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Paper No. 11
Date: November 16, 2015

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

INSTITUT STRAUMANN AG and DENTAL WINGS INC.,

Petitioners,

v.

SIRONA DENTAL SYSTEMS GMBH,

Patent Owner.

Case IPR2015-01190
Patent 6,319,006 B1

Before MEREDITH C. PETRAVICK, BENJAMIN D. M. WOOD, and BRIAN P. MURPHY, *Administrative Patent Judges.*

MURPHY, *Administrative Patent Judge*.

DECISION
Institution of Inter Partes Review
37 C.F.R. § 42.108

I. INTRODUCTION

Institut Straumann AG and Dental Wings Inc. (together "Petitioner") filed a Petition requesting an *inter partes* review of claims 1–10 (all claims) of U.S. Patent No. 6,319,006 B1 (Ex. 1001, "the '006 patent"). Paper 2 ("Petition" or "Pet."). Sirona Dental Systems GmbH ("Patent Owner") filed a Preliminary Response to the Petition. Paper 9 ("Prelim. Resp."). We have statutory authority under 35 U.S.C. § 314(a), which provides that an *inter partes* review may not be instituted "unless . . . there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition."

Petitioner challenges claims 1–4 and 9–10 of the '006 patent as unpatentable under 35 U.S.C. § 102(b) and claims 1–10 under 35 U.S.C. § 103. Pet. 5. Based on the information presented in the Petition and Preliminary Response, we are persuaded there is a reasonable likelihood Petitioner would prevail with respect to at least one claim challenged in the Petition. Therefore, for the reasons given below, we institute *inter partes* review of claims 1–10 of the '006 patent.

A. Related Proceedings

The parties identify the following as related district court proceedings regarding the '006 patent: *Sirona Dental Systems GmbH v. Anatomage, Inc.*, No. 1:14-cv-00540-LPS (D. Del.), filed April 24, 2014; *Sirona Dental Systems GmbH v. Dental Wings Inc.*, No. 1:14-cv-00460-LPS (D. Del.), filed April 11, 2014; *Sirona Dental Systems GmbH v. Dentsply IH Inc*., No. 1:14-cv-00538-LPS (D. Del.), filed April 24, 2014; *Sirona Dental Systems GmbH v. OnDemand3D Technology Inc*., No. 1:14-cv-00539-LPS (D. Del.),

filed April 24, 2014; *Sirona Dental Systems GmbH v. 3Shape*, No. 1:15-cv-00278-LPS (D. Del.), filed March 30, 2015. Pet. 3; Paper 7, 2–3.

On April 15, 2015, Anatomage, Inc. filed a petition requesting an *inter partes* review of claims 1–10 of the '006 patent. Case IPR2015-01057, Paper 1. We issued a decision instituting an *inter partes* review of claims 1–7 and 9–10 in IPR2015-01057 on October 20, 2015. *Id.* Paper 11.

B. Proposed Grounds of Unpatentability

Petitioner advances four grounds of unpatentability under 35 U.S.C. §§ 102 and 103 in relation to the challenged claims in the '006 patent:

Reference[s]	**Statutory Basis**	**Challenged Claims**
Mushabac[1]	§ 102(b)	1–4, 9–10
Fortin[2]	§ 102(b)	1–4, 9–10
Bannuscher[3] and Truppe[4]	§ 103	1–10
Fortin and Truppe	§ 103	1–10

Petitioner also supports its challenge with a Declaration by Dr. Lewis Benjamin ("Benjamin Decl."). Ex. 1002.

[1] Mushabac, U.S. Patent No. 5,562,448, filed August 9, 1991, issued October 8, 1996. Ex. 1007 ("Mushabac").
[2] Fortin et al., *Computer-Assisted Dental Implant Surgery Using Computed Tomography*, 1 J. IMAGE GUIDED SURGERY 53 (1995). Ex. 1003 ("Fortin").
[3] Bannuscher, DE 19510294 A1, filed March 22, 1995, published October 2, 1996. Ex. 1009 (German language); Ex. 1010 (English translation) ("Bannuscher"). The English translation of Exhibit 1010 is certified by the translator pursuant to 37 C.F.R. § 42.63(b). Ex. 1011.
[4] Truppe, U.S. Patent No. 5,842,858, filed May 13, 1996, issued December 1, 1998. Ex. 1008 ("Truppe").

