

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

3D DIAGNOSTIX, INC.,
Petitioner,

v.

WATSON GUIDE IP, LLC,
Patent Owner.

PGR2024-00040
Patent 11,806,209 B2

Before SHERIDAN K. SNEDDEN, JAMES A. TARTAL, and
LISA L. TSANG, *Administrative Patent Judges*.

TARTAL, *Administrative Patent Judge*.

DECISION
Granting Institution of Post-Grant Review
35 U.S.C. § 324

I. INTRODUCTION

3D Diagnostix, Inc. (“Petitioner”)¹ filed a Petition requesting a post-grant review of claims 1–3, 5–7, 10–14, 16, and 17 of U.S. Patent No. 11,806,209 B2 (Ex. 1001, “the ’209 patent”). Paper 1 (“Pet”). Watson Guide IP, LLC. (“Patent Owner”)² filed a Preliminary Response. Paper 6 (“Prelim. Resp.”). Along with the Preliminary Response, Patent Owner filed a statutory disclaimer of claims 11 and 13 of the ’209 patent. Ex. 2001 (the “Disclaimer”). With the Board’s authorization, Petitioner filed a Preliminary Reply (Paper 7, “Prelim. Reply”), and Patent Owner filed a Preliminary Sur-reply (Paper 8, “Prelim. Sur-reply”).

We have authority to determine whether to institute a post-grant review. *See* 35 U.S.C. § 324 (2018); 37 C.F.R. § 42.4(a) (2022). To institute a post-grant review, we must determine that “the information presented in the petition . . . would demonstrate that it is more likely than not that at least 1 of the claims challenged in the petition is unpatentable.” 35 U.S.C. § 324(a). Because claims 11 and 13 were disclaimed, our determination of whether to institute review considers only Petitioner’s allegations directed to claims 1–3, 5–7, 10, 12, 14, 16, and 17 of the ’209 patent (the “Challenged Claims”). *See* 37 C.F.R. § 42.207(e). For the reasons set forth below, we determine that the information presented shows that it is more likely than not that Petitioner would prevail in establishing unpatentability of at least one of the Challenged Claims. Accordingly, we

¹ Petitioner identifies no additional real parties-in-interest and further states that “30% of the stock of 3D Diagnostix, Inc. is held by Straumann Manufacturing, Inc., which has no control, input or participation in the preparing or filing of this Petition.” Pet. 100.

² Patent Owner identifies no additional real parties-in-interest. Paper 5, 2.

institute a post-grant review of the Challenged Claims on the grounds set forth in the Petition.

II. BACKGROUND

A. The '209 Patent

The '209 patent, titled “Fixation Base and Guides for Dental Prosthesis Installation,” issued on November 7, 2023. Ex. 1001, codes (45), (54). The '209 patent “relates to [a] method and apparatus for installing a prefabricated dental prosthesis in the mouth of a patient,” and, in particular, describes “a method enabling installation of a multi-tooth prosthesis anchored in implants.” *Id.* at 1:15–17, 1:31–32.

The '209 patent describes a procedure whereby first a “fixation base” is attached to the jawbone to provide “geometrically correct reference points for subsequent operations.” *Id.* at 1:38–40. A “mouthpiece” may be used to install the fixation base to assist in setting the fixation base in the appropriate location, after which the mouthpiece may be removed. *Id.* at 1:43–48. “With only the fixation base installed, undesired teeth, previously installed dental fixtures, and obstructive body tissues are removed from the work site,” and “[e]xposed maxillary or mandibular bone is then recontoured by abrasive removal of tissue.” *Id.* at 1:50–54. An “abutment guide base” may then be installed to the fixation base “to confirm appropriate preparation of the maxillary or mandibular bone tissue,” after which, the abutment guide base may be removed. *Id.* at 1:57–61. Next, a “drill guide” is installed to the fixation base and “holes for implants are drilled into the exposed and recontoured bone.” *Id.* at 1:63–65. “Implants are installed in the drilled holes,” and the “drill guide may then be removed.” *Id.* at 65–67. “The abutment guide base is installed to the fixation base, and abutments are

installed” on their “associated implant.” *Id.* at 2:1–4. “Copings are then installed using the abutments,” and a “prefabricated prosthesis is then installed over the copings” using a “settable resin . . . to bond the copings to the prosthesis.” *Id.* at 2:5–8. The prosthesis, with copings, is removed, the abutment guide based and fixation base are removed, and then the prosthesis is installed for use. *Id.* at 2:8–13.

Figure 2 of the '209 patent is reproduced below.

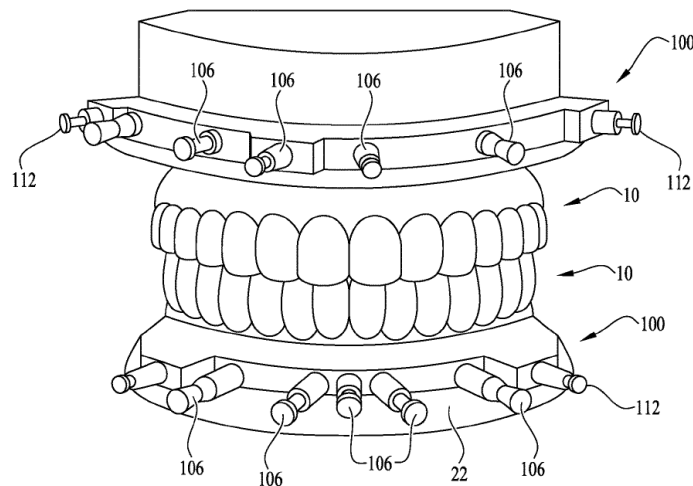


Fig. 2

Figure 2 illustrates “a front view of maxillary and mandibular prostheses, shown with apparatus of the invention attached thereto, and fixed to models of maxillary and mandibular jawbones.” *Id.* at 2:42–45. Figure 2 includes dental prosthesis 10 and fixation base 100 attached by fasteners 112 to artificial model 22 of mandibular and maxillary jawbones. *Id.* at 3:63–4:15, 4:29–33. “First attachment elements 106 may comprise pins, threaded bolts, or other manually removable fasteners, and are made to cooperate with corresponding openings in the other apparatus to be mounted on fixation

base 100.” *Id.* at 4:33–37. The ’209 patent further illustrates “step by step details” of the process in a series of figures. *Id.* at 8:6–56; Figs. 12A–12Z.

