

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

STRAUMANN USA, LLC,
Petitioner,

v.

SMART DENTURE CONVERSIONS, LLC,
Patent Owner.

IPR2025-00956
Patent 11,937,992

PATENT OWNER'S SUR-REPLY

July 22, 2026

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<i>Medtronic Inc. v. Teleflex Innovations, S.A.R.L.</i> , 69 F.4th 1341 (Fed. Cir. 2021)	<i>Passim</i>
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LIST OF PATENT OWNER’S EXHIBITS

Exhibit No.	Description
2001	First Supplemental Complaint, <i>Smart Denture Conversions, LLC v. Straumann USA, LLC</i> , No. 1:24-cv-00507-JCB (D. Del. Feb. 4, 2025), ECF No. 34
2002	Docket sheet, <i>Smart Denture Conversions, LLC v. Straumann USA, LLC</i> , No. 1:24-cv-00507-JCB (D. Del.)
2003	Complaint, <i>Smart Denture Conversions, LLC v. Straumann USA, LLC</i> , No. 1:24-cv-00507-JCB (D. Del. Apr. 23, 2024), ECF No. 1
2004	Defendant Straumann USA, LLC’s Opening Brief in Support of its Motion to Dismiss Plaintiff’s Complaint for Failure to State a Claim for Relief under Fed. R. Civ. P. 12(b)(6), <i>Smart Denture Conversions, LLC v. Straumann USA, LLC</i> , No. 1:24-cv-00507-JCB (D. Del. July 29, 2024), ECF No. 13
2005	Order, <i>Smart Denture Conversions, LLC v. Straumann USA, LLC</i> , No. 1:24-cv-00507-JCB (D. Del. Jan. 30, 2025), ECF No. 31 (“scheduling order”)
2006	Stipulated Protective Order, <i>Smart Denture Conversions, LLC v. Straumann USA, LLC</i> , No. 1:24-cv-00507-JCB (D. Del. Mar. 4, 2025), ECF No. 44
2007	Defendant Straumann USA, LLC’s Initial Invalidity Contentions, No. 1:24-cv-00507-JCB (D. Del.) (served June 2, 2025)
2008	Order Regulating Practice for civil cases assigned to The Honorable J. Campbell Barker, <i>Smart Denture Conversions, LLC v. Straumann USA, LLC</i> , No. 1:24-cv-00507-JCB (D. Del. Dec. 16, 2024), ECF No. 22
2009	Notice of <i>Sotera</i> Stipulation, <i>Smart Denture Conversions, LLC v. Straumann USA, LLC</i> , No. 1:24-cv-00507-JCB (D. Del. June 4, 2025), ECF No. 57
2010	Declaration of Karl Leinsing

2011	Smart Denture Conversions, <i>Technique Manual</i> , available at https://shorturl.at/798cX
2012	International Patent Application No. WO 96/2019 (Sept. 26, 1996) (“Sutter 1996”)
2013	U.S. Patent No. 6,332,777 B1 (Dec. 25, 2001) (“Sutter 2001”)
2014	U.S. Patent No. 3,115,804 (Dec. 31, 1963) (“Johnson”)
2015	U.S. Patent No. 5,904,483 (May 18, 1999) (“Wade”)
2016	U.S. Patent No. 6,517,543 B1 (Feb. 11, 2003) (“Berrevoets”)
2017	U.S. Patent No. 9,568,037 B2 (Feb. 14, 2017) (“Staniszewski”)
2018	U.S. Patent Publication No. 2002/0094255 A1 (July 18, 2002) (“Neuhengen”)
2019	Curriculum Vitae of Karl Leinsing
2020	Declaration of Dr. Brandon Kofford
2021	Second Declaration of Karl Leinsing
2022	Deposition Transcript of John B. Brunski, Ph.D. (Feb. 13, 2026)
2023	H.W. Elani et al., <i>Trends in Dental Implant Use in the U.S., 1999–2016, and Projections to 2026</i> , 97 <i>Journal of Dental Research</i> 1424 (2018)
2024	Smart on X, <i>About Us</i> , available at https://bit.ly/4un9wQl (last visited March 13, 2026)
2025	Facebook post by Neodent (Dec. 22, 2025), available at https://bit.ly/4sKTVbv (last visited Feb. 26, 2026)
2026	Instagram post by Neodent Global, available at https://www.instagram.com/reel/DAYZvWktWjU/?hl=en (last visited Feb. 26, 2026)

2027	Neodent, <i>NeoConvert™: Transforming smiles</i> , available at https://www.straumann.com/neodent/us/en/professionals/products-and-solutions/treatment-concepts/neoconvert.html
2028	<i>Aspen Dental and ClearChoice Anchor Strong Growth, Innovation Across the Aspen Group's Multi-Brand Healthcare Portfolio</i> , AspenDental, https://bit.ly/4u1Eg98 (last visited Mar. 5, 2026)
2029	Carolina Olaya Álvarez et al., <i>Conversion of a muco-supported complete prosthesis into fixed implant-supported prosthesis using the NeoConvert™ solution in a maxillary rehabilitation with guided surgery and immediate loading</i> , 6 Brazilian J. Implantology & Health Scis. 2134 (2024)