C. The '006 Patent

The '006 patent, titled "Method for Producing a Drill Assistance Device for a Tooth Implant," issued November 20, 2001 from an application filed October 31, 2000.[5] Ex. 1001. The '006 patent is directed to a method for producing a drill assistance device for tooth implant surgery. *Id.* at Abstract. The method allows for optimal determination of a bore hole to be drilled into a person's jaw, by using a combination of X-ray and three-dimensional ("3-D") optical imaging to measure the person's jaw and teeth. *Id.* "Measured data records" are compiled for the X-ray and 3-D optical images and then "correlated" to define the optimal location, angle and depth of a bore hole. *Id.* at 2:16–28. A drill template based on the correlated X-ray and 3-D optical data contains a pilot hole that corresponds to the bore hole to be drilled in the person's jaw for fastening the tooth implant in position. *Id.* at 2:32–38.

Figure 5 of the '006 patent, showing an exemplary drill assistance device, is reproduced below.

[5] The '006 Patent claims foreign application priority to a German patent application, DE 19952962, filed November 3, 1999. Ex. 1001, 1 (30).

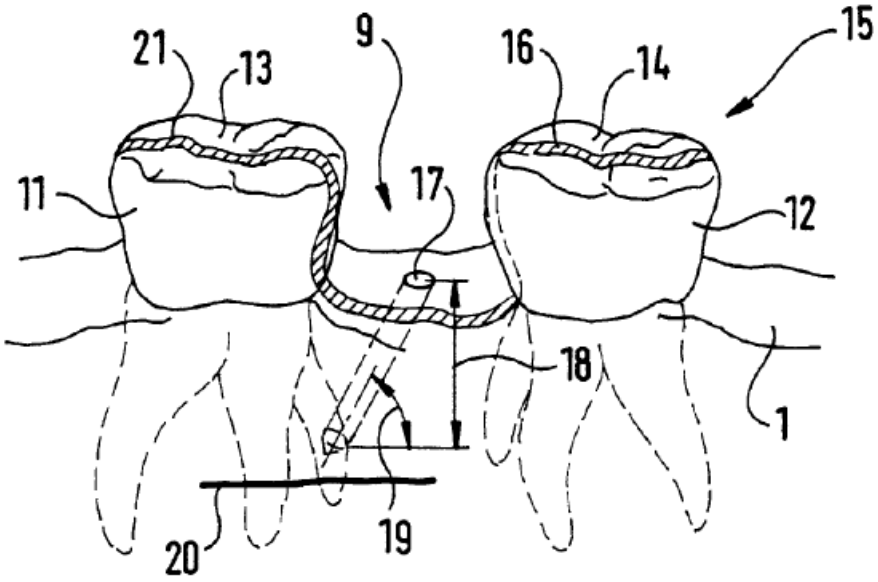

Figure 5, above, shows neighboring teeth 11 and 12 separated by implant space 9. *Id.* at 4:25–26. Drill assistance device 16 attaches to teeth 11 and 12 and includes pilot hole 17, which is positioned in the implant space and set at angle 19. *Id.* at 4:51–58. Depth 18 corresponds to the desired depth of the bore hole, defined to avoid nerve 20. *Id.* at 2:39–45, 4:58–62.

Claim 1 of the ’006 patent is illustrative and reproduced below.

1. Method for producing a drill assistance device for a tooth implant in a person’s jaw, comprising the following process steps:

taking an x-ray picture of the jaw and compiling a corresponding measured data record,

carrying out a three-dimensional optical measuring of the visible surfaces of the jaw and of the teeth and compiling a corresponding measured data record,

correlating the measured data records from the x-ray picture and from the measured data records of the three-dimensional optical measuring,

determinating the optimal bore hole for the implant, based on the x-ray picture, and

determinating a pilot hole in a drill template relative to surfaces of the neighboring teeth based on the x-ray picture and optical measurement.

II. ANALYSIS

A. Claim Construction

In an *inter partes* review, we construe claim terms of an unexpired patent according to their broadest reasonable interpretation in light of the patent specification. 37 C.F.R. § 42.100(b); *In re Cuozzo Speed Techs., LLC*, 793 F.3d 1268, 1278 (Fed. Cir. 2015). Under the broadest reasonable interpretation standard, we assign claim terms their ordinary and customary meaning, as understood by one of ordinary skill in the art, in the context of the entire patent disclosure. *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007). Any special definition for a claim term must be set forth in the specification with reasonable clarity, deliberateness, and precision. *In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994).