Figure 1 of the ’209 patent is reproduced below.

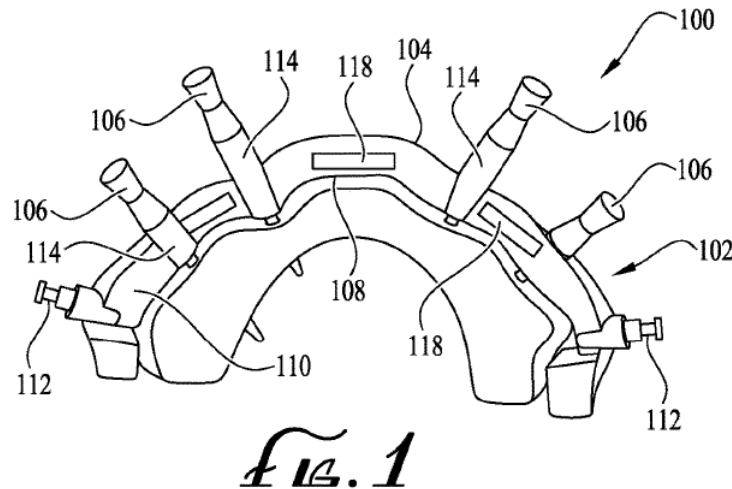


Figure 1 illustrates “an environmental plan view of a fixation base used to install a dental prosthesis.” *Id.* at 2:39–40. Figure 1 shows fixation base 100, which “provid[es] an attachment surface for other apparatus used to orient” implants, abutments, copings, and a dental prosthesis “during an installation procedure.” *Id.* at 4:1–4. Referring to features of the fixation base in Figure 1, the ’209 patent states as follows:

Fixation base 100 may further comprise a generally arcuate base member 102 having a front surface 104 bearing a plurality of fasteners 112, a rear surface 108 configured and dimensioned to fit flushly against a maxillary or mandibular bone structure of the patient, and a horizontal surface 110 bearing first attachment elements 106 for engagement of a first dental guide 122... usable with fixation base 100, and wherein fixation base 100 is non-anatomical.

Id. at 4:4–4:12.

B. Illustrative Claim

The patentability of claims 1–3, 5–7, 10, 12, 14, 16, and 17 of the '209 patent is at issue in this proceeding. Pet. 1; Disclaimer 1. Claims 1, 7, and 17 are independent claims. Claims 2, 3, 5, and 6 depend from claim 1, and claims 10, 12, 14 and 16 depend from claim 7. Claim 1 is illustrative of the claimed subject matter and is reproduced below.

1. A method of installing a multi-tooth dental prosthesis in a maxillary or mandibular position in a mouth of a patient, the method comprising:

providing a dental prosthesis for the maxillary or mandibular positioning in the patient's mouth,

utilizing a fixation base to serve as a mounting jig for a plurality of other dental guides comprising a first dental guide and a second dental guide, wherein the fixation base comprises a generally arcuate shape with a front surface that has a plurality of openings through which fasteners can be passed, a rear surface, and a horizontal surface;

utilizing the first dental guide, wherein the first dental guide is a mouthpiece that attaches to the fixation base and configured and dimensioned to surround at least a portion of the teeth of the patient and is used to assure appropriate location to attach the fixation base to the maxillary or mandibular bone tissue of said patient;

installing the fixation base to the maxillary or mandibular bone tissue of said patient;

removing the mouthpiece from the installed fixation base;

removing at least one of natural teeth, dental fixtures, and obstructive mouth tissues from the work site, to expose an underside of the maxillary or mandibular bone tissue;

recontouring the bone tissue;

utilizing the second dental guide, wherein the second dental guide is a drill guide that attaches to the installed fixation base to assure appropriate location and orientation of holes to be drilled for the subsequently installed implants;

drilling the implant holes in the bone tissue using the drill guide attached to the fixation base;

installing implants in the implant holes;

installing the abutments to the implants; and,

installing said dental prosthesis to the abutments.

Ex. 1001, 9:9–9:45.

C. Asserted Grounds of Unpatentability

Petitioner asserts that the Challenged Claims are unpatentable based on the following grounds:

Claims Challenged	35 U.S.C. §³	Reference(s)/Basis
1–3, 7, 10, 14, 16, 17	103	Llop ’126 ⁴ , Sichuan ⁵
1–3, 7, 10, 14, 16, 17	103	Llop ’126, Sichuan, Groscurth ⁶
1–3, 7, 10, 14, 16, 17	103	Llop ’126, Yau ⁷
1–3, 7, 10, 14, 16, 17	103	Llop ’126, Yau, Groscurth

³ The Leahy-Smith America Invents Act (“AIA”) included revisions to 35 U.S.C. § 103 that became effective on March 16, 2013. We apply the AIA version of § 103 here, because the ’209 patent does not reflect a priority date earlier than the effective date of the AIA. *See* Ex. 1001, codes (22), (60), (63).

⁴ U.S. Patent App. Pub. No. US 2017/0252126 A1, published Sep. 7, 2017 (Ex. 1006, “Llop ’126”)

⁵ Chinese Patent App. Pub. No. CN 105686886 A (certified translation), published June 22, 2016 (Ex. 1009, “Sichuan”).

⁶ U.S. Patent No. US 9,504,533 B2, issued Nov. 29, 2016 (Ex. 1011, “Groscurth”).

⁷ U.S. Patent App. Pub. No. US 2017/0265963 A1, published Sep. 21, 2017 (Ex. 1010, “Yau”).

Claims Challenged	35 U.S.C. § ³	Reference(s)/Basis
5, 6, 12	103	Llop '126, Sichuan, Scherer ⁸
5, 6, 12	103	Llop '126, Sichuan, Scherer, Groscurth

Pet. 9–10.⁹ Petitioner relies on the Declaration of Douglas Erickson, D.D.S., M.S., (Ex. 1003), dated July 18, 2024, to support its challenges.

D. Related Proceedings

Petitioner and Patent Owner identify *Watson Guide IP, LLC v. 3D Diagnostix, Inc.*, No. 1:24-cv-10518-LTS (D. Mass), as a related proceeding. Pet. 100, Paper 5, 2. Petitioner also indicates that the parent patent of the '209 patent—U.S. Patent No. 11,173,016 B2—was the subject of IPR2023-00177. Pet. 101.