TABLE OF ABBREVIATIONS

Bernhard	U.S. Patent Publication No. 2017/0202649 A1 (July 20, 2017), Ex. 1003
Brunski Decl.	Declaration of John B. Brunski, Ph.D., Ex. 1002
Derey	W.O. Patent Publication No. 2013/030839 A1 (Mar. 7, 2013), Ex. 1008
Gracco	A. Gracco, <i>Effects of Thread Shape on the Pullout Strength of Miniscrews</i> , 142 Am. J. Orthodontics & Dentofacial Orthopedics 186 (2012), Ex. 1006
Kofford	U.S. Patent No. 11,311,354 (Apr. 26, 2022), Ex. 1013
Leinsing Tr.	Leinsing Transcript (May 20, 2026), Ex. 1036
Poovey	U.S. Patent Publication No. 2016/0045290 A1 (Feb. 18, 2016), Ex. 1005
POPR	Patent Owner Preliminary Response (Aug. 29, 2025), Paper 9
POR	Patent Owner Response (Mar. 13, 2026), Paper 26
POSA	Person of ordinary skill in the art
Priority Applications	'942 Application, '402 Application, '082 Application, and '361 Application (collectively)
Ruetschi	DE 3808238 A1 (Oct. 27, 1988), Exs. 1021 & 1022
SDC	Patent Owner Smart Denture Conversions, LLC
Straumann	Petitioner Straumann USA, LLC
'082 Application	U.S. Patent Application No. 62/818,082 (Mar. 13, 2019), Ex. 1011
'361 Application	U.S. Patent Application No. 16/596,361 (Oct. 8, 2019), Ex. 1012

'402 Application	U.S. Patent Application No. 62/774,402 (Dec. 3, 2018), Ex. 1010
'942 Application	U.S. Patent Application No. 62/742,942 (Oct. 9, 2018), Ex. 1009
'992 Patent	U.S. Patent No. 11,937,992 (Mar. 26, 2024), Ex. 1001
1 Leinsing	Declaration of Karl Leinsing, Ex. 2010
2 Leinsing	Declaration of Karl Leinsing, Ex. 2021

I. INTRODUCTION

Petitioner's Reply rests on an incorrect reading of the specification and ignores how a POSA would understand the disclosure.¹ The Reply's written description argument for Grounds 1–3 ignores controlling authority in the POR that one disclosed species is legally sufficient to support the claims for this mechanical art, particularly when the claims are properly construed.

The claims do not recite a “broad” genus of temporary screws that simply have different thread patterns of a definitive screw. Instead, the claims define specific temporary screws in terms of both geometry and functional capabilities, inter alia, that (1) have a “different” or “shaped differently” thread pattern than a definitive screw, (2) rotatably engage the same female abutment threads as the definitive screw, (3) provide “alignment” and (4) release from the abutment female threads under “an axial [pick-up] force in a proximal direction.” That is a narrower genus than the Institution Decision concluded. Inst. Dec. at 28 (“Thus, the threads of the claimed temporary screw *need only be ‘different’ in pattern or profile* compared to the definitive screw. This is a *broad concept* and provides a generic claim element.”).

¹ A Table of Abbreviations is provided at pages 6–7 for the Board's convenience.

Thus, a proper reading of the claim limitations for temporary screw undercuts Petitioner’s argument. The specification properly discloses the claimed temporary screw to a POSA, and Kofford accordingly does not qualify as prior art.

The Reply likewise fails on Grounds 4–6 because none of its cited references disclose or suggest using a temporary screw that has “different threads” from the definitive (*i.e.*, permanent) screw when both are configured to engage the same female threads.

While Petitioner also disputes the level of ordinary skill and asserts waiver, neither dispute changes the result: under either POSA definition, the specification of the ’992 Patent’s text—not merely obvious variants—describes the claimed subject matter, and SDC’s claim-scope arguments respond directly to the Board’s framing.

Ultimately, although the Board concluded (incorrectly SDC asserts) the Petition met the threshold screening “reasonable likelihood” standard for institution, Petitioner has not met its ultimate burden on the full record to prove the claims invalid by a preponderance of the evidence. *Precision Planting v. Deere & Co.*, 2020 WL 7378831, at *1 (PTAB Dec. 15, 2020).

II. COMPETING POSA DEFINITIONS

Petitioner reargues the alleged field of invention should be “the design of dental implants and prostheses,” while noting specific examples of Leinsing’s

field, including “the design of bone implants, anchors, and/or screws.” Reply at 1 (quoting 2 Leinsing ¶ 46). Petitioner then mischaracterizes Leinsing’s deposition testimony. Reply at 2. SDC’s definition correctly identifies the level of *ordinary* skill. POR at 19–20. SDC acknowledges, however, the Board noted the parties’ definitions “share many consistencies,” finding “little meaningful difference between the two proposed definitions.” Inst. Dec. at 13. Under either definition, a POSA would have readily recognized the written description of the ’992 Patent adequately supports the claimed invention.