1. "carrying out a three-dimensional optical measuring of the visible surfaces of the jaw and of the teeth"

Petitioner argues that the claim phrase "carrying out a three-dimensional optical measuring" should be construed such that it "includes both direct measuring of the actual jaw or teeth of the patient and indirect measuring of such surfaces based on an imprint or a model of the jaw and teeth." Pet. 18-19 (citing Ex. 1002 ¶¶ 44–46). Petitioner argues that neither the claim language nor the specification of the '006 patent indicates whether the optical measuring is to be taken directly from the patient's jaw and teeth or taken indirectly, such as from an imprint or model of the patient's jaw and teeth. *Id.* at 18 (citing Ex. 1002 ¶ 44). Petitioner further argues that, because techniques for acquiring three-dimensional data indirectly from an

imprint or model of a patient's jaw and teeth were known at the time of the effective filing date of the '006 patent, such techniques should be included in the broadest reasonable interpretation of the claim phrase. *Id.* at 18–19 (citing Ex. 1002 ¶¶ 45–46). Patent Owner does not contest Petitioner's argument "solely for purposes of this Preliminary Response." Prelim. Resp. 10.

Claim 1 recites "carrying out a three-dimensional optical measuring of the visible surfaces of the jaw and of the teeth." Ex. 1001, 5:7–8. The '006 patent describes 3-D optical measuring as an "optical image" of the "visible surfaces . . . visible proportions . . . and visible structures" of the teeth and jaw. Ex. 1001, 2:49–65. The claim language and written description are consistent with Petitioner's argument, to the extent that neither the claim language nor the specification excludes indirect 3-D optical measuring of the visible surfaces of the patient's jaw and teeth, such as by optically imaging a negative imprint or physical model of the jaw and teeth. However, we do not view Petitioner as setting forth a formal construction based on the language of the claim phrase at issue, but rather as providing examples of techniques that fall within the scope of the phrase. In IPR2015-01057, we construed the phrase "carrying out a three-dimensional optical measuring of the visible surfaces of the jaw and teeth" as "using light to measure the visible surfaces of the jaw and teeth in three dimensions," based on a definition for "optical" provided by Patent Owner. IPR2015-01057, Paper 11, 7–8. We adopt this construction as well for this Decision.

2. "pseudo-x-ray picture"

Claim 6 depends from claim 1 and recites "wherein the measured data records of the three-dimensional measurement are converted to a pseudo-x-

ray picture, assuming standard x-ray absorption values and the generation theory of the respective x-ray image." *Id.* at 6:5–9. Claim 7 depends from claim 6 and further recites "the x-ray picture and the pseudo-x-ray picture are superimposed from several directions." *Id.* at 6:10–12. The '006 patent describes the pseudo-x-ray picture as "based on the surface data of the three-dimensional image," and states that the pseudo-x-ray picture can "overlap" the "actual x-ray." *Id.* at 2:66–3:7, 4:3–9. The '006 patent references "pseudo-x-ray B´, **8**," that overlaps with "x-ray **5**" as shown in Figure 4, but we find Figure 4 to provide little additional information beyond the descriptive text. *Id.* at 4:3–9, Fig. 4. The '006 patent also does not provide any examples of what type of 3-D optical measurement to make or describe how the 3-D optical "measured data records" are converted to a "pseudo-x-ray picture," other than by referencing the recited "standard" x-ray absorption values and "the generation theory" of the x-ray image. *Id.*; Pet. 19 (citing Ex. 1002 ¶ 48).

Patent Owner does not contest Petitioner's proposed construction "solely for purposes of this Preliminary Response." Prelim. Resp. 10. Therefore, we adopt Petitioner's proposed broadest reasonable interpretation of "pseudo-x-ray picture" as "any representation of measured data records of the three-dimensional optical measuring that can be superimposed on an x-ray image." Pet. 19 (citing Ex. 1002 ¶ 49).