III. ELIGIBILITY FOR POST-GRANT REVIEW

As a threshold matter, we must determine whether the '209 patent is eligible for post-grant review. There are two requirements that must be met for post-grant review to be available. First, “[a] petition for a post-grant review may only be filed not later than the date that is 9 months after the

⁸ “Clinical Demonstration: All-on-4 nSequence Guided Prosthetics Surgical Technique with Zest Anchors Chairside Attachment Processing Material,” available at <https://www.youtube.com/watch?v=VOWRdFpfngI> (Exs. 1012 (part 1) and 1013 (part 2), “Scherer”).

⁹ Petitioner also alleges in the Petition that claims 11 and 13 of the '209 patent are unpatentable under 35 U.S.C. § 112 (a) and (b) based on lack of written description support and indefiniteness. Pet. 9–10. Because Patent Owner disclaimed claims 11 and 13 after the Petition was filed, as discussed below (Section IV), the patentability of claims 11 and 13 are not at issue. See 37 C.F.R. § 42.207(e); Disclaimer 1. Accordingly, we do not address grounds asserted by Petitioner in the Petition against only claims 11 and 13 under 35 U.S.C. § 112 (a) and (b) and do not consider allegations directed to only claims 11 and 13 under the remaining grounds asserted by Petitioner against the Challenged Claims.

date of the grant of the patent or of the issuance of a reissue patent (as the case may be).” 35 U.S.C. § 321(c). The ’209 patent issued November 7, 2023 (Ex. 1001, code (45)), and the Petition was accorded a filing date of July 19, 2024 (Paper 3, 1), which is within nine months of the ’209 patent’s issue date. Thus, this requirement is met.

Second, post-grant review is available only for patents that issue from applications that at one point contained at least one claim with an effective filing date of March 16, 2013, or later. *See* the Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011) §§ 3(n)(1), 6(f)(2)(A). The ’209 patent issued from U.S. Application No. 17/503,359, filed on October 18, 2021. Ex. 1001, codes (21), (22). The ’209 patent claims the benefit of U.S. Application No. 15/984,309, filed on May 18, 2018, and U.S. Provisional Application No. 62/508,377, filed on May 18, 2017. *Id.* at codes (60), (63), 1:7–10. Thus, the Challenged Claims all have a priority date after March 16, 2013, and this requirement is met.

IV. STATUTORY DISCLAIMER

Patent Owner “may file a statutory disclaimer under 35 U.S.C. 253(a) in compliance with § 1.321(a), disclaiming one or more claims in the patent,” and “[n]o post-grant review will be instituted based on disclaimed claims.” 37 C.F.R. § 42.207(e). A disclaimer under 35 U.S.C. § 253(a) is “considered as part of the original patent” as of the date on which it is “recorded” in the Office. 35 U.S.C. § 253(a). For a disclaimer to be “recorded” in the Office, the document filed by the patent owner must:

- (1) Be signed by the patentee, or an attorney or agent of record;

(2) Identify the patent and complete claim or claims, or term being disclaimed. A disclaimer which is not a disclaimer of a complete claim or claims, or term will be refused recordation;

(3) State the present extent of patentee's ownership interest in the patent; and

(4) Be accompanied by the fee set forth in 37 C.F.R. § 1.20(d). 37 C.F.R. § 1.321(a); *see also Vectra Fitness, Inc. v. TNWK Corp.*, 162 F.3d 1379, 1382 (Fed. Cir. 1998) (holding that a § 253 disclaimer is immediately “recorded” on the date that Office receives a disclaimer meeting the requirements of 37 C.F.R. § 1.321(a) and that no further action is required in the Office).

Patent Owner has sufficiently shown, and Petitioner does not dispute, that a disclaimer of claims 11 and 13 of the '209 patent under 35 U.S.C. § 253(a) was recorded in the Office as of October 25, 2024. Because the Disclaimer is not directed to all claims challenged in the Petition, we proceed to consider whether to institute a post-grant review based on the asserted grounds directed to the Challenged Claims, which were not the subject of a disclaimer.

V. ANALYSIS

A. *Legal Standards for Obviousness*

A patent claim is unpatentable for obviousness if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). In *Graham v. John Deere Co. of Kan. City*, 383 U.S. 1 (1966), the Supreme

Court set out a framework for assessing obviousness that requires consideration of four factors: (1) the “level of ordinary skill in the pertinent art,” (2) the “scope and content of the prior art,” (3) the “differences between the prior art and the claims at issue,” and (4) “secondary considerations” of nonobviousness such as “commercial success, long felt but unsolved needs, failure of others, etc.” *Id.* at 17–18; *KSR*, 550 U.S. at 407.

“Whether an ordinarily skilled artisan would have been motivated to modify the teachings of a reference is a question of fact.” *WBIP, LLC v. Kohler Co.*, 829 F.3d 1317, 1327 (Fed. Cir. 2016) (citations omitted). “[W]here a party argues a skilled artisan would have been motivated to combine references, it must show the artisan ‘would have had a reasonable expectation of success from doing so.’” *Arctic Cat Inc. v. Bombardier Recreational Prods. Inc.*, 876 F.3d 1350, 1360–61 (Fed. Cir. 2017) (quoting *In re Cyclobenzaprine Hydrochloride Extended-Release Capsule Patent Litig.*, 676 F.3d 1063, 1068–69 (Fed. Cir. 2012)).

B. Level of Ordinary Skill in the Art

In determining whether an invention would have been obvious at the time it was made, 35 U.S.C. § 103 requires us to resolve the level of ordinary skill in the pertinent art at the time of the invention. *Graham v. John Deere Co.*, 383 U.S. 1, 17 (1966). The person of ordinary skill in the art is a hypothetical person who is presumed to have known the relevant art at the time of the invention. *In re GPAC, Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995). Factors that may be considered in determining the level of ordinary skill in the art include, but are not limited to, the types of problems encountered in the art, the sophistication of the technology, and educational

level of active workers in the field. *Id.* In a given case, one or more factors may predominate. *Id.*

Petitioner contends that a person of ordinary skill in the art as of the earliest priority date of the '209 patent “would at least have had a doctoral degree in dentistry and at least three to four years of experience working with guided dental surgery for installing dental implants and prostheses.” Pet. 13 (citing Ex. 1003 ¶ 49). Patent Owner does not dispute Petitioner’s proposed level of skill in the art at this stage. *See generally* Prelim. Resp.