The Reply reargues that a POSA would have a bachelor’s degree in mechanical, biomedical, or materials science engineering, and 5 years of dental prosthesis or implant experience. Reply at 1–3 (citing Brunski Decl. ¶¶ 42–48, 128–29). The Reply argues the correct field of invention is a dentistry-specific setting. Reply at 1. Nonetheless, Petitioner spends the next 13 pages arguing that a POSA with this training and experience would have no idea how the specification’s description of alternative implementations would work without a matching drawing, like exemplary Figure 75 of the ’992 Patent. Reply at 3–16. This argument makes no sense.

III. IMPLICIT CLAIM CONSTRUCTION

The linchpin of Grounds 1–3 is the implicit “broad” genus construction of the temporary screw limitation as only having a “different” thread pattern/profile

than the definitive screw. The Reply attempts to deflect the implicit construction, arguing “[n]either the Board nor Straumann ever stated the claims encompass temporary screws that are not screwed in or pulled out.” Reply at 18.

The Reply, however, ignores the POR’s explanation (POR at 23–28) of (1) how the implicit construction resulted in an overbroad genus for the temporary screw, that in turn resulted in the Board (2) finding Figure 75 of the ’992 Patent to be an inadequate single disclosed species for a claimed genus, and (3) “preliminarily determin[ing] [Kofford] to be prior art to the challenged claims.” Inst. Dec. at 30–31, 35.

The claims do not recite a “broad” genus of temporary screws that simply have different thread patterns of a definitive screw. Instead, the claims define specific temporary screws in terms of both geometry and functional capabilities. *Supra*, 8; POR at 23–28. As a matter of law, when properly construed, the claimed temporary screwed is adequately disclosed by Fig. 75 and its description. *Id.*

IV. GROUNDS 1–3 FAIL BECAUSE KOFFORD IS NOT PRIOR ART

The Board was clear that “[o]nly if Petitioner is correct on this priority issue would Kofford, which is cited in the ’992 Patent for priority purposes, be prior art.” Inst. Dec. at 22. As explained above, even without the multiple disclosed embodiments discussed below, Petitioner’s argument fails when the temporary screw is properly construed based on the specific geometric and functional claim

limitations. The Board also recognized the '992 Patent discloses “several embodiments of temporary screws,” including Figure 75 and other threaded-post embodiments that release copings through axial force. Inst. Dec. at 7. Petitioner’s Reply fails to show the claims of the '992 Patent are too broad because (1) this case is **not** like *Tronzo* or *ICU Medical*, (2) the Reply ignores the text of the '992 Patent’s specification, and (3) the '992 Patent’s specification describes at least three species not depicted in Figure 75. SDC does not contend that merely obvious variants satisfy the written description requirement; rather, the Priority Applications themselves describe the relevant species—threaded or serrated portions, inclusively combinable features, polymer fasteners, and interference-fit engagement in substantially the same text. *See, e.g.*, '942 Application (Ex. 1009), 5; '402 Application (Ex. 1010), 16; 2 Leinsing ¶¶ 59, 131, 137, 141, 150.

A. Petitioner’s Reliance on *Tronzo* and *ICU Medical* is Misplaced

This case is unlike *Tronzo*, where the specification described one conical shape and disparaged all other shapes. *Tronzo v. Biomet*, 156 F.3d 1154, 1158–60 (Fed. Cir. 1998). Here, the specification does not disparage any different shaped thread profiles. *See generally* '992 Patent. Instead, the '992 Patent affirmatively discusses using multiple differently shaped thread profiles. *See infra* at Section [IV.D](#)~~IV.C~~; POR at 29–46.

Leinsing confirmed that Figure 75 “is not limiting and has other embodiments as discussed in my declarations.” Leinsing Tr. 32:8–9. He further explained the Board was “focusing incorrectly on Figure 75 and ignoring the other intrinsic evidence which is the other options for different threads. You can have either threads going in the other direction ... you can have a split or no split, you can have an interference fit.” *Id.*, 94:4–12.

Unlike *Tronzo*, the ’992 specification does not state that Figure 75’s slotted asymmetric-thread configuration is an “extremely important” or exclusive aspect of the invention. The first sentence that describes Figure 75 notes that either a “separable threaded or serrated portion” may engage abutment threads and release with axial force without mentioning a slot. ’992 Patent, 23:10–14. Two sentences later, the description introduces the slot and further describes the slotted temporary screw may also release with an axial force. ’992 Patent, 23:15–22. The ’992 Patent’s description of an axial release—one without mentioning a slot and another after introducing the slot—demonstrates the slot is not essential.