3. "determinating a pilot hole in a drill template"

Claim 1 of the '006 patent recites "determinating a pilot hole in a drill template relative to surfaces of the neighboring teeth based on the x-ray picture and optical measurement." Ex. 1001, 5:16–18. Petitioner does not construe the quoted limitation, but Patent Owner construes the first clause of

the limitation as referring to "a hole in a drill template through which the drill bit actually passes while drilling a bore hole into a patient's jaw during an implant procedure." Prelim. Resp. 10. The '006 patent describes and illustrates the drill template as a strip of material, adhesively secured onto the teeth adjacent the implant site, that contains a pilot hole. Ex. 1001, 4:43–54, Fig. 5. The position (location and angle) of the bore hole and corresponding pilot hole in the drill template "is predetermined on the surface of the drill assistance device" and the dental surgeon "determines the depth of the bore hole . . . and transfers the depth to the drill template as a stop." *Id.* at 4:55–62. The dentist can proceed to drill the bore hole "secure in the knowledge of having chosen the optimal pilot hole position." *Id.* at 63–66. In view of the claim language and description of the pilot hole in the '006 patent, we construe the claim phrase "determinating a pilot hole in a drill template" as "defining a guide hole in a drill template for drilling a bore hole into the person's jaw."[6]

B. Anticipation of Claims 1–4 and 9–10 by Mushabac

Petitioner argues that Mushabac (Ex. 1007) discloses every limitation of claims 1–4 and 9–10 of the '606 patent and, therefore, anticipates the claims pursuant to 35 U.S.C. § 102(b). Pet. 20, 30–38. Mushabac issued more than one year before the October 31, 2000 U.S. application filing date of the '006 patent and qualifies as prior art under 35 U.S.C. § 102(b). *Id.* at 20. Petitioner supports its argument with citations to Mushabac that correspond to each limitation of the claims and with Dr. Benjamin's

[6] Antecedent basis for "the person's jaw" is provided in the preamble. Ex. 1001, 5:2–3.

Declaration. *Id.* at 30–38 (citing Ex. 1007, Figs. 1, 25, 28; Ex. 1002 ¶¶ 22–24, 58–65).

Patent Owner argues that Mushabac does not disclose the recited limitation of "determinating a pilot hole in a drill template" because Mushabac does not disclose use of a drill template for guiding a drill bit at the surgical site during an implant operation. Prelim. Resp. 16–18. Patent Owner argues, in particular, that although Mushabac discloses a block of acrylic material 606 in Figure 28 in which a hole is drilled during a practice (virtual) operation, the hole in the acrylic material does not act as a "pilot hole" during an actual drilling operation at the surgical site. *Id.* at 18–19. Patent Owner does not address the limitations of the dependent claims in its Preliminary Response.

Petitioner points out, however, that Mushabac discloses "[t]he hole in block 606 can then be used as a template to guide, limit or control the motions of an implant drill during an actual operation on the patient's jaw bone 558." Pet. 32, 36 (citing Ex. 1007, 27:8–10, Fig. 28); Ex. 1002 ¶ 65. On the present record, and recognizing that Patent Owner has not yet had an opportunity to submit new testimonial evidence in support of its argument,[7] we are persuaded Petitioner has provided adequate evidence to show a reasonable likelihood of prevailing in its assertion that Mushabac anticipates claims 1–4 and 9–10 of the '006 patent.

[7] 37 C.F.R. § 42.107(c) ("The preliminary response shall not present new testimony evidence beyond that already of record, except as authorized by the Board.").

C. Anticipation of Claims 1–4, 9–10 by Fortin

Petitioner argues that Fortin (Ex. 1003) discloses every limitation of claims 1–4 and 9–10 of the '606 patent and, therefore, anticipates the claims pursuant to 35 U.S.C. § 102(b). Pet. 20–29. Fortin published in 1995, more than one year before the October 31, 2000 U.S. application filing date of the '006 patent, and Fortin qualifies as prior art under 35 U.S.C. § 102(b). *Id.* at 20.[8] Petitioner supports its argument with citations to Fortin that correspond to each limitation of the claims and with Dr. Benjamin's Declaration. *Id.* at 21–29 (citing Ex. 1003, Figs. 2, 3, 8; Ex. 1002 ¶¶ 29, 52, 54–56, 64, 75, 76).