Based on our review of the record before us, we determine that Petitioner’s stated level of ordinary skill in the art is reasonable because it appears consistent with the evidence of record, including the '209 patent and the asserted prior art. Accordingly, we adopt Petitioner’s definition for purposes of this Decision.

C. Claim Construction

In post-grant reviews, the Board interprets claim language using the district-court-type standard, as described in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc). *See* 37 C.F.R. § 42.200(b). Under that standard, we generally give claim terms their ordinary and customary meaning, as would be understood by a person of ordinary skill in the art at the time of the invention, in light of the language of the claims, the specification, and the prosecution history. *See Phillips*, 415 F.3d at 1313–14. Although extrinsic evidence, when available, may also be useful when construing claim terms under this standard, extrinsic evidence should be considered in the context of the intrinsic evidence. *See id.* at 1317–19.

1. *“drill guide” and “fixation base”*

Petitioner contends that the claim terms “drill guide” and “fixation base” require construction “to resolve certain of the unpatentability grounds presented.” Pet. 13–14. In particular, Petitioner proposes that “drill guide” means “drill guide made from metal or metallic alloy without traditional plastic or acrylic,” and that “fixation base” means “fixation base made from metal, metallic alloy or other strong material without traditional plastic or acrylic.” *Id.* Patent Owner contends that we need not address the constructions proposed by Petitioner because the issues addressed by Petitioner’s proposed construction only concern allegations of unpatentability directed to claims 11 and 13, which Patent Owner disclaimed. Prelim. Resp. 12; Disclaimer 1.

The issue of whether the claimed drill guide and fixation base is limited to certain materials only concerns Petitioner’s contentions with respect to the moot grounds of lack of written description support and indefiniteness asserted against disclaimed claims 11 and 13. *See* Pet. 36–44; *Realtime Data, LLC v. Iancu*, 912 F.3d 1368, 1375 (Fed. Cir. 2019) (“The Board is required to construe ‘only those terms . . . that are in controversy, and only to the extent necessary to resolve the controversy.’”) (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)). Accordingly, we agree with Patent Owner that we need not explicitly construe the claim terms “drill guide” or “fixation base” for purposes of this Decision.

2. *“surround at least a portion of the teeth of the patient”*

Independent claims 1 and 17 each recite a method that includes utilizing a mouthpiece “configured and dimensioned to surround at least a

portion of the teeth of the patient.” Independent claim 7 recites an apparatus that similarly includes a mouthpiece “configured and dimensioned to surround at least a portion of the teeth of the patient.” Patent Owner contends that “‘surround at least a portion of the teeth of the patient’ should be construed as ‘enclose at least some teeth of the patient.’” Prelim.

Resp. 13. Patent Owner cites several dictionary definitions and argues that “[t]his construction is consistent with the specification and claims as well as the commonly understood definition of the word ‘surround.’” *Id.* at 13–14. As additional support, Patent Owner directs our attention to a statement by the applicant during prosecution of the ’209 patent that “the patient’s existing teeth provide a ‘hand in glove’ relationship with the mouthpiece.” *Id.* at 13; *see also* Prelim. Sur-reply 2.

Petitioner argues in reply that “[t]here is no reason to replace ‘surround’ with a different word ‘enclose,’” and that “[t]he entries for the word ‘enclose’ in the same extrinsic dictionaries cited by [Patent Owner] indicate that the term essentially means ‘surround.’” Prelim. Reply 1–2. According to Petitioner, Patent Owner offers no reason “why the claim term of choice should be swapped out for a different, synonymous, term.” *Id.* at 2.

Turning to the Specification of the ’209 patent, it does not provide an explicit definition of “surround” and does not suggest an intention to use a meaning of the term “surround” that is particular to the ’209 patent. The Specification states that the mouthpiece is used “to assist in locating fixation base 100 with sufficient precision to assure successful installation of dental prosthesis 10.” Ex. 1001, 5:7–9. More specifically, the ’209 patent states that “the mouthpiece complements fixation base 100 by conforming to some

surfaces of the mouth of the patient not covered by fixation base 100,” and so it “enhances accuracy and geometric integrity of the installation, when compared to placing and relying solely on fixation base 100.” *Id.* at 6:58–7:2. The only mention of the term “surround” in the ’209 patent outside of the claims is the disclosure that “first dental guide 122 is a mouthpiece configured and dimensioned to surround teeth (not shown) of the patient.” Ex. 1001, 4:65–67 (referencing Figure 4). The Specification, however, provides no further description or illustration to show the extent to which first dental guide 122 surrounds the patient’s teeth in the embodiment illustrated in Figure 4.

On this record, and at this stage of the proceeding, we agree with Petitioner that construing the claim term “surround” to mean “enclose” does not further inform or clarify to a person of ordinary skill in the art what is encompassed by the claim limitation. Patent Owner’s proposal to construe the limitation to mean “enclose at least some teeth of the patient” (Prelim. Resp. 13) appears to only replace the disputed phrase with parallel language that is no clearer than the claim term itself.

Petitioner further argues that “surround at least a portion of the teeth of the patient” encompasses scenarios in which “at least some teeth are partially surrounded, that all teeth are partially surrounded, or that at least a part of at least one tooth is surrounded.” Prelim. Reply 2. We need not resolve the full scope of the claim limitation “surround at least a portion of the teeth of the patient” for purposes of this Decision. The focus, instead, is on whether Petitioner has sufficiently shown how the limitation would have been obvious based on what is taught or suggested by the asserted prior art. In sum, for purposes of this Decision, we decline to adopt Patent Owner’s

proposed construction, we find no express construction necessary, and we apply the ordinary and customary meaning of “surround,” as further discussed below in our analysis of the grounds of unpatentability asserted by Petitioner.