This case is also unlike *ICU Medical* because those asserted claims did not have a spike, while the “specification ***describes only medical valves with spikes.***” *ICU Medical Inc. v. Alaris Medical Sys., Inc.*, 558 F.3d 1368, 1378 (Fed. Cir. 2009). The Federal Circuit rejected ICU Medical’s arguments that a spikeless medical valve was supported because ***all*** of the figures ***and*** descriptions of the

medical valves included spikes. In contrast, the '992 Patent describes multiple examples of differently shaped threads for axial release, viz., polymer asymmetric threads, slotted symmetric and asymmetric threads, and polymer interference fit threads, all capable of deformation. *See infra* at Section [IV.D](#)~~IV.E~~.

B. The Reply Fails to Distinguish *Gillette* or *Medtronic*

The Reply argues *Gillette* and *Medtronic* are distinguishable because (1) “the limitations at issue were not important” and (2) the '992 Patent does not include any similar “permissive language.” Reply at 16–17. Petitioner is mistaken.

First, the Reply glosses over ***why*** *Gillette*’s limitations were not important. *Gillette* pointed out the application “does not characterize” other configurations “as inferior,” nor does it “characterize” a specific location “as an important aspect of the invention.” *Gillette*, 2023 WL 6367741, at *16. This was why *Tronzo* was inapplicable there (and here), because *Tronzo*, “***significantly***, characterized other shapes as ‘prior art’ and ‘inferior’ to a conical shape, and characteriz[ed] the conical shape as an ‘***extremely important*** aspect of the present invention.’” *Id.* at *15 (emphasis added). Likewise, *Gillette* applies here and *Tronzo* does not; independent claims 1, 6, 8, and 10 do not require the buttress threads or split post shown in Figure 75, nor does the specification say either is critical. POR at 56–57. Petitioner’s later obviousness analysis confirms the split post is not critical—

Ground 3’s proposed Bernhard-Poovey-Gracco combination does not have it. Pet. at 54–78.

Second, the “permissive language” identified by the Board in *Gillette* and discussed in relation to *Medtronic* is just like the permissive language in the specification of the ’992 Patent. In *Gillette*, the Board identified the “permissive language with respect to locating the opposed legs off the cartridge,” as including the sentence: “*However, this does not exclude an additional point of separation, pivoting and/or articulation in connection with blade cartridge 14 described in the present disclosure.*” *Gillette*, PGR2022-00030, Paper 31, 30–31 (emphasis in original). In *Gillette*, the Board further noted that in *Medtronic*, the Board’s finding of adequate written description was upheld, despite the challenged claims not including “‘the precise location of side openings’ on a catheter.” *Id.*, 34 (quoting *Medtronic Inc. v. Teleflex Innovations, S.A.R.L.*, 69 F.4th 1341, 1349–51 (Fed. Cir. 2021)). The Board further noted the permissive language in the specification was “that ‘[t]he rigid portion *may* include a cutout portion [i.e., a side opening] and a full circumference portion.’” *Id.*, 34 (same).

Here, like in *Gillette* and *Medtronic*, SDC has repeatedly identified permissive language in the ’992 specification, including (but not limited to):

- “Furthermore, the particular features, structures, or characteristics *may be combined in any suitable manner in one or more*

embodiments without limitation.” ’992 Patent, 7:67–8:3; *see also*

POR at 43; 2 Leinsing ¶ 148.

- “The term “or” as used herein *is to be interpreted as an inclusive or meaning any one or any combination.*” *Id.*, 8:3–5; *see also* POPR at 38; 1 Leinsing ¶ 118.
- “Therefore, “A, B or C” *means any of the following:* “A; B; C; A and B; A and C; B and C; A, B and C”. *An exception to this definition will occur only when* a combination of elements, functions, steps or acts *are in some way inherently mutually exclusive.*” *Id.*, 8:5–9; *see also* POPR at 38; 1 Leinsing ¶ 118.
- “For example, as shown in FIG. 75 an alignment fastener post 39 *may contain* a separable threaded or serrated portion 40 that engages the screw threads in the abutment for pick-up, but that will release with axial force after. FIG. 75 shows a temporary fastener 190 with a head 42 portion and an attachment post portion 39.” *Id.*, 23:10–14; *see also* POPR at 38; 1 Leinsing ¶ 97; POR at 35; 2 Leinsing ¶¶ 59, 131, 141.
- “The post 39 *may be* subsequently extracted with a separation force in the axial direction. Although *the threads could be* designed to provide engagement with the implant abutment threads through axial motion in the opposite direction to the arrow shown in FIG. 75, rotation to a

design torque on engagement is generally preferred.” *Id.*, 23:23–27; *see also* POPR at 33–34; 1 Leinsing ¶ 98.

