VII.A.c, Quadling generally discloses capture of two-dimensional images from different optical axes for three-dimensional scanning, but it does not expressly state precisely how its two-dimensional images are captured from different optical axes and then stored to implement its system. Durbin provides that express disclosure in the form of a multi-aperture scanner/camera arrangement that obtains a plurality of two-dimensional image sets such that “each one of the plurality of images in each image set [is] captured from a different optical axis.” EX1006, ¶¶177-178.

g. A POSITA would have had motivation to combine the disclosures of Kawai and Quadling with Durbin.

A POSITA would have been motivated to apply Durbin's disclosure concerning multi-aperture scanner/camera arrangements that obtain a plurality of two-dimensional images from different optical axes to confirm how a POSITA would have implemented Quadling's existing two-dimensional image capture from different optical axes for three-dimensional scanning. Given the existing details of Quadling's system that expressly states that "multiple images can be captured from multiple positions and orientations with respect to the object"³, a POSITA would have already been aware that multi-aperture scanner/camera arrangements, such as the one disclosed in Durbin, provided the ability to capture two-dimensional images in a form that readily met the requirements of Quadling's system. In addition, Durbin itself provides motivation to a POSITA to use its multi-aperture scanner/camera arrangement disclosure because it efficiently facilitates "automated intra-oral scanning of all the dental structures in the jaw through an optical aperture and combines the information available in the entire set of images to create and present an accurate 3D model of the scanned structures. The system allows intra oral images of dental structures *to be taken rapidly and with high resolution such that the*

³ EX1011, ¶[0012].

acquired images can be processed into accurate 3D models of the imaged dental structures.” ¶[0024] (emphasis added). Even further, the understanding that multi-aperture scanner/camera arrangements such as that disclosed in Durbin were known in the prior art is confirmed by the ’864 Patent itself. EX1001, 9:9-13; EX1006, ¶¶179-181.

h. A POSITA would have had a reasonable expectation of success based on the disclosures of Kawai, Quadling, and Durbin and knowledge generally available in the art.

A POSITA would have had a reasonable expectation of success in making the combination of Quadling’s video-based scanning system that obtains images from different optical axes with the multi-aperture scanner/camera disclosure of Durbin relating to capture of two-dimensional images from different optical axes. This is so because both references are directed to generation of three-dimensional models from underlying two-dimensional images. *See* Discussion above regarding element [1.1] (concerning Quadling’s model generation), and EX1012, ¶¶[0052]-[0053] (concerning Durbin’s model generation). And, Durbin simply provides a POSITA’s existing understanding of capture of two-dimensional images from different optical axes using a multi-aperture scanner/camera arrangement. EX1006, ¶¶182-183.

Combining the disclosures of Quadling with Durbin would only require the use of “known methods”—using each in the same way they were used as disclosed. Specifically, Quadling already discloses capture of two-dimensional images from

different optical axes – And, Durbin provides the POSITA’s existing understanding of capture of two-dimensional images using a multi-aperture scanner/camera technique demonstrating how a POSITA would have understood two-dimensional images would have been captured to support Quadling’s scanner. None of the methods would need to be used in an unexpected or unintended way. Each would be fulfilling its original purpose and used in an expected way. EX1006, ¶¶184-186. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 416 (2007) (“The combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results. . . . [W]hen a patent claims a structure already known in the prior art that is altered by the mere substitution of one element for another known in the field, the combination must do more than yield a predictable result.”).

The combination of Kawai, Quadling, and Durbin renders obvious all the recited features of Claims 1, 2, and 15-20. EX1006, ¶187.

VIII. OTHER CONSIDERATIONS

A. Any Purported Secondary Considerations Evidence Does Not Overcome the Strong Evidence of the Obviousness of the Claims

All elements of Claims 1, 2 and 15-20 are known in the art, and any differences between the claims of the ’864 Patent and Kawai, Quadling, or Durbin would have been obvious to a POSITA based on the disclosures of the applied references and the knowledge in the art. EX1006, ¶189.

Petitioners are not aware of any secondary considerations evidence bearing any nexus to the purported claimed invention. Any purported evidence of secondary considerations that Patent Owner may present in this proceeding would be insufficient to overcome the strong evidence of obviousness of Claims 1, 2 and 15-20.

B. The Board Should Not Deny This Petition Under §314(a)

Petitioners hereby stipulate that, should the Petition be granted, Petitioners will not pursue in the Related Litigation the same grounds or any grounds that are raised or could have reasonably been raised in this Petition pursuant to *Sotera Wireless, Inc. v. Masimo Corp.*, IPR2020-01019, Paper 12 (PTAB Dec. 1, 2020). The Director has stated that “the PTAB will not discretionarily deny institution of an IPR” in view of such a stipulation. Katherine K. Vidal, Interim Procedure for Discretionary Denials in AIA Post-Grant Proceedings with Parallel District Court Litigation (June 21, 2022) at 3 and n.3 (discussing *Sotera*); *see id.* at 7–9.