D. Summary of Asserted Prior Art References

1. Summary of Llop '126

Llop '126, titled “Bone Foundation Guide System and Method,” describes a “dental implant surgical guide that removably combines with a bone foundation guide to properly place a dental implant-retained prosthesis to a dental surgical site.” Ex. 1006, code (54), ¶ 26. Figure 1 is “a perspective bottom side view of one possible embodiment of the bone foundation guide” (*Id.* ¶ 47), and is reproduced below.

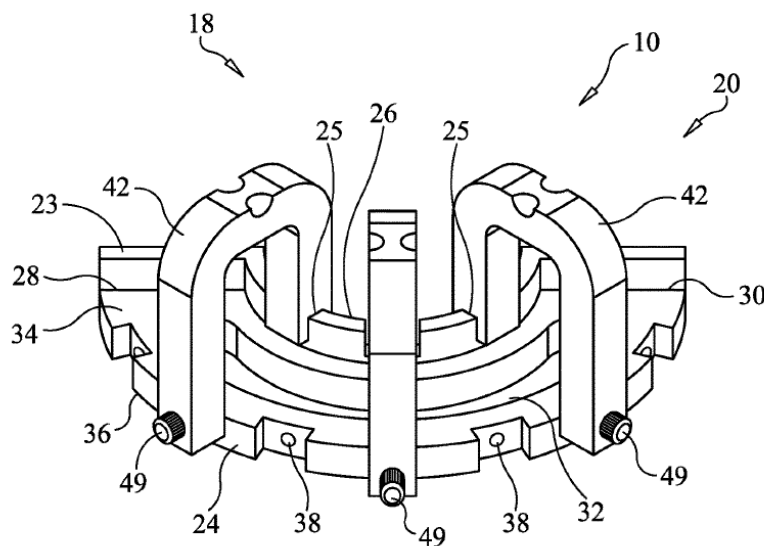


FIG. 1

As shown in Figure 1, bone foundation guide system 18 includes a bone foundation guide 20 comprising buccal wall 24 and lingual wall 26 connected together at ends 28 and 30. *Id.* ¶¶ 95–96. Attachment apertures 38 may pass through buccal wall 24 to allow fasteners 40 (not

shown in Figure 1) to removably secure guide 20 to a dental surgical site. *Id.* ¶ 97. The system 18 may also include anchoring struts 42 that are removably attached to buccal wall 24 and lingual wall 26, where struts 42 have indentations 46 (not shown in Figure 1) “that can match one or more portions of gum, dentition or both” of the opposing alveolar ridge. *Id.* ¶ 98; *see also id.* ¶ 136. Struts 42 may include apertures “that allow strut fasteners 49 (e.g., tapered pins) to penetrate through the anchoring strut 42 to the buccal wall 24,” where fasteners 49 are “held in place by frictional force.” *Id.* ¶ 98.

The patient’s action (e.g., substantially clamping down with patient’s mouth upon the bone foundation guide 20 in situ could allow the patient to temporarily and removably hold the bone foundation dental [guide] upon the dental surgical site while the dental health care professional (not shown) is free to use both hands to attach the bone foundation guide 20 in place with body fasteners.

Id. ¶ 99. Figure 12 is “a front perspective view of the bone foundation guide with struts” (*Id.* ¶ 58), and is reproduced below.

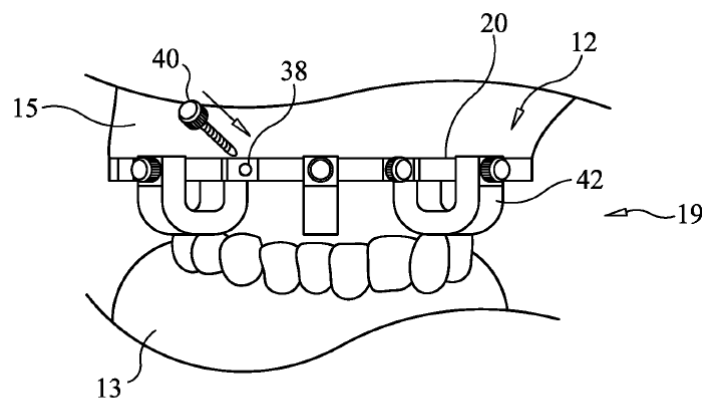


FIG. 12

After attaching guide 20, anchoring struts 42 may be removed so that a dental implant surgical guide may be removably attached “to guide and

locate the placement of dental implants within dental surgical site 12.”

Id. ¶ 101.

Figure 29 depicts an alternative embodiment that includes “a bone foundation guide prosthesis 200 that can be removably combined with the body 22 of the bone foundation guide to form a bone foundation guide prosthesis-body combination 202.” Ex. 1006 ¶ 128.

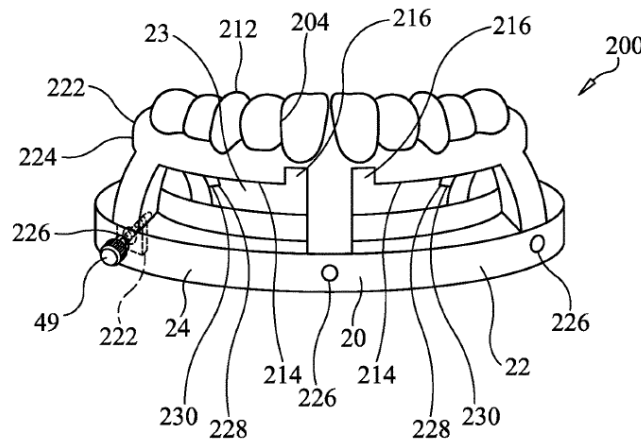


FIG. 29

With the embodiment shown in Figure 29, “[a]s the respective patient bites upon the combination, the opposing or first alveolar ridge 13 (e.g., opposing teeth) [not shown in Figure 29] could be brought into contact with the teeth portion 204 of the bone foundation guide prosthesis 200.” *Id.* ¶ 128.

Various parameters of this “opposing alveolar ridge-to-bone foundation guide prosthesis bite” may reflect “the final prosthesis-to-opposing first alveolar ridge bite.” *Id.* In the case of “any significant departure or inconstancy with the surgical dental implant plant” revealed by these parameters, “the dental implant surgery could be halted” and reformulated. *Id.*

2. Summary of Sichuan

Sichuan, titled “Subapical Osteotomy Positioning Guide Plate and Manufacturing Method Thereof,” and describes a positioning guide plate that “fills the gap of lacking a device for guiding osteotomy positioning during subapical osteotomy,” so as “to prevent the occurrences of the most common complications associated with current subapical osteotomy.”