- “***Example embodiments of the*** coping and ***post*** being the separable components ***include the following***: FIG. 82 ***shows temporary attachment post 71***, engaging an interference fit of coping 72 at a position above the threaded portion. Metal, metal-reinforced, ceramic, ***and polymer*** copings, ***posts and fasteners may be included in this and other embodiments***. Any of the parts may have surface treatments to control friction or adhesion.” *Id.*, 23:65–24:5; *see also* POR at 40.
- “Although the descriptions above use rotational engagement of the bottom of the post with internal threads of the abutment as a preferred approach, ***this is not meant to be limiting***. Alternate approaches for engaging a temporary attachment post with abutment threads through axial insertion without rotation are considered to be part of this disclosure. For example, the split post bottom structure shown in FIG. 75 which allows axial extraction can also be used for axial insertion. ***Similarly, an interference fit*** between the bottom of the post with the threads ***may also*** be designed to provide sufficient engagement to provide adequate alignment and fixing of the coping for the pick-up

bonding process described earlier.” *Id.*, 24:45–64; *see also* POPR at 34; 1 Leinsing ¶ 117; POR at 44; 2 Leinsing ¶ 150.

- “Various embodiments have been described *to illustrate* the disclosed inventive concepts, *not to limit the invention. Combining inventive elements of one or more of the embodiments* with known materials, components and techniques in dental science to create further embodiments using the inventive concepts *is considered to be part of this disclosure.*” *Id.*, 25:4–10; *see also* POPR at 34.

Thus, the Reply’s attempts to distinguish *Gillette* and *Medtronic* fail because of the numerous examples of permissive language in the specification, which are described verbatim in the Priority Applications. For this reason alone, the Board should find the claims are adequately supported and Kofford is not prior art.

C. The Reply Ignores the Plain Text of the ’992 Patent

Petitioner mischaracterizes Leinsing’s deposition testimony, arguing his demonstrative figures are “not in the specification” and therefore cannot support the claims. *See, e.g.*, Reply at 8 (citing Leinsing Tr. 101:25–102:7); *id.*, 10, 12, 15 (citing Leinsing Tr., 111:4–15, 119:1–14, 125:11–19). Leinsing, however, consistently explained that the textual basis in the specification for each depicted embodiment was the basis for the demonstratives. *See, e.g.*, Leinsing Tr., 111:17–19 (“The patent teaches how you can combine these embodiments to arrive at what

I’ve depicted there.”); *id.*, 111:20–112:13. Leinsing pointed to several supporting aspects of the specification, including the express description that structures may be combined in any suitable manner:

Furthermore, the particular features, structures, or characteristics *may be combined in any suitable manner in one or more embodiments without limitation*. The term “or” as used herein is to be interpreted as an inclusive or *meaning any one or any combination*. Therefore, “A, B or C” means any of the following: “A; B; C; A and B; A and C; B and C; A, B and C”. An exception to this definition will occur only when a combination of elements, functions, steps or acts are in some way inherently mutually exclusive.

’992 Patent, 7:67–8:9; *see also* Leinsing Tr., 30:6–9, 34:18–36:6, 37:1–19, 111:20–112:13, 122:22–123:10, 125:16–126:10 (discussing same).

The Reply further argues the ’992 Patent does not disclose polymer temporary screws. Reply at 16 (“The specification does not describe any threaded temporary screw without a slot that is pulled out because it is made of deformable plastic.”). Petitioner is wrong.

First, the ’992 Patent discloses a threaded temporary screw that is made of deformable plastic or polymer. As Leinsing Tr., 32:10–15 (discussing ’992 Patent, 24:3–5); ’992 Patent, 24:3–5 (“Metal, metal-reinforced, ceramic, *and polymer*

copings, posts and *fasteners may be included in this and other embodiments.*”). It is undisputed that plastics (*i.e.*, polymers) are deformable. Petitioner’s own expert confirmed this point when he testified that a POSA “has a choice of picking properties of the post and its threads,” including “the elasticity of the part,” and that, “combining this with Figure 75, a person of ordinary skill can *create threads with elastic or inelastic deformable threads.*” Brunski Tr., 90:18–91:3.

Second, Leinsing explained that the ’992 Patent describes an interference fit may be used instead of the split post structure shown in Figure 75. Leinsing Tr. 32:25–33:10 (Q. You also mentioned interference fit and you take that teaching from column 24, line 53; is that right? A. That’s correct. It’s specifically calling out Figure 75, it’s talking about the interference fit and how the Figure 75 is not limiting....”). Indeed, the specification describes what is shown: “the split post bottom structure shown in FIG. 75 which allows axial extraction can also be used for axial insertion.” ’992 Patent, 24:51–53. In the next sentence, the ’992 Patent describes an alternative embodiment, noting that “[s]imilarly, *an interference fit between the bottom of the post with the threads* may also be designed to provide sufficient engagement to provide adequate alignment and fixing of the coping for the pick-up bonding process described earlier.” ’992 Patent, 24:53–57.