Patent Owner argues that Fortin does not disclose the recited limitation of "carrying out a three-dimensional optical measuring of the visible surfaces of the jaw and of the teeth." Prelim. Resp. 13–16. Patent Owner argues that, although Fortin discloses optical (laser) imaging of the external surface of a "splint" (resin mouthpiece) that covers a plaster model of the upper jaw of a patient, the external surface of the splint is smooth and does not model or permit measurement of the visible surface of the patient's teeth and jaw. *Id.* at 14–15 (citing Ex. 1003, 4–5, Figs. 7–9). Patent Owner argues that the internal surface of the splint and the supporting plaster model of the patient's jaw and teeth "are neither visible to cameras nor accessible to the 'sharp tip' of the 'second rigid body' [probe] in Fig. 7." *Id.* at 15.

[8] We note that Fortin was accepted for publication on February 24, 1995, and bears a copyright date of 1995, but the cover page of the journal provided by Petitioner contains a University of Minnesota Bio-Medical Library date stamp of "11 15 96." Ex. 1003, 1–2. Even if we were to accord Fortin a publication date of November 15, 1996, Fortin would still qualify as prior art under 35 U.S.C. § 102(b).

We agree with Patent Owner. Fortin describes a "splint" made of "autopolymerized clear acrylic resin" that covers the entire upper jaw and serves as a "radiographic template." Ex. 1003, 2 (right column ¶ 1). Fortin illustrates the imaged "external surface" of the splint as a smooth surface, shown in Figures 7 and 8 reproduced below.

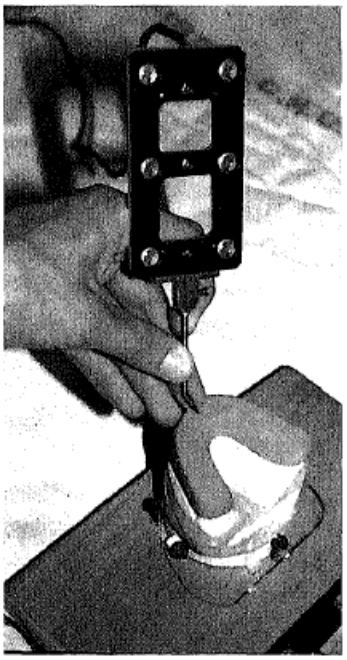

Fig. 7. The splint and a rigid body are firmly attached to define the splint reference coordinate system. A second rigid body equipped with a sharp tip is used to collect points on the splint surface.

Fig. 8. Registration of the 3D points acquired by the pointer with the splint surface segmented on CT images. (a) Initial position. (b) Final position.

Figures 7 and 8, above, show the smooth external surface of the splint covering the plaster mold of the patient's jaw and teeth (Fig. 7) and the optical 3-D points of the external surface are registered with a CT scan (Fig. 8). By implication, the internal surface of the splint and supporting plaster model contain the impression or cast of the visible surfaces of the patient's upper teeth and jaw, not the smooth external surface of the splint that is optically imaged. Petitioner presumes, without sufficient evidentiary

support or explanation, that Fortin discloses 3-D optical measuring of the "visible surfaces" of the patient's jaw and teeth. Pet. 22 ("Surface data of the visible surfaces of the jaw and teeth *are therefore* acquired from the 3-D volume scanning process." (emphasis added) (citing Ex. 1002 ¶ 54)). The cited paragraph in Dr. Benjamin's Declaration states only that the 3-D optical sensor in Fortin "is used to obtain the surface contour of the splint." Ex. 1002 ¶ 54. Therefore, we determine Petitioner has not provided adequate evidence to show a reasonable likelihood of prevailing in its assertion that Fortin anticipates claims 1–4 and 9–10 of the '006 patent.

D. Obviousness of Claims 1–10 Over Fortin and Truppe

Petitioner, focusing on the 3-D "optical measuring" limitation, argues that claims 1–10 would have been obvious over Fortin and Truppe. Pet. 38–44 (citing Ex. 1008; Ex. 1002 ¶¶ 69–73, 75–77, 79–82). Patent Owner opposes. Prelim Resp. 25–30 (citing Ex. 1003; Ex. 1008). We consider the parties' arguments below.