Ex. 1009, codes (54), (57). Figure 1, reproduced below, illustrates a first embodiment.

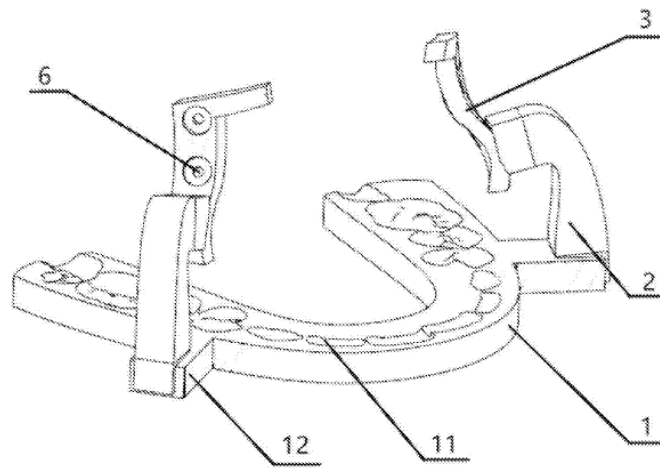


Figure 1

As shown in Figure 1, “positioning biteplate 1 is provided with initial tooth prints 11 disposed on its upper surface.” *Id.* ¶ 66. Connector rods 2 connect positioning biteplate 1 to maxillary osteotomy line guide plates 3. *Id.*

Guide plates 3 include screw holes 6. *Id.* During surgery, after removing soft tissue, a surgeon places “the positioning biteplate on the patient’s upper dentition, so that the maxillary osteotomy line guide plate completely fits the surface of the maxillary anterior bone,” and, after pre-drilling, fixes “the maxillary osteotomy line guide plate to the surface” with screws.

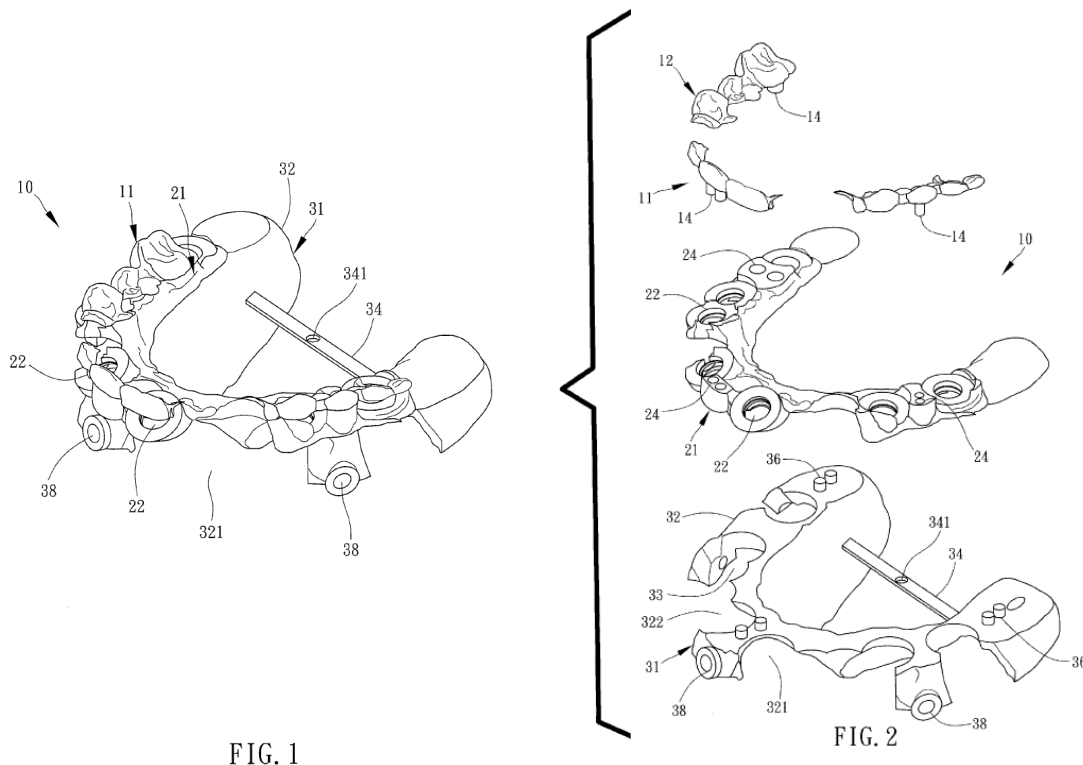
Id. ¶¶ 11–12. In regard to a second embodiment of Sichuan that provides

both maxillary osteotomy line guide plates and a mandibular osteotomy line guide plate, Sichuan also states that “positioning biteplate 1 is provided with initial dental prints 11 disposed on the upper and lower surfaces thereof.”

Ex. 1009 ¶ 88; *see also id.* Fig. 7.

3. Summary of Yau

Yau, titled “Dental Implant Surgical Guide,” describes a dental implant surgical guide that can be used for “patients with too many missing teeth or full-mouth toothless.” Ex. 1010, code (54), ¶ 6. Figures 1 and 2 of Yau, reproduced below, illustrate respectively “an oblique top elevational assembly view of a dental implant surgical guide” and “an exploded view of the dental implant surgical guide.” *Id.* ¶¶ 12–13.



As shown in Figure 1, dental implant surgical guide 10 includes upper guide member 11, intermediate guide member 21, and lower guide member 31.

Id. ¶ 16. As shown in Figure 2, “upper guide member 11 comprises a tooth mold 12,” which “is adapted for tight engagement with the natural teeth or temporary dentures of the opposite jaw when the patient bites.” *Id.* ¶ 17. In practice, after the guide members of guide 10 are assembled, guide 10 is mated with a patient’s gingiva so that “an initial positioning effect is achieved.” *Id.* ¶ 22. Afterward, the patient’s biting enables “tooth mold 12 of the upper guide member 11 to be forced into tight engagement with the natural teeth or temporary dentures of the patient’s opposite jaw,” so as to “achieve fine position adjustment.” *Id.* Next, mounting members 381 [not shown in the figures], for example, “plug pins or screw bolts,” can be installed in mounting portions 38 to secure lower guide member 31 to the patient’s gingiva “by means of friction resistance between the mounting members 381 and the patient’[s] jawbone.” *Id.* ¶¶ 19, 22. “[F]ollow-up drilling or implant installation procedure can then be performed.” *Id.* ¶ 23.