It is undisputed—the ’992 Patent expressly discloses that the features, structures, or characteristics may be combined in any suitable manner and without

limitation. Petitioner tries to dismiss this plain language with a pithy comment, describing it as a “boilerplate specification statement.” Reply at 10.

Notably, Petitioner does not address the ’992 Patent’s express examples of combinations of A, B or C. Nor does Petitioner address the explicit exception of inherent mutual exclusivity. Instead, Petitioner ignores the plain language of the ’992 Patent and provides no explanation for doing so.

D. The ’992 Patent’s Species are Supported by the Specification

The Board identified the genus claim limitations as differently shaped threads and axial force release. Inst. Dec. at 25–26. Instead of considering the *genus* and its *species*, the Reply confusingly argues each of these limitations separately. *See generally* Reply at 4–16. Petitioner’s Reply contends all species must be expressly illustrated in a single figure, treats asymmetric and serrated as interchangeable, and requires those distinct features to be combined with the asymmetric threads and slotted post shown in Figure 75. *Id.* But the ’992 Patent clearly describes ***at least 4 species*** of the genus identified by the Board.

First, Figure 75 of the ’992 Patent shows a species of the genus because: (1) it depicts a slotted asymmetric temporary screw that has differently shaped threads from a symmetrically shaped thread of a permanent screw, ***and*** (2) it meets the axial force release limitation because applying an axial force would cause an

inward deformation of the open area between the slots, facilitating the release of the temporary screw.

Second, it is undisputed that the '992 specification describes that temporary screws may be metal or a polymer. It is also undisputed that even solid polymers can deform. Since the temporary screws may be made of polymers, Petitioner needs the Board to ignore the '992 Patent's description of various differently shaped threads to succeed. The Board should not.

As discussed below, the '992 Patent describes at least 3 more species. Consequently, Petitioner's arguments fail and Kofford is not prior art.

1. Unslotted Polymer Asymmetric Threads are Supported

The "asymmetric threads or serrations" that can be "designed" to facilitate axial separation disclose a category, not a single point design. The Board noted the '992 Patent's specification states that an alignment fastener post "may contain a separable threaded or serrated portion 40 that engages the screw threads in the abutment for pick-up, but that will release with axial force after." Inst. Dec. at 7. The same passage states that "rotation to a design torque on engagement is generally preferred," confirming Petitioner's "push-in only" read is too narrow. *Id.* The same disclosure appears in the Priority Applications. *See* '942 Application (Ex. 1009), 5; '402 Application (Ex. 1010), 16. Petitioner's expert agreed that a POSA "can *vary the geometries of these thread profiles* and come out with a different

screw with a different thread profile” that “still fits within” the Figure 75 description, including a reverse-buttress profile. Brunski Tr., 46:16–48:5; *see also* 2 Leinsing ¶ 137. Because polymer temporary fasteners deform, the release limitation is met by the asymmetric geometry and deformation without importing a split-post limitation. Leinsing Tr., 124:20–23 (the temporary screw “can properly function (screw in and then release the thread) without any split post structure”).

2. Slotted Polymer Symmetric Threads are Supported

The slot and symmetric threads are features of the same component (temporary screws in Figures 70–75); the express combinability language applies. The slot interrupts and alters the thread pattern geometry, so the resulting pattern is no longer the same uninterrupted pattern as the definitive screw—satisfying “shaped differently.” Petitioner’s contrary argument (that the threads remain “symmetric”) ignores that the claim requires a different thread “pattern” or “profile,” not a different individual thread shape. In this case, the release limitation may be facilitated by the deflecting legs of either a metal or polymer temporary screw.

3. Polymer Interference Fit Threads are Supported

The Reply tries to limit the ’992 Patent’s interference fit to a press-fit. Reply at 11–12 (quoting Ex. 1012, 100) (“This interference-fit embodiment is described as pushed in, not screwed in. This is clear from the preceding sentences, which

describe it as an example of an ‘alternate approach[]’ that uses ‘axial insertion without rotation.’”). But this narrow interpretation is contrary to the ’992 Patent.

For example, the ’992 Patent describes that the “generally preferred” rotation language (col. 23) is not limited to Figure 75’s buttress thread. Indeed, Leinsing testified a polymer post with interference characteristics could be rotated in. Leinsing Tr., 30:19–31:4 (“[T]he major diameter of the screw threads would interfere with the minor diameter of the female threads in the abutment.... [H]ave an effect of being able to be *screwed in place but then also be then axially removable*. That’s what’s *unique and novel* about this patent.”). Leinsing explained that a rotational interference fit could be achieved using polymer deformation with either a straight post or small threads. Leinsing Tr., 120:3–7.

Petitioner’s own expert agreed that an interference-fit post “would have a flat thread profile” that is “different from the thread profile shown in Figure 75,” and that a deformable post inserted into a threaded abutment “would attach with an interference fit.” Brunski Tr., 59:8–17, 62:12–18. That testimony is consistent with the claims, which require the temporary screw to “rotatably engage” the abutment threading to a predetermined torque and then release with a predetermined axial pick-up force. ’992 Patent, 25:56–64; *see also* POR at 24–25.