Accordingly, Petitioners’ stipulation is dispositive in establishing that institution should not be discretionarily denied under 35 U.S.C. §314(a).

C. The Board Should Not Deny This Petition Under §325(d)

There is no reason to deny institution under §325(d). The totality of the *Becton, Dickinson* factors favor institution. Specifically, none of the cited references herein is the same or substantially the same art previously addressed by the examiner

during prosecution of the application. Further, the prior art relied upon in this Petition discloses synchronized display of both the three-dimensional model and a still video image used to create that model—a feature absent from the prosecution applied references. *See* Section V.B.

Further, with respect to factor (f), the Petition is supported by an expert declaration by Dr. Eli Saber explaining how a POSITA would have understood the prior art combinations. *See, e.g.*, EX1006, ¶¶1-191. This new evidence also weighs against discretionary denial. *See, e.g., Puma N. Am., Inc. v. Nike, Inc.*, IPR2019-01058, Paper 10, 19 (PTAB Oct. 31, 2019) (instituting where petition presented “new non-cumulative evidence.... probative to issues of patentability and helpful to our consideration of a prior art combination that was not before the Examiner”).

IX. CONCLUSION

For at least the foregoing reasons, Claims 1, 2 and 15-20 of the '864 Patent are unpatentable. Since Petitioners have shown the claims to be *prima facie* obvious, Petitioners have also shown a likelihood of success on the merits. Therefore, this Petition should be granted, and the Board should institute trial.

Date: August 14, 2024

Respectfully submitted,

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APPENDIX A—LIST OF EXHIBITS

EXHIBIT	DESCRIPTION
1001	U.S. Patent No. 9,262,864, issued on February 16, 2016 to J. Rohaly <i>et al.</i> (“the ’864 Patent”)
1002	File History of U.S. Patent Application No. 14/487,371, filed on September 16, 2014
1003	PCT Publication No. WO 2009/006273, published on January 8, 2009
1004	U.S. Provisional Application No. 60/947,009, filed on June 29, 2007
1005	<i>Not assigned</i>
1006	Declaration of Eli Saber in Support of Petition for <i>Inter Partes</i> Review of U.S. Patent No. 9,262,864 (Claims 1, 2 and 15-20)
1007	<i>Curriculum Vitae</i> of Eli Saber
1008	<i>Not assigned</i>
1009	<i>Not assigned</i>
1010	U.S. Patent No. 5,417,572 (“Kawai”)
1011	U.S. Patent Publication No. 2004/0254476 (“Quadling”)
1012	U.S. Patent Publication No. 2002/0055082 (“Durbin”)
1013	U.S. Patent Publication No. 2005/0089822 (“Geng”)
1014	U.S. Patent Publication No. 2006/0020363 (“Orth”)
1015	Defendant Medit Corporation’s Answer to Plaintiff’s Complaint and Affirmative Counterclaims filed on August 18, 2023 in <i>3Shape A/S v Medit Corporation</i> , Civ. Action No. 6:22-cv-00443 (WDTX)

Petition for *Inter Partes* Review of U.S. Patent No. 9,262,864

EXHIBIT	DESCRIPTION
1016	Order Severing Claims Related to Counterclaim Patents filed on September 8, 2023 in <i>3Shape A/S v Medit Corporation</i> , Civ. Action No. 6:22-cv-00443 (WDTX)
1017	Claim Construction Order for U.S. Patent Nos. 7,912,257; 9,191,648; 9,245,374; 9,262,864 filed on May 31, 2024 in <i>Medit Corporation v. 3Shape A/S</i> , Civ. Action No. 6:23-cv-00658 (WDTX)
1018	PCT Publication No. WO2000/008415, published February 17, 2000
1019	Multiple View Geometry in computer vision, Richard Hartley and Andrew Zisserman, Second Edition (2003), Introduction pp. 1-21

CERTIFICATE OF COMPLIANCE WITH 37 C.F.R. §42.24

I hereby certify that the word count for the foregoing Petition totals 8,284 words, excluding the parts which are exempted by 37 C.F.R. §42.24(a)(1).

Date: August 14, 2024

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CERTIFICATE OF SERVICE

The undersigned hereby certifies that on this 14th day of August, 2024, a true and correct copy of the foregoing **PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 9,262,864 UNDER 35 U.S.C. §§311–19 and 37 C.F.R. §42.100 *et seq.* and EXHIBITS 1001-1004, 1006, 1007, and 1010-1019** are being served by USPS Priority Mail Express on the correspondence address of record as follows:

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and a courtesy copy is being served to Patent Owner's litigation counsel as follows:

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