4. Summary of Groscurth

Groscurth, titled “Endentulous Surgical Guide,” describes “[a] dental surgical drill guide assembly and method [that] includes a surgical guide housing and a base frame that fits to both gum tissue and one or multiple small areas of jawbone.” Ex. 1011, codes (54), (57). In particular, in Groscurth base frame 200 may be fitted on a jawbone structure and “may be made of a transparent or semi-transparent resin” for visibility, or “may also be made of a colored resin and other composite material or metal that provides the base frame 200 with enough rigidity for stability and the right amount of flexibility in clasp areas.” *Id.* at 4:46–52.

5. Summary of Scherer

Scherer is a video with the title “Clinical Demonstration: All-on-4 nSequence Guided Prosthetics Surgical Technique with Zest Anchors Chairside Attachment Processing Material.” Ex. 1012. The video details a dental implant installation procedure that includes the use of a bone foundation guide as well as other guides. *See* Exs. 1012, 1013.

E. Asserted Obviousness Based on Llop ’126 and Sichuan

Petitioner contends that the combination of Llop ’126 and Sichuan renders the subject matter of claims 1–3, 7, 10, 14, 16, and 17 obvious.¹⁰ Pet. 44–74. In opposition, Patent Owner primarily argues at this stage of the proceeding that the combination of Llop ’126 and Sichuan fails to teach or suggest a mouthpiece “configured and dimensioned to surround at least a portion of the teeth of the patient,” as recited in independent claims 1, 7, and 17. Prelim. Resp. 23–26.

1. Independent Claim 1

Petitioner contends each of the limitations of claim 1 is taught by the combination of Llop ’126 and Sichuan. Pet. 50–65. Specifically, Petitioner contends bone foundation guide 20 of Llop ’126 corresponds to the claimed fixation base that acts as a mounting jig for various other dental guides. *Id.* at 52 (citing Ex. 1003 ¶¶ 141–144; Ex. 1006 ¶ 26–30, Figs. 4, 5, 19). Further, Petitioner contends anchoring struts 42 that removably attach to bone foundation guide 20 correspond to the claimed first dental guide, which is a mouthpiece. *Id.* (citing Ex. 1006 ¶¶ 28–29, 64, 95, 98, and 139); *see*

¹⁰ Claim 13 was also challenged by Petitioner, however, because claim 13 was subsequently disclaimed, we do not consider in our analysis Petitioner’s allegations directed only to claim 13.

also id. at 53–56 (citing Ex. 1003 ¶¶ 147–154; Ex. 1006 ¶¶ 98, 99, 136, Abstract, Figs. 1, 3). According to Petitioner, “[a]lthough the anchoring struts 42 form a ‘mouthpiece’ according to its commonly understood meaning,” during prosecution the Examiner determined that Llop ’126 “did not disclose a ‘mouthpiece’ as claimed.” *Id.* 54 (citing Ex. 1002, 224; Ex. 1003 ¶148).

Petitioner thus further relies on Sichuan, contending “Sichuan discloses a mouthpiece configured and dimensioned to surround a portion of the teeth that is used to assure appropriate location to attach a guide to the patient’s maxillary or mandibular bone tissue.” Pet. 56; *see also id.* at 56–58 (citing Ex. 1003 ¶¶ 152–154; Ex. 1009 ¶¶ 7, 11, 12, 21, 27, 38, 49, 63, 66, 88, Abstract, Figs. 1, 4, 6). In particular, Petitioner asserts that Sichuan’s positional biteplate “is created from tooth prints 11 of the patient with dentition data,” and that a skilled artisan would understand that the tooth prints “conform precisely to the shape of the teeth, and that they would thus be configured and dimensioned to surround at least a portion of the teeth of the patient.” *Id.* at 58 (citing Ex. 1003 ¶ 153; Ex. 1009 ¶¶ 7, 21, 27, 38, 66, Abstract).

Petitioner argues that one of ordinary skill in the art would have had reason to combine Sichuan and Llop ’126 “to ensure proper placement of the fixation base relative to the surgical site” by modifying the anchoring strut system of Llop ’126 by constructing it with the positioning mouthpiece as taught by Sichuan. Pet. 44 (citing Ex. 1003 ¶¶ 121–133; Ex. 1009 ¶¶ 3, 5). Further, Petitioner asserts that one of ordinary skill in the art “would have understood from Sichuan the benefits of modifying the anchoring struts of [Llop ’126] to include a mouthpiece, in order to improve the positioning of a

fixation base for attachment to a patient's jawbone," and thus "would have been motivated to modify the anchoring strut system of [Llop '126] by using a biteplate as taught by Sichuan," at least for "non-endentulous cases where teeth remain." *Id.* at 45–46 (Ex. 1003 ¶¶ 124–126). Petitioner also asserts that one of ordinary skill in the art would have "understood the benefit of modifying Llop126 to use the Sichuan mouthpiece in endentulous cases, where teeth are not present on the ridge of the surgical site, but are present only on the opposite alveolar ridge." *Id.* at 47 (citing Ex. 1003 ¶ 127). Petitioner further contends there would have been a reasonable expectation of success in the proposed combination of Llop '126 and Sichuan. *Id.* at 49; *see also id.* at 49–50.

In opposition, Patent Owner argues that "neither Llop ['126] nor Sichuan, considered alone or in combination teach or suggest a mouthpiece 'configured and dimensioned to surround at least a portion of the teeth of the patient' as recited in all of the contested claims." Prelim. Resp. 23. In particular, Patent Owner asserts that "Llop ['126] teaches indentations that touch small portions of a patient's teeth," and that "Sichuan is no better," because "the biteplate disclosed by Sichuan teaches tooth prints that are only 1 to 2 mm deep and that therefore only touch small portions of a patient's teeth." *Id.* at 19, 25 (citing Ex. 1009 ¶¶ 80, 84). Thus, Patent Owner argues, "Sichuan fails to teach or suggest a mouthpiece 'dimensioned and configured to enclose at least some teeth of the patient.'" *Id.* at 26. Patent Owner's argument, however, relies on a claim construction that replaces the claim term "surround" with "enclose," which we do not adopt at this stage of the proceeding, as explained above. *See supra* Section V.C.2.