1. Truppe

Truppe discloses a method of preparing for a dental implant operation. Ex. 1008, 1:10–11.[9] Truppe discloses taking an X-ray image of a patient's jaw and "storing the picture in memory as a data set." *Id.* at 2:41–45. Truppe also discloses generating a 3-D optical representation of a patient's jaw, calculating a corresponding data set, and displaying the 3-D optical image in real time on a computer screen. *Id.* at 5:63–6:6. Truppe discloses

[9] Truppe issued December 1, 1998 on an application filed May 13, 1996. Petitioner asserts Truppe qualifies as prior art under 35 U.S.C. § 102(b), because it issued more than one year before the October 31, 2000 U.S. application filing date of the '006 patent. Pet. 20.

two ways of acquiring the 3-D optical representation, either directly by imaging the patient's "oral cavity," or indirectly by imaging a 3-D model of the patient's jaw. *Id.* at 2:65–3:1; 3:48–55. The data sets of the X-ray image and 3-D optical image of a patient's jaw are superimposed in a "positionally correct relationship." *Id.* at 3:19–20.

2. Analysis

Petitioner argues that Truppe "supplements" Fortin because Truppe discloses direct optical imaging of a patient's jaw and teeth. Pet. 39–40 (reproducing Ex. 1008, Figs. 1–2). Petitioner argues, in particular, that a person of ordinary skill in the art would have recognized the benefit of using Truppe's 3-D optical imaging data "in addition to (or substituted for)" the data set acquired by Fortin's method of imaging the external surface of a splint, in order to improve operational planning and implant simulation. *Id.* at 40–41(citing Ex. 1002 ¶ 72). Petitioner asserts Truppe would have provided motivation for one skilled in the art to obtain data from direct and indirect imaging to represent the visible surfaces of a patient's jaw and teeth "very vividly," and the combination of Fortin and Truppe represents the predictable use of known elements for their established functions. Pet. 41 (citing Ex. 1008, 3:56–58; Ex. 1002 ¶ 73).

We agree with Patent Owner that Petitioner's evidence of obviousness lacks sufficient detail and persuasiveness regarding how and why one of ordinary skill would have used either of Truppe's optical imaging techniques in Fortin's method, as proposed by Petitioner. Prelim. Resp. 27–29. Petitioner and Dr. Benjamin do not provide a technical explanation and detailed analysis to support their conclusions that the method in Fortin would have benefitted from Truppe's optical imaging techniques, why a

person of ordinary skill would have sought or expected such a benefit, or how the combination would have worked to achieve the claimed method, with a reasonable expectation of success. *Id.* at 27–28. For example, as explained in section II.C., above, Fortin already discloses use of optical (laser-guided) imaging to scan the smooth external surface of the splint, but Fortin does not scan any visible surfaces of the teeth and jaw, which are inside the splint and not "visible" for optical scanning according to the Fortin method. *Id.* at 29 (citing Ex. 1003, Figs. 7–8). Petitioner and Dr. Benjamin do not address this fundamentally different aspect of the Fortin method or explain how combining Fortin with Truppe would yield a different result.

In sum, Petitioner relies on conclusory statements and does not provide a detailed technical explanation based on the specific disclosures of the references to explain precisely how and why the proposed combination would work in practice. In the absence of a more persuasive analysis to explain how and why the proposed combination would satisfy the independent claim limitation of "carrying out a three-dimensional optical measuring of the visible surfaces of the jaw and of the teeth," we determine Petitioner has not shown a reasonable likelihood of prevailing in its argument for the asserted obviousness of claims 1–10 over Fortin and Truppe.

E. Obviousness of Claims 1–10 Over Bannuscher and Truppe

Petitioner argues that claims 1–10 would have been obvious over Bannuscher and Truppe. Pet. 44–57 (citing Ex. 1008; Ex. 1010; Ex. 1002 ¶¶ 84–102). Patent Owner opposes. Prelim Resp. 31–35 (citing Ex. 1008; Ex. 1010). We consider the parties' arguments below.

1. Bannuscher

Bannuscher discloses a method of preparing an operation template for dental implant surgery. Ex. 1010, Abstract (57).[10] A plaster model is cast from a patient's mouth or jaw, and then the 3-D geometry of the plaster model and an X-ray image of the mouth and jaw are both "input into a computer by digital transfer." *Id.* at 2:22–28, 8:25–39. Markers are used to correlate the data for determining the optimum positioning of the implant, including the vertical dimension of available jaw bone, and drilling angles "which are of primary importance for an implantation procedure." *Id.* at 8:43–9:30. Bannuscher discloses that the optimized implant position is "transferred to the operation template." *Id.* at 7:43–8:4. Bannsucher discloses formation of a pilot hole in the operation template for use "during the operation in the patient's mouth region." *Id.* at 10:25–39. Bannuscher, however, does not disclose 3-D "optical measuring" of the visible surfaces of a patient's jaw and teeth.