Thus, the ’992 Patent clearly contemplates a rotational interference fit..

4. The Reply Raises Impermissible New Arguments

The Reply includes new arguments that were not raised in the Petition, are not responsive to the POR, and should not be considered. 37 C.F.R. § 42.23(b). The Petition’s written description challenge argued that the claims were broader than the Figure 75 split-post embodiment; it did not argue that (1) the specification’s interference-fit disclosure is “push-in only,” (2) an interference-fit post cannot be a “screw” with “threads,” or (3) SDC waived any claim-construction response by addressing the Board’s preliminary framing.

The Reply’s “push-in only” reading of the interference-fit passage is new. Reply 8, 11–13, 20. The Petition never argued that the interference-fit disclosure falls outside the claims because it allegedly cannot be screwed into the abutment; it argued only that the Priority Applications supposedly disclosed one relevant split-post structure. *See generally* Pet. at 32–41. Petitioner should not be permitted to reframe the written-description challenge in reply by converting the interference-fit disclosure into an exclusionary claim-scope argument.

Second, the Reply’s assertion that an interference-fit post is not a “screw” with “threads” is likewise new and internally inconsistent. Reply 8, 12–13. Petitioner cannot argue that the claims require rotational screw engagement to exclude the interference-fit embodiment (Reply 8), while also arguing, that a

deformable interference-fit post capable of rotational engagement is not a threaded screw at all (Reply 9).

E. Dependent Claims 7 and 10, Ground 3, and Enablement

Claim 7’s “threads deform” limitation is supported by the same polymer and interference-fit disclosures discussed above, and Petitioner’s expert agreed that, “combining this with Figure 75, a person of ordinary skill can create threads with elastic or inelastic deformable threads.” Brunski Tr., 90:14–91:3. Claim 10’s “different pitch angle” limitation is likewise supported: although Petitioner argues Figures 9 and 75 depict the same diameter and pitch, its expert conceded that the temporary screw “couldn’t fit into the female abutment” if it had the same maximum thread diameter as the definitive screw, confirming a necessarily different profile. Brunski Tr., 121:23–122:17. The prosecution history confirms this point, where Applicant explained that the temporary screw’s asymmetric profile leaves “open space,” “less surface area contact,” and “less material volume” than the definitive screw. Inst. Dec. at 24–25; Ex. 1015, 296–298.

Ground 3 fails for the same reason as Grounds 1 and 2. Petitioner’s anticipation theory depends entirely on Kofford qualifying as prior art—but it does not because the Priority Applications support the claims. Because Kofford is not prior art, its disclosure cannot anticipate claims 7 and 10 (or any other claim), and the Board need not separately resolve Petitioner’s contingent Ground 3 argument.

Finally, the Petition’s enablement theory adds nothing. Petitioner does not dispute that enablement and written description rise and fall together, and it offers no separate *Wands* analysis. Because the specification describes the claimed species, it also enables them. That is, a POSA could make the disclosed embodiments without undue experimentation, as Petitioner’s expert confirmed that polymer or silicone temporary screws with the necessary threading could be made. Brunski Tr., 90:18–91:3, 191:15–192:4.

Accordingly, Petitioner’s attempt to invalidate the claims based on Patent Owner’s own priority application fails for multiple reasons.

V. GROUNDS 4–6 FAIL TO ESTABLISH OBVIOUSNESS

Grounds 4–6 fail because Petitioner’s obviousness case lacks the central claim limitation: a specific temporary screw having a thread profile that is *different* from the definitive screw while still *engaging* the abutment’s threads for temporary alignment and providing *axial release*. None of Petitioner’s proposed combinations—Bernhard with Poovey and Gracco (Ground 4), adding Derey (Ground 5), and adding Ruetschi (Ground 6)—supply any teaching or suggestion of, or reason to adopt, a mismatched temporary-screw thread profile. Bernhard and Poovey both use a *matching threaded engagement*, Gracco uses self-tapping screws that create their own *matching female threads*, resulting in a *matching*

threaded engagement, and Derey is a non-threaded push/pull split-post connector. Ruetschi is merely a torque-limiting tool.

Petitioner's references teach only screws that engage with matching female threads. Petitioner's two references for a temporary screw—Poovey and Gracco—disclose matching male and female threads. Poovey achieves axial removal only with “flexible” “heat labile plastic or silicone” threads. Inst. Dec. at 17. Poovey does not disclose or suggest mating plastic or silicone threads with non-matching female threads. Gracco achieves axial removal only by destruction of the female threads cut into the synthetic bone (thus rendering the female threads unusable for later rotation engagement with a permanent screw). And none of Petitioner's references suggest any engagement between male threads that do not match female threads.

The Reply confirms the Petition reconstructs the claimed mismatch only through impermissible hindsight.