On the current record Petitioner has sufficiently shown how it contends Sichuan teaches a mouthpiece “configured and dimensioned to surround at least a portion of the teeth of the patient” to support institution. Pet. 50–65. Petitioner’s argument is supported by Dr. Erikson, who explains, with cited support, that “Sichuan discloses a biteplate that is configured and dimensioned to surround the teeth on both the maxillary and mandibular jaws, such that it forms a mouthpiece having a ‘hand and glove’ relationship with the patient’s teeth.” Ex. 1003 ¶ 125 (citing Ex. 1009 ¶ 88); *see also id.* (further stating that “[t]he Sichuan mouthpiece includes precise recesses for the cusps of each tooth, thereby surrounding them”). Sichuan expressly teaches a “dental print depth of about 2mm” and shows in Figure 1 a biteplate that extends around the circumference of and over the bite surface of multiple teeth of the patient. Ex. 1009 ¶ 80; *see also id.* at ¶ 84 (stating that “the dental prints have a depth of 1–2mm”). Patent Owner’s argument that Sichuan’s disclosure is an insufficient teaching of a mouth piece “configured and dimensioned to surround at least a portion of the teeth of the patient,” as recited in the challenged claim, is unsupported attorney argument. We further note that were we to replace the claim term “surround” with “enclose,” as Patent Owner suggests, we would reach the same determination on the current record. *See supra* Section V.C.2.

For the reasons discussed above, and based on Petitioner’s contentions and supporting evidence, we determine on the preliminary record before us that Petitioner more likely than not would prevail in establishing that the asserted combination of Llop ’126 and Sichuan teaches every limitation of independent claim 1, and that one of ordinary skill in the art would have had

sufficient reason to combine these references with a reasonable expectation of success in doing so.

2. *Independent Claims 7 and 17, and Dependent Claims 2, 3, 10, 14, and 16*

Petitioner contends each of the limitations of independent claims 7 and 17, and dependent claims 2, 3, 10, 14, and 16 is taught by the combination of Llop '126 and Sichuan. Pet. 65–74. Petitioner's contentions are supported by Dr. Erikson. Ex. 1003 ¶¶ 87–197. Patent Owner does not dispute, at this stage of the proceeding, Petitioner's contentions showing how the combination of Llop '126 and Sichuan teaches each limitation of claims 2, 3, 7, 10, 14, 16, and 17, aside from the limitation of a mouthpiece that is “configured and dimensioned to surround at least a portion of the teeth of the patient,” which is common to independent claims 1, 7, and 17, and which we have already addressed. We have reviewed Petitioner's contentions and supporting evidence, and determine that Petitioner more likely than not would prevail in establishing that the asserted combination of Llop '126 and Sichuan would have rendered obvious claims 2, 3, 7, 10, 14, 16, and 17.

F. Additional Grounds

Petitioner presents additional grounds as indicated above. *See supra* § II.C. For each additional ground, Patent Owner disputes Petitioner's contention as to the same phrase recited in claims 1, 7, and 17 discussed above, namely, a mouthpiece that is “configured and dimensioned to surround at least a portion of the teeth of the patient.” *See* Prelim. Resp. 26–34. Because we determine above that, at this stage of the proceeding and on the present record, Petitioner more likely than not would prevail with respect

to at least one claim based on alleged obviousness over Llop '126 and Sichuan, we need not address, in this Decision, Petitioner's additional challenges. *See* 35 U.S.C. § 324(a).

We note that in two of the additional asserted grounds Petitioner relies on Yau, rather than Sichuan, as teaching “a mouthpiece configured and dimensioned to surround a portion of the teeth.” Pet. 78–92. In particular, Petitioner contends that “Yau describes using a ‘tooth mold’ as an ‘upper guide member’ that attaches to a ‘middle’ and ‘lower’ guide member so that they may be fixed to the patient’s gingiva.” *Id.* at 84 (citing Ex. 1010 ¶¶ 7, 8, 16–25). According to Petitioner, a person of ordinary skill would have understood “from Yau’s description of a ‘tooth mold adapted for tight engagement with the natural teeth’ and the accompanying figures that the tooth mold is configured and dimensioned to surround at least a portion of the patient’s teeth.” *Id.* at 85 (citing Ex. 1003 ¶ 226).

Patent Owner asserts that “the tooth mold 12 disclosed by Yau on the upper guide member 11 ‘is adapted for tight engagement with the natural teeth or temporary dentures of the opposite jaw when the patient bites.” Prelim. Resp. 29 (citing Ex. 1010 ¶ 17). Patent Owner argues that “[e]ngagement of simulated bottom teeth with natural teeth or temporary dentures of the opposite jaw is totally different than surrounding a portion of the teeth of the patient.” *Id.*

Patent Owner has not proposed or supported a claim construction that requires the “at least a portion of the teeth of the patient” surrounded by the mouthpiece in independent claims 1, 7, and 17 to be on the same side of a patient’s mouth—i.e., maxillary or mandibular—as the mouthpiece when it is attached to the fixation base. Moreover, Patent Owner has not

persuasively explained with support why the “tight engagement” between Yau’s tooth mold 12 and a patient’s teeth (Ex. 1010 ¶ 17) fails to teach a mouthpiece that is “configured and dimensioned to surround at least a portion of the teeth of the patient.”

VI. CONCLUSION

For the foregoing reasons, we conclude that the information presented in the Petition demonstrates that it is more likely than not that at least one of the claims challenged in the Petition is unpatentable. Thus, we institute a post-grant review of all Challenged Claims on all presented challenges.

VII. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that, pursuant to 35 U.S.C. § 324, a post-grant review is instituted for claims 1–3, 5–7, 10, 12, 14, 16, and 17 of the ’209 patent on the unpatentability grounds asserted in the Petition; and

FURTHER ORDERED that pursuant to 35 U.S.C. § 324(c) and 37 C.F.R. § 42.4, notice is hereby given of the institution of a trial, which commences on the entry date of this Decision.

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