2. Analysis

Petitioner relies on Truppe's disclosure of indirect optical imaging of a model of a patient's jaw, which is superimposed with the X-ray data set to provide a "positionally correctly superimposed data set," to fill the gap in Bannuscher. Pet. 46 (citing Ex. 1008, 3:48–55; Ex. 1002 ¶¶ 69, 88). Petitioner argues that one of ordinary skill would have recognized the benefit of utilizing Truppe's superimposed data sets of the actual jaw and model of the jaw in an operation template, because the superimposed data

[10] Bannuscher published on October 2, 1996, more than one year before the October 31, 2000 U.S. application filing date of the '006 patent, and Bannuscher qualifies as prior art under 35 U.S.C. § 102(b). Pet. 20–21.

sets could be represented "very vividly" in implant planning and simulation. *Id.* at 46 (citing Ex. 1008, 3:56–58; Ex. 1002 ¶¶ 89–92). Petitioner argues that Truppe, therefore, would have provided motivation for one of ordinary skill to plan dental implant surgery using correlated "positionally correct" data sets from an optically imaged jaw, model of the jaw, or both. *Id.*at 46–47 (citing Ex. 1008, 3:53–55; Ex. 1002 ¶ 89).

Patent Owner argues there is a fundamental conflict between Bannuscher and Truppe, because Bannuscher is directed to creation of a dental implant operation template, but Truppe discloses a surgical method that does not use an operation template. Prelim. Resp. 31 (citing Ex. 1008, 1:53–55, 3:17–18; Ex. 1010 3:1–14, 3:17–27). Patent Owner emphasizes that Truppe discloses: "the oral cavity must be freely accessible in the operation itself." *Id.* (citing Ex. 1008, 1:53–55). Patent Owner argues, therefore, that Truppe teaches away from production of a drill assist device because Truppe does not suggest that an optical measurement of the jaw and teeth or model of the jaw and teeth would be useful in any context other than in real-time during actual surgery. *Id.* at 32–33. (citing Ex. 1008, 1:11–13, 1:53–55, 3:17–18, 3:45–46, 3:56–58; Ex. 2001, 8:61–65). Patent Owner does not address the limitations of the dependent claims in its Preliminary Response.

At this stage of the proceeding, Petitioner provides evidence to support its contention that Truppe's imaging technique, which uses correlated X-ray and 3-D optical imaging data to generate "very vivid" images for dental implant surgery, would have been recognized as beneficial to one of ordinary skill in Bannuscher's method of producing an implant drill template. On the present record, and recognizing that Patent Owner has

not yet had an opportunity to submit new testimonial evidence in support of its argument, we are persuaded Petitioner has provided adequate evidence to show a reasonable likelihood of prevailing in its assertion that claims 1–10 would have been obvious over Bannuscher and Truppe to one of ordinary skill in the art at the time of the '006 patent filing date.

III. CONCLUSION

Petitioner has demonstrated a reasonable likelihood of prevailing with respect to claims 1–10 challenged in this Petition, based on certain grounds asserted and discussed above. At this stage of the proceeding, the Board has not made a final determination as to the patentability of any challenged claims.

IV. ORDER

ORDERED that pursuant to 35 U.S.C. § 314, *inter partes* review is instituted as to claims 1–10 of the '006 patent on the following grounds of unpatentability:

Claims 1–4 and 9–10 of the '006 patent as anticipated by Mushabac pursuant to 35 U.S.C. § 102(b); and

Claims 1–10 of the '006 patent as obvious over Bannsucher and Truppe pursuant to 35 U.S.C. § 103.

FURTHER ORDERED that *inter partes* review is commenced on the entry date of this Order, and pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4, notice is hereby given of the institution of a trial; and

FURTHER ORDERED that the trial is limited to the grounds of unpatentability listed above, and no other grounds of unpatentability are authorized for *inter partes* review.

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