A. Objective Indicia of Non-Obviousness

The Board need not reach objective indicia because Petitioner failed to establish a *prima facie* case of obviousness. Petitioner's nexus criticisms do not cure the missing teachings and lack of motivation to combine in each of the proposed combinations, and the claimed invention solved a longstanding need in dental conversion by allowing temporary alignment with sufficient retention while

still permitting axial removal without damaging the abutment threads. *See* POR at 74–78.

B. None of the Prior Art Discloses or Suggests Using a Temporary Screw That is Differently Shaped From a Permanent Screw

None of Petitioner’s references teach the claimed mismatched-thread arrangement. Gracco concerns “self-tapping and self-drilling miniscrews” tested in synthetic bone, and Petitioner’s own expert agreed that “because they’re self-tapping by definition they match the threading of the material around them,” so Gracco merely measured the force needed to “*fracture the material around them.*” Brunski Tr., 208:24–209:22; Inst. Dec. at 18. That is the opposite of the claimed invention, which requires a temporary screw that engages—without fracturing or degrading—the existing metal abutment threads that must remain intact for the definitive screw. Poovey likewise teaches a temporary screw with “flexible” threads that is threaded into the bore and pulled out without being unscrewed. Pet. 16. Neither reference addresses a temporary screw whose thread profile is shaped differently than female abutment threads.

C. There is No Motivation to Combine

There is no motivation to combine the references as Petitioner proposes. Poovey already achieves axial release using a screw with the same threads as the definitive screw, merely made of flexible material. As Petitioner’s expert conceded, Poovey takes “a screw that’s *exactly the same dimensions* as the definitive screw”

and releases it “without any ... mismatch between the screw threading.” Brunski Tr., 193:24–194:11. A POSA satisfied with Poovey’s matched-thread solution had no motivation to turn to Gracco’s rigid, self-tapping bone-screw study, which addresses a different problem in a different context. As Leinsing explained, there is “no motivation or issue to be solved with the combination of Poovy and Bernhard to then now look at Gracco.” Leinsing Tr., 167:21–23. Petitioner’s rejoinder that reducing pull-out force is “a matter of degree” and that one reference’s solving a problem does not negate motivation (Reply at 24–26) misses the point. The question is not the degree of force reduction but whether any reference teaches the claimed engagement between differently shaped male temporary screws and female abutment threads, and none does.

1. No POSA Would Read Derey and Look to Gracco

No POSA would read Derey and look to Gracco to reach the claims. Derey teaches a split-post connector with “deflecting legs” that “release their grip and detach when the impression is removed,” while Gracco concerns thread-shape effects for self-tapping miniscrews in synthetic bone. Pet. at 18. Combining them does not yield a rotatable male-threaded temporary screw torqued into the existing female abutment threads with a mismatched profile; it only highlights the hindsight in Petitioner’s approach.

2. Gracco's Matching Buttress Threads Do Not Supply the Claimed Different Threads Limitation

Even if a POSA modified the Bernhard/Poovey temporary screw with Gracco's thread geometry, the result would still be matched threading, not the claimed mismatch. Gracco's experiment altered "thread shape while maintaining all other characteristics," including pitch, length, and diameter; it therefore teaches nothing about reduced diameter, flexible materials, empty space, or engagement with female abutment threads. Inst. Dec. at 18. Petitioner's proposed modification thus lacks the specific teaching needed to arrive at the claimed temporary screw.

3. The Reply Does Not Deny Using Impermissible Hindsight

The Reply does not deny that Petitioner's path depends on hindsight. It starts with the '992 Patent's insight—using a temporary screw with a different thread profile to provide alignment with enough retention for pick-up while allowing axial release—and then searches the prior art for components to reconstruct that result. The Petition itself describes the claimed temporary screw as having "a different thread pattern than the permanent screw" while being "threaded into the abutment but pulled out without being unscrewed." Pet. at 2. Mr. Leinsing summarized the gap: "none of these combinations can match because none of them are contemplating making all this work with a male thread that is different from the female thread." Leinsing Tr., 169:2–6.

VI. CONCLUSION

For the reasons stated above, the Board should find Petitioner failed to carry its burden of proving unpatentability as to all grounds.

Respectfully submitted,

Dated: July 22, 2026

By: /s/ Kelsey I. Nix
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CERTIFICATE OF COMPLIANCE

Pursuant to 37 C.F.R. § 42.24(d), the undersigned certifies that the foregoing Patent Owner's Sur-Reply contains, as measured by the word-processing system used to prepare this paper, 5,562 words, which is within the limit set in 37 C.F.R. § 42.24(b)(2). This word count does not include the items excluded by 37 C.F.R. § 42.24.

Respectfully submitted,

Dated: July 22, 2026

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CERTIFICATE OF SERVICE

I hereby certify that on July 22, 2026, I caused a true and correct copy of the foregoing Patent Owner's Sur-Reply to be served via email on Petitioner at the following addresses